

MEDIA CONSTRUCTIONS OF SUSTAINABILITY

FOOD, WATER, AND AGRICULTURE

A Media Literacy Curriculum Kit for High School and College



Media Constructions of Sustainability: Food, Water and Agriculture

by
Sox Sperry



www.projectlooksharp.org

Providing materials, training, and support to help teachers prepare students
for life in today's media-saturated world.



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ISBN: 978-0-9844579-4-6
Library of Congress Control Number: 2014938727



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Project Look Sharp is a not-for-profit, mission driven initiative committed to providing teachers with the training and materials they need to integrate media literacy, critical thinking and 21st century learning into the curriculum.

Project Look Sharp provides staff development workshops and consulting.

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About The Kit

This kit explores how sustainability has been presented in the media with a particular focus on issues related to food, water and agriculture. Each of the nineteen lessons integrates media literacy and critical thinking into lessons about different aspect of sustainability. Constant themes throughout the kit include social justice, climate change, energy, economics and unintended consequences. The subject areas covered include environmental science, agronomy, anthropology, sociology, economics, journalism and the creative arts among many others. The kit will be of particular interest to high school environmental science and community sustainability educators, college-level agronomy and social studies teachers, and media studies professors.

All materials can be accessed for free on our website and are also available through mobile non-Internet based versions viewed on a digital media device. Digital devices include a master PDF as well as all specified media within lesson folders purchased from the Ithaca College Bookstore. Access the bookstore through our website.

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Media Constructions of Sustainability: Food, Water and Agriculture

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Major Funding Provided by:
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The author wants to thank Jim Koplin and John Edgerton for their early inspiration in the creation of this kit and for their subsequent roles as advisors during kit development. Deep appreciation to Faith Rogow who always knows just the right question to ask in order to help students develop good habits of inquiry as media consumers. Thanks to Sherrie Szeto and Cyndy Scheibe for their essential behind the scenes roles in keeping this project on track from start to finish. Gratitude to the four interns who were instrumental in lesson development: Annie Bunyavadhana, Drea Kasianchuk, Agata Kubik and Becky Webster. Finally, as always, thanks to Lisa Tsetse and Chris Sperry. Lisa was patient and supportive throughout the creation of this kit. Chris was instrumental in conceiving, designing, editing and in some cases writing this kit. It would not be in your hands without his constant and wise stewardship.

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INTRODUCTION

Overview, Objectives, Learning Standards & Accessing Materials

Overview

This kit provides high school teachers, college faculty and community educators with the materials needed to engage students in a dynamic and constructivist process of learning how sustainability has been presented in the media with a particular focus on issues related to food, water and agriculture. Each lesson integrates media literacy and critical thinking with a content focus on a particular aspect of sustainability. Themes throughout the kit include social justice, climate change, energy, economics and unintended consequences of human behaviors and technological advances. The subject areas covered include environmental science, agronomy, anthropology, sociology, economics, journalism and the creative arts among many others.

The kit contains nineteen lessons, each with a unique pedagogical structure and content concern. The forthcoming companion kit, *Media Constructions of Sustainability in the Finger Lakes* will provide supplemental materials and models for adapting a sustainability curriculum to any US region.

Objectives

- Students will learn key information about the sustainability of food, water and agriculture and reflect on the sourcing, accuracy, credibility and biases of their knowledge and understandings.
- Students will identify the different ways in which sustainability is defined and envisioned and what views, values and motives underlie these definitions and visions.

- Students will analyze and evaluate a variety of perspectives on how our current economic, social, political, industrial and environmental systems are or are not sustainable.
- Students will be trained to ask and answer key questions about authorship, purpose, content, techniques, interpretations, context, and credibility when analyzing media messages.
- Students will analyze and evaluate diverse historic and current models for sustainability of food, water and agriculture, including reflections on social justice, global warming, energy use and unintended consequences.
- Students will engage in complex, reflective, open-minded analysis, and use skeptical critical thinking to develop reading, listening and visual decoding skills and attitudes that support life-long democratic citizenship.
- Students will take well-reasoned and self-reflective positions on controversial issues and consider actions that are consistent with their beliefs and knowledge about sustainability.

Learning Standards

This kit addresses specific standards from the following:

National Science Education Standards

Science in Personal and Social Perspectives: population growth, natural resources, environmental quality, natural and human-induced hazards, science and technology in local national and global challenges.

History and Nature of Science: science as human endeavor, nature of scientific knowledge, historical perspectives.

Science as Inquiry: Understandings about scientific inquiry.

Life science: Interdependence of organisms, behavior of organisms.

Unifying Concepts and Processes: Evidence, models and explanation.

National Council for the Social Studies:

Social studies programs should include experiences that provide for the study of:

- culture and cultural diversity;
- the ways human beings view themselves in and over time;
- people, places, and environments;
- individual development and identity;
- interactions among individuals, groups, and institutions;
- how people create and change structures of power, authority, and governance;
- global connections and interdependence and
- the ideals, principles, and practices of citizenship in a democratic republic.

National Council of Teachers of English:

- to apply a wide range of strategies to comprehend, interpret, evaluate, and appreciate print and non-print texts and
- to apply knowledge of media techniques, figurative language, and genre to critique and discuss print and non-print texts.

This kit also addresses many of the core learning skills that have been identified as essential skills for the **21st Century Literacy**, specifically:

- Information and media literacy skills: analyzing, accessing, managing, integrating, and evaluating information in a variety of forms and media.
- Critical thinking and systems thinking: exercising sound reasoning in understanding and making complex choices, understanding the connections, conflict and change among systems.

Finally, the activities foster group discussion skills, and can be easily linked to related lessons in other disciplines such as art, economics or multicultural studies.

Access Materials:

Slides, Video, Audio and PDFs

All materials for this kit are available for free at **www.projectlooksharp.org**. Media materials include the PowerPoint slideshows, video and audio clips, and all PDF materials. Educators will need access to a computer and digital projector or large monitor so that the class can identify key details in each slide and video. Teachers may want to print and review the lesson and make copies of student readings and assessments prior to instruction.

In some lessons, students will be asked to view media documents individually or in small groups in preparation for a class presentation. In these instances, a note will appear in the directions of the **Teacher Guide** explaining: *To access student materials, go to the **Student Materials** section from the Project Look Sharp homepage - www.projectlooksharp.org.*

While the kits are available for free online, mobile non-Internet based versions are also available with the purchase of a digital media device. Devices include a master PDF of the kit and all specified media within lesson folders. This device can be purchased through the Ithaca College Bookstore. Access the bookstore through our website:

www.projectlooksharp.org

INTRODUCTION

How to Use these Materials

Lesson Organization

The lessons in this kit have been organized within the following framework:

Lesson 1 uses interactive PowerPoint slides to raise questions and assess prior knowledge about sustainability and critical thinking before beginning either a single lesson or the entire curriculum.

Lesson 2 explores visions of the future.

Lessons 3 focuses on definitions of sustainability and systems thinking.

Lessons 4-5 teaches students to understand and implement a valid and reliable content analysis study of media messages about sustainability. The research project in Lesson 5 could be used as a culminating assessment for the entire curriculum.

Lessons 6-9 are expansive lessons exploring the question, "Are our current systems sustainable?"

Lessons 10-18 are shorter case studies of specific topics relating food, water and agriculture.

Lesson 19 deals with transition movements and can be used as a culminating assessment for the entire curriculum.

Lesson Selection

Although some teachers may elect to teach this curriculum in its entirety, most will select certain lessons that are best suited to their teaching objectives. We encourage teachers to carefully review the **Table of Contents**, **Lesson Plans** and the **Thematic Listing** in order to determine which lessons might work best for their individual purpose. Certain themes run throughout this curriculum – social justice, climate change, energy, economics and unintended consequences of human behavior and technology.

We encourage teachers to introduce students to the concept of systems thinking (Lesson 3) as a way to integrate these concepts throughout their teaching of this kit.

Degree of Lesson Complexity

Teachers may want to use the lessons in this kit based on their degree of complexity regarding lesson design and the level of verbal and analytical skills required for comprehension. These are subjective determinations, of course; however, teachers should familiarize themselves with all lessons and consider adding, deleting, or editing lesson elements in order to match the capacities of their class. Occasionally, alternative suggestions are written in bold notes in the **Teacher Guide**.

Most Complex Lessons assume prior experience with media constructions and decoding. These lessons are challenging in the amount of independent research, detailed analysis, advanced vocabulary, conceptual rigor and/or multitask elements therein. These lessons are recommended for AP high school and college-level students.

Most Complex Lessons

Lesson 5: Student Media Research Project on Sustainability

Lesson 6: Voices Role Play

Lesson 8: Sustainable Economics

Less Complex Lessons assume no prior experience with media constructions and decoding, have fewer elements and require no independent research. These lessons might be considered for less advanced high school students.

Less Complex Lessons

Lesson 11: The Value of Water

Lesson 12: Who Owns the Water?

Lesson 14: BP Oil & Gulf Fisheries

Other lessons within this curriculum vary in complexity within this range.

Getting Started

It might be worthwhile to start each lesson by asking students to stop and reflect on where their current ideas about a particular aspect of food, water and agriculture come from and whether or not their sources are credible, complete or fair. For example, prior to beginning Lesson 18: Biofuels, you might ask, "What do you know about ethanol?" "Where did you get that information?" "Were the sources of your knowledge reliable?" "How do you know?" Another way to start each lesson is to use the self-assessment in Lesson 1. Lesson 1 is designed to introduce the entire curriculum, introduce a selected lesson (from 6-19), or review a selected lesson (from 6-19). For more information on using Lesson 1 to facilitate initial discussions, see the **Lesson Plan** and **Teacher Guide**.

In lessons where students are asked to work individually or in pairs on media decodings, it might be helpful to begin with a full-class decoding (see Lesson 4). Your introduction to media decoding should be open ended, often asking many more questions than those included on the worksheets. For some lessons, teachers may want to begin the decoding process with a general question such as, "What do you notice?" or "What are we looking at here?" and then proceed to a deeper analysis before providing background information. Such general questions can help the teacher discover what students know about the topic or media form prior to the decoding and also set the stage for student participation in constructivist dialogue about what they see and what they know.

In constructivist decoding practice, teachers typically pose a series of complex questions rather than providing answers or analysis. For example, in discussing the possible source of a particular media document, teachers should accept all evidence-based answers while also providing the correct answer. Teachers should try to affirm evidence-based answers (e.g. "I can see why you would think that") while probing for multiple interpretations (e.g. "Does anyone have a different reading?").

Curriculum Elements

Each lesson has a one or two-page **Lesson Plan** that includes objectives, vocabulary, media forms, materials, time and lesson procedures. The **Teacher Guide** begins with a **Lesson Introduction** that introduces the topic and lesson objectives to the students. Step-by-step lesson procedures are then detailed.

Most lessons include probe **Media Sample Questions & Answers** that ask students to apply their knowledge of science, history and media in each slide. **Possible Answers** are included to model evidence-based responses that address key scientific, historical and media literacy concepts and information. However, there is rarely one right answer to any of these interpretative questions, and teachers should encourage multiple readings and a diversity of responses as long as students present evidence to back up their interpretations. It is important that students recognize that all people do not interpret media messages in the same way. It is also important to encourage students to begin to ask their own media literacy questions, especially as they become more familiar with this form of critical analysis.

In some instances, lessons also include **Additional Information** that adds information from the media document(s), including text that may be too small to read when projected or additional details that the teacher may choose to share during or after the lesson. The **Additional Information** section often includes brief excerpts from text-based documents that teachers may read aloud or copy for student analysis.

Further Questions and **Extended Activities** prompt students to move beyond media-based analysis to discuss issues, make personal connections, conduct follow-up research or take social action. Teachers can add their own questions to these suggestions as a means to encourage holistic understanding. The documents provide an opportunity for teachers to probe into fundamental questions about how we come to know about food, water and agriculture and how sustainability themes such as social justice, climate change, energy and economics intersect with one another.

Connections link lessons with abbreviated references to specific media documents within other lessons. Additionally, this curriculum features a **Thematic Listing** in the introduction that includes broad thematic categories with listings of specific documents or lessons that explore the outlined themes or issues.

Accessing Materials

While many document decodings within this curriculum occur in the classroom, some lessons call for students or small groups to independently analyze media documents for in-class presentations followed by a full-class discussion. The **Teacher Guide** notes describes how students can access the media documents on the Project Look Sharp home page. For more information about accessing the **Student Materials** section, please see **Overview, Objectives, Learning Standards & Accessing Materials** in the curriculum introduction.

Assessments

There are two lessons that might be considered as possible final assessments for those teachers electing to teach the entire curriculum. These are lesson 5, *Student Media Research Project on Sustainability*, and lesson 19, *Transitioning to a Sustainable Future*.

Time and Coverage

The time it takes to deliver these lessons will vary depending upon the knowledge of the students, the experience of the teacher with this form and these materials, the amount of additional information delivered and further questions asked, and how many of the documents the teacher uses. Although teachers may sometimes need to edit the number of documents used, they should avoid the temptation to sacrifice student interaction for content coverage. The power of the lessons emerge when students actively apply their knowledge, identify evidence, articulate their interpretations, analyze authorship and point of view, and discuss meaningful issues.

Do No Harm

One of the key requirements of constructivist pedagogy is to pay deep and constant attention to healing and harmful power of words and images. The issues raised in this curriculum can provoke powerful emotions from students (e.g. responses to the consequences of climate change). It is essential that the teacher monitors the emotional climate of the class and be willing to ask, "How are you feeling?" It is essential that the teacher create a setting in which personal sharing of feelings will not be obstructed by laughter, side comments or crosstalk that can hurt individuals and make it harder to discuss the sensitive issues that are at the core of this kit.

INTRODUCTION

Media Literacy and Democratic Citizenship

The founders of the United States articulated the need for a literate citizenship as core to the development of a deep and enduring democracy. We live in an age when the most influential messages about pressing social issues and events are delivered through mass media, such as television, magazines and the Internet. Most students use the Internet as their primary source of information, yet few have any formal training in assessing the credibility of information in the media. It is essential to the success of our democracy that young people consciously and consistently analyze and evaluate media messages. They need to be taught to seek out current, accurate, and credible sources of information; they need to understand the influence of media messages on their understanding of the world; and they need training in identifying and using various techniques for communicating messages in different media forms. Without these critical skills, we risk losing the diversity and freedom of thought that underpins a culture of true democracy.

Collective Reading of Media Messages

This curriculum is based on the classroom practice of collective reading, in which the teacher leads the class through the process of decoding images, sounds and text as a way of developing a range of critical thinking skills while teaching core knowledge. This constructivist approach encourages the development of moral reasoning as students clarify their own interpretations, listen to the analyses of their peers, and discuss ethical issues. Decoding of the documents in this curriculum will help train students to distinguish fact from opinion, analyze point of view and

identify bias, interpret historical documents, and use evidence to back up a thesis. The classroom decoding process is particularly effective in involving students who rarely share their opinions about print-based material, including students with reading disabilities, visual learners, and students for whom English is a second language. The teacher should consider calling on students or going around the room to ensure participation by all students in the collective reading process.

Encouraging Multiple Readings

Although the Teacher Guides for each lesson include possible answers to the questions, the teacher should encourage multiple readings and a diversity of responses for most of the questions posed. It is important that students give evidence in the document to explain their conclusions. Occasionally a question has only one right answer (e.g., “who created this video?”), and students should learn to distinguish between objective and subjective questions. The suggested answers given in the scripts are intended to reflect typical responses that address key scientific, historical and media literacy concepts and information. However, it is important that students recognize that all people do not interpret media messages the same way. Depending upon each reader’s background, including life experience, age, gender, race, culture, or political views, he or she may have very different interpretations of a particular text. The collective reading experience provides the opportunity to explore these differences and discuss the important concept that readers interpret messages through their own lenses.

Reading Bias

A major theme of these materials is the recognition that all media messages come from a particular point of view and have a bias that reflects the intent and perspective of the producer and sponsor. With these materials, teachers can train students to recognize bias and point of view. The teacher should encourage students to ask critical questions about any media messages encountered inside or outside the classroom using the Key Questions To Ask When Analyzing Media Messages found at www.projectlooksharp.org.

Bias in this Curriculum and in the Classroom

This series of lessons, like all media, also has a point of view and a bias. As teachers use the lessons, they may identify opinionated language, selective facts, missing information, and many other subjective decisions that went into constructing this view of sustainability. The same questions the curriculum applies to other documents can be applied to this media construction: Who produced this curriculum for what purpose and what is its bias? Teachers and students could and should be asking critical questions about the editorial choices that went into constructing these lessons. For instance, why did we choose to focus on certain topics, but not others? And, what is your evidence for these conclusions? When using these materials teachers will make their own decisions of what to include and to edit, what questions to use and what issues to avoid.

All of these decisions, both by the creators and users of the curriculum, will influence the view of history that students receive. Teachers should encourage students to thoughtfully analyze and discuss the stories, the perspectives, and the biases celebrated and criticized within our own classrooms. Those skills and practices are core to an educated democratic citizenship.

Additional Resources

For more information about media decoding download these documents from the project Look Sharp website:

- ***Key Questions to Ask When Analyzing Media Messages***
- ***Tips for Media Decoding***
- ***Core Principles for Media Literacy Education***

Fair Use of Media Documents

The classroom critique of political and cultural documents (e.g. paintings, TV news clips, excerpts from films, web pages) is essential to the development of core literacy skills in our media saturated democracy. To enable educators to fulfill the mission of teaching these core civic objectives, Project Look Sharp has created media literacy integration kits using a variety of different media documents for critical analysis in the classroom. Project Look Sharp provides these media documents and lessons free of charge for the purpose of commentary, criticism, and education as provided for by the fair use clause of the US Copyright Act of 1976. The documents in this curriculum are presented for the purpose of direct critique and are solely to be used in an educational setting.

For more information about fair use in Media Literacy Education, go to the Media Education Lab at Temple University at www.mediaeducationlab.com.

INTRODUCTION

Thematic Listing

Teachers may want to arrange particular documents into their own thematic lessons. We have listed below thirteen possible groupings with the media documents and lessons that relate to each theme.

Social Justice: documents that underscore how sustainability is connected to social justice

Economics: documents having to do with economic systems, theories and tactics

Seeds and Crops: documents related to seed and crop preservation and development

Organic & Conventional Farming: documents pertaining to farming techniques

Urban Agriculture: documents about efforts to grow food in urban settings

Food Security: documents concerning the security or insecurity of food systems

Water Rights: documents relating to the control of water supplies

Fossil Fuels: documents exploring connections between fuels, agriculture, food and water

Climate Change: documents tying sustainability issues in food & water to climate change

Unintended Consequences: documents reviewing unexpected results of technology

Advertising: documents that reveal the connection between sustainability and advertising

News Reporting: documents that examine media news reports related to sustainability

Webpage Analysis: documents decoding webpage messages and techniques

SOCIAL JUSTICE:

Documents that underscore how sustainability is connected to social justice

L2	Film 4	<i>Sleep Dealer</i>	Film
L3	Slides 1-3	Definitions	Text and diagrams
L6	Voice 7	Erika Allen	Text
L6	Voice 11	Malik Yakini	Text
L7	Slide 11	"Boycott Lettuce and Grapes"	United Farm Workers poster
L7	Song 3	"Pastures of Plenty"	Song
L8	Reading 3	"Other Economies are Possible"	Magazine article
L10	Document 1	"Roots of Change"	Web page
L10	Video 3	<i>Homecoming</i>	Film
L11	Document 4	<i>Thirst: Fighting the Corporate Theft...</i>	Book
L12	Video 2	"Water Rights March"	Internet video
L12	Video 3	<i>The Milagro Beanfield War</i>	Film
L14	Video 3	"CFN Visits the Gulf"	Internet video
L17	Document 15	"What is 'Real Food'?"	Web page
L19	Documents 15, 16, 26, 29, 47	PowerPoint slides	Various images

ECONOMICS			
Documents having to do with economic systems, theories, and tactics			
L2	Novel 4	<i>Woman on the Edge of Time</i>	Science fiction literature
L3	Slides 3-4	Definitions	Text and diagrams
L4	Document 4	<i>US News & World Report</i>	Magazine cover
L6	Voice 6	Wendell Berry	Text
L6	Voice 7	Erika Allen	Text
L6	Voice 8	John Hantz	Text
L6	Debate 2	"America's Farmers Economy"	Internet video
L6	Debate 3	"Good Food"	Internet video
L7	Video 3	<i>Dirt! The Movie</i>	Film
L7	Song 1	"The Farmer is the Man"	Song
L8	Entire lesson	Sustainable Economics	Text
L9	Reading 4	"Community Focus"	Text
L11	Document 3	<i>The Business of Water</i>	Report cover and table of contents
L11	Document 5	"Water: A Challenge, Our Business, Complete Control of the Water Cycle"	Brochure and table of contents
L14	Videos 1-5	Various titles	Film, Internet video
L17	Document 6	"Rod Dreher: Why Does a Salad..."	Web page
L17	Document 7	"Eating Well on \$66.88 a Week"	Web page
L19	Documents 3, 4, 5, 6	PowerPoint slides	Images
SEEDS & CROPS:			
Documents related to seed and crop preservation and development			
L2	Novel 2	<i>Parable of the Sower</i>	Science fiction literature
L6	Voice 1	Wes Jackson	Text
L6	Voice 2	Monsanto	Text
L6	Voice 2	Kip Cullers	Text
L6	Video 1	"Too Much Controversy over Genetically Modified Foods"	Internet video
L6	Slides 2-3	<i>Next Big Future</i>	Web page
L9	Reading 1	"Farmers Without Borders"	Text
L9	Reading 3	"Fact Sheet: USAID-supported Scientist Wins World Food Prize"	Text
L10	Video 2	"Biocultural Crops and Traditional Farming"	Internet video
L15	Entire lesson	Who Stewards Seeds?	Video
L16	Entire lesson	Green Revolution	Text
L18	Entire lesson	Biofuels	Text and video
L19	Documents 36, 37, 39, 40	PowerPoint slides	Images

ORGANIC & CONVENTIONAL FARMING: Documents pertaining to farming techniques			
L6	Voice 1	Wes Jackson	Text
L6	Voice 2	Monsanto	Text
L6	Voice 5	Kip Cullers	Text
L6	Voice 6	Wendell Berry	Text
L6	Voice 7	Erika Allen	Text
L6	Voice 9	Bob Goldberg	Text
L6	Voice 10	Sandra Steingraber	Text
L6	Video 3	"Good Food"	Internet video
L6	Slides 6-7	"Organic vs. Local?..."	Web page
L6	Video 3	"Home Town Farms..."	Internet video
L6	Video 4	"Norman Borlaug on Penn & Teller BS"	Internet video
L7	Entire lesson	Farming, Community & Sustainability	Web page, video, song
L9	Video 1	"Detroit Urban Agriculture..."	Internet video
L10	Entire lesson	Sustainable Cultures	Web pages and video
L15	Entire lesson	Who Stewards Seeds?	Video
L16	Entire lesson	Green Revolution	Text
L17	Document 14	"Beyond USDA Organic..."	Web page
L19	Documents 1, 2, 19, 37	PowerPoint slides	Images
URBAN AGRICULTURE: Documents about efforts to grow food in urban settings			
L6	Voice 4	Bill McKibben	Text
L6	Voice 7	Erika Allen	Text
L6	Voice 8	John Hantz	Text
L6	Voice 11	Malik Yakini	Text
L6	Video 4	"Home Town Farms..."	Internet video
L6	Slides 8-9	"Garden Resource Program Collaborative"	Web page
L6	Video 6	"The Growing Solution to Urban Food Deserts"	Internet video
L7	Document 14	<i>City Farmer News</i>	Web page
L7	Video 5	<i>The Garden</i>	Film
L19	Documents 9, 10	PowerPoint slides	Images
FOOD SECURITY: Documents concerning the security or insecurity of food systems			
L2	Video 1	"Two"	Television episode
L2	Video 2	<i>Soylent Green</i>	Film
L3	Slide 1	Definition	Text and diagrams
L4	Document 5	<i>The New Yorker</i>	Magazine cover
L6	Voice 7	Erika Allen	Text
L6	Voice 8	John Hantz	Text

L6	Voice 9	Bob Goldberg	Text
L6	Voice 11	Malik Yakini	Text
L6	Voice 12	ConAgra Foundation	Text
L6	Video 4	"Home Town Farms..."	Internet video
L6	Video 5	"Norman Borlaug on Penn & Teller BS"	Internet video
L6	Slides 8-9	"Garden Resource Program Collaborative"	Web page
L6	Video 6	"The Growing Solution to Urban Food Deserts"	Internet video
L6	Slides 12-13	"Navigating Export Success"	Report
L7	Document 2	"Crops in Peace and War"	Cover, USDA publication
L7	Document 5	"Will There Be Enough Food?"	Cover, USDA publication
L9	Entire lesson	Food Security	Video and text
L14	Videos 1-5	BP Oil & Gulf Fisheries	Internet video
L15	Video 4	"Seeds and Sustainability..."	Internet video
L15	Video 5	"Richard Sithole Discusses BT Maize"	Internet video
L16	Entire lesson	Green Revolution	Text
L19	Documents 15, 16, 32, 36	PowerPoint slides	Images
WATER RIGHTS: Documents relating to the control of water supplies			
L2	Video 4	<i>Sleep Dealer</i>	Film
L2	Novel 3	<i>The Fifth Sacred Thing</i>	Science fiction literature
L6	Voice 13	United Water	Text
L6	Voice 14	Vandana Shiva	Text
L6	Video 7	"Flow – L6"	Film
L6	Slides 14-15	"Environmental Sustainability"	Web page
L11	Entire lesson	The Value of Water	Book covers and table of contents
L12	Entire lesson	Who Owns the Water?	Video
L13	Entire lesson	Consumerism & Sustainability	Video
L19	Documents 13, 14, 41, 42, 43, 44	PowerPoint slides	Images
FOSSIL FUELS: Documents exploring connections between fuels, agriculture, food and water			
L2	Song 1	"Sustainability"	Song
L3	Document 1	Definition	Text and diagrams
L6	Voice 3	Stephen Budiansky	Text
L6	Video 3	"Good Food"	Internet video
L6	Video 4	"Home Town Farms..."	Video
L8	Reading 1	"Theses on Sustainability..."	Text
L9	Video 3	"Running Out: The Global Food Crisis"	Internet video
L9	Video 4	"Global Food Security..."	Internet video
L14	Videos 1-5	BP Oil & Gulf Fisheries	Internet video

L18	Entire lesson	Biofuels	Text and video
L19	Document 40	PowerPoint	Image
CLIMATE CHANGE: Documents tying sustainability issues in food & water to climate change			
L3	Document 1	Definition	Text and diagrams
L4	Document 1	<i>Time Magazine</i> "How to Save the Earth"	Magazine cover
L4	Document 5	<i>The Economist</i> "Cleaning up"	Magazine cover
L6	Voice 4	Bill McKibben	Text
L6	Video 2	"Why Eat Local?"	Internet video
L6	Slides 4-5	<i>Permaculture – Inspiration for Sustainable Living</i>	Magazine cover
L9	Reading 1	"Farmers Without Borders"	Text
L16	Reading 3	"The Man Who Defused the 'Population Bomb'"	Text
L16	Reading 4	"Against the Grain on Norman Borlaugh"	Text
L17	Document 8	"What organizers do to eliminate..."	Web page
L19	Documents 39, 40	PowerPoint slides	Images
UNINTENDED CONSEQUENCES: Documents reviewing unexpected results of technology			
L2	Video 3	"Survival of the Species"	Television episode
L2	Song 4	"Throw Away that Shad Net"	Song
L2	Novel 1	<i>Mara and Dann</i>	Science fiction literature
L6	Voice 3	Stephen Budiansky	Text
L6	Voice 4	Bill McKibben	Text
L6	Voice 6	Wendell Berry	Text
L6	Voice 10	Sandra Steingraber	Text
L13	Video 2	"The Story of Stuff – 1"	Film
L14	Entire lesson	BP Oil & Gulf Fisheries	Text and video
L15	Video 6	"Genetic Engineering..."	Internet video
L16	Entire lesson	Green Revolution	Text
L18	Video 2	"Biofuels Disaster for Food, People..."	Internet video
L18	Video 4	"Ethanol is Evil...E85 is bad"	Internet video
L18	Video 6	"The Corn Ethanol Debacle"	Internet video
L19	Documents 11, 12	PowerPoint slides	Images
ADVERTISING: Documents that reveal the connection between sustainability and advertising			
L6	Video 2	"America's Farmer Economy"	Internet video
L7	Video 2	"Pioneer: Big Picture"	Internet video
L12	Video 2	"Water Rights March"	Internet video
L13	Entire lesson	Consumerism & Sustainability	Video
L17	Document 3	"McDonald's – A Balancing Act"	Web page

L17	Document 4	"The Newly Designed and Updated Vegan Food Pyramid"	Web page
L17	Document 9	"Delicious! Ogilvy Advertising wins..."	Web page
L17	Document 11	"New Wild-Caught Seafood Sustainability Ratings"	Web page
L17	Document 13	"Sustainable Beef Resource Center"	Web page
L18	Video 1	"Ethanol: Now is the Time"	Internet video
L18	Video 5	"GM: Maize Alternative"	Internet video
L19	Documents 2, 13, 35, 36, 44	PowerPoint slides	Images
NEWS REPORTING: Documents that examine media news reports related to sustainability			
L14	Entire lesson	BP Oil & Gulf Fisheries	Text and video
L16	Entire lesson	Green Revolution	Text
L18	Readings 1-3	Various titles	Text
WEB PAGE ANALYSIS: Documents decoding web page messages and techniques			
L6	Voices 1-14	Various titles	Web page text
L10	Readings 1-4	Sustainable Cultures	Web page text
L17	Entire lesson	Guiding Our Food Choices	Web page text
L19	Entire lesson	Transitioning to a Sustainable Future	Web page text, blog post, book cover

Lesson 1:

What Do You know?

Sourcing, Credibility and Bias

Lesson Plan.....	19
Teacher Guide.....	21
PowerPoint.....	
(Access online or via Lesson 1 digital media folder)	

LESSON PLAN



PowerPoint
Slide Show

What Do You Know? Sourcing, Credibility and Bias

NOTE: *This PowerPoint self-assessment lesson contains some material from Lessons 6-19 of the curriculum kit. Lessons 2-5 have been omitted this Lesson because they are introductory and less content-specific than later lessons. Lesson 1 can be delivered in three ways:*

- *Select a specific lesson from 6-19 of the curriculum kit and use these PowerPoint slides in Lesson 1 to introduce students to the material and media literacy concepts prior to that particular lesson*
- *Select a specific lesson from 6-19 of the curriculum kit and use these PowerPoint slides in Lesson 1 to review the content and media literacy material following that particular lesson*
- *Use this entire PowerPoint in Lesson 1 to introduce a media literacy approach to sustainability that focuses on content information and critical thinking*

Whether delivered as one activity or lesson-by-lesson, the teacher should use students' responses to assess their knowledge and attitudes about sustainability and their critical thinking skills.

The self-assessments for Lessons 6-19 contain either content questions or open-ended media literacy questions; some lessons contain both. For lessons with both question types, use the media literacy questions to analyze the credibility of each content question.

Lesson Objectives:

- Students will be introduced to vocabulary, knowledge and issues addressed in Lessons 6-19.
- Students will reflect on sourcing, credibility, accuracy and bias of factual information in media.
- The teacher will assess students' background knowledge prior to delivering lessons.

Vocabulary:

Farmers market, organic food, USDA (US Department of Agriculture), TEK (traditional ecological knowledge), BP Deepwater Horizon blowout, genetically modified crop, heirloom crop variety, green revolution, Norman Borlaug, food miles, ethanol, biofuel, United Nations Food and Agricultural Organization (UNFAO)

Media: Text on PowerPoint slides from Lessons 6-19

Materials Needed:

- 27-page *Teacher Guide*
- 57 slide PowerPoint Slides (access online or via Lesson 1 digital media folder)

Time: 45-60 minutes if using the entire set of slides, depending on discussion time per slide

Lesson Procedures:

1. Explain to students that this activity will introduce or review issues about sustainability and help them analyze material presented in each lesson.
2. Project the PowerPoint slideshow. The slides are organized lesson-by-lesson beginning with Lesson 6. Every lesson has an introductory slide to distinguish it from the next lesson. Each slide contains a question, followed by an animation on your mouse-click that displays a **content answer** (in red) and/or a **media literacy** question (in blue). Notes to the teacher about how and where to probe for understanding for each question are included in the teacher guide below.

NOTE: *The questions and slides for each lesson are on separate pages in the Teacher Guide to facilitate using this lesson as an introductory or review activity for Lessons 6 – 19.*

TEACHER GUIDE

What Do You Know?

Sourcing, Credibility and Bias

NOTE: *This PowerPoint self-assessment lesson contains some material from Lessons 6-19 of the curriculum kit. Lessons 2-5 have been omitted this Lesson because they are introductory and less content-specific than later lessons. Lesson 1 can be delivered in three ways:*

- *Select a specific lesson from 6-19 of the curriculum kit and use these PowerPoint slides in Lesson 1 to introduce students to the material and media literacy concepts prior to that particular lesson*
- *Select a specific lesson from 6-19 of the curriculum kit and use these PowerPoint slides in Lesson 1 to review the content and media literacy material following that particular lesson*
- *Use this entire PowerPoint in Lesson 1 to introduce a media literacy approach to sustainability that focuses on content information and critical thinking*

Whether delivered as one activity or lesson-by-lesson, the teacher should use students' responses to assess their knowledge and attitudes about sustainability and their critical thinking skills.

The self-assessments for Lessons 6-19 contain either content questions or open-ended media literacy questions; some lessons contain both. For lessons with both question types, use the media literacy questions to analyze the credibility of each content question

1. Explain to students that this activity will introduce or review issues about sustainability and help them analyze material presented in each lesson.
2. Project the slideshow. The slides are organized lesson-by-lesson beginning with Lesson 6. Every lesson has an introductory slide to distinguish it from the next lesson. Each slide contains a question, followed by an animation on your mouse-click that displays a **content answer** (in red) and/or a **media literacy** question (in blue). Notes to the teacher about how and where to probe for understanding for each question are included *Content Questions and Answers*, *Media Literacy Questions*, and *Media Literacy Goals* in the Teacher Guide.

NOTE: *The questions and slides for each lesson are on separate pages in the Teacher Guide to facilitate using this lesson as an introductory or review activity for Lessons 6 – 19.*

Self-Assessment Activity: Lesson 6 Voices Role Play

Lesson 6 Summary

In Lesson 6, students will be split into groups to debate seven topics, including food crop preservation, local and organic foods, farming practices, urban agriculture, food security, and water privatization. Each student will assume the role of an advocate voice and will have the opportunity to research their advocate in preparation for the in-class debate. Each debate will feature distinctly different approaches to the topics as represented by the opposing views of two advocate voices.

Content Questions and Answers Lesson 1, Slides 3-4

NOTE: These slides contain animation. Please read the directions below to ensure that the content answers are not revealed before the class has had a chance to read and respond to the question(s).

Using the PowerPoint Slides

In the *Teacher Guide*, answers to content questions are underlined and in bold. In the PowerPoint slides, answers are circled in red **on your mouse click**. When starting the slideshow, the full text of the question and answer will be present on the slide. After the students have read the question(s) and responded, **click to circle the answer**.

Slide 3

Between 1994 and 2011, the number of farmers markets in the US...

- Remained about the same
- Doubled
- **Tripled**

Slide 4

In 1997, retail sales of organic food in the US amounted to \$3.6 billion.

In 2008, retail sales of organic foods amounted to...

- \$5 billion
- \$10 billion
- **\$20 billion**

Media Literacy Question(s) and Goals Lesson 1, Slide 5

Media Literacy Question(s)

Slide 5

How do these two fill-in-the-blanks point toward a bias on the part of the writer of the question?

Media Literacy Goals

Relate the media literacy question to fact selection and incorporating counterarguments into a pro/con debate structure.

Help students see that the fill-in-the-blanks show positive attention to farmers markets and organic foods. The lesson writer could have easily selected questions that highlighted positive aspects of supermarket chains and biotech agriculture, which might have resulted in a very different message to students.

Self-Assessment Activity: Lesson 7 Farming, Community, and Sustainability

Lesson 7 Summary

In Lesson 7, students will analyze perspectives on the purpose of farming, the role of human labor in agriculture, and how local communities affect farming practices in rural, suburban, and urban settings. Students will deconstruct media messages in images, films, and songs.

Content Questions and Answers Lesson 1, Slide 7

NOTE: These slides contain animation. Please read the directions below to ensure that the content answers are not revealed before the class has had a chance to read and respond to the question(s).

Using the PowerPoint Slides

The first content question will be on the slide. To reveal answers and subsequent questions in the PowerPoint slides, **click your mouse**. In the PowerPoint, content questions are in black and answers are in red. In the *Teacher Guide*, answers to content questions are underlined and in bold.

Slide 7

What percent of the US workforce was engaged in farming in 1776? **76%**

What percent of the US workforce was engaged in farming in 1914? **30%**

What percent of the US workforce was engaged in farming in 2011? **Less than 2%**

Media Literacy Question(s) and Goals Lesson 1, Slide 7

Media Literacy Question(s)

Slide 7

Do you think these statistics are accurate?

Why or why not?

How could you find out?

Media Literacy Goals

Relate the media literacy question to how we collect and analyze statistical data and how this process has changed from 1776 to 2011.

The first figure has no basis in fact. The second two were determined though the federal government's agricultural census. Agricultural census data was not uniformly collected until the first part of the 20th century. Early estimates of the percent of the US workforce engaged in farming from 1776 though the Civil War would have been guesses and would likely not have included Native Americans, African American slaves, indentured servants and others working in agriculture at the time. It might also be noted that there remain serious questions about who is counted and how effective the results may be even in the 20th and 21st century census data from 1914 and 2011.

Self-Assessment Activity: Lesson 8

Sustainable Economics

Lesson 8 Summary

In Lesson 8, students will examine different perspectives on the relationship of economics to the sustainability of food systems. Students will explore different definitions of sustainability from corporate and civil society by reading magazine articles and the mission statements of the respective publications.

Content Questions and Answers

Lesson 1, Slide 9

NOTE: These slides contain animation. Please read the directions below to ensure that the content answers are not revealed before the class has had a chance to read and respond to the question(s).

Using the PowerPoint Slides

In the PowerPoint, quotes are in black, publication information is in red, and media literacy questions are in blue. In the first slide, **click your mouse** to reveal publication options for the matching exercise. Correct answers are listed on the second slide. In the *Teacher Guide*, publication information appears bolded and underlined.

Slide 9

Read these quotes from magazine articles on economics and sustainability. Match each quote to the magazine it appeared in.

Quotes

1. "Nature will decide what is sustainable; it always has and always will."
- Eric Zencey
2. "Innovators and entrepreneurs around the world are finding ways to use natural physics and bio-chemistry to cascade matter and energy in fully harmonious and renewable flows."
- Gunter Pauli
3. "It takes no great stretch of the imagination to picture, within the next five to ten years, a "US Solidarity Economy Summit" convening many of the thousands of democratic, grassroots economic projects in the United States to generate a stronger shared identity, build relationships, and lay the groundwork for a US Solidarity Economy Alliance."
- Ethan Miller

Magazine Mission Statements

- A. ***Ode Magazine***: our readers are "cultural creatives" and early adopters whose purchasing decisions are guided as much by ethical and environmental concerns as by economic considerations.
- B. ***Orion Magazine***: our mission is to inform, inspire, and engage individuals and grassroots organizations in becoming a significant cultural force for healing nature and community.
- C. ***Dollars & Sense Magazine***: publishes economic news and analysis, reports on economic justice activism, primers on economic topics, and critiques of the mainstream media's coverage of the economy.

Media Literacy Question(s) and Goals
Lesson 1, Slide 10

Media Literacy Question(s)

Slide 10

How do the mission statements and readership of magazines shape the ideas within the articles they print?

Media Literacy Goals

Use the content of the quotes from the previous slide along with each publication's mission statement to characterize the readership and potential biases of articles printed within each magazine.

Lead a discussion using the *Possible Answers* below. Examine how one can determine the purpose of media messages: Why was this made and who was it made for?

Slide 10
Possible Answers

1. Eric Zencey, *Orion Magazine*

This magazine looks to individuals and communities ("engage individuals and grassroots organizations") to support sustainable initiatives.

2. Gunter Paul, *Ode Magazine*

Readers of this magazine are consumers ("early adopters [of] purchasing decisions") concerned about "ethic[s] and [the] environmen[t]."

3. Ethan Miller, *Dollars & Sense Magazine*

Dollars & Sense's mission statement addresses readers looking for alternative economic news ("critiques [the] mainstream media's coverage of the economy") that focuses on issues ("primers on economic topics") and "activism."

Self-Assessment Activity: Lesson 9

Food Security

Lesson 9 Summary

In Lesson 9, students will examine how different organizations describe food security and reflect on different models to meet the challenges of providing an equitable distribute of food for all communities.

Content Questions and Answers

Lesson 1, Slide 12

NOTE: These slides contain animation. Please read the directions below to ensure that the content answers are not revealed before the class has had a chance to read and respond to the question(s).

Using the PowerPoint Slides

The true/false content question will be on the slide. To reveal the answer and subsequent media literacy questions, **click your mouse**. In the PowerPoint, answers are in red text and media literacy questions are in blue. In the *Teacher Guide*, answers to content questions are underlined and in bold.

Slide 12

420 million people do not have enough to eat.
 True or false?
It depends...

Media Literacy Question(s) and Goals

Lesson 1, Slide 12-15

Media Literacy Question(s)

Slide 12

What are questions one should ask about this or any fact?

What is the source and is it credible?

When was this fact stated? Is it current?

How was the fact determined?

Media Literacy Goals

There are many potential answers to the media literacy questions on this slide; we have listed only three. Teachers should work to harvest as many answers as possible.

Relate the difficulties of defining food security to the credibility of statistical data. How will our definition of food security change depending on the data we use? How will potential solutions to food insecurity change based on data we use?

Media Literacy Question(s)

Slide 13

"...at least 420 million people do not have enough to eat."

- the United Nations Food and Agriculture Organization (UNFAO)

Is this a credible source? Why or why not?

This statistic is from 1981.

Does the date matter? Why?

Media Literacy Goals

Lead a discussion about sources and credibility. Is the United Nations (UN) a credible source? What about the US government? What about state or local governments, nongovernmental organizations, blogs or Wikipedia?

Encourage students to understand that a dated fact, even from an otherwise credible source, may well be suspect. This fact was determined thirty years prior to the editing of this lesson; surely this statistic has changed since that date.

Slide 14

**What is important to know about *how* UNFAO determined this fact?
What people were counted?**

How did they determine who has and who does not have "enough to eat" and how is "enough to eat" defined?

Thorough research requires questioning how facts were determined. Typically a UN report will list the authors who did the research. Searching the UNFAO report, its bibliography and seeking out the original research studies can help to determine how this fact was established.

Slide 15 summarizes the issues the UNFAO faced in collecting data.

Slide 15

According to Professor Thomas Poleman, there are "three great unknowns" in trying to estimate the extent of hunger. These are:

- the actual availability of food
- the exact amount of food people need for nourishment
- how access to food varies among different income groups within a country.

Because of these uncertainties, predictions of future global famines, or of the numbers of starvation deaths that will occur by the year 2000, are widely viewed as meaningless. Even the figures on existing hunger and malnutrition vary wildly.

Are the points about the "three great unknowns" in estimating hunger statistics still unknown? How could you find out?

Self-Assessment Activity: Lesson 10 Sustainable Cultures

Lesson 10 Summary

In Lesson 10, students will examine how traditional ecological knowledge has perpetuated the agricultural practices of land-based cultures. Students will examine a range of agricultural traditions from Amish, African American, Native American, Mayan, Japanese American, Latino and Hawaiian cultures.

Content Questions and Answers Lesson 1, Slide 17

NOTE: These slides contain animation. Please read the directions below to ensure that the content answers are not revealed before the class has had a chance to read and respond to the question(s).

Using the PowerPoint Slides

The first content question will be on the slide. To reveal answers and subsequent questions in the PowerPoint slides, **click your mouse**. In the PowerPoint, content questions are in black and answers are in red. In the *Teacher Guide*, answers to content questions are underlined and in bold.

Slide 17

T.E.K. is an acronym
It has to do with the ancient wisdom
of indigenous peoples in relation to
the natural world.

What do you think the letters stand
for?

T...Traditional
E...Ecological
K...Knowledge

Slide 17 Possible Answers

Invite students to suggest possible answers.
If they need hints for each letter, you might
say: "The word beginning with T
corresponds with 'ancient' or 'custom.'
The word beginning with E has to do with
the natural world. The word beginning
with K has to do with wisdom."

Media Literacy Question(s) and Goals Lesson 1, Slide 17

Media Literacy Question(s)

Slide 17

**Why is it important to hear the
voices of traditional land-based
people in the 21st century?**

Media Literacy Goals

Once students have deciphered the acronym, lead
the class in a discussion using the media literacy
question. Allow all voices to have a say even if they
voice an opinion in contrast to the majority view.

Relate the media literacy question to how groups
have shared traditional ecological knowledge for
generations and how these groups might pass down
knowledge today.

Self-Assessment Activity: Lesson 11

The Value of Water

Lesson 11 Summary

In Lesson 11, students will question the meaning of the 2010 United Nations declaration stating that access to clean water is a human right. Students will explore this declaration by examining messages about the value of water in book covers and table of contents.

Content Questions and Answers

Lesson 1, Slide 19, 21

NOTE: These slides contain animation. Please read the directions below to ensure that the content answers are not revealed before the class has had a chance to read and respond to the question(s).

Using the PowerPoint Slides

The true/false content question will be on the slide. To reveal the answer and subsequent media literacy questions, **click your mouse**. In the PowerPoint, answers are circled in red and media literacy questions are in blue. In the *Teacher Guide*, answers to content questions are underlined and in bold.

Slide 19

Access to safe drinking water is a human right, not a commodity to be bought and sold.

True or false?

Media Literacy Question(s) and Goals

Lesson 1, Slides 20, 22

Media Literacy Question(s)

Slide 20

Access to safe drinking water is a human right, not a commodity to be bought and sold. True.

Is this a fact or an opinion? Why?

In July 2010, the United Nations General Assembly declared “the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights.”

Does this make the above statement a fact? Why or why not?

Media Literacy Goals

Examine how we determine if information is a fact or an opinion.

Explain that the United Nations (UN) is an international body of member states and that it has issued many declarations during its history. These declarations are the opinions of the majority of the member states. This does not make UN declarations “facts” as we generally understand the term to mean undisputable and empirically sound.

Content Questions and Answers Continued
Lesson 1, Slide 21

Slide 21

How many people gained access to safe drinking water between 1990-2002?

- 500 million
- **One billion**
- One and a half billion

Media Literacy Question(s) and Goals Continued
Lesson 1, Slides 20, 21

Media Literacy Question(s)

Slide 21

UN Fact Sheet on Water and Sanitation 2005

“1.1 billion people gained access to safe drinking water between 1990-2002. The greatest access gains were achieved in South Asia, where water access increased from 71 per cent in 1990 to 84 per cent in 2002. In sub-Saharan Africa, access grew minimally, from 49 percent in 1990 to 58 per cent in 2002.”

Is this source credible? Is this fact credible?

Media Literacy Goals

Have a discussion about the value of using credible sources when making arguments about sustainability or any topic of concern. Relate this to the potential biases of different individuals and institutions involved in the stewardship of water and how these stakeholders might construct their media messages based on their position.

Self-Assessment Activity: Lesson 12 **Who Owns the Water?**

Lesson 12 Summary

In Lesson 12, students will examine who makes major decisions about water. Students will analyze excerpts from films about water stewardship and engage in discussions about bias, film genre, and persuasive production techniques. They also will have an opportunity to discuss water access and control in their own communities.

Content Questions and Answers **Lesson 1, Slide 23**

NOTE: These slides contain animation. Please read the directions below to ensure that the content answers are not revealed before the class has had a chance to read and respond to the question(s).

Using the PowerPoint Slides

The content question will be on the slide. To reveal the matching options and subsequent media literacy questions, **click your mouse**. The first mouse click will remove the two answer options. The following two mouse clicks will expose the correct answers. In the PowerPoint, answers are written in red and media literacy questions are in blue. In the *Teacher Guide*, answers to content questions are underlined and in bold.

Slide 23

Match these quotes to their sources:

- A. The private sector has made significant and lasting contributions to the delivery of reliable, safe water worldwide. By 2007, private water operators were delivering services to around 160 million people in emerging markets. These private-public partnerships have delivered water access to an estimated 24 million people since 1990.

“Water, Water Everywhere” from the journal *Handshake of the International Finance Corporation: World Bank Group*

- B. Imagine a world where every single drop of water is the private property of a company, maybe a country foreign to your country. Imagine a world where, if you collect rainwater or water from the river without paying a foreign company for it, you may be prosecuted by your own government...Sadly, we already live in such a world.

“The World Water Crisis: A Challenge to Social Justice” from the *Faith and Society* series published by Paulines Publications Africa

Media Literacy Question(s) and Goals
Lesson 1, Slides 24

Media Literacy Question(s)

Slide 24

Where does your water come from?

Who controls your water source?

Are these important things to know?

How can you find out if you don't know?

Media Literacy Goals

Lead a discussion about the control of water in the communities where your students live. This might be an opportunity to initiate research projects in cases where students do not know the answers to the media literacy questions. Many local water utilities issue annual drinking water quality reports that may help to provide answers.

Self-Assessment Activity: Lesson 13 Consumerism and Sustainability

Lesson 13 Summary

In Lesson 13, students will reflect on the sustainability of bottled water. Students will deconstruct persuasive techniques in a series of video clips that either encourage or discourage viewers to purchase bottled water.

Content Questions and Answers Lesson 1, Slide 26-27

NOTE: These slides contain animation. Please read the directions below to ensure that the content answers are not revealed before the class has had a chance to read and respond to the question(s).

Using the PowerPoint Slides

The content question will be on the slide. To reveal the answer and subsequent media literacy questions, **click your mouse**. In the PowerPoint, answers are circled in red and media literacy questions are in blue. In the *Teacher Guide*, answers to content questions are underlined and in bold. Media literacy descriptions and questions appear only in bold.

Slide 26

Advances made in light-weight bottled water containers reduce waste, preserve resources and deliver a sustainable product to consumers.

True or false?

Despite these advances, the production, distribution and disposal of plastic water bottles requires the use of significant amounts of energy and materials.

Slide 27

Advances made in light-weight bottled water containers reduce waste, preserve resources and deliver a **more** sustainable product to consumers.

True or false?

These advances will lead to a MORE sustainable product than without these advances.

Media Literacy Question(s) and Goals
Lesson 1, Slide 28

Media Literacy Question(s)

Slide 28

Advances made in light-weight bottled water containers reduce waste, preserve resources and deliver a more sustainable product to consumers.

Which of these do you think is the probable source of this quote? Why?

- **Joseph Doss, president and CEO of the International Bottled Water Association**
- Charles Fishman, author of *The Big Thirst*, a book critical of the bottled water industry

Media Literacy Goals

Lead a discussion on why students might have guessed as they did and how any source's mission or point of view can help to explain phrasing and fact selection in media documents.

Content Questions and Answers Continued
Lesson 1, Slide 29

Slide 29

We spend almost as much on crushable plastic bottles of water as we do maintaining the U.S. water system.

True or false?

Media Literacy Question(s) and Goals Continued
Lesson 1, Slide 29-31

Media Literacy Question(s)

Slide 29

What questions should you ask about this fact?

What is the source?

What are the two costs?

How did they calculate these costs?

How current is the information?

Media Literacy Goals

There are many questions that one might ask and teachers should initially work to harvest as many as possible without dismissing any. Possible questions are listed on the slide and underlined and in bold in the *Teacher Guide*.

Slide 30

We spend almost as much on crushable plastic bottles of water as we do maintaining the US water system.

Which of these do you suspect is the source of this quote? Why?

- Joseph Doss, president and CEO of the International Bottled Water Association
- **Charles Fishman, author of The Big Thirst, a book critical of the bottled water industry**

Would this fact be more credible if it came from Joseph Doss?

Lead a discussion similar to the one for Slide 28, where students explain their guesses and how any source's mission or point of view can help to explain phrasing and fact selection in media documents.

Media Literacy Question(s)

Slide 31

We spend almost as much on crushable plastic bottles of water as we do maintaining the US water system.

Charles Fishman, *The Big Thirst*, 2011

"In the US, we spend \$21 billion a year buying bottled water, and we spend \$29 billion a year maintaining the entire water system: pipes, treatment plants, pumps."

Charles Fishman, *The Big Thirst*, 2011

Media Literacy Goals

Lead a discussion about the importance of questioning comparative phrases when reading subjective judgments like Fishman's "we spend almost as much" in reference to the comparison between twenty-one and twenty-nine billion dollars.

Self-Assessment Activity: Lesson 14 BP Oil and Gulf Fisheries

Lesson 14 Summary

In Lesson 14, students will reflect on bias in media reports chronicling the 2011 British Petroleum (BP) oil spill. Media sources include the World Fishing Network, Environmental Defense Fund, Coastal First Nations, the US Coast Guard and BP.

Media Literacy Question(s) and Goals Lesson 1, Slides 33-35

NOTE: These slides contain animation. Please read the directions below to ensure that the media literacy questions are not revealed before the class has had a chance to read the quotations.

Using the PowerPoint Slides

To reveal media literacy questions, **click your mouse**. In the PowerPoint, media literacy questions are in blue. In the *Teacher Guide*, media literacy questions are in bold.

Media Literacy Question(s)

Slide 33

4.4 million barrels of oil were released into the Gulf following the BP Deepwater Horizon blowout on April 11, 2010.
from a study published in the journal *Science* in October 2010 by Columbia University scientists Timothy Crone and Maya Tolstoy

Does this seem like a credible fact?
Why?

Slide 34

No accurate estimate of the amount of oil spilled can be made without additional study and analysis.
from the BP webpage, "Containing the Leak," accessed in June, 2011

Does this seem like a credible fact?
Why?

Media Literacy Goals

Discuss how we judge fact or opinion.
Possible questions include:

- Is there independent confirmation of these statements from other sources?
- Is there apparent self interest in the source giving the answer?
- What date was the answer given?
Perhaps conclusions have changed in the meantime.
- What can we learn about ourselves from examining our own biases?

Media Literacy Question(s)

Slide 35

What questions do you need to ask about these statements to determine their credibility?

Which statement do you believe to be more accurate? Why?

What does your answer show you about your own biases?

Media Literacy Goals

Continue discussing how we judge facts versus opinions.

Relate the media literacy questions back to the potential biases of the authors of these messages.

Self-Assessment Activity: Lesson 15

Who Stewards Seeds

Lesson 15 Summary

In Lesson 15, students will use corn as an example crop to analyze different perspectives on who should distribute and modify the genetic information of staple food sources. Stewards of corn in this lesson include Hopi planters, university researchers, corporate scientists and environmental activists.

Content Questions and Answers

Lesson 1, Slide 37

NOTE: These slides contain animation. Please read the directions below to ensure that the content answers are not revealed before the class has had a chance to read and respond to the question(s).

Using the PowerPoint Slides

The content question will be on the slide. To reveal the answer and subsequent media literacy questions, **click your mouse**. In the PowerPoint, answers are written in red and media literacy questions are in blue. In the *Teacher Guide*, answers to content questions are underlined and in bold. Media literacy questions appear only in bold.

Slide 37

The amount of corn products eaten by US consumers increased dramatically between 1970 and 1993.

True or false?

USDA report on "Major foods: US per capita consumption" reported consumption of corn sweeteners and other corn products:

1970: 30.2 lbs per person each year
 1993: 100.3 lbs per person each year

Media Literacy Question(s) and Goals

Lesson 1, Slides 27

Media Literacy Question(s)

Slide 37

Are these figures credible? Why?

Media Literacy Goals

Discuss whether government statistics like these should be questioned or assumed to be true.

Content Questions and Answers Continued
Lesson 1, Slide 38

Slide 38

According to Berkeley professor Miguel Altieri and Food First executive director Eric Holt-Gimene, the percentage of the US corn crop that was genetically modified in 2007 was...

25% 50% 75% 100%

News Analysis: UC's Biotech Benefactors, by Miguel Altieri and Eric Holtz-Gimenez, *Berkeley Daily Planet*, February 6, 2007.

Media Literacy Question(s) and Goals Continued
Lesson 1, Slides 38

Media Literacy Question(s)

Slide 38

Are these figures credible? Why?

Media Literacy Goals

Discuss whether university statistics like these should be questioned or assumed to be true.

Content Questions and Answers Continued
Lesson 1, Slide 39

Slide 39

What does this list refer to?

Black Aztec	Long Ear Pop
Hopi Blue	Bear Island
Hopi Pink Flour	Chippewa Flint
Mandan Bride	Seneca Red Stalker
Hominy Cherokee	White Flint

These are examples of dozens of varieties of traditional or heirloom corn grown by Native Americans.

From "Heirloom Seeds: Our Cultural Past" by Natural Resources Conservation Service Conservationist E. John Rogers

Self-Assessment Activity: Lesson 16 Green Revolution

Lesson 16 Summary

In Lesson 16, students will analyze reconstructions of the green revolution through news reports on Norman Borlaug's death. Students will examine the differences between a news report versus an editorial in defining the green revolution and Norman Borlaug's role in it.

Content Questions and Answers Lesson 1, Slides 41-43

NOTE: These slides contain animation. Please read the directions below to ensure that the content answers are not revealed before the class has had a chance to read and respond to the question(s).

Using the PowerPoint Slides

The content question will be on the slide. To reveal the answers and subsequent media literacy questions, **click your mouse**. In the PowerPoint, answers are written in red and media literacy questions are in blue. In the *Teacher Guide*, answers to content questions are underlined and in bold.

Slide 41

What was the green revolution?

- a. A social movement to overturn governments in the Soviet bloc during the late 1990s
- b. Agricultural research and technology leading to large crop yields in the mid-20th century**
- c. 21st century campaign urging investment in environmentally conscious "green" companies

Slide 42

Who was Norman Borlaug?

- a. A primary critic of green revolution initiatives
- b. A Swedish farmer who invented DDT
- c. US scientist called the "father of the green revolution"**

Slide 43

Which of these statements about Norman Borlaug are true?

They were all asserted in media articles.

- a. "He did more than anyone else in the 20th century to teach the world to feed itself."
Justin Gillis in the *New York Times*
- b. "He planted the seed for future environmental woes."
Leo Hickman in *The Guardian*
- c. "His 'green revolution' led to the death of peasants by the million."
Alexander Cockburn in *Counterpunch*
- d. "He was arguably the greatest American of the 20th century"
Gregg Easterbrook in *The Wall Street Journal*

Media Literacy Question(s) and Goals
Lesson 1, Slide 43

Media Literacy Question(s)

Slide 43

How can we distinguish fact from opinion in media articles?

Media Literacy Goals

Lead a discussion on the difference between a news report and an opinion page editorial. These reflections on the death of a famous and controversial figure often blur the line between the two.

Reflect on the context of the articles: how did our opinions on sustainability affect these reconstructions of the green revolution and Norman Borlaug's life?

Self-Assessment Activity: Lesson 17

Guiding Our Food Choices

Lesson 17 Summary

In Lesson 17, students will evaluate how media constructions of food might affect our consumer choices from the farm to the market. Students will reflect on how our food choices can shape the sustainability of our food systems.

Content Questions and Answers

Lesson 1, Slides 45-46

NOTE: These slides contain animation. Please read the directions below to ensure that the content answers are not revealed before the class has had a chance to read and respond to the question(s).

Using the PowerPoint Slides

Content questions will be in black text on the slides. To reveal the answers and subsequent media literacy questions, **click your mouse**. In the PowerPoint, answers are written in red and media literacy questions are in blue. In the *Teacher Guide*, answers to content questions are underlined and in bold.

Slide 45

What are food miles?

- the distance food travels from where it is grown to where it is ultimately purchased or consumed by the end user**
- the distance one can run per calorie of food intake
- a term used in a McDonald's advertising campaign comparing the average distance between fast food franchises in the US

Slide 46

In 2003, the Leopold Center for Sustainable Agriculture at Iowa State University released a study entitled "Checking the food odometer: Comparing food miles for local versus conventional produce sales to Iowa institutions."

It stated:

"Fresh produce arriving by truck at the Chicago Terminal Market from within the continental United States traveled an average one-way distance of _____ miles in 1998, a 22 percent increase over the miles traveled in 1981."

15 151 **1,518** 15,180

Media Literacy Question(s) and Goals

Lesson 1, Slides 47

Media Literacy Question(s)

Slide 47

Where does your food come from?

Is this important to know?
How can you find out if you don't know?

Media Literacy Goals

Lead a discussion about access to fresh produce where your students live. This might be an opportunity to initiate research projects in cases where students do not know the answers.

Self-Assessment Activity: Lesson 18 Biofuels

Lesson 18 Summary

In Lesson 18, students learn about arguments for and against biofuels as a “green” energy source. Students will examine how media messages from organizations are shaped by the intent of the media producer.

Content Questions and Answers Lesson 1, Slide 49-50

NOTE: These slides contain animation. Please read the directions below to ensure that the content answers are not revealed before the class has had a chance to read and respond to the question(s).

Using the PowerPoint Slides

The content question will be on the slide. To reveal the answers and subsequent media literacy questions, **click your mouse**. In the PowerPoint, answers are written in red and media literacy questions are in blue. In the *Teacher Guide*, answers to content questions are underlined and in bold.

Slide 49

What is ethanol?

- a. a waste product of natural gas
- b. a type of rubbing alcohol
- c. **a biofuel made from corn used in gasoline**

Slide 50

Raise your hand if you think the following statements about ethanol are true:

- 1. It is a good alternative to fossil fuels.
- 2. Producing it creates jobs for the unemployed.
- 3. It contributes to the destruction of rainforests.
- 4. It's a good investment opportunity.
- 5. It causes hunger by raising grain prices.
- 6. It is responsible for the huge dead zone in the Gulf.
- 7. It burns cleaner than gasoline.
- 8. It accelerates global warming.
- 9. It enriches lobbyists and agribusiness.
- 10. It helps to protect our national security.

Media Literacy Question(s) and Goals
Lesson 1, Slides 51-52

Media Literacy Question(s)

Slide 51

If you were writing a brochure for the *Renewable Fuels Association*, which of these statements would you use and why?

1. It is a good alternative to fossil fuels.
2. Producing it creates jobs for the unemployed.
3. It contributes to the destruction of rainforests.
4. It's a good investment opportunity.
5. It causes hunger by raising grain prices.
6. It is responsible for the huge dead zone in the Gulf.
7. It burns cleaner than gasoline.
8. It accelerates global warming.
9. It enriches lobbyists and agribusiness.
10. It helps to protect our national security.

Slide 52

If you were writing a brochure for the *Anti-Ethanol Coalition*, which of these statements would you use? Why?

1. It is a good alternative to fossil fuels.
2. Producing it creates jobs for the unemployed.
3. It contributes to the destruction of rainforests.
4. It's a good investment opportunity.
5. It causes hunger by raising grain prices.
6. It is responsible for the huge dead zone in the Gulf.
7. It burns cleaner than gasoline.
8. It accelerates global warming.
9. It enriches lobbyists and agribusiness.
10. It helps to protect our national security.

Media Literacy Goals

Lead a discussion about how the mission of a media source tends to shape the information it chooses to share with the public.

Self-Assessment Activity: Lesson 19 **Transitioning to a Sustainable Future**

Lesson 19 Summary

In Lesson 19, students will synthesize different views on sustainability and articulate their perspective on ways to transition to a sustainable future. Students will evaluate models of sustainability using media document pairings on the themes of social justice, climate change, fossil fuel depletion, and economics.

Media Literacy Question(s) and Goals **Lesson 1, Slides 54-55**

NOTE: These slides contain animation. Please read the directions below to ensure that the media literacy questions are not revealed before the class has had a chance to read the quotations.

Using the PowerPoint Slides

The media literacy questions and discussion topics will be on the slide. To reveal the media literacy question on Slide 55, **click your mouse**. In the PowerPoint, media literacy questions are in blue. In the *Teacher Guide*, media literacy questions are in bold.

Media Literacy Question(s)

Slide 54

Which of these statements are facts and which are opinions?

- We will not have a sustainable future unless social justice becomes a primary goal of our society.
- We will not have a sustainable future unless we can reverse climate change.
- We will not have a sustainable future unless we fundamentally transform our economic system.
- We will not have a sustainable future unless we eliminate the use of all fossil fuels.

Media Literacy Goals

Lead a discussion about how we distinguish facts and opinions. Are these objective or subjective judgments?

Media Literacy Question(s)

Slide 55

Here are some of the questions and answers posed in this self-assessment.

- In 2008, retail sales of organic foods amounted to...**\$20 billion**
- From 1994 to 2011 the number of US farmers markets...**tripled**
- T.E.K. is an acronym for...**Traditional Ecological Knowledge**
- Safe drinking water is a human right. **True**
- **4.4 million barrels of oil** were released into the Gulf following the BP Deepwater Horizon blowout on April 11, 2010.
- The percentage of the US corn crop that was genetically modified in 2007 was...**50%**

What might the choice of questions say about the perspective or bias of the creator of these lessons?

Media Literacy Goals

Lead a discussion about bias in testing as evidenced by word choice and question selection.

Lesson 2:

Creative Visions

of the Future

Lesson Plan	51
Teacher Guide.....	53
PowerPoint	
(Access online or via Lesson 2 digital media folder)	
Film and Audio clips.....	
(Access online or via Lesson 2 digital media folder)	
Student Handout	65
Student Worksheet	73

LESSON PLAN



Printed
Document



Audio Clips



Video Clips

Creative Visions of the Future

Lesson Objectives:

- Students will reflect on their own visions and imagery of the future and how they have arrived at them.
- Students will analyze the imagined future of food, water and agriculture as viewed through the creative media of film, song, poetry and science fiction literature.
- Students will define and compare communication techniques used by filmmakers, songwriters, poets and science fiction novelists.

Vocabulary:

soylent green, post-apocalyptic, PCB, Clearwater, hybrid vehicle, Green Screen, water council

Media: television, feature film, song, poetry, science fiction literature

Materials Needed:

- Twelve-page *Teacher Guide*
- Seven-page *Student Handout*
- One-page Student Worksheet
- Four film clips (Access online or via Lesson 2 digital media folder)
- Four song excerpts (Access online or via Lesson 2 digital media folder)
- Eight slide PowerPoint Slideshow (Access online or via Lesson 2 digital media folder)

Time: 90 minutes to three hours depending on number of documents and length of discussion

Lesson Procedures

- Present the *Lesson Introduction* to the class.
- Have students write about or use other creative forms to reflect on their own visions of the future of food, water and agriculture. Facilitate a discussion about their visions and how they arrived at them.
- Divide the class into four teams and distribute a Student Worksheet and *Student Handout* for each of the media forms: film, song, poetry, and science fiction novels excerpts.
- Have groups study the media documents for their assigned form and complete their worksheet.
- Play the film clips, song excerpts, and project the poetry and science fiction PowerPoint slides. Lead a discussion using *Media Sample Questions & Answers* in the *Teacher Guide* to model the application of key knowledge through evidence-based analysis.
- Lead a discussion of the essential question: **What is the role of the artist in influencing social visions of sustainability?**
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Creative Visions of the Future

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

The philosopher Ananda Coomaraswamy once wrote, “The artist is not a special kind of person. Rather each person is a special kind of artist” (1956, p. 112). The arts allow us to encounter life experiences, emotions and awareness that we otherwise might never know, feel or understand. One way to explore the many possible futures of food, water and agriculture is through the creations of artists who help us to imagine the world as it has been, as it is now and as it might be. In this lesson, you will be invited to reflect on your own ideas and images of a future world in which water, food and agriculture are essential preoccupations for most people on the earth. You will also be introduced to the creative offerings of filmmakers, songwriters, poets and science fiction novelists as they explore the question of sustainability. By analyzing and evaluating these works of art, you will be invited to reflect on this central question: What is the role of the artists in influencing social visions of sustainability?

3. Ask students to take fifteen minutes to draw or write one vision or image of human beings’ future relationship to food, water or agriculture. Students will share in small groups. Visions could be hopeful images of a more sustainable community/earth or an apocalyptic image of failed systems. They do not need to be realistic. The intent is to help students tap into their creative imaginations before the class looks at the artistic visions of others.
4. Have students share their visions or images in small groups. Caution students against judging one another’s visions. This is an exercise in creativity with no rights or wrongs.
5. Divide the class into four teams based on the different media forms: film, song, poetry and science fiction literature, and distribute a Student Worksheet and *Student Handout* to each team. The *Student Handout* is divided into the four media forms. Distribute one genre to each group.
6. Explain that each team is to view, listen to, or read each of the four media documents for their assigned media form. **[NOTE: You may prefer to have each team select a single document from each media form.]** Students will complete the worksheet that asks about sustainability messages and creative communication techniques and present their analysis to the full class. Explain to students how to access the Student Materials section from the Project Look Sharp homepage. **[NOTE: This may be an in-class activity or done collectively as a homework assignment.]**
7. Introduce and play the film clips and song excerpts and project the song, poetry and science fiction PowerPoint slides. Have each team offer a document decoding. When possible, have a different student present each document for their media form. Use the *Media Sample Questions & Answers* to facilitate the decoding and encourage evidence-based analysis of the documents.
8. Lead a discussion of the essential question: **What is the role of the artist in influencing social visions of sustainability?**



"Two," 4:11 min. clip
***Twilight Zone*, (1961)**



Video 1 Introduction

This episode entitled "Two" opened the third season of *The Twilight Zone* television series when it aired in September 1961 in the midst of the Cold War. One year later, the U.S. and the Soviet Union would come dangerously close to war during the Cuban Missile Crisis.

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: In the aftermath of devastating war, individuals will be left to fight over meager food with one another.

2) What techniques does the artist use to communicate these messages?

Possible Answer: The filmmaker tells the story without any dialogue, and instead uses purely visual clues to indicate war (military uniforms, theater marquee reading "War News") and a fight scene to demonstrate the struggle over food. The musical score of punctuated strings, piano and percussion is used to highlight key actions in the drama.



***Soylent Green*, 2:59 clip**
Warner Brothers, 1973



Video 2 Introduction

This is a clip from the 1973 science fiction feature film *Soylent Green* directed by Richard Fleicher and starring Charlton Heston. The film deals with the manufacture of the processed food, soylent green. The young man in the crowd has been sent to kill the police detective who has discovered the corporate secret behind the production of soylent green.

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: An overcrowded world will lead to riots due to lack of available food. Food will be manufactured rather than grown.

2) What techniques does the artist use to communicate these messages?

Possible Answer: The filmmaker alternates between street level scenes to convey the experience in the crowd and above overhead shots to convey the sense of the large numbers of people vying for food. The soundtrack of crowd noise, crashing tables, breaking glass and scoops on pavement is designed to heighten the reality of the scene.



"Survival of the Species," 2:01 min. clip
***Northern Exposure*, 1993**



Video 3 Introduction

This 1993 episode of the TV series *Northern Exposure* is entitled "Survival of the Species." In this excerpt, the character Mike, who lives in a geodesic dome due to acute chemical sensitivity to environmental pollution, is speaking with filmmaker and deliveryman, Ed.

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: Pollution will destroy food production leading to famine, riots and plagues until the planet can no longer support human life.

2) What techniques does the artist use to communicate these messages?

Possible Answer: The filmmaker underscores the irony of human inaction in the face of catastrophe by setting a calm and rational discussion of environmental destruction and human extinction in a spotless white postmodern dome structure with classical music playing in the background.



***Sleep Dealer*, 3:21 min. clip**
Maya Entertainment, 2008



Video 4 Introduction

This is a clip from the 2008 science fiction feature film *Sleep Dealer* directed by Alex Rivera and starring Luis Fernando. The film deals with corporate control of the water supply in the Mexican village of Santa Ana del Rio and the dream of the young protagonist, Memo, to leave his small village for a high tech job in the north.

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: Access to water is controlled by for-profit corporations that use armed guards, video surveillance and wire fences to protect their investment. Small farmers are forced to spend money to water their small cornfields while the next generation questions the wisdom of maintaining the old ways of growing crops.

2) What techniques does the artist use to communicate these messages?

Possible Answer: The filmmaker uses the relationship of the father and son to highlight the divisions between the old ways of thinking and agricultural practices and the perception of a younger generation that has been alienated from working the land. The distinction between the past and future of agriculture are further heightened by the contrast between images of the men in the cornfield beneath the mountains and ATM machines and high tech surveillance at the top of the dam.



"Sustainability," 1:48 min. clip
DeLawn Hardy & Hasani Ashbury
2007

Song 1 Introduction

This song was written by student participants in San Francisco's Green Screen project. Green Screen is a project of EarthTeam, whose mission is to create a new generation of environmental stewards and leaders by introducing community environmental experiences into the classroom to inspire dedication to a healthy environment (EarthTeam 2011, para. 1).

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: The songwriters do not specifically reference food, water or agriculture but their attention to energy conservation suggests that they would support efforts to save energy in the production, purification and delivery of food and water.

2) What techniques does the artist use to communicate these messages?

Possible Answer: The collective nature of solutions is underscored by the multiple voices joining in on the chorus which emphasizes the "we" in "We're the Green Screen" and "we step on the scene."



"Country Living," 1:43 min. clip
The Mighty Diamonds
2007

Song 2 Introduction

"Country Living" was first recorded by the R&B group the Stylistics in the early 1970s. The Jamaican reggae group The Mighty Diamonds had their own hit covering the song in the mid-1970s. This song excerpt is from the acoustic version in 2007.

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: "Going back to country living" and "natural living" suggest a return to rural and agrarian life with food production in harmony with "the sound of nature's voice."

2) What techniques does the artist use to communicate these messages?

Possible Answer: The simplicity of country living as proposed by the lyrics is reinforced in the simple acoustic accompaniment by a solitary guitar. The harmony of two people ("room enough for both of us") living on the land is echoed in the harmony of the singers on the final chorus.



“Unsustainable,” 1:53 min. clip
Eliza Gilkyson
2008

Song 3 Introduction

This song was written and recorded by Eliza Gilkyson on her 2008 CD, *Beautiful World*. In an interview about the album with *Treehugger*, Gilkyson said:

It would be truly revolutionary to put all this good energy that the green movement has generated into not only experimenting with lifestyles within this system but also imagining new types of economic and social systems that don't bring out the worst in people - which is what capitalism, patriarchy, and all the authoritarian forms of running the world have done.” (Reichman, 2008, para. 8)

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: Having made “a perfect garden so unlivable,” people will have to completely change the current systems and “start all over again.”

2) What techniques does the artist use to communicate these messages?

Possible Answer: Gilkyson uses irony to command attention by delivering sharp-edged lyrics about the “uncontainable” and “unriddable” consequences of humanity’s bad behavior within a jazzy nightclub arrangement combining a slow and silky vocal with pedal steel guitar and bass.



“Throw Away That Shad Net (How Are We Gonna Save Tomorrow?)”
1:54 min. clip
Pete Seeger
2008

Song 4 Introduction

This song was first written by Pete Seeger in 1975 in response to General Electric’s dumping of PCBs into the Hudson River. Polychlorinated biphenyls (PCBs) have been identified as toxic chemicals by the Environmental Protection Agency and must be cleaned up if commercial fisheries are to return to the upper Hudson River. The Clearwater is a Hudson River sloop designed as a floating classroom by Seeger and other environmental activists (Hudson River Sloop Clearwater, 2011, para. 1).

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: Unanticipated impacts of technology can threaten our rivers and it will take long-term efforts of many to “save tomorrow.”

2) What techniques does the artist use to communicate these messages?

Possible Answer: The producers of this recording keep Pete Seeger’s vocal in the foreground, letting the words become the primary focus of listeners’ attention. The background chorus reinforces that everyone needs to lend a hand in the cleanup. Seeger’s own aging voice tells us that activism is a lifelong enterprise. [NOTE: The CD is entitled *Pete Seeger at 89*.]

What are the qualities that are unique to the medium of song that serve to influence our visions of the future? See *Further Questions* section on song for additional questions.



“The Seven of Pentacles”

Marge Piercy

1971

Poem 1 Introduction

This poem by Marge Piercy is part of a poem cycle in her collection *Circles on the Water*. In the introduction to this cycle, she explains that these poems were inspired by cards in the tarot deck, noting, “We must break through the old roles to encounter our own meanings in the symbols we experience in dreams, in songs, in vision, in meditation” (118).

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: The future of food is modeled on the natural world – interconnected, mysterious and available for harvest on nature’s clock, not people’s.

2) What techniques does the artist use to communicate these messages?

Possible Answer: Piercy begins and ends with the image of the digging and observing gardener, which ties this poem to food through the planter’s direct connection to the earth. The second part of the poem is an instruction for sustainable living. “Penetrate, fight, spread, gnaw, weave, create” all become directions for “how we are going to live for a long time.”



“For the Children”

Gary Snyder

1972

Poem 2 Introduction

This poem is from Gary Snyder’s Pulitzer Prize-winning collection, *Turtle Island*. In his introduction to this collection, Snyder writes, “The poems speak of place and the energy pathways that sustain life. Each living being is a swirl in the flow, a formal turbulence, a ‘song.’ The land, the planet itself, is also a living being – at another pace...Hark again to those roots to see our ancient solidarity, and then to the work of being together on Turtle Island” (i).

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: Sustaining life in the coming years will be difficult and will require unity, simplicity and learning to live in and with nature.

2) What techniques does the artist use to communicate these messages?

Possible Answer: Snyder crafts this poem in a simple style with short lines and easy words, as though he is writing his poem to and for the children. The difficulty of surviving the coming years is stated in the image of the steep climb and in the phrase, “if we make it.” The final verse summarizes his instructions on unity (“stay together”), simplicity (“go light”) and on living in and with nature (“learn from the flowers”).



“Remember”
Joy Harjo
1984

Poem 3 Introduction

Poet and musician Joy Harjo reflected on the creativity and meaning in a 2006 interview in the online journal of built and natural environments, *Terrain.org*:

I am driven to explore the depths of creation and the depths of meaning. Being native, female, a global citizen in these times is the root, even the palette. I mean, look at the context: human spirit versus the spirits of the earth, sky, and universe. We are part of a much larger force of sense and knowledge. Western society is human-centric. We’re paying the price of foolish arrogance, of forgetfulness (as cited in Buntin).

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: Food, water and agriculture are all part of the web of creation that also contains humans.

2) What techniques does the artist use to communicate these messages?

Possible Answer: Harjo uses the word “remember” to weave together her poem of instruction. She blends ancient teachings within a contemporary context by interspersing traditional Native American imagery of the sky, moon, sun and earth with reference to the modern world (“a bar in Iowa City” and “at the corner of Fourth and Central”).



“In a Country Once Forested”
Wendell Berry
2006

Poem 4 Introduction

This poem is from Wendell Berry’s 2006 collection, *Given: New Poems*. Berry reflected on the necessity of knowing history in a 1993 interview entitled “Field Observations”:

If you don’t know any of the past, you literally wouldn’t know anything. You’d have no language, no history...If you had a settled, a really settled thriving, locally adapted community, which we don’t have anywhere, you wouldn’t just be remembering the dead. You’d remember what they did and whether it worked or not. And so you’d have a kind of lexicon of possibilities that would tell you what you could do, what you could get away with, and what penalty to expect from what you couldn’t get away with” (as cited in Fisher-Smith).

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: Those who grow food must remember and follow the lessons of the soil beneath their feet.

2) What techniques does the artist use to communicate these messages?

Possible Answer: Berry explores the polarities of young and old and future and past within the context of a dream. He personifies the earth by allowing the woodland, the soil, and the pavement to have dreams of their own.

What are the qualities that are unique to the medium of poetry that serve to influence our visions of the future? See *Further Questions* section on song for additional questions.



Mara and Dann
Doris Lessing
1999

Novel 1 Introduction

This novel by Nobel Prize-winning author Doris Lessing concerns young siblings who are kidnapped from their home and then forced to migrate across the land during a period of ice and drought. During their long journey, they encounter lost cities and civilizations.

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: People will destroy their own capacity to survive through war, pollution and deforestation.

2) What techniques does the artist use to communicate these messages?

Possible Answer: By casting young children as main characters, Lessing allows the reader to view the future through the eyes and judgments of a child. Since children are associated with innocence and since all readers were once children themselves, the author invites the reader to embrace this point of view.



Parable of the Sower
Octavia Butler
1993

Novel 2 Introduction

Author Octavia Butler has selected a young woman, Lauren Olamina, as the narrator for this tale of refugees in search of a new start. Lauren has left her former home in a gated community after the murder of her family during a time of famine and civil unrest. She travels with a group of other survivors in an attempt to bring a new community she has chosen to call Earthseed.

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: Following the collapse of modern agriculture, people will have to farm “more like gardening,” focusing on protecting seed and one another in an effort to make “an investment in the future” by planting and tending their collective crop.

2) What techniques does the artist use to communicate these messages?

Possible Answer: Butler uses the dialogue between the narrator and another character at a key moment of decision to sketch out the risks and promises of the plan to farm as gardeners. By writing in the first person, the author invites the reader to experience the challenge of beginning anew as though it were his or her own journey (“I drew a deep breath”).



The Fifth Sacred Thing
Starhawk
1993

Novel 3 Introduction

Starhawk's novel is set in California the year 2048 following a national catastrophe. Hijohn and Littlejohn are refugees from the southern land of the Stewards who control society through martial law. Bird comes from the liberated territory to the north where nonviolence and environmental preservation are practiced.

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: Two different forms of water management are proposed as possible futures: private control of water supplies versus community control through water councils.

2) What techniques does the artist use to communicate these messages?

Possible Answer: Starhawk explores the question of water rights by contrasting the experiences of these three men. By giving Bird a lengthy opportunity to explain and defend the concept of community management, she makes clear her support for democratic control of water rights.



Woman on the Edge of Time
Marge Piercy
1976

Novel 4 Introduction

This novel centers on the experience of Connie, a woman who is released from a mental institution and begins to communicate with people from the future, like Jackrabbit, who live in a utopian town called Mattapoissett.

Media Sample Questions & Answers

1) What are the messages about the future of food, water and agriculture?

Possible Answer: Collective efforts at seasonal local farm production allow people to "feed everybody without destroying the soil" in a way that balances hard labor with rich rewards.

2) What techniques does the artist use to communicate these messages?

Possible Answer: Like Starhawk and Butler, Piercy uses dialogue between two characters to explore the possibilities of a future based on cooperative local effort. Her invention of words for future tools and practices (breeding center, jizers, holies and fooder) invites the reader to use their own imagination to envision possible futures.

What are the qualities that are unique to the medium of science fiction that serve to influence our visions of the future? See *Further Questions* section on science fiction novels for additional questions.

Culminating Discussion

Lead a discussion of the essential question: **What is the role of the artist in influencing social visions of sustainability?**

Encourage students to reflect on the similarities and differences between the roles of filmmaker, songwriter, poet and novelist in helping to shape social visions of what is possible.

Ask: **How is the role of the artist different from the role of the scientist or the teacher in shaping visions of sustainability? Are artists' visions of the future as widely accepted as those of scientists? Why or why not?**

Invite students to reflect on their own perspectives on how art and creativity impacts society.

FURTHER QUESTIONS

FILM

How has the historical context of each film or TV program served to shape the respective message about the future of food, water and agriculture? For instance, what historical events and developments helped to shape the plot structure of *Twilight Zone* in 1961 and *Sleep Dealer* in 2008?

These films use language in different ways to convey meaning. For instance *Twilight Zone* uses only written language and has no spoken words, *Soylent Green* uses invented words (soylent green, scoops) and *Sleep Dealer* uses both Spanish and English. **In what ways does the choice of language serve to further plot development in film?**

SONG

Who are the likely target audiences for each song? Explain how you arrive at that conclusion.

Which songs are effective in communicating their message about sustainability and why?

What characterizes an effective song? One reaches the most people? That has great lyrics? That is a good match between music and lyrics? That is presented in a great performance? What makes a song effective as a conveyer of social or political messages?

POETRY

Which poem was most engaging for you and which was least engaging and why?

SCIENCE FICTION NOVEL EXCERPTS

A utopia is an imaginary place that is socially and morally ideal. A dystopia is an imaginary place that is socially and morally repulsive. **Which of these excerpts describes a utopia and which describes a dystopia?**

All of the authors in this collection are women. **Is there a generalized difference in the ways in which women and men envision the future?**

Which book would you be most likely to continue to read in its entirety and why?

ALL CREATIVE FORMS

What are the similarities and the differences between artists and media makers?

Which creative medium is most likely to impact broader social views about the sustainability of food, water and agriculture and why?

Are certain of these media more suited for complex understandings of the issue than others?

What target audiences are each of these creative forms likely to impact the most?

What creative medium has helped to shape your own visions of the future?

EXTENDED ACTIVITIES

Brainstorm forms of creative media not explored in this lesson (e.g. graphic novels, video games, animation, visual imagery). Choose a media form of particular interest to you and seek out or create visions of the future of food, water and agriculture in that form. Compare visions with the ones presented in this lesson and those discovered by other students.

Stage an expression session in your school or community group to invite creative visions of the future of food, water and agriculture. Place these expressions on public display and invite discussion about how to actualize the most engaging visions. Consider using natural materials for your creations that will fold back into the earth upon completion.

Interview elders in your family and community about their current visions of the future of food, water and agriculture and how they compare with their past visions.

Research creative visions of imagined futures as they appeared in the media of a century ago. What songs, early films, theater and novels dealt with these issues then? What can we learn from investigating these visions today?

Seek out and analyze artistic expressions of the future as expressed by people of different cultural groups, social classes and religions. Seek to uncover what role culture, class and religion might play in an artist's view of possible futures.

Undertake a scavenger hunt to find artistic expressions of the future of food or water that deal specifically with each of these challenges: climate change, fossil fuel depletion, social justice, water rights, land access and soil fertility.

Write a letter to your great grandchild. Explain to them how you access food and water today and ask them questions about where their food and water come from.

Review the excerpts from Pete Seeger's "Throw Away That Shad Net" and Doris Lessing's *Mara and Dann*. Consider their messages about the unanticipated effects of technology. Create your own expression on the possible future impact of current pioneering technologies.

Add your own piece of artwork to the climate change action site, 350.org art gallery.

CONNECTIONS

L2, 6, 14, 15, 16, 18, 19
(unintended consequences)

L2, 7, 11, 13, 17, 19
(creative arts)

L2, 6, 7, 9, 10, 12, 13, 14, 15, 18
(film & video)

L2, 7
(songs)



Song Excerpts

“Sustainability”

DeLawn Hardy & Hasani Ashbury

2007

Transportation is a big problem in the population
Pollution from the cars got everybody tastin’
Gas, smoke, quit cutting down trees
I’m savin’ my environment by sustainability
I’m saving energy by cruising in a hybrid
No more smoke, got to save the environment
I’m fly kid, I’m high up in the sky
Got to barely touch the ground,
Got to keep my footprints light, no lie
If you know what I mean
I’m gonna step on the scene
With my team Green Screen
White tee, blue jeans, and I’m ready to go
Pollution’s not a solution and it’s out of control
I’m tryin’ to show the whole world
I can do good for my turf
‘Cause some of these living situations
Are bad for the Earth
So you sit back and relax
And I hope you’re feelin’ me
‘Cause I’m savin’ energy - that’s sustainability.

CHORUS

Cruisin’ in my hybrid, savin’ my environment
Don’t let my pride get in the way,
I listen to the scientists
Check the shirt, we’re the Green Screen
Environmental steps are light
When we step on the scene. (2X)

As your boys work the team I set the Green Screen.
We stayin’ on our job. We keep the air clean.
And we keep trash off the pavement
and we’re practicing energy savin’
I ain’t Superman but I save women and children
I’m doin my part and pickin’ up around buildin’s
Get yourself a hybrid instead of the car
with the extra vroom using extra fumes
Or at least hit the light when you leave out the room
I’m fly enough to have wings, your boy walk steady
Check my footsteps, I don’t walk heavy
But we can only do so much
You ain’t helping out with your 4 by 4 trucks,
using mo’ bucks, recycling less stuff
But watch what happens
when your breathin’ gets tough
And that global heat gonna start to get rough

CHORUS

“Country Living”

The Mighty Diamonds

2007

I’m going back to country living
Where the air is fresh and clean
Going back to natural living
Where the grass grows tall and green
And the skies can be seen

I’ll say goodbye to Kingston city
City life is not for me
Going where the stars shines brightly

And the sound of nature’s voice
Goes in the scene

‘Cause there’s room enough for both of us
Time enough to tell
All the things you wanna do
Country life
Oh with you, yeah with you.
(goin’ back) yeah, yeah



Song Excerpts

“Unsustainable”

Eliza Gilkyson

2008

unsustainable, unmaintainable
we’ve gone too far and now it’s uncontainable
let’s tear it down and start all over again

reprehensible, indefensible
the way we are is truly incomprehensible
back to the drawing board
start all over again

madly, we loved you madly
we would have gladly maintained the status quo
badly, we’ve behaved badly
and now, sadly, we’ll have to let you go

you’re so unforgivable, results unriddable
to make a perfect garden so unlivable
back to the drawing board
start all over again

“Throw Away That Shad Net (How Are We Gonna Save Tomorrow?)”

Pete Seeger

2008

PCB was a clever thing,
'way back in twenty-nine.
Transformers and capacitors
got turned out on the line.
Nobody suspected
what they'd do to us in time,
but now we got to worry 'bout
tomorrow.

Well, the purpose of technology
is gonna take a different turn,
we'll test each new thing carefully,
that's one thing we have learned,
we need a clean world for all to share,
and all to work and earn,

Well, the experts knew about it,
so why not you and me,
who controls the information in this land of the
free?
The laws didn't seem to help in stopping PCB,
so how are we gonna save tomorrow?

The longest journey taken needs a first step to
begin.
This cleanup's gonna take a while,
but now we must begin.
Clearwater says to lend a hand, a claw, a paw, a fin,
'cause now we got to work to save tomorrow.



Poem Excerpts

“The Seven of Pentacles”

Marge Piercy

1971

Under a sky the color of pea soup
she is looking at her work growing away there
actively, thickly like grapevines or pole beans
as things grow in the real world, slowly enough.
If you tend them properly, if you mulch, if you water,
if you provide birds that eat insects a home and winter food,
if the sun shines and you pick off caterpillars,
if the praying mantis comes and the ladybugs and the bees,
then the plants flourish, but at their own internal clock.

Connections are made slowly, sometimes they grow underground.
You cannot tell always by looking what is happening.
More than half the tree is spread out in the soil under your feet.
Penetrate quietly as the earthworm that blows no trumpet.
Fight persistently as the creeper that brings down the tree.
Spread like the squash plant that overruns the garden.
Gnaw in the dark and use the sun to make sugar.

Weave real connections, create real nodes, build real houses.
Live a life you can endure: Make love that is loving.
Keep tangling and interweaving and taking more in,
a thicket and bramble wilderness to the outside but to us
interconnected with rabbit runs and burrows and lairs.

Live as if you liked yourself, and it may happen:
reach out, keep reaching out, keep bringing in.
This is how we are going to live for a long time: not always,
for every gardener knows that after the digging, after the planting,
after the long season of tending and growth, the harvest comes.

“For the Children”

Gary Snyder

1972

The rising hills, the slopes,
of statistics
lie before us.
The steep climb
of everything, going up,
up, as we all
go down.

In the next century
or the one beyond that,
they say,
are valleys, pastures,
we can meet there in peace
if we make it.

To climb these coming crests
one word to you, to
you and your children:

stay together
learn the flowers
go light



Poem Excerpts

“Remember”

Joy Harjo

1984

Remember the sky that you were born under,
know each of the star's stories.
Remember the moon, know who she is. I met her
in a bar once in Iowa City.
Remember the sun's birth at dawn, that is the
strongest point of time. Remember sundown
and the giving away to night.
Remember your birth, how your mother struggled
to give you form and breath. You are evidence of
her life, and her mother's, and hers.
Remember your father. He is your life also.
Remember the earth whose skin you are:
red earth, black earth, yellow earth, white earth
brown earth, we are earth.
Remember the plants, trees, animal life who all have their
tribes, their families, their histories, too. Talk to them,
listen to them. They are alive poems.
Remember the wind. Remember her voice. She knows the
origin of this universe. I heard her singing Kiowa war
dance songs at the corner of Fourth and Central once.
Remember that you are all people and that all people are you.
Remember that you are this universe and that this universe is you.
Remember that all is in motion, is growing, is you.
Remember that language comes from this.
Remember the dance that language is, that life is.
Remember.

“In a Country Once Forested”

Wendell Berry

2006

The young woodland remembers
the old, a dreamer dreaming

of an old holy book,
an old set of instructions,

and the soil under the grass
is dreaming of a young forest,

and under the pavement the soil
is dreaming of grass.



Novel Excerpts

Mara and Dann

Doris Lessing

1990

In a room in a building that had only machines of war was a wall that listed the ways it was thought these ancient peoples would have ended their civilizations even if the ice had not arrived. War was one. She could not understand the weapons: they were so difficult and so complicated. And even when the explanations were clear enough to understand she could not believe what she was reading. Projectiles that could carry diseases designed to kill all the people in a country or city? What were these ancient peoples, that they could do such things? "Bombs" that could...She did not understand the explanations.

There was recklessness about the ways they used their soil and water. "These were peoples who had no interest in the results of their actions. They killed out the animals. They poisoned the fish in the sea. They cut down forests, so that country after country, once forested, became desert or arid. They spoiled everything they touched. There was probably something wrong with their brains. There are many historians who believe that these ancients richly deserved the punishment of the Ice" (p. 381).

Parable of the Sower

Octavia Butler

1993

There are no guarantees anywhere," I agreed. "But if we're willing to work, our chances are good here. I've got some seed in my pack. We can buy more. What we have to do at this point is more like gardening than farming. Everything will have to be done by hand-- composting, watering, weeding, picking worms or slugs or whatever off the crops and killing them one by one if that's what it takes. As for water, if our well still has water in it now, in October, I don't think we have to worry about it going dry on us. Not this year, anyway. And if people threaten us or our crop, we kill them. That's all. We kill them, or they kill us. If we work together, we can defend ourselves, and we can protect the kids. A community's first responsibility is to protect its children-- the ones we have now and the ones we will have."

There was silence for a while, people digesting, perhaps measuring it against what they had to look forward to if they left this place and continued north.

"We should decide," I said. "We have building and planting to do here. We have to buy more food, more seed and tools." It was time for directness: "Allie, will you stay?"

She looked across the dead fire at me, stared hard at me as though she hoped to see something on my face that would give her an answer.

"What seed do you have?" she asked.

I drew a deep breath. "Most of it is summer stuff--corn, peppers, sunflowers, eggplant, melons, tomatoes, beans, squash. But I have some winter things; peas, carrots, cabbage, broccoli, winter squash, onions, asparagus, herbs, several kinds of greens... We can buy more, and we've got the stuff left in this garden plus what we can harvest from the local oak, pine, and citrus trees. I brought tree seeds too: more oak, citrus, peach, pear, nectarine, almond, walnut, a few others. They won't do us any good for a few years, but they're a hell of an investment in the future" (p. 292).



Novel Excerpts

The Fifth Sacred Thing **Starhawk** **1993**

"Tell us more about your home, Charlie," Hijohn said. "Who owns the water?"

"What do you mean?"

"I mean the water. Like to drink and grow your food. Who owns it?"

"Nobody owns it. You can't own water where I come from."

"Somebody's got to own it," Littlejohn said. "Somebody always does."

"We believe there are Four Sacred Things that can't be owned," Bird said. "Water is one of them. the others are earth and air and fire. They can't be owned because they belong to everybody. Because everybody's life depends on them."

"But that would make them the best kind of thing to own," Littlejohn said. "Because if your life depends on it, you've got to have it. You'll pay any price for it. You'll steal or lie or kill to get it."

"That's why we don't let anybody own them," Bird said.

"So if nobody owns the water, who decides who gets it and who doesn't?" Hijohn asked.

"Everyone decides together. Four times a year, each household sends a representative to the Neighborhood Councils to discuss water issues. Water Council coordinates distribution and arranges for the work that's needed to maintain the system. Each house has its own cistern that fills with the winter rains. But that doesn't give us enough for the whole summer. We draw from the streams and reservoirs and bring down water from the Sierras."

"What if you don't agree?"

"We'll keep talking about it until we do agree. It works out."

"What if it doesn't?"

"It always does. It has to, because we know what the alternative is."

"What?"

"The Stewards or something like them."

In the silence they could hear the call of the night birds. The sun was gone but the wind had dropped.

"Well, where we come from you pay," Hijohn said. "The Stewards control the water supplies; that's how they took control of the government in '28" (p. 71-72).



Novel Excerpts

Woman on the Edge of Time

Marge Piercy

1976

"Mouth-of-Mattapoissett exports protein in flounder, herring, alewives, turtles, geese, ducks, our own blue cheese. We manufacture goose-down jackets, comforters and pillows. We're the plant breeding center for this whole sector in squash, cucumbers, beans and corn. We build jizers, diving equipment, and the best nets this side of Orleans, on the cape. On top, we export beautiful poems, artwork, holies rituals, and a new style of cooking turtle soups and stews. "

"Why isn't anybody in a hurry? Why are the kids always underfoot? How can you waste so much time talking?"

Jackrabbit waved his arms windmill fashion. "How many hours does it take to grow food and make useful objects? Beyond that we care for our brooder, cook in our fooder, care for animals, do basic routines like cleaning, politic and meet. That leaves hours to talk, to study, to play, to love, to enjoy the river. "

"At spring planting, at harvest, when storms come, when some crisis strikes, Connie, we work, we stiff it till we drop...The old folks story about how they used to have to stiff it all the time. How long the struggle was to turn things over and change them. After, what a mess the whole ying-and-yan of it was from peak to sea." Luciente waved off into the distance. "Now we don't have to comp ourselves that hard in ordintime...Grasp, after we dumped the jobs telling people what to do, counting money and moving it about, making people do what they don't want or bashing them for doing what they want, we have lots of people to work. We put a lot of work into feeding everybody without destroying the soil, keeping up its health and fertility. With most everybody at it part time, nobody breaks their back and grubs dawn to dusk like old-time farmers...Instance, in March I might work sixteen hours. In December, four..." (p. 120).



Student Worksheet

NAME _____

DATE _____

Title of media document: _____

1) What are the messages about the future of food, water and agriculture?

2) What techniques does the artist use to communicate these messages?

Title of media document: _____

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Lesson 3:

Defining Sustainability

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PowerPoint	
(Access online or via Lesson 3 digital media folder)	
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Student Worksheet: Civil Society Definitions.....	87

LESSON PLAN



PowerPoint
Slide Show



Printed
Documents

Defining Sustainability

Lesson Objectives:

- Students will analyze different definitions of the term “sustainability” as constructed by individuals and groups representing corporate and civil society.
- Students will understand the power of words and diagrams to shape definitions.
- Students will define and articulate their own definitions of sustainability within a systems framework that includes social justice, climate change, economics and energy.

Vocabulary:

systems thinking, greenwashing, renewable energy, zero waste, risk management, common wealth, ecosystem health, social justice, environmental justice, low-carbon society

Media: web page, magazine, blog, speech

Materials Needed:

- Six-page *Teacher’s Guide*
- Two-page Student Worksheet: Corporate Definitions, Pages 1-2
- Five separate one-page Student Worksheets: Civil Society Definitions
- Eight slide PowerPoint slideshow (Access online or via Lesson 3 digital media folder)

Time: 60-90 minutes depending on length of discussion

Lesson Procedures

- Present the *Lesson Introduction* to the class.
- Distribute the Student Worksheet: Corporate Definitions. Have students complete the first worksheet page. When they are finished, give the answers to that page and have students complete the second worksheet page.
- Lead a discussion about how corporate mission statements shape corporate definitions of sustainability.
- Divide the class into five teams and distribute Student Worksheets: Civil Society Definitions 1-5. Have the groups complete their worksheet.
- Lead a discussion on the ways in which words and diagrams shape systems thinking and about the differences between corporate and civil society definitions of sustainability.
- Have students work individually to create their own definition of sustainability within the framework of “systems thinking” analysis.
- Have students share their definitions and lead a class discussion of the essential question:
What elements must be included in a definition of sustainable systems?
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Defining Sustainability

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

“Sustainability” is a word that we use frequently in the 21st century. You can find the word in advertisements for oil companies and in posters for ecovillages. The meaning of “sustainability,” like all definitions, depends on many factors, including authorship, purpose and context. In this lesson, you will be asked to consider the meaning of “sustainability” as viewed from Donella Meadows’ perspective of “systems thinking.” In 1996, Meadows founded the Sustainability Institute as a means to further complex understandings of the concepts and practices underlying sustainability. In her book, *Thinking in Systems: A Primer*, Meadows writes:

The system-thinking lens allows us to reclaim our intuition about whole systems and

- hone our abilities to understand parts,
- see interconnections,
- ask “what-if” questions about possible future behaviors, and
- be creative and courageous about system redesign. (2008, p. 6-7)

In this lesson, you will analyze 15 descriptions of “sustainability” from varied sources as presented in the corporate and civil society sectors and in varied media forms from website texts to academic journal diagrams. According to the World Bank, the term “civil society” refers to a “wide array of non-governmental and not-for-profit organizations that have a presence in public life, expressing the interests and values of their members or others, based on ethical, cultural, political, scientific, religious, or philanthropic considerations” (2010, para. 5). After examining both corporate and civil society definitions, you will then be asked to define and articulate your own definition of sustainability with your “systems thinking lens” in place.

3. Distribute the Student Worksheet: Corporate Definitions, Page 1. Explain that the first five sustainability definitions all come from the corporate sector and include a retail business, a service corporation, a corporate association, a production company and a business information organization. Have students complete the first worksheet page and use prior knowledge to guess which corporate mission statement applies to each organization.
[NOTE: To simplify this activity, provide students with the answers listed below and ask them to underline clues in the text of each mission statement that could help to identify the source.]

4. When students are finished with the worksheet, ask for their guesses and supporting evidence. After the discussion, provide students with the answers below.

Student Worksheet: Corporate Definitions, Page 1 Answers

B (Monsanto)

"If there were one word to explain what [our organization] is about, it would have to be farmers. We create the seeds, traits, and crop protection chemicals that help farmers produce more food using fewer resources" (Monsanto.com, 2011, para. 1).

D (National Association of Manufacturers)

"[Our organization] is the preeminent US manufacturers association as well as the nation's largest industrial trade association, representing small and large manufacturers in every industrial sector and in all 50 states. Manufacturing employs nearly 12 million workers, contributes more than \$1.6 trillion to the U.S. economy annually, is the largest driver of economic growth in the nation and accounts for the lion's share of private sector research and development" (National Association of Manufacturers, 2009, para. 1).

A (WalMart)

"Saving people money to help them live better was the goal that [our founder] envisioned when he opened the doors to the first [building] Today, more than 40 years later with operations in 28 countries worldwide, we continue to deliver that promise to families around the globe. It's the focus that underlies everything we do at [our organization]" (WalmartStores.com, n.d. , para 2-3).

E (Dow Jones)

"A leader in news and business information world-wide, [our organization] is newswires, Web sites, newspapers, newsletters, databases, magazines, radio and television. Our publications inform the discussions and decisions of the world while our databases make the business world more transparent. We develop technology to transform information into insight" (DowJones.com, 2011, para. 1).

C (Sodexo)

"[Our organization] is a world leader in Quality of Daily Life Solutions in the U.S., Canada, and Mexico, serving 10 million consumers in 6,000 locations every day. Our dedication to excellent service, corporate citizenship, and fighting hunger all come from one goal - to make every day a better day...As the leading provider of integrated food and facilities management services in the US, Canada, and Mexico, we set out each morning to treat every person we encounter with the highest level of respect and service" (Sodexousa.com, 2010, para. 1-2).

5. Distribute the Student Worksheet: Corporate Definitions, Page 2 (or direct students to the back side of the Student Worksheet if printed double-sided). Explain that this worksheet contains sustainability statements from websites and reports of the five corporations featured on the first page of the worksheet. Students will use clues from the mission statements on page one to guess which sustainability statement was offered by each corporate group on page two.

6. When students are finished with the second page of worksheet, ask for their guesses and supporting evidence. After the discussion, provide students with the answers below.

Student Worksheet: Corporate Definitions, Page 2 Answers

C (Sodexo)

"We recognize that we have a responsibility to use our resources wisely and to protect them for future generations. Natural materials, foods, and packaging, proper farming and trade practices and innovative recycling programs are just a few of our sustainable practices" (Sodexousa.com, 2009, para. 1).

E (Dow Jones)

"Corporate sustainability is a business approach to create long-term shareholder value. Sustainability leaders embrace opportunities and manage risks which derive from economic, environmental and social developments. As the importance of these trends increases, a growing number of investors integrate economic, environmental and social criteria into their stock analysis and use sustainability as a proxy indicator for innovative and future-oriented management" (SAM Indexes GmbH, 2011, para. 1).

A (WalMart)

"[Our then President and CEO] launched our sustainability program with three clear and aspirational goals:

- Be supplied 100 percent by renewable energy
- Create zero waste
- Sell products that sustain people and the environment.

These three broad goals are at the heart of [our organization's] sustainability efforts" (WalmartStores.com, 2011, para. 1-2).

D (National Association of Manufacturers)

"[Our organization's] member companies are committed to advancing sustainability efforts that positively impact manufacturing and the industry's contributions to environmental protection, economic performance, and the social well-being of the communities, customers and consumers they serve by providing sound products and services" (National Association of Manufacturers, 2009, para. 84).

B (Monsanto)

"Our vision for sustainable agriculture is built on a foundation of innovative people, products, and coalition of invaluable partnerships. Whether it's improving access to modern seed and practices for smallholder farmers, investing in the next generation of plant scientists and agricultural leaders, or supporting philanthropic projects in rural communities, we believe working with partners on projects such as these ultimately improves lives for people in the communities we serve and for society at large" (Monsanto, 2010, p. 23).

7. Lead a discussion about how corporate mission statements shape corporate definitions of sustainability. Probe questions might include:
 - **Were you able to determine which corporate groups created each statement and if so, what evidence did you use to decide?**
 - **Do you think corporate sustainability statements are merely “greenwashing,” or are they genuine efforts to preserve human and natural communities?**
 - **What questions do you have about these mission statements?**
8. Divide the class into five teams and distribute a different one of the five Student Worksheets: Civil Society Definitions 1-5 to each team. Explain that the worksheet contains three descriptions or definitions of sustainability. The first definition on the worksheet comes from the corporate sustainability statements on the previous student worksheets. The other two definitions come from varied agents within civil society, including a grassroots group, university professors, a United Nations agency, a farmer, a college student and a Native American leader. The two civil society definitions on each worksheet feature a text-based and diagram-based description. Each student team will study all three sustainability descriptions in order to decide which definition does the best job of capturing core truths about sustainability using evidence from the text and images on the worksheet. Students will select three words or phrases from any or all of the descriptions that they think are essential elements of a good sustainability definition.
9. After the teams have had an opportunity to study and complete their worksheets, ask each group to present their justification for their choice of the best systems thinking sustainability description. Project the PowerPoint slides as each team makes its presentation. Each slide matches one page of the Student Worksheet: Civil Society Definitions 1-5. You may also want to keep a running list of the selected words and phrases from the three definitions for use in the next step.
10. After each team has presented their assessments, lead a discussion on the ways in which words and diagrams shape systems thinking. Probe questions include:
 - **What kinds of word choices or diagram designs help further systems thinking?**
 - **What concepts appear most frequently as cornerstones of sustainable systems?**Lead a discussion on the differences between corporate and civil society definitions of sustainability. Probe questions include:
 - **What differences did you notice between the corporate and civil society descriptions?**
 - **What similarities did you notice between the corporate and civil society descriptions?**
11. Have students work individually to create their own definition of sustainability within the framework of “systems thinking” analysis. **[Note: This can be given as an in-class or homework assignment and it may be offered as a team rather than individual activity.]** Encourage students to consider the relative importance of the themes that have appeared in the descriptions that they have seen such as social justice, climate change, energy and economics.
12. Have students share their definitions and lead a class discussion of the essential question:
What elements must be included in a definition of sustainable systems?
Urge students to consider how systems thinking can help deepen their understanding. Encourage students to consider content elements, such as the keywords listed in Step 10, and design/form elements such as words, images and their juxtaposition.

FURTHER QUESTIONS

Analyzing Media Messages

These descriptions of sustainability were published in media sources with very different target audiences, including corporate web pages, magazines, academic journals and student blogs. **How do target audiences influence media messages?**

Most of these messages were constructed in the 21st century. **How does when a message is made influence its meaning?**

Who might benefit and who might be harmed by one of these messages?

Consider the geometry of the diagrams, which include circles, triangles and rectangles. **Which particular geometric form especially lends itself to communicating complex systems?**

Self Reflection

Which description was most effective in moving you toward action on the issue of sustainability and why?

Which of these documents was most disturbing to you and what did you learn about yourself from your response?

What factors influenced your personal choice of a sustainability definition?

Underlying Values and Motives

What are the consequences for dialogue, cooperation or political debate when people use the same words but mean different things?

In what ways do social justice, climate change and fossil fuel depletion impact your thinking about what sustainability means?

What differences did you notice in the value systems that underlie the corporate and civil society definitions of sustainability? Are there differences in value systems within the corporate set and within the civil society set as well?

How is self-interest a factor in defining sustainability? How is group interest a factor?

How might groups be impacted differently by society's understanding of sustainability? For instance, might people with low incomes, people living in the southern hemisphere and people with little access to clean water be impacted differently than those who are wealthy and living in the Northern hemisphere with plenty access to clean water?

EXTENDED ACTIVITIES

Consider the different ideas of sustainability that emerge when one thinks of the sustainability of a single human life, human species and the planet earth. Pick a particular element such as food, water or energy through which to view each of these very different sustainability lenses.

Look back in history to see when “sustainability” appeared as a word in common discourse. (*The Oxford English Dictionary* might be a helpful resource in identifying when “sustainability” entered the English language.)

Write a letter to someone you admire about your beliefs on sustainability and ask for their input in return.

Produce your own media representation on issues of sustainability. Consider your target audience and which media form might be best suited to reach them.

Contact one of the groups or individuals from the documents in this lesson and communicate with them regarding your feelings, ideas or questions about their work.

Research the beliefs and practices regarding sustainability among sustained farming cultures in your region, especially the Native American people who lived in your area prior to the conquest.

Investigate the impact of shareholder lobbying on corporate sustainability policy.

Throw a sustainability party, inviting friends and family to bring an idea, example, food or cultural artifact that contains an aspect of the definition of sustainability.

Initiate a scavenger hunt search for sustainability references in media found at home, school and the community (posters, packaging, advertisements, etc.). Analyze each piece, questioning whether it fits your sustainability definition and why.

Look for as many means to measure agricultural sustainability as you can find. For instance, some measure sustainability on a farm by profit margin, some by bushels produced per acre, some by the number of people fed, some by acres of soil returned to fertility and others by the ability to produce food on marginal land.

CONNECTIONS

L3, 6, 8, 9, 14, 16, 17, 18, 19
(fossil fuel)

L3, 6, 9, 11, 16, 17, 18, 19
(climate change)



Student Worksheet – Corporate Definitions, Page 1

NAME _____

DATE _____

Match each organization's name to its corresponding mission statement by placing the letter associated with each corporation on the lines next to the statements below. Be prepared to justify your choices by addressing evidence relating to ideas, values, target audience and mission emphasis from the "About Us" web pages.

A –Walmart B–Monsanto C–Sodexo D–National Association of Manufacturers E–Dow Jones

CORPORATE MISSION STATEMENTS FROM WEB PAGES

- _____ "If there were one word to explain what [our organization] is about, it would have to be farmers. We create the seeds, traits, and crop protection chemicals that help farmers produce more food using fewer resources."
- _____ "[Our organization] is the preeminent US manufacturers association as well as the nation's largest industrial trade association, representing small and large manufacturers in every industrial sector and in all 50 states. Manufacturing employs nearly 12 million workers, contributes more than \$1.6 trillion to the U.S. economy annually, is the largest driver of economic growth in the nation and accounts for the lion's share of private sector research and development."
- _____ "Saving people money to help them live better was the goal that [our founder] envisioned when he opened the doors to the first [building] Today, more than 40 years later with operations in 28 countries worldwide, we continue to deliver that promise to families around the globe. It's the focus that underlies everything we do at [our organization]."
- _____ "A leader in news and business information world-wide, [our organization] is newswires, Web sites, newspapers, newsletters, databases, magazines, radio and television. Our publications inform the discussions and decisions of the world while our databases make the business world more transparent. We develop technology to transform information into insight."
- _____ "[Our organization] is a world leader in Quality of Daily Life Solutions in the U.S., Canada, and Mexico, serving 10 million consumers in 6,000 locations every day. Our dedication to excellent service, corporate citizenship, and fighting hunger all come from one goal - to make every day a better day...As the leading provider of integrated food and facilities management services in the U.S., Canada, and Mexico, we set out each morning to treat every person we encounter with the highest level of respect and service."



Student Worksheet – Corporate Definitions, Page 2

NAME _____

DATE _____

Match each organization's name to its corresponding mission statement by placing the letter associated with each corporation on the lines next to the statements below. Be prepared to justify your choices by addressing evidence relating to ideas, values, target audience and mission emphasis from "sustainability" statements and corporate reports.

A –Walmart B–Monsanto C–Sodexo D–National Association of Manufacturers E–Dow Jones

SUSTAINABILITY STATEMENTS FROM WEB PAGES & CORPORATE REPORTS

- ___ "We recognize that we have a responsibility to use our resources wisely and to protect them for future generations. Natural materials, foods, and packaging, proper farming and trade practices and innovative recycling programs are just a few of our sustainable practices."
- ___ "Corporate sustainability is a business approach to create long-term shareholder value. Sustainability leaders embrace opportunities and manage risks which derive from economic, environmental and social developments. As the importance of these trends increases, a growing number of investors integrate economic, environmental and social criteria into their stock analysis and use sustainability as a proxy indicator for innovative and future-oriented management."
- ___ "[Our then President and CEO] launched our sustainability program with three clear and aspirational goals:
- Be supplied 100 percent by renewable energy
 - Create zero waste
 - Sell products that sustain people and the environment.
- These three broad goals are at the heart of [our organization's] sustainability efforts."
- ___ "[Our organization's] member companies are committed to advancing sustainability efforts that positively impact manufacturing and the industry's contributions to environmental protection, economic performance, and the social well-being of the communities, customers and consumers they serve by providing sound products and services."
- ___ "Our vision for sustainable agriculture is built on a foundation of innovative people, products, and coalition of invaluable partnerships. Whether it's improving access to modern seed and practices for smallholder farmers, investing in the next generation of plant scientists and agricultural leaders, or supporting philanthropic projects in rural communities, we believe working with partners on projects such as these ultimately improves lives for people in the communities we serve and for society at large."

Student Worksheet – Civil Society Definitions 1

NAME _____

DATE _____

Consider these three descriptions of sustainability. Decide which definition best captures sustainability from a systems thinking perspective, or which allows you to understand component parts within whole systems. Decide which concepts are key to a good definition of sustainability.

A - Corporate sustainability description from WalmartStores.com, “About Us” webpage:

“[Our then President and CEO] launched our sustainability program with three clear and aspirational goals:

- *be supplied 100 percent by renewable energy*
- *create zero waste*
- *sell products that sustain people and the environment.*

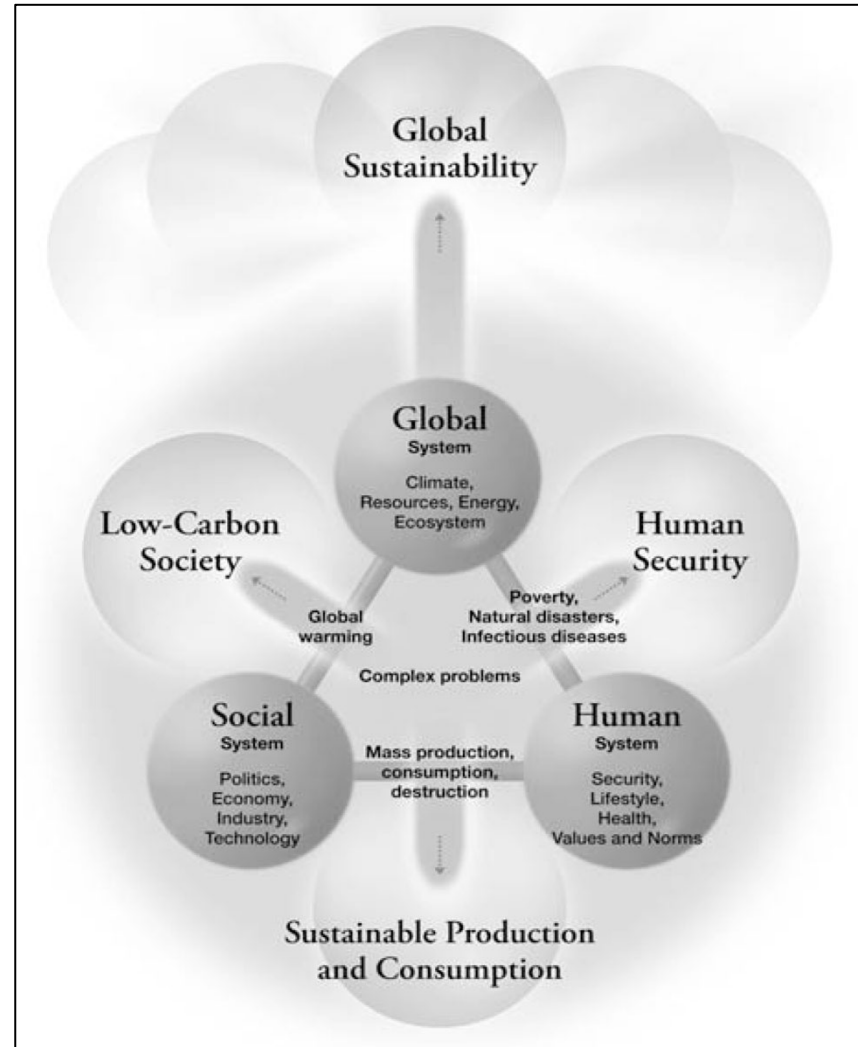
These three broad goals are at the heart of Walmart’s sustainability efforts” (2011, para. 1-2).

B - Civil society sustainability description 1 from Detroit Black Community Food Security, A City of Detroit Policy on Food Security: “Creating a Food Secure Detroit” (n.d., para. 1)

“Sustainable food systems... provide people with high quality food, employment, and...also contribute to the long-term well-being of the environment.”

Which of these best captures sustainability from the systems thinking perspective: A, B or C?

Select three words or phrases from among any or all of the descriptions that you think must be included in a good definition of sustainability:



C - Civil society sustainability description 2 from “Sustainable Science: Building a New Discipline” (Komiya, H. & Takeuchi, K., 2006, p. 3)

Student Worksheet – Civil Society Definitions 2

NAME _____ DATE _____

Consider these three descriptions of sustainability. Decide which definition best captures sustainability from a systems thinking perspective, or which allows you to understand component parts within whole systems. Decide which concepts are key to a good definition of sustainability.

A - Corporate sustainability description from the National Association of Manufacturers' *ERP-02 Environmental Quality and Sustainability*, 2.17. Principles for Sustainability (2009, para. 84)

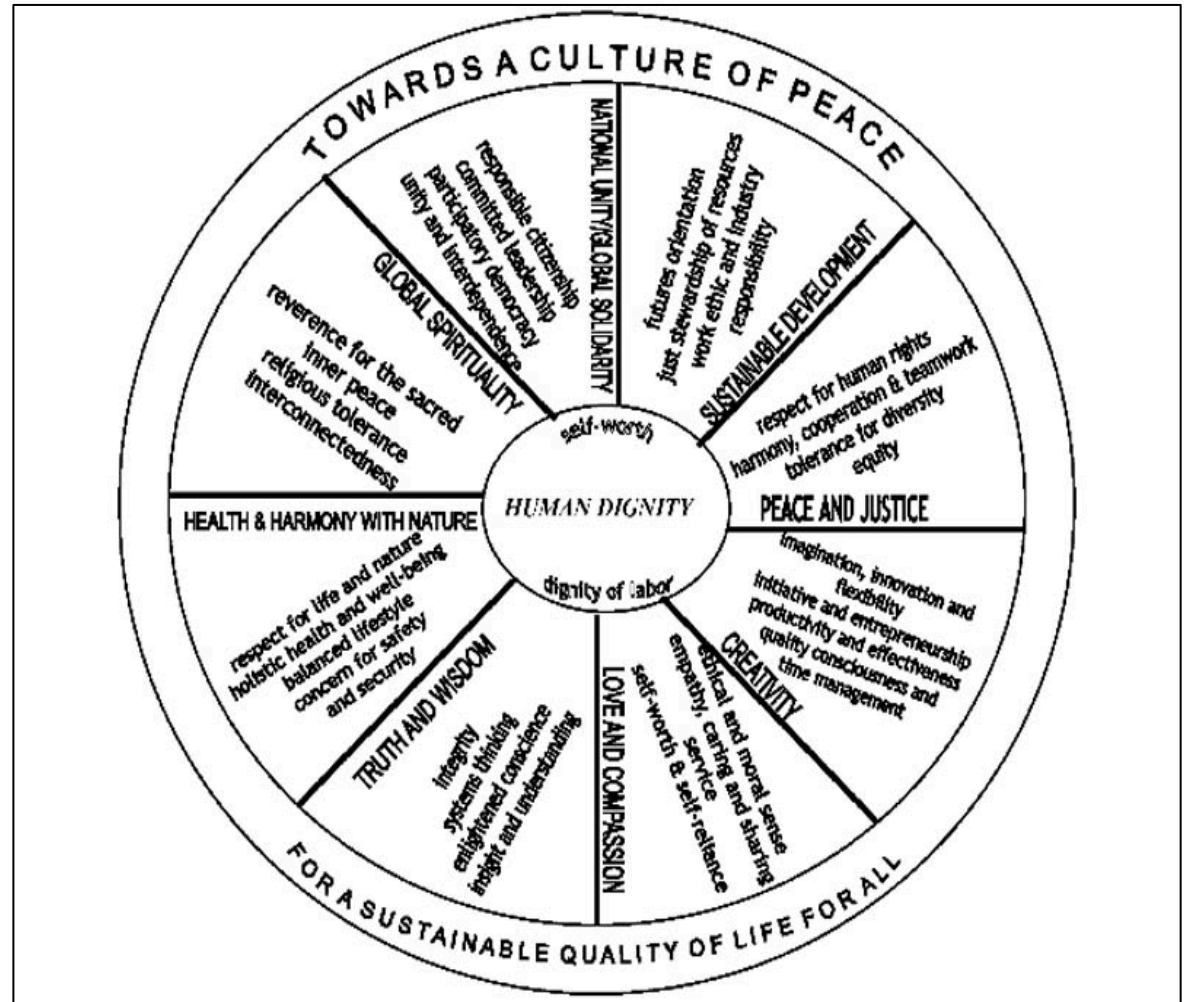
"NAM member companies are committed to advancing sustainability efforts that positively impact manufacturing and the industry's contributions to environmental protection, economic performance, and the social well-being of the communities, customers and consumers they serve by providing sound products and services."

B - Civil society sustainability description #1 from the chapter "Joined-up Thinking: Bringing Together Sustainability, Environmental Justice, and Equity," in *Just Sustainabilities: Development in an Unequal World* (Eds. Agyeman, J., et. al., 2003, p. 5)

"The need to ensure a better quality of life for all, now, and into the future, in a just and equitable manner, whilst living

Which of these best captures sustainability from the systems thinking perspective: A, B or C?

Select three words or phrases from among any or all of the descriptions that you think must be included in a good definition of sustainability:



C - Civil society sustainability description # 2 from the UNESCO book, *Learning To Do: Values for Learning and Working Together in a Globalized World* (Eds. Quisumbing, L. R. & de Leo, J., 2005, p. 18).

Student Worksheet – Civil Society Definitions 3

NAME _____

DATE _____

Consider these three descriptions of sustainability. Decide which definition best captures sustainability from a systems thinking perspective, or which allows you to understand component parts within whole systems. Decide which concepts are key to a good definition of sustainability.

A - Corporate sustainability description *United in Growth: 2010 Sustainability and Corporate Responsibility Report* (Monsanto, p. 21)

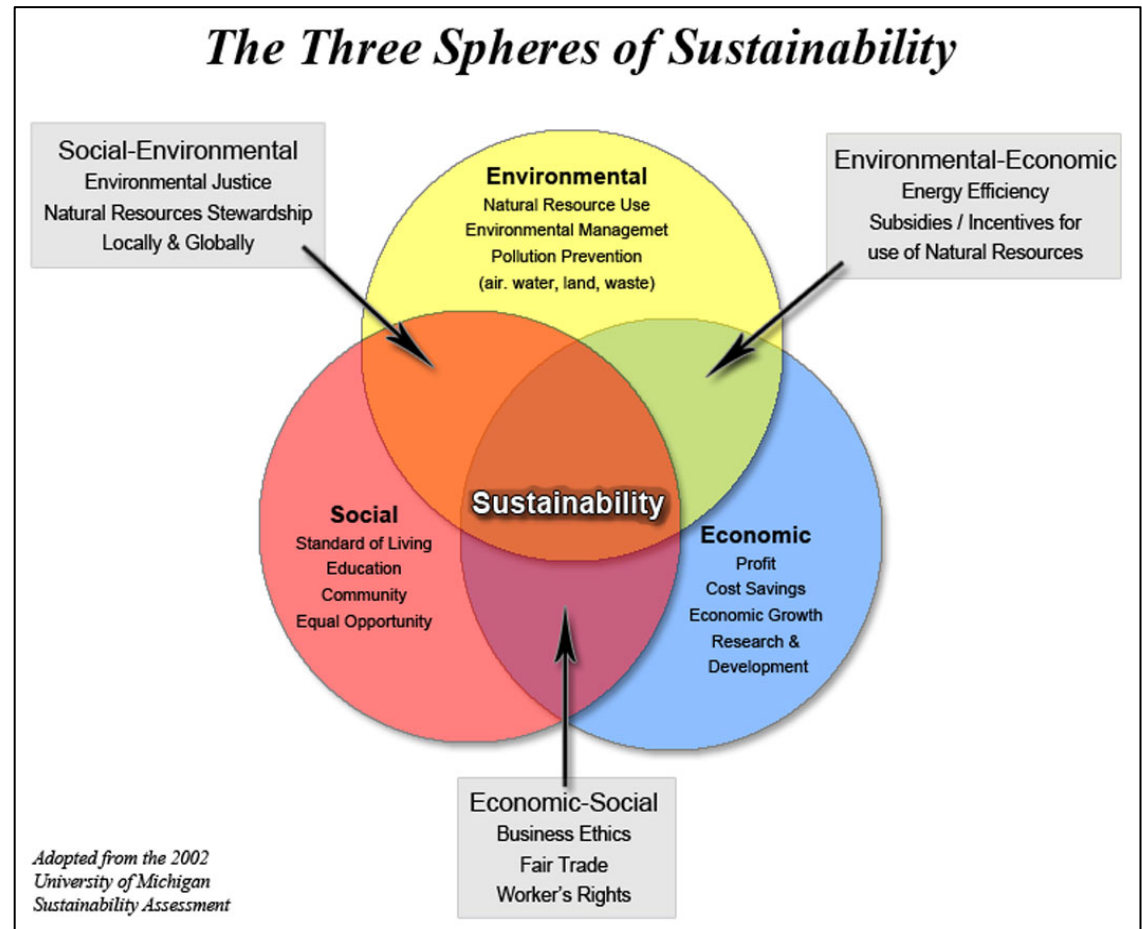
“Our vision for sustainable agriculture is built on a foundation of innovative people, products, and coalition of invaluable partnerships.”

B - Civil society sustainability description #1 “On Defining Sustainable Agriculture” from the *North Carolina Sustainable Agriculture Research and Education Program* (Ikerd, J., 2007, para. 4)

“A sustainable agriculture must be ecologically sound, economically viable, and socially responsible. Furthermore, I contend that these three dimensions of sustainability are inseparable, and thus, are equally critical to long run sustainability.”

Which of these best captures sustainability from the systems thinking perspective: A, B or C?

Select three words or phrases from among any or all of the descriptions that you think must be included in a good definition of sustainability:



C - Civil society sustainability description # 2 “Sustainability: Project Challenge for the 21st Century (Rodriguez, H., 2010). Adapted from the *Sustainability Assessment and Report for the University of Michigan’s Ann Arbor Campus*, 2002

Student Worksheet – Civil Society Definitions 4

NAME _____

DATE _____

Consider these three descriptions of sustainability. Decide which definition best captures sustainability from a systems thinking perspective, or which allows you to understand component parts within whole systems. Decide which concepts are key to a good definition of sustainability.

A - Corporate sustainability description from Sodexo's web page, "Sustainability" (2009)

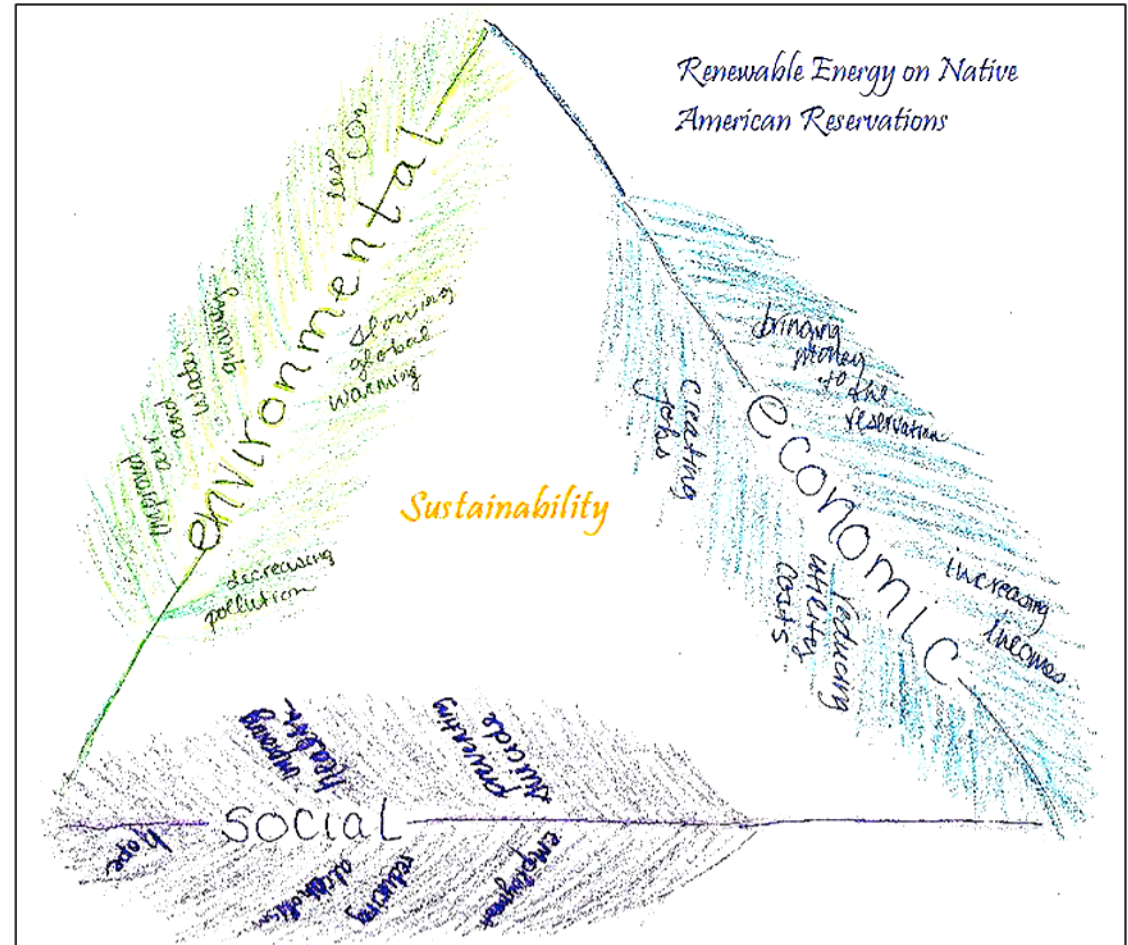
"We recognize that we have a responsibility to use our resources wisely and to protect them for future generations."

B - Civil society sustainability description #1 quoted from farmer and poet Wendell Berry's "17 Rules for a Sustainable Local Community" (Sustainable Traditions, 2010).

"1. Always ask of any proposed change or innovation: What will this do to our community? How will this affect our common wealth. 2. Always include local nature – the land, the water, the air, the native creatures – within the membership of the community. 3. Always ask how local needs might be supplied from local sources, including the mutual help of neighbors."

Which of these best captures sustainability from the systems thinking perspective: A, B or C?

Select three words or phrases from among any or all of the descriptions that you think must be included in a good definition of sustainability:



C - Civil society sustainability description # 2 from the blog posting by a college student, "Renewable Energy on Native American Reservations: Economically, Socially and Environmentally Sustainable" (Lizadare, 2011)

Student Worksheet – Civil Society Definitions 5

NAME _____

DATE _____

Consider these three descriptions of sustainability. Decide which definition best captures sustainability from a systems thinking perspective, or which allows you to understand component parts within whole systems. Decide which concepts are key to a good definition of sustainability.

A - Corporate sustainability description from the Dow Jones web page, Corporate Sustainability (SAM Indexes, 2011, para 1).

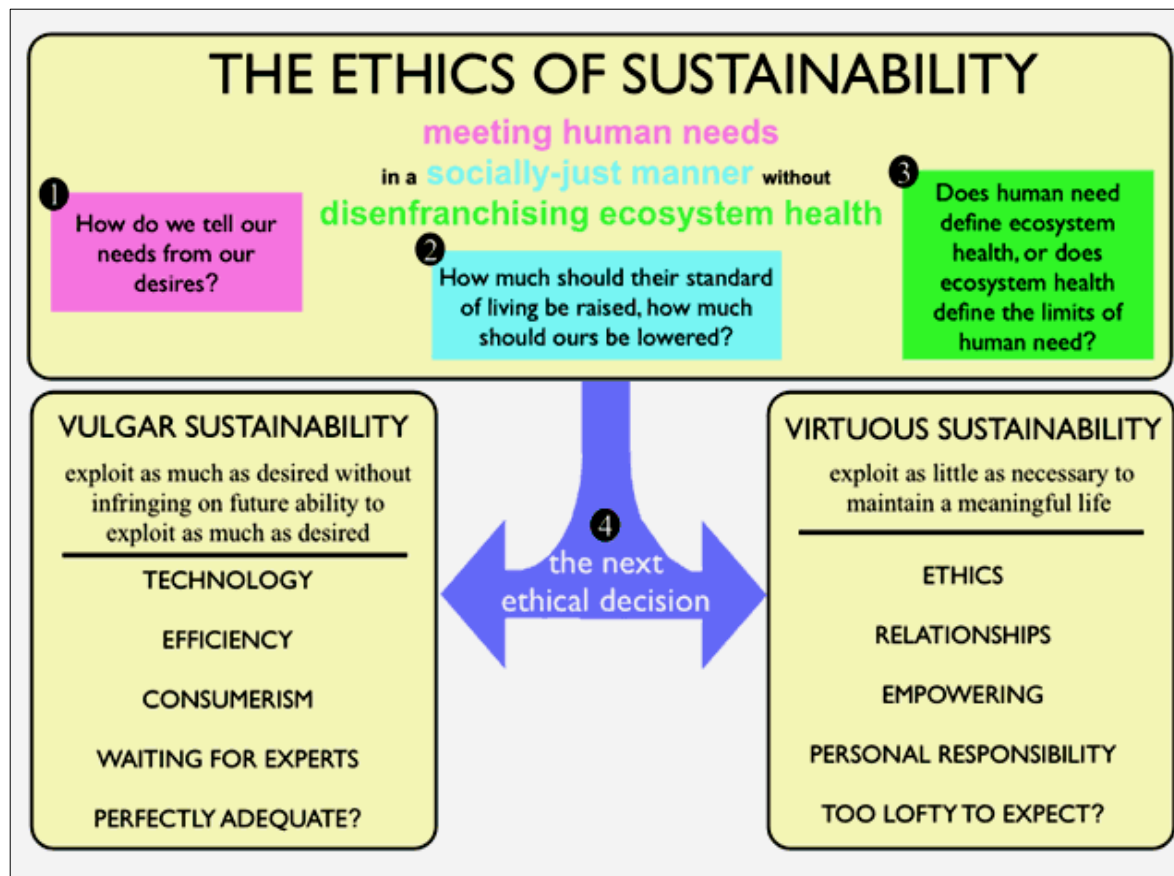
“Corporate sustainability is a business approach that creates long-term shareholder value...”

B - Civil society sustainability description #1 from an “50 Years of the World Bank, Over 50 Tribes Devastated, an address by Iroquois faithkeeper Oren Lyons’ at the Ethics and Spiritual Values and the Promotion of Environmentally Sustainable Development international conference (1992, para. 3)

“The democratic laws of most indigenous peoples arise from their understanding of the natural law and the regenerative powers that sustain life. Therefore, ‘sustainable’ in our terms means working with these laws that could be termed spiritual. We were instructed to make all of our laws in concert with these principles thus insuring life in endless cycles.”

Which of these best captures sustainability from the systems thinking perspective: A, B or C?

Select three words or phrases from among any or all of the descriptions that you think must be included in a good definition of sustainability:



C - Civil society sustainability description # 2 from a blog posting on *The Ecologist*, “True sustainability needs an ethical revolution” (Nelson, M. P. & Vucetich, J. A. 2009).

Lesson 4: Sustainability & Media: Introducing Content Analysis

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(Access online or via Lesson 4 digital media folder)	
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LESSON PLAN



Printed
Document



PowerPoint
Slide Show

Sustainability & Media: Introducing Content Analysis

Lesson Objectives:

- Students will practice media literacy skills through decoding magazine covers about sustainability.
- Students will understand the differences between qualitative and quantitative research.
- Students will recognize potential biases in sampling media material for analysis and understand the importance of selecting a valid sample for research.

Vocabulary:

qualitative research, quantitative research, sample, validity

Media: magazine covers

Materials Needed:

- Seven-page *Teacher's Guide*
- Five separate one-page Student Worksheets
- Seven slide PowerPoint slideshow (Access online or via Lesson 4 digital media folder)

Time: 45 minutes

Lesson Procedures

- Present the *Lesson Introduction* to the class.
- Divide class into pairs and distribute one of the five worksheets to each pair. Have pairs work together to analyze magazine covers on the issue of sustainability.
- Project the PowerPoint slides and lead students through a media document decoding focused on identifying messages and techniques.
- Lead a class discussion on sampling using the *Media Sample Questions & Answers* in the *Teacher Guide*.
- Lead students through a brief quantitative analysis of the magazine covers using the questions in the *Teacher Guide*.
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Sustainability & Media: Introducing Content Analysis

[NOTE: This lesson may be used to prepare students to conduct their own media content research project; see Lesson 5.]

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

This lesson will introduce the concept of media content analysis, along with issues in social science research. In the social sciences, qualitative research refers to an analysis that looks at patterns and themes often based in people's feelings, values and perceptions. Unlike quantitative research, which summarizes information in terms of numbers (percentages, averages, etc.), qualitative research uses textual evidence to explore issues within a research question. In this lesson, you will learn some key questions to ask when analyzing media documents for messages and meanings, and learn to incorporate both qualitative and quantitative approaches to your analysis. You will then reflect on potential biases in sampling media material for analysis and understand the importance of selecting a valid sample for research.

3. Project the first PowerPoint slide, which contains all five magazine covers. Explain that you will lead an exercise in document decoding as a way to learn some questions that are helpful to ask when doing qualitative research into media messages. Students will be asked to decode the techniques used in media messages through a series of magazine covers. For more information on leading a document decoding, see the kit overview.
4. Divide the class into pairs and distribute one of the five worksheets to each pair. Each worksheet corresponds with one of the five magazine covers in the PowerPoint. Ask students to work together to answer the questions. Encourage them to consider as many aspects of design as they can think of, including text, font, color, image and overall placement in their answers. Allow the first slide of all five covers to remain on while students work so they can see the color imagery in each cover. You may want to give each student pair two documents to decode in order to encourage comparative analysis.
5. When students have completed their worksheets, project each PowerPoint slide and lead students through a session of media decoding focused on identifying messages and techniques. Have the pairs who decoded each slide weigh in first and then invite others to add to their noticings. Use the following *Media Sample Questions & Answers* in *Teacher Guide* to aid the discussion.



Document 1
Time Magazine Special Report
"How to Save the Earth"
August 26, 2002

Media Sample Questions & Answers

1) What are the messages about sustainability?

Possible Answers: The earth can be saved from the impact of climate change by environmental innovation. We need to treat the earth gently.

2) What techniques does the magazine use to communicate these messages?

Possible Answers:

Earth can be saved: image of globe nestled in flower, title "How To Save The Earth," "can cool us down"

Impact of climate change: "hot and wild weather is a sign of things to come"

Environmental innovation: "fresh ideas and new technology," "green century" in green font referring to environmental content

Treat the earth gently: image of globe nestled in a flower



Document 2
Newsweek Magazine
"The New Greening of America"
July 17, 2006

Media Sample Questions & Answers

1) What are the messages about sustainability?

Possible Answers: Environmental awareness has become a popular aspect of life in the US. Families care about environmental issues.

2) What techniques does the magazine use to communicate these messages?

Possible Answers:

Environmental awareness: "Greening" referring to environmental concern is the largest and central word; the image itself is staged in shades of green

Popular: subtitle phrase "suddenly hot;" images of the smiling family suggests they are happy about their green choices; the title refers to a widely read 1970 book about the popularity of the counterculture entitled *The Greening of America*

US: sustainability concerns "America"

Families care: smiling image of adults, child and pet in green living room indicates that this is an environmentally conscious family that is happy to "be green"



Document 3

U.S. News & World Report

"The Energy and Environment Issue: Can America Prosper in the New Green Economy?"
April 2009

Media Sample Questions & Answers

1) What are the messages about sustainability?

Possible Answers: An environmentally-focused economy is both a challenge and an opportunity. Environmental issues are important to business.

2) What techniques does the magazine use to communicate these messages?

Possible Answers:

Environmentally-focused economy: "GREEN ECONOMY" are the large and central words with the word "green" in the appropriate color; top banner, "the energy and environment issue;" five of the six stories refer to energy and environment issues; the image of the flower emerging from the factory smokestack suggests a coupling of nature and industry

Challenge and opportunity – the title is a question, leaving the answer open as to whether the green economy can work; "the truth about green jobs" and "the real cost of global warming" do not make clear whether green jobs can work or global warming can be stopped

Important to business – importance is underscored by top banner announcing a special issue on energy and the environment and business is the focus in the large font headline "Can America prosper in the new green economy?"



Document 4

The New Yorker

"Small Growers"
May 30, 2011

Media Sample Questions & Answers

1) What are the messages about sustainability?

Possible Answers: Farmers markets are a welcome and a bit mysterious part of modern city life. Mothers want fresh food and produce for their children.

2) What techniques does the magazine use to communicate these messages?

Possible Answers:

Farmers markets: boxes of produce with shoppers with bags and farmers with aprons

Welcome: everyone seems to be smiling

A bit mysterious: the elf standing by the tiny mushroom crate

Modern city life: skyscrapers in the background and the title, *New Yorker*

Mothers want food for children: woman buying produce with child in stroller



Document 5
The Economist

“Cleaning Up: A 15-page report on how business is tackling climate change”
June 2, 2007

Media Sample Questions & Answers

1) What are the messages about sustainability?

Possible Answers: Business can successfully deal with the impact of climate change. Pollution problems can be solved by green business.

2) What techniques does the magazine use to communicate these messages?

Possible Answers:

Business: the magazine title; *The Economist*, the subtitle “how business is...”; the image of the factories and smokestacks

Successfully deal with: the main title, “Cleaning up,” the subtitle “is tackling,” the image of the sprouts emerging from the factories amidst a green background

Climate change: “tackling climate change,” image of carbon-emitting factory smokestacks

Pollution problems: smokestacks releasing dark fumes, image is a bit blurred as though viewed through smog

Solved by green business: image of green sprout emerging from industrial landscape on green background, big title: “Cleaning up”

Sampling, Validity & Research Questions

6. Project slide 8, which includes all the covers.

1) What conclusions can we draw about the way news magazines have portrayed sustainability from this sample of magazine covers?

Possible Answers:

- sustainability is linked to energy, economy and environment
- the color green is code for sustainability or environmental awareness
- plants and flowers represent hope and change toward sustainability
- sustainability suggests a “can do attitude of optimism

6. Students may raise the question about how representative these five covers are of all newsmagazines. Invite students to form questions about sample validity.

2) What questions might one ask in trying to determine whether this was a valid sample group for research into news magazine construction of sustainability?

Possible Answers:

- Were these representative of all the covers of the top five magazines?
- Over what time period were the magazines sampled?
- What defines a news magazine?
- Does the sample include news magazine read online?
- Does the sample include magazines read or produced outside the US?

3) What might have been the defining criteria for the sample group?

Tell students that the criteria for this sample group were the top five news magazines in the US in 2010 as determined by the Audit Bureau of Circulation (Mirkinson, 2010).

4) What are the potential biases or limitations that you noticed in the selection of this sample?

Possible Answers:

- These are only some of the covers that could have selected from these five magazines as representations of sustainability.
- These magazines are from 2002-2011. What about magazines before or after this period?
- These are news magazines as identified by the Audit Bureau of Circulation. Others might define news magazines differently.
- Four of these magazines are created in the US. The fifth, *The Economist*, is produced in Great Britain. The readership of these magazines do not represent the majority of news readers in the world, most of whom do not have access to these western magazines.

5) What would make the sample more valid?

Possible Answers:

- The sample would need to be larger (e.g., 50 covers total).
- The years that the covers were sampled from would need to be consistent for all five magazines (e.g., 2002-2011).
- The criteria for selecting covers for analysis would need to be clearer (e.g., every cover from 2002-2011 from these five magazines that includes key language, imagery or references to sustainability of the environment – green, earth, nature, pollution, climate change, global warming, food and water).

7. Explain that a quantitative research project will look at statistical or numerical analysis rather than the qualitative analysis we have focused on thus far. Examples of quantitative questions that could apply to this sample group include:
 - **What percentage of the covers used green in their color scheme?** (100% had some green, although the amount varied)
 - **What percentage of the covers included the word "green"? (60%) the word "new?" (60%)**
 - **What percentage of the covers included content related to economic issues (40%) energy (40%) plants, crops and foods? (80%)**
 - **What percentage of the covers included families? (40%)**
 - **What percentage referenced global warming, climate change or temperature (hot, cold)? (80%) What would make the sample more valid? [NOTE: the word "hot" on the Newsweek cover does not refer to temperature.]**
 - **What percentage of these covers are focused on a positive future (may vary - could be 100%)? What percentage focus on a negative or questionable future? (20-40%)**
8. Discuss the issue of subjectivity in quantitative research. You might give the example of the first two questions about the color green and the words "green" and "new." There are precise answers to these questions. However the last questions about "positive" or "negative" futures require subjective judgments which are subject to different interpretations. **[NOTE: For a more complex exercise regarding quantitative research on media constructions of sustainability, see Lesson 5]**

FURTHER QUESTIONS

Analyzing Media Messages

What are some examples of common media that frequently use the term “sustainability?”

Who might benefit and who might be harmed by some of the documents you have seen?

Self Reflection

How big an influence are media messages on your understanding of sustainability?

What magazines do you read and how do they address issues of sustainability?

Underlying Values and Motives

Is the purpose behind the making of a particular media document an important factor to take into account when analyzing a media document? Why or why not?

Is the source of funding behind the making of a particular media document an important factor to take into account when analyzing a media document? Why or why not?

EXTENDED ACTIVITIES

Research covers of magazines from other regions of the world and their messages about sustainability.

Write a course description for your school relating to sustainability of food, water or agriculture and decide which media form will be best to advertise your course.

Interview others as to their opinions regarding the role that media play in promoting and undermining sustainable practices.

Create a media production that highlights the values you consider the most important in order to inform or advocate for sustainable practices in food and water security.

Review each of the document examples to examine how these key issues were considered: social justice, climate change, soil conservation.

Devise your own research question on a topic of interest and execute a similar qualitative research project to further your understanding of media representations of that topic.

Initiate a research project using different forms of media (film, songs, blogs, television programs, games) to discover how different media forms might influence media messages.

Research examples of media content analysis that appeared in the news and evaluate the validity of their samples.



Student Worksheet – Document 1

NAME _____

DATE _____



Time, August 26, 2002

1. What are the messages about sustainability conveyed on this magazine cover?
2. What techniques did they use to communicate those messages on the cover?



Student Worksheet – Document 2

NAME _____

DATE _____



Newsweek, July 17, 2006

1. What are the messages about sustainability conveyed on this magazine cover?

2. What techniques did they use to communicate those messages on the cover?



Student Worksheet – Document 3

NAME _____

DATE _____



U.S. News & World Report, April, 2009

1. What are the messages about sustainability conveyed on this magazine cover?

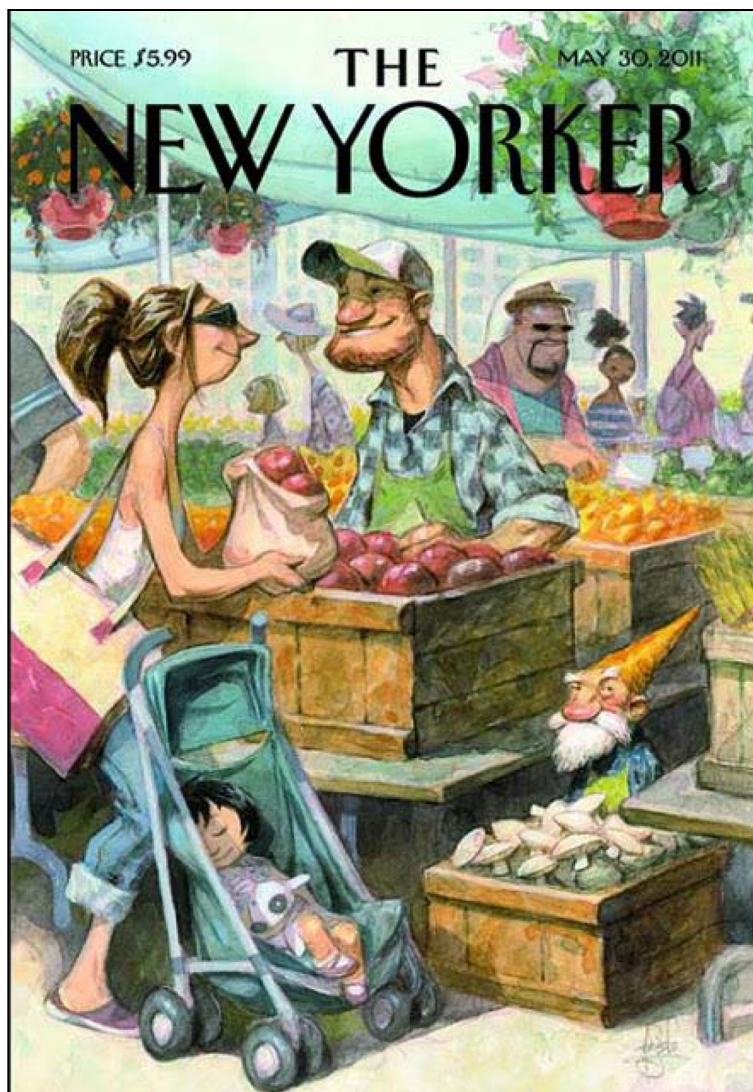
2. What techniques did they use to communicate those messages on the cover?



Student Worksheet – Document 4

NAME _____

DATE _____



The New Yorker, May 30, 2011

1. What are the messages about sustainability conveyed on this magazine cover?
2. What techniques did they use to communicate those messages on the cover?



Student Worksheet – Document 5

NAME _____

DATE _____



The Economist, June 2, 2007

1. What are the messages about sustainability conveyed on this magazine cover?
2. What techniques did they use to communicate those messages on the cover?

Lesson 5:

Student Media Research Project on Sustainability

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Printed
Documents

LESSON PLAN

Student Media Research Project on Sustainability

[NOTE: Teachers may want to use this activity as a culminating activity for the entire kit. Before conducting this lesson, teachers also may want to review Lesson 4 to help prepare students as they create media research projects.]

Lesson Objectives:

- Students will understand and evaluate quantitative research, including issues of validity and reliability.
- Students will complete a quantitative research project on media representation of sustainability.
- Students will give a multimedia presentation of their research project to the class including graphic representation of their data.
- Students will reflect on the key themes that are included and excluded in media presentations on sustainability.

Vocabulary:

quantitative research, qualitative research, reliability, validity

Media: dependent upon student research projects

Materials Needed:

- Three-page *Teacher's Guide*
- Two-page *Student Handout*
- One-page Student Worksheet – Validity
- One-page Student Worksheet – Reliability
- Two-page Student Worksheet – Research Project Presentations

Time: 90 minutes, not counting research time and depending on number of teams

Lesson Procedures

- Present the *Lesson Introduction* to the class.
- Brainstorm some of the key themes that students might expect to see represented in media representations of sustainability.
- Distribute and go over the two-page *Student Handout – Student Media Research Project*.
- Distribute and have students complete Student Worksheets on Validity and Reliability.
- Distribute and go over the Student Worksheet – Research Project Presentations.
- Have students execute quantitative research projects analyzing how sustainability is represented in the media.
- Have students present their findings to the class.
- Lead a class discussion on the question: **What are the key themes that are represented and left out in media productions on sustainability?**
- (Optional) Discuss *Further Questions* and investigate *Extended Activities*.

TEACHER GUIDE

Student Media Research Project on Sustainability

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

In the social sciences, quantitative research refers to statistical research that seeks quantifiable, or numbers-based, conclusions that are often represented by percentages. Unlike qualitative research, quantitative research uses numbers rather than textual evidence to explore issues within a research question. In this lesson, you will learn about ways that social scientists work to achieve research results that are valid and reliable. You will then define a research question and undertake your own quantitative research study and present your findings to the class. Finally, you will identify key themes that are included and excluded in media representations of sustainability.

3. Brainstorm some of the key themes that students might expect to see in media representations of sustainability. If students have a hard time beginning, you may want to give a handful of examples: food, farming, energy, social justice, population, etc. Write student answers on the board.
4. Distribute and go over the two-page *Student Handout – Media Research Project*. Go over the handout section-by-section to make sure that students understand what they are being asked to do. After reviewing the examples on the second page, ask for some ideas for research questions and samples that might be good picks for this assignment.
5. Distribute the Student Worksheets on Validity and Reliability. Draw students' attention to the first page on validity. Go over the top section and example. Answer questions about the idea of validity, the need for clear samples and the process for improving sample groupings.
6. Have students take ten minutes to work on their own solutions to the problem presented at the bottom of the page. Alternatively, students could work on solutions in small groups.
7. Review students' ideas for problems and fixes. Use the *Possible Answers* in the *Teacher Guide* to help students identify the problems and solutions to the research problem.
8. Explore students' possible solutions with the question: **Would this fix the problem? Why or why not?** Repeat the process for the second page on reliability using the *Possible Answers* in the *Teacher Guide*.

Student Worksheet – Validity **Possible Answers**

Question: How do young people think about sustainability?

Sample: The videos created by Ms. Clark’s environmental studies class.

Problem: The sample is not a representative reflection of “young people”. The results will reflect this particular class and the assignment.

How to Fix: Choose a representative sample such as the 15 top student produced videos in SchoolTube listed under “sustainability” or “environment.”

Student Worksheet - Reliability

Question: How does TV news cover “clean coal?”

Sample: Comparing coverage in the leading news outlets.

Problem: “Leading news outlets” is too vague.

How to Fix: Define the specific sample such as “the most recent 20 news articles from Fox Evening News and MSNBC Today that use the term “clean coal” in their online synopsis.

Problem: The study will need to identify ways of coding for different perspectives on reliable definitions.

How to Fix: Establish clear categories for comparing, such as “percentage of coverage about concerns” and “percentage of coverage about benefits.” Then, create reliable coding protocols (how to count amount of coverage) and definitions (“concerns” and “benefits”).

-
9. Distribute and go over the two-page Student Worksheet – Research Project Presentations. Students may need time to formulate their question, so this can be done as homework outside of class.
 10. Have students execute quantitative research projects analyzing how sustainability is represented in the media. ***[NOTE: You will need to coach students through the design of a valid and reliable research plan and the search for their sample. Individual coaching time with each student can be very helpful, as can the support of a teaching assistant and librarian.]***
 11. Have each student present their findings to the class. Have others take notes on linking themes among the research questions. ***[NOTE: The presentations will take a significant amount of class time but these engaging and interesting studies will enable the content of the class to come from student interest and peer teaching.]***
 12. Lead a class discussion on the question: **What are the key themes that are represented and left out in media productions on sustainability?** Enable a majority of content to come from student interest and peer teaching.

FURTHER QUESTIONS

Analyzing Media Messages

What questions about media representation came up for you as you viewed the presentations?

What types of media were not represented in the presentations?

Self Reflection:

Media literacy education is meant to help one develop “habits of inquiry” when consuming media. **What habits of inquiry have you developed that allow you to become a more discerning media consumer?**

Our own questions can develop as we listen to others ponder theirs. **What further research questions came to mind as you witnessed others’ presentations?**

Underlying Values and Motives

Can you think of some examples of nationally-publicized media research projects?

Who are some of the primary funders of media research?

What are some primary motivations behind media research? Consider research done by media corporations, by the federal government, by liberal or conservative “think tanks” and by universities.

EXTENDED ACTIVITIES

Research the top ten media research organizations in the U.S. to see who funds them and what distinguishes their mission statements from one another.

Undertake a research project inquiring into the nature of student produced media – newspapers, blogs, websites, YouTube channels. What would constitute a valid and reliable sample for such a study? What are the primary topics of concern for students?

Investigate media research on coverage of sustainability issues in the United States. Have there been similar studies in other parts of the world? If so, what are the differences in coverage from country to country?

Interview a local researcher about the impact of media on consumer habits relating to sustainability concerns.

Contact several local media sources to ask whether they use research studies in their decision-making process regarding which topics to focus on in their local coverage of your community.

Look for examples of research samples that you might find in the media and present your findings in a media form of your own choosing.



Student Handout – Media Research Project

For this lesson, you will create an original quantitative (numbers-based) study of how media portray a particular theme related to sustainability. After choosing a subject and sample, you will do the research and present your findings in class.

Research Project:

You should start with a question to begin focusing your research. For example:

- How do news reports about sustainability address social justice issues?
- When and where did the term “sustainability” first appear in the media and how has it changed?
- How does MTV’s “Green Week” represent sustainability issues?
- How do feature films present climate change?

Your study will need to be (at least partly) **quantitative**; therefore, you will need to count items, such as length of articles, amount of space/time, use of specific words, number of images, etc.). You will need to have **reliable definitions** for your **coding** (counting). You will need to **graph** or **chart** your data and develop **conclusions** from your study.

You will do your research by reading or watching large quantities of media content (images, words, etc.) and noting **numbers of images** (minutes of coverage, etc.) or **numbers of references** (number of references to a particular phrase, etc.) that fall into different **categories**. You will draw a number of **conclusions** from your research in a written research summary and present your findings to the class.

Written Research Summary Outline

- A brief description of your **subject** and why you chose it
- A detailed description of your **research process**. (This must include your source(s) and sample, how you went about your study, and the number of images you researched.)
- Your **written notes** from your research., e.g. how you tallied or coded your numbers
- Your **conclusions** from your research
- At least one **graphic representation** of your results (chart, graph, map, etc.), including:
 - a clear and informative title to the display, including your name and the date
 - your media source or sources
 - your research sample (dates, show times, quantity, what parts, etc)
 - the categories you created and explanations of what the categories means
 - a clear key or description of what the numbers/percentages/shapes/etc. represent

Presentations

- Collect the material for these presentations as you do your research.
- Each student will give a 15-20 minute **in-class research presentation**. You may use slides and/or video. You must include at least one graphic representation of your data (chart, graph, etc.).

Examples of Possible Projects:

Question: How has *National Geographic's* coverage of global warming changed over time?

Sample: Every *National Geographic* article with "global warming" or "climate change" in its title.

Quantitative: I will count the number of articles about global warming/climate change each year. I will code every article for "definitely happening," "questioning if happening" or "mixed" based on the dominant presentation in the article. I will also code for "anthropogenic" or "questioning." I will create line graphs to show changes over time. I will also look for any noticeable patterns (qualitative) regarding how global warming has been presented.

Question: How does the *The New York Times* represent fossil fuel use?

Sample: All articles in the *The New York Times: Science Times* for the last 2 years that include the term "fossil fuel," "oil," "coal," or (natural) "gas" in the title.

Quantitative: I will code the articles according to their main focus: "financial," "government," "environmental impact," "innovation/technology/extraction" and "other". I will further code all articles as "addresses sustainability" or "does not address sustainability" and show the percentages for each focus category.

Question: Do YouTube videos address the economics of sustainability?

Sample: The first 25 YouTube videos (1 minute or more) that are posted under the term "sustainability."

Quantitative: I will code each video as "addresses economics" or "does not address economics." I will count the percentages of videos that "question capitalism." I will also note patterns (qualitative) in the representation of economic issues in the videos.

Question: Do "green bloggers" address social justice issues?

Sample: The four most recent articles in the 20 "green blogs" listed on the web site "Best Green Bloggers."

Quantitative: I will code each article for nine social justice themes (racism, classism, labor, urban rights, etc.). I will assess the popularity of the different themes and identify additional patterns in how the bloggers address justice issues.

Question: How do Disney films address sustainability issues?

Sample: All Disney films that mention "environment" or "nature" in the Wikipedia description for the film.

Quantitative: I will identify how many of the Disney animated films are about the environment/nature using a complete listing of movies, like www.disneymovieslist.com. I will watch the trailers for those films and code for "sustainability issues." I will take three to five of those films and note the portrayal of sustainability issues in the entire film.



Student Worksheet – Validity

NAME _____ DATE _____

Validity: Are you measuring what you claim to be measuring? You should be conscious of the validity of your research project sample by asking the following questions:

- Will the sample you are using allow you to make valid or well-grounded conclusions?
- Is your sample consistent enough to avoid errors due to random events?
- Is your sample broad enough to give you conclusions about your subject?
- Does your data clearly and logically point to your conclusions?

The example below identifies a validity problem for a research question and shows the design changes needed to fix the validity problem.

Question: How is climate change portrayed on TV?

Sample: The last 10 episodes of the TV show, *Gossip Girl*

Validity Problem: It is unlikely that there will be any references to climate change in *Gossip Girl* and, if there is, they will be from an exceptional episode. This is not a good source for looking at climate change on TV and too small a sample to be valid.

How to Fix: Choose TV shows that are likely to include references to climate change (e.g. top 10 shows on the “Planet Green” channel), or choose TV shows that address the issue (e.g. the ten most recent sitcom episodes that reference “global warming” or “climate change” in their TV guide summaries).

Name and try to fix the validity problem for the following example.

Question: What do young people think about sustainability?

Sample: The videos created by Ms. Clark’s environmental studies class.

Problem:

How to Fix:



Student Worksheet – Reliability

NAME _____ DATE _____

Reliability: Will two different researchers get the same results on different days? You should be conscious of the reliability of your research process by asking about variables (attentiveness of the researcher, definition of terms, outside factors influencing your question, etc.) that could skew your data.

The example below identifies a reliability problem for a research question and shows the design changes needed to fix the reliability problem.

Question: How does President Obama’s web site present sustainability?

Sample: The first five pages of the White House’s home page and all President Obama’s personal web pages dealing with the environment.

Reliability Problem: The study needs to define how to determine if a page “deals with the environment.”

How to Fix: The study needs to create categories and definitions that a researcher can code for how sustainability issues are presented online. For example, a researcher could conduct a search of www.whitehouse.gov using different key terms like “environment,” “sustainability,” or “energy” and examine the web pages for the first five results for each key word.

Name and try to fix the validity problem and the reliability problem for the following example.

Question: How does TV news cover “clean coal?”

Sample: Comparing coverage in the leading news outlets.

Validity Problems:

How to Fix:

Reliability Problems:

How to Fix:



Student Worksheet – Research Project Presentations

NAME _____

DATE _____

1. What is your research question?

(Example: How do college courses on sustainability integrate issues of social justice?)

2. What representative sample will you use – what media source, survey time period, etc?

(Example: I will analyze roughly 100 catalogue descriptions for college courses with “sustainability” in their titles for leading U.S. colleges.)

3. What do you need to work out for your sample to be valid?

(Example: I need to define my “leading colleges” – which ones, how many and find catalogue descriptions for “sustainability” classes. I need to find roughly 100 catalogue descriptions that are comparable.)

4. How will you access your media sample?

(Example: I expect that the course catalogues will be accessible online at the college websites.)

5. What will you be counting or coding?

(Example: I will identify which words or phrases are used to note social justice issues in the course descriptions and track this for each of the colleges, in addition to tracking each word or phrase across colleges.)

6. What do you need to clarify in order to ensure the reliability of the coding?

(Example: I need to define the key words related to social justice and how I will count them. I may code these words separately if they appear in the course title.)

7. What will be your qualitative component, if any?

(Example: I will look for patterns of how social justice issues are addressed in the descriptions beyond word choice such as by cited authors, works or sample assignments.)

Lesson 6:

Voices Role-Play

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PowerPoint	
(Access online or via Lesson 6 digital media folder)	
Film and Audio clips.....	
(Access online or via Lesson 6 digital media folder)	
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LESSON PLAN

Voices Role-Play



Printed
Document



PowerPoint
Slideshow



Video Clips

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will internalize the perspective of a social and environmental advocate on a particular topic related to sustainability in food, water and agriculture.
- Students will effectively communicate the advocate's point of view in reference to specific media documents.
- Students will defend the merits of this advocate's point of view in a role-play debate with advocates holding conflicting opinions.
- Students will develop and articulate their own opinions about the topics.

Vocabulary:

genetically engineered seed, perennial polyculture, local food network, locavore, climate change, peak oil, biotechnology, agrarian, agribusiness, urban agriculture, community food security, food justice, organic food, conventionally grown crops, food desert, food insecurity, feeding programs, carbon footprint, sustainable development, water privatization, water democracy, water parliament

Media: documentary film, web video, Internet commercials, web page, cartoon, magazine cover

Materials Needed:

- Sixteen-page *Teacher Guide*
- Fourteen separate two-page *Student Readings*
- Two-page *Student Glossary*
- One-page *Student Worksheet*
- Seven video clips (Access online or via Lesson 6 digital media folder)
- Sixteen slide PowerPoint slideshow (Access online or via Lesson 6 digital media folder)

Time: two to four hours depending on the number of topics, the debate structure, and if reading, writing and optional independent research occur in-class or as homework

Lesson Procedures

- Present the *Lesson Introduction* to the class. Decide which types of documents the student teams will analyze: video, slide image or both.
- Divide the class into fourteen teams or individuals (one for each advocate voice).
- Distribute a *Student Reading*, *Student Glossary*, Student Worksheet and one or two selected media documents to each group. Have students read and discuss the *Student Reading* for the advocate they have been assigned and analyze the media document(s) from their advocate's perspective. Then, have students complete the worksheet for each document.
- Using the video clips and PowerPoint slides for the media documents you have assigned to each group, present the documents to the entire class topic-by-topic. Allow students representing the two conflicting perspectives to analyze the documents through their advocate voice.
- Invite other advocates to analyze the documents or topic based on their point of view. Repeat this process with all advocates and media documents.
- Conclude by having students identify the perspective they relate to the most and why.
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Voices Role-play

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

This lesson will focus on a handful of the many voices that speak about the relationship of sustainability to food, water and agriculture. Through a series of debates, you will be introduced to differing perspectives on the topics of food crop preservation, local foods, farming practices, urban agriculture, organic food, food security and water privatization. This exercise will take several class periods, beginning with preparation by individuals and teams and leading up to a debate role-play. In the role-play, each team will be invited to analyze media documents from the point of view of a particular advocate that you have studied. You will conclude with an opportunity to express your own opinions on these topics after reflecting on diverse viewpoints from farmers, researchers, corporations and citizen activists.

LESSON PREPARATION

3. Divide the class into fourteen teams, typically placing one or two students per advocate voice. Depending on the size and particular focus of the class, you may elect to use fewer voices or eliminate certain voice pairs and their respective media documents from consideration. Note that the media documents for each advocate voice pair have been selected specifically for a debate structure analysis.

[NOTE: An outline of concepts and summary conclusions for each voice is included in the Debate Vocabulary and Summary pages in the Teacher Guide. Note that many voices overlap in topic and point of view so that students can contribute to discussions outside of their assigned debate.]

Debate Overview

Debate 1: Food Crop Preservation

Advocate Voice Pair

- Wes Jackson on perennial crop development
- Monsanto on genetically modified crops

Debate 2: Local Foods

Advocate Voice Pair

- Stephen Budiansky opposing local food movement
- Bill McKibben supporting the local food movement

Debate 3: Farming Practices

Advocate Voice Pair

- Kip Cullers on conventional agribusiness
- Wendell Berry on agrarian cultivation

Debate 4: Urban Agriculture

Advocate Voice Pair

- Erika Allen on community networks
- John Hantz on high tech entrepreneurship

Debate 5: Organic Foods

Advocate Voice Pair

- Bob Goldberg opposing organic foods
- Sandra Steingraber supporting organic foods

Debate 6: Food Security

Advocate Voice Pair

- Malik Yakini on community cohesion
- ConAgra Foundation on feeding programs

Debate 7: Water Privatization

Advocate Voice Pair

- United Water on the capacity of the private sector
- Vandana Shiva on water democracy

[NOTE: For more information on the debates, see the two-page Debate Vocabulary and Summaries in the Teacher Guide. These pages outline vocabulary and important concepts from the Student Readings and summarize the main point for each advocate voice.]

4. Distribute the *Student Readings* to each student pair of group. Ensure that each pair or group receives the appropriate advocate voice pairing. Additionally, distribute a *Student Glossary* to each pair or group.
5. Instruct the groups to study and discuss the advocate's points of view in enough depth to clearly present the advocate's analysis of the selected media document(s) during the forthcoming debate. Students should be encouraged to conduct independent research to lend depth to their awareness of the main points. This might include searching for the advocate's voice by reading journal articles, viewing online video clips or listening to podcasts. Use this as an opportunity to teach research skills. Ask students to track sources and report on how they found the best sources, which sources were most credible, which assertions made were based on fact or opinion, etc.

[NOTE: Teachers may elect to have the students study the advocate voices as a homework assignment rather than an in-class activity in order to help the students to internalize the advocate's perspective.]

6. Distribute the Student Worksheets. Explain how students can access the Student Materials section on the Project Look Sharp home page. For more information on accessing Student Materials, see the kit overview.

[NOTE: Teachers have the option to have students analyze short video documents, visual images or both. Decide in advance which of these options you want to offer, as this will determine how to set up your document display during the debate. This will also determine which media documents students will access in the online Student Materials.]

7. Instruct students to complete the worksheet after they have studied the *Student Reading* and viewed the corresponding media document(s). Encourage students to view the document(s) multiple times in order to prepare an in-depth analysis for the debate. Encourage them to use the worksheet questions as prompts and to underline sections in the *Student Reading* that speak directly to issues raised in the media document(s). If more than one student is representing an advocate voice, have the student groups decide how they will present during the debates (either using a spokesperson or the whole group).

DEBATE ROLE-PLAY

8. Introduce the debate:

Debate Introduction

This debate will present some of the leading voices on topics of concern relating to the sustainability of food, water and agricultural resources of our country and our world. The rules of the debate are as follows: I will introduce each advocate team and the media document(s) on a topic-by-topic basis. For each topic, the two advocate voices will have three minutes each to offer an initial statement, which includes an analysis of the messages in the media document(s) associated with that particular advocate voice. Remember, this analysis is from the voice of the advocate and is not necessarily the perspective of the debate team.

Following the three-minute initial statements, the opposing advocate will have two minutes for a rebuttal. After the rebuttals, other voices can join the conversation. We will use this same process for every topic and advocate pair until all students have presented. At the conclusion of the debate, you will set aside your advocate roles and speak about which positions you related to the most and why.

The teacher should structure the length of the debates to allow all advocate voice pairs to be heard. Depending on the number of students and debates selected in each class, this may mean the debates will require multiple class periods.

9. Ask for questions in order to clarify the process before beginning the debate.
10. Introduce the first debate topic, pair of voices, and the document(s) the presenters will discuss. Repeat this step before each debate topic.

Debate 1 Introduction: Food Crop Preservation

The debate on food crop preservation will focus on how best to conserve essential food crops such as wheat, soybeans and corn. Some voices encourage the use of biotechnology in the development of genetically engineered crops, while others look to nature as a model for development of perennial crops that will reseed each year.

ADVOCATE VOICE PAIR

- **Wes Jackson** is a botanist, geneticist and founder of the Land Institute. The Land Institute is devoted to developing an agricultural system based on the ecological stability of the prairie.
- **Monsanto** is a multinational biotech company that describes itself as “dedicated to providing farmers the broadest choice of products and services that will help them produce more, conserve more and lead improved lives” (Monsanto Company, 2011).

MEDIA DOCUMENTS

- **Video**
“Too Much Controversy Over Genetically Modified Food?”

3:34 min. video clip

Stewart Brand, the Director of Global Business Network and author of *Whole Earth Discipline: An Ecopragmatist Manifesto*, gave this talk in October 2009 at The Long Now Foundation.



- **PowerPoint Slides 2-3**

Next Big Future: This web page is an “officially endorsed blog” of the Lifeboat Foundation, “a nonprofit nongovernmental organization dedicated to encouraging scientific advancements while helping humanity survive existential risks and possible misuse of increasingly powerful technologies...” (Technorati.com, 2011).

Text from Next Big Future web page:

“Some are saying that perennial grains could be the biggest breakthrough in farming for 10,000 years.

- perennial grain does not need to be replanted every year, which saves on fuel, labor and costs
- Their larger roots, which can reach 10 to 12 feet, reduce erosion, build soil and sequester carbon from the atmosphere.
- They require fewer passes of farm equipment and less herbicide
- By contrast, annual grains can lose five times as much water as perennial crops and 35 times as much nitrate, a valuable plant nutrient that can migrate from fields to pollute drinking water and create “dead zones” in surface waters.”

Debate 2 Introduction: Local Foods

The debate on local foods will focus on whether this movement should be a central aspect of sustainable food practices. Some voices support local foods as a means to reduce fossil fuel used in transportation. Others argue that many factors can make it less costly to produce and purchase food that has travelled a long distance, rather than buying locally produced food.

ADVOCATE VOICE PAIR

- **Stephen Budiansky** is a blogger at the Liberal Curmudgeon who wrote an opinion-editorial article, “Math Lessons for Locavores” for *The New York Times* in August, 2010.
- **Bill McKibben** is the founder of 350.org and an author who writes frequently about global climate change. His works include the 2010 book, *Eaarth: Making Life on a Tough New Planet*.

MEDIA DOCUMENTS

- **Video: “Why Eat Local?” and “America’s Farmer’s Economy”**

Clip 1: “Why Eat Local?”

2:02 min. video clip

2009

Food journalist and author of *The Omnivore's Dilemma: A Natural History of Four Meals*, appeared in this clip from the Nourish Initiative, an educational venture devoted to creating a sustainable food future.

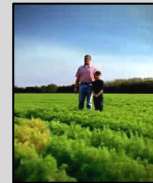


Clip 2: “America’s Farmers Economy”

1:06 min. video clip

2009

This is a commercial produced by Monsanto.



- **PowerPoint Slides 4-5**

Permaculture – Inspiration for Sustainable Living: This British magazine by Permanent Publications promises to keep readers “in touch with the cutting edge of the sustainability movement” (Permaculture.co.uk, 2011).

Debate 3 Introduction: Farming Practices

The debate on farming practices will focus on what type of farming practice is most likely to nourish a growing population in a sustainable manner. Some voices encourage technological advances in farming techniques and systems developed by modern agribusiness to increase yields on large, single crop farms. Others urge a return to the roots of healthy agrarian practices that unite small famers and communities to work together to solve the challenges of farming in the 21st century.

ADVOCATE VOICES

- **Kip Cullers** is a farmer and the world record holder for soybean production. A December 2008 *Wired* magazine article named him the “King of Bionic Agriculture.”
- **Wendell Berry** is a small farmer and author of dozens of works of poetry, essays and fiction. His work focuses on land and community, and includes the 2009 book, *Bringing It to the Table: On Farming and Food*.

MEDIA DOCUMENTS

- **Video**
“Good Food “
 2:05 min. video clip
 2008



This is a preview of a 2008 Bullfrog Films production entitled *Good Food*, which profiles sustainable food and farming in the Pacific Northwest.

- **PowerPoint Slides 6-7**
“Organic vs. Local? Who Cares. Neither is Sustainable”:
 This article is from the website *TreeHugger*, which describes itself as “a leading media outlet dedicated to driving sustainability mainstream” using blogs, newsletters, radio interviews, and Twitter and Facebook pages (TreeHugger.com, 2011).

Text from “Organic vs. Local? Who Cares. Neither is Sustainable”:

“While last year we were debating whether it's better to buy organic or local (or both), an article in *Mother Jones* now reports that we have even bigger fish to fry when it comes to our food production. While dreams of our future food system may rely on the romantic image of local farmers, the reality is: this model can't do what we need it to do, that is, feed billions of people” (Underwood, 2009).

Debate 4 Introduction: Urban Agriculture

The debate on urban agriculture will focus on the development of farming in the city as a means to feed and employ the majority of the world's population. Some voices encourage cooperative community initiatives as a means to develop urban agriculture. Others see advanced technology and private entrepreneurial efforts as the best way to bring farming to the urban areas.

ADVOCATE VOICES

- **Erika Allen** is the project leader for Growing Power's Grant Park community garden project in Chicago and the founder of the Growing Food and Justice For All Initiative.
- **John Hantz**, owner and CEO of Detroit's Hantz Farms LLC, is an urban farm entrepreneur who plans to build the "the world's largest urban farm" (HantzFarmDetroit.com, 2011).

MEDIA DOCUMENTS

- **Video**
"Home Town Farms...Vertical Organic Urban Farming"
3:56 min. video clip
2009



Home Town Farms of San Diego, California has a mission "to be the leader in providing high quality locally grown organic food to the people of the city and to use the most efficient methods and modern technology to save natural resources, eliminate waste and inefficiencies" (HomeTownFarms.com, 2010).

- **PowerPoint Slides 8-9**
"Garden Resource Program Collaborative": This web page is from detroitagriculture.org, which highlights the work of the Garden Resource Program Collaborative and its partners, Earth Works, Urban Farm, Detroit Agriculture Network and Michigan State University.

Text from "Garden Resource Program Collaborative":

"The Greening of Detroit, Detroit Agriculture Network, EarthWorks Urban Farm/Capuchin Soup Kitchen, and Michigan State University work in partnership with over 185 other organizations and hundreds of individuals to support urban gardening and farming initiatives in Detroit, Hamtramck, and Highland Park" (DetroitAgriculture.org).

Debate 5 Introduction: Organic Foods

This debate on organic foods will focus on the merits of organic food, or food grown with a minimal amount of synthetic chemicals. Some voices argue that organically grown food will never be able to feed billions of hungry people without chemical inputs. Others declare that eating organic foods is an essential way to protect children from dangerous health effects associated with food grown and treated with chemicals.

ADVOCATE VOICES

- **Bob Goldberg** is plant molecular biologist and the director of the Seed Institute at the University of California.
- **Sandra Steigraber** is an author and ecologist. She wrote *The Organic Manifesto of a Biologist Mother* for Organic Valley dairy cooperative in June 2003.

MEDIA DOCUMENTS

- **Video**
"Norman Borlaug on Penn & Teller: BS"
2:04 min. video clip
2007



This clip is from a *Penn and Teller: BS* episode on diets and world hunger. Norman Borlaug is an agricultural scientist and the father of the green revolution, an initiative which brought western industrial agricultural methods to India in the years after World War II.

- **PowerPoint Slides 10-11**
"Featured Farmers for 2010": This web page is from the website of the Southeastern African-American Farmers Organic Network (SAAFON), a network of farmers using sustainable growing methods.

Text from "Featured Farmers for 2010":

"SAAFON is highlighting in 2010 four farmers from our Network. These farmers have done an outstanding job not only in successfully growing and marketing their organic crops, but also in the role they have played in educating their communities about sustainable agriculture. We are proud to have these model farmers as members of SAAFON.

Sandra Simone of Huckleberry Hill Farm in Talladega, Alabama and her daughter Tynesha have made it a business of getting it right when it comes to farming organic vegetables and raising goats. The mother and daughter team run a successful CSA (Community Supported Agriculture) that distributes out of the Jimmy Carter Center in Atlanta. Along with the CSA one of the passions of Sandra is to educate her local community, especially the children, about the importance of what they are putting into their bodies. Huckleberry Hill Farm's community event, The Pumpkin Festival, draws children and their parents from all over Alabama. The event provides food, games and education about nutrition, farming and the impact farming has on the environment" (SAAFON.org, 2010).

Debate 6 Introduction: **Food Security**

The debate on food security will focus on how best to meet the food needs of local communities, particularly those living in areas where access to healthy food is limited or nonexistent. Some voices support the development of local food security networks that will address issues of culture and social justice. Others work for the development of charitable efforts, like food programs for hungry children, as a means to respond to increasing levels of food insecurity.

ADVOCATE VOICES

- **Malik Yakini** is director of Detroit's Nsoroma Institute Public School Academy, an African Centered learning community. He is also the chairman of the Detroit Black Community Food Security Network.
- **The ConAgra Foundation** is the charitable foundation of ConAgra Foods, one of the largest packaged food corporations in the United States. ConAgra owns many well-known food product brands such as Chef Boyardee, Healthy Choice and Peter Pan.

MEDIA DOCUMENTS

- **Video**
"The Growing Solution to Urban Food Deserts"
2:12 min. video clip
2010



This clip was aired on Conscious Living TV in December 2009. The slogan of this TV channel is "the evolution will be televised." The clip combines the beginning and the end of this program (Conscious Planet Media, 2011).

- **PowerPoint Slides 12-13**
"Navigating Export Success": This is the cover of the 2006 annual report of the Food Export Association of the Midwest USA, whose mission is to increase food and agricultural exports.

Debate 7 Introduction: Water Privatization

This debate on water privatization will focus on how to provide the best community access to clean drinking water. Some voices criticize water privatization, arguing that water is a public resource that should not be placed into the hands of private companies whose main interest is in making a profit. Others say that only private corporations with access to capital and advanced technology can guarantee sustainable water management.

ADVOCATE VOICES

- **United Water** is a water service corporation owned by the French multinational company, Suez Environment. Suez Environment is one of the largest water corporations in the world.
- **Vandana Shiva** is an Indian philosopher, water democracy activist and author of many books, including *Earth Democracy: Justice, Sustainability and Peace* and *Water Wars*.

MEDIA DOCUMENTS

- **Video**
"Flow – L6"

4:14 min. video clip
2008

This clip is from director Irene Salina's 2008 documentary film *Flow* about the world water crisis.



- **PowerPoint Slide**
"Environmental Sustainability": This web page is produced by American Water, one of the largest private water companies in the U.S. American Water is owned by the German energy conglomerate RWE.

Text from "Environmental Sustainability":

"American Water is committed to minimizing the impacts of our operations and enhancing our sustainability performance in ways that are relevant to our business and important to the communities we serve. We invite you to find out more about what we're doing to ensure the sustainability of our operations by accessing the links below.

In this section you can learn more about:

Environmental Policy and Performance
Environmental Stewardship and Innovation
Climate Change and Energy Management
Water Reuse and Recycling" (American Water, 2011).

11. After the each advocate pair has debated their document(s), ask the other students for observations based on their assigned advocate voice. Encourage students to speak to central themes relating to social justice, climate change, energy use and the role of community, business and technology in working for sustainability. Remind students that, like the debaters, they will have only two minutes each to make their comments.

In an effort to make sure that the central themes are well represented in the discussion, below are some suggestions as to what voices might be invited to speak about particular issues in the open forum.

Open Forum for Debate 1: Food Crop Preservation

- Bill McKibben (climate change)
- Kip Cullers (technology)

Open Forum for Debate 2: Local Foods

- ConAgra Foundation (business)
- Wes Jackson (climate change, technology)

Open Forum for Debate 3: Farming Practices

- John Hantz (business)
- Bob Goldberg (technology)
- Sandra Steingraber (technology)

Open Forum for Debate 4: Urban Agriculture

- United Water (energy)
- Wendell Berry (community)
- Malik Yakini (community)

Open Forum for Debate 5: Organic Foods

- Erika Allen (community, social justice)
- Monsanto (business, technology)

Open Forum for Debate 6: Food Security

- Stephen Budiansky (energy)
- Wendell Berry (community)
- Vandana Shiva (social justice)

Open Forum for Debate 7: Water Privatization

- Monsanto (business, technology)
- Malik Yakini (community, social justice)

12. Upon completing the debates, allow students to reflect on their own perspectives regarding the issues raised by the debate. Probe questions include:

- **Which topic is of greatest concern to you and why?**
- **Which advocate views do you most identify with and why?**
- **Which topic requires more research in order for you to form an opinion?**
- **Was your opinion changed by any of the debates? If so, which one any why?**

Debate Vocabulary and Summaries

Debate 1: Food Crop Preservation

- **Wes Jackson** (perennial polycultures)

Vocabulary:

monoculture, soil erosion, nature as model, perennial plants, pesticide poisoning, biodiversity loss, polyculture, carbon sequestration, runoff, extractive economy, renewable economy, climate change, fossil fuel era, food security

Summary:

Nature is the model for soil health during climate change and peak oil.

- **Monsanto** (GMOs)

Vocabulary:

biotechnology, chemicals, genetic engineering, herbicide, insect-resistance, drought tolerance, stacking traits, transgenic crops, GMOs

Summary:

Technology produces more and protects the food supply for a growing population.

Debate 2: Local Foods

- **Stephen Budiansky** (anti-locavore)

Vocabulary:

locavore, food-miles, transporting food, energy consumption, fertilizers, chemicals, energy cost, fertilizer, environmental "greenwash", "razzmatazz to push their wares"

Summary:

Individual household conservation takes more energy than food transport and locavores use greenwash to sell their ideology.

- **Bill McKibben** (local foods)

Vocabulary:

functional independence, local food network, farmers market, urban and suburban gardens, food processing, local resilience, climate change, peak oil

Summary:

Climate change and peak oil require local resilience and new soil and farm reclamation in suburbs and cities.

Debate 3: Farming Practices

- **Kip Cullers** (big biotech)

Vocabulary:

science boosts production and yield, global food crisis, food riots, economic growth, big biotech, chemical conglomerate, technical advisers, insecticide, herbicide

Summary:

Chemical biotechnology enables high yield food production to manage global food crises.

- **Wendell Berry** (agrarian community)

Vocabulary:

soil erosion, agricultural poison, agribusiness, monoculture, profit, food dictatorship, agrarian, industrialism, locally adapted, caretaker, local self-sufficiency, genetic impoverishment, natural inheritance

Summary:

Industrial agriculture destroys natural and cultural systems of agrarian preservation.

Debate 4: Urban Agriculture

- **Erika Allen** (urban cooperative networks)

Vocabulary:

community garden, community food security, youth training, aquaponics

Summary:

Community gardening and cooperatives are a means to promote food justice.

- **John Hantz** (urban agriculture enterprise)

Vocabulary:

stimulate development, land market, largest urban farm, latest in farm technology, compost-heated greenhouses, hydroponic, aeroponic, for profit

Summary:

A large technology-driven urban farm will create development opportunities and become a major profit center.

Debate 5: Organic Foods

- **Bob Goldberg** (organic food critic)

Vocabulary:

pesticides, manure, nitrogen, increase yield, genetic engineering, modern agricultural practices

Summary:

Chemically-based, modern agricultural practices enable farmers to increase their yields and feed the world.

- **Sandra Steingraber** (organic foods)

Vocabulary:

pesticide, exposure, health risk, poison

Summary:

Organic foods present far less health risks, especially for children.

Debate 6: Food Security

- **Malik Yakini** (community-based food security)

Vocabulary:

food desert, public health, soul food, urban agriculture, micro farm, farmers market, cooperatives, food insecurity, agro-tourism, break dependence on grant funding, mobile market

Summary:

Cultural awareness, anti-racism and fresh produce promise better health and food security for Detroit residents.

- **ConAgra Foundation** (philanthropic feeding programs)

Vocabulary:

food insecure, child hunger, food company, philanthropy, nutrition education, feeding programs, corporate partner, technology infrastructure

Summary:

Philanthropic giving and partnerships with feeding programs will reduce child hunger.

Debate 7: Water Privatization

- **United Water** (water privatization)

Vocabulary:

finite resources, business practices, distribution systems, water services, natural watershed systems, green infrastructure, private sector, capital markets, expertise, innovative technology, energy conservation, sustainable development, carbon footprint, global resources

Summary:

Global resources, capital markets and new technology enable United Water to guarantee sustainable water management.

- **Vandana Shiva** (water justice)

Vocabulary:

water as private property, excluding access to water, justice and sustainability, nature's limits, water democracy, water theft, water parliament, water as a commons

Summary:

Communities must organize to protect common water rights and to oppose corporate and state-driven privatization.

FURTHER QUESTIONS

Analyzing Media Messages

Which media documents were most persuasive and why? Which were the most credible? Which were the least credible?

Which documents left out important information? Where would you go to find out more about the topic in that case?

Self Reflection

Which of these advocate voices were familiar to you and which ones were not? Why?

Who are the elders or mentors in your life who speak to you about sustainability issues?

Think about the various systems that inform awareness about issues of sustainability. These could be economic systems, such as capitalism or collectivism, or learning systems, such as research institutes or intergenerational mentoring. **In your view, which of these or other systems are most likely to lead to helpful solutions to the problems facing our food, water and agriculture? Why?**

Underlying Values and Motives

What influences help to shape each advocate's opinions? What influences help to shape yours?

Which advocate spoke most clearly for the health of the soil? For the health of the water? For the health of the children? For the health of other species?

Consider the question of whether or not our current economic, social or political systems are sustainable. **Which advocate voice makes the most compelling case that our current systems are sustainable and which makes the case that our current systems are unsustainable?**

Whose interests do these voices represent (consider different socio-economic groups: working people, individuals of color, immigrants, wealthy people, corporations etc.)?

Do you think the issues presented here should only preoccupy people in the US, or are they global concerns? Why or why not?

Are people who are living in poverty concerned about issues of sustainability? Why or why not? Should they be? How do issues of sustainability affect their lives? What would allow people in poverty to live more sustainable lives?

Some people are concerned that the promotion of consumerism makes sustainability more difficult to achieve. **Which advocate voices speak most directly for or against consumerism?**

Some people favor geoengineering, or deliberately manipulating the earth's climate as a means to counteract the effects of climate change. Examples of geoengineering include reducing the amount of sunlight hitting the earth by painting roofs white or covering them with a reflective material; another idea involves placing space-based sunshades in orbit. **Which of these advocates would be likely to support geoengineering and which might oppose it and why?**

How can the way one chooses to define terms (such as organic and conventional agriculture) shape the debate about sustainability?

EXTENDED ACTIVITIES

Stage a local forum - *Sustainability Advocates Make Their Case*. Research a wide range of sustainability advocates in your area. Determine who to invite to your presentation. Be sure to include representatives from varied constituencies representing local government, NGOs, the media, citizen advocates, universities and business.

Design a sustainable school considering such things as water conservation (rain gardens) and food production (community gardens).

Interview your family and friends about their opinions on whether food and water resources within your community are secure for the long term. Ask them about how climate change, social justice and peak oil fit into their judgments about sustainability.

Investigate media coverage of the topics presented in this lesson within your community. What media forms have covered each issue? Have they taken editorial positions on one side or another? Consider a variety of media sources, including local daily and weekly newspapers, network TV, local news, citizens cable video, student newspapers, websites, blog postings and Internet videos.

Find other media documents that might be used for topical debates about sustainability.

Do a systems analysis of one of the topics from this lesson as it is manifested within your community. For example, for the topic of the local food movement, draw a web showing the ways in which food comes to your community via local, regional, national and international channels. Be sure to include local farmers markets, supermarkets, ethnic food stores and restaurants from diverse neighborhoods. Make sure your analysis includes a mix of cultural food products, such as food from African American, European, Asian and Latin American cultures. Look at areas of possible food production that are underutilized.

Work in groups to come to a consensus on a policy about a topic related to the debate. For example, the policy could address hunger in a developing nation. Teams must think about what they would be willing to compromise on and what issues would be non-negotiable.

CONNECTIONS

L 6, 9, 10, 15, 16, 18, 19
 (seeds & crops)

L6, 7, 9, 10, 16, 17, 19
 (local food)

L6, 7, 10, 15, 16, 17, 19
 (organic & conventional farming)
 L6, 7, 9, 19

(urban agriculture)

L 6, 7, 9, 10, 14, 15, 16, 17, 18, 19
 (food security)

L 6, 11, 12, 13, 19
 (water rights)

L6, 7, 10, 12, 14, 15, 16
 (agrarian cultures)

L3, 6, 9, 11, 16, 17, 18, 19
 (climate change)

L2, 6, 14, 15, 16, 18, 19
 (unintended consequences)

L2, 6, 7, 9, 10, 12, 13, 14, 15, 18
 (film & video)

L6, 7, 13, 14, 17, 18, 19
 (advertising)

L6, 10, 17, 19
 (webpage analysis)

Debate 1: Food Crop Preservation

Wes Jackson

Founder, the Land Institute

Voice 1

Botanist and geneticist Wes Jackson wrote an article entitled “The 50-Year Farm Bill” for the journal, *Solutions* (2010). This is an excerpt:

In Brief

We need new strategies for agriculture that emphasize efficient nutrient use in order to lower production costs and minimize negative environmental effects. The trouble is, the best soils on the best landscapes are already being farmed. Much of the future expansion of agriculture will be onto marginal lands where the risk of irreversible degradation under annual grain production is high. As these areas become degraded, expensive chemical, energy, and equipment inputs will become less effective and much less affordable.

The sooner successful alternatives are available, the more land we can save from degradation. Our vision is predicated on the need to end the ecological damage to agricultural land associated with grain production—damage such as soil erosion, poisoning by pesticides, and biodiversity loss. The most cost-effective way to do this and stay fed is to perennialize the landscape.

At The Land Institute, we’ve spent the past 30 years devoted to developing **herbaceous perennial grains** to be grown in mixed species **polycultures**. The result is crops with deep root structures that can survive the winter and stay in the soil year after year. This not only reduces the need to crop, turn, and plant seeds each year—the largest energy input in agriculture—it also keeps carbon in the

ground, reduces harmful runoff by eliminating tilling, and prevents biodiversity loss by restoring prairie systems.

Our first farmer-ready crops will be available on a limited scale in a decade, but we believe it’s time the government came up with a plan to start our transition toward a sustainable agricultural future. That’s why we advocate using the U.S. Department of Agriculture’s current five-year plans as mileposts in a 50-Year Farm Bill. We do not seek **USDA** funding from this bill for The Land Institute or any other particular organization.

The transition of agriculture from an extractive to a renewable economy in the foreseeable future can now be realistically imagined. Our proposal is ambitious, but it is necessary and possible. We have little doubt that we can make the agricultural transition fast enough to stay ahead of the adjustments imposed upon us by climate change and the end of the fossil-fuel era. If we humans can keep ourselves fed without destroying the planet in the process, we’ll have a chance to solve our other problems...

The 50-Year Farm Bill

...But the problem of agriculture is about more than the annual condition. It is also about growing crops in vast, unnatural **monocultures**. This makes harvest easy, but there is *only one kind* of root architecture in any given field; the living roots are not there year-round, and therefore, manage nutrients and water poorly. Waste of both is the rule.

The trouble with agriculture is not a recent development. Soil erosion and **soil salting** brought down civilizations long before the industrial and chemical era. Why the crisis now?

Simply, a surge in human population—which has doubled from about 3.3 billion in 1965 to almost 7 billion now—with land lost to sprawl and the remainder used far more intensively, and the accumulation of large dead zones in our oceans.

What is the alternative? Prudence requires one to first look to nature, the ultimate source of our food and production, no matter how independent we feel we have become. If we look at essentially all of the natural land ecosystems within the ecosphere, from alpine meadows to rainforests, we see that mixtures of **perennial plants** rule.¹ **Annuals** are opportunists that sprout, reproduce, throw seeds, and die. Perennials hold on for the long haul, protect the soil, and manage nutrients and water to a fine degree. In this regard perennials are superior to annuals, whether in polyculture or monoculture. The Land Institute's long-standing mission has been to perennialize several major crops such as wheat, sorghum, and sunflower, and domesticate a few wild perennial species to produce food like their annual analogs. The goal is to grow them in various mixtures according to what the landscape requires. With the pre-agricultural ecosystem as the standard, the institute is attempting to bring as many processes of the wild to the farm as possible, below as well as above the surface...

Who Will Pay?

We propose that, over an eight-year period, federal funding would sponsor 80 plant breeders and geneticists who would develop perennial grain, legume, and oilseed crops, and 30 agricultural and ecological scientists who would develop the necessary **agronomic** systems. They would work on six to eight major crop species at diverse locations. Budgeting \$400,000 per scientist per year for salaries and research costs would add less than \$50 million annually. This is less than 10 percent of the amount that the public and private sectors have been spending on plant breeding research in recent years.

Conclusion

Essentially all of nature's ecosystems feature perennial plants growing in species mixtures, systems that build soil. Agriculture reversed that process nearly everywhere by substituting annual monocultures. As a result, ecosystem services—including soil fertility—have been degraded. Most land available for new production is of marginal quality that declines quickly. The resulting biodiversity loss gets deserved attention, soil erosion less.

Perennialization of the 70 percent of cropland now growing grains has the potential to extend the productive life of our soils from the current tens or hundreds of years to thousands or tens of thousands. New perennial crops, like their wild relatives, seem certain to be more resilient to climate change. Without a doubt, they will increase **sequestration of carbon**. They will reduce the land runoff that is creating **coastal dead zones** and affecting fisheries and maintain the quality of scarce surface and ground water. American food security will improve. It won't be easy to overturn 45 years of American policy and centuries of turning to annuals. There are entrenched interests that can slow change—just look at the recent battle over healthcare in the U.S. Congress—but the social stability and ecological sustainability resulting from secure perennial food supplies make the fight worthwhile. A 50-Year Farm Bill will buy time to confront the intersecting issues of climate, population, water, and biodiversity (Jackson, 2010, p. 28-35).

¹ Chiras, DD & Reganold, JP. *Natural Resource Conservation: Management*

Debate 1: Food Crop Preservation Monsanto

Agricultural biotechnology corporation

Voice 2

The following excerpts are from a series of web pages from Monsanto.com, a multinational company that describes itself as “dedicated to providing farmers the broadest choice of products and services that will help them produce more, conserve more and lead improved lives” (Products, Monsanto Company, 2011).

If there were one word to explain what Monsanto is about, it would have to be farmers. Billions of people depend upon what farmers do. And so will billions more. In the next few decades, farmers will have to grow as much food as they have in the past 10,000 years – combined.

It is our purpose to work alongside farmers to do exactly that. To produce more food. To produce more with less, conserving resources like soil and water. And to improve lives.

We do this by selling seeds, traits developed through **biotechnology**, and **crop protection chemicals** (Monsanto, 2010).

Biotechnology

Biotechnology, or **genetic engineering**, is the process of inserting a gene from one species, like a plant or a bacterium, into another species. Typically the gene inserted will express an advantageous characteristic in the plant, such as the ability to tolerate environmental pressures, like insect resistance or drought tolerance. At Monsanto our biotechnology work is concentrated on but not limited to corn, cotton, soybeans and canola.

Why does Monsanto use biotechnology?

At Monsanto, we use biotechnology to give plants desirable characteristics (or traits) that often cannot be developed through breeding practices. The traits we develop help farmers produce more of their crop and conserve resources. Examples of these traits would be herbicide tolerance, insect-resistance, drought-tolerance. We also are working to develop traits that will benefit consumers, such as soybeans that produce healthier oils. Often, biotechnology is used to combine multiple traits in one seed. In the industry, this combination of traits is referred to as **stacking**. Through the use of plant biotechnology our products are able to offer numerous benefits to the environment, farmers, and consumers...

Are biotech products safe?

Yes - biotech crops undergo more testing and oversight before commercialization than any other agricultural products, including **conventional** (or non-biotech) **crops**. In the U.S., every biotechnology product has to be submitted to two or more of the following agencies for approval: **FDA** (Food and Drug Administration), U.S. Department of Agriculture, and the **EPA** (Environmental Protection Agency)...(Biotechnology, Monsanto Company, 2011).

Is There Value in Transgenic Crops?

It's not a secret many people today are questioning the value of transgenic crops – or crops commonly known as biotech or **GMOs** (genetically modified organisms). But have you ever wondered what farmers or those involved in the agriculture industry have to say about them? If so, you're in luck.

Last week at the 2010 **Beltwide Cotton Conferences** in New Orleans, Louisiana, a panel of industry experts discussed the value of transgenics before a large group of cotton farmers. While some of their comments varied, they all agreed on one thing – transgenic crops do provide value on the farm. “Yields have come up dramatically [since the introduction of transgenics],” David Hydrick, crop consultant with Hydrick’s Crop Consulting, Inc., said. “We’re farming a lot more acres than we used to, and it’s a lot simpler than it used to be...”

Barry Evans, a cotton producer from Kress, Texas, told the audience about the area where he farms. It’s an area he says many call the Great American Desert, a semi-arid climate in the high plains of Texas. “Because of technologies, we can make this a very fertile area,” Evans said. “There are three things that are important for us to manage – wind, water and weeds.”

Evans talked about how his farming operation has changed over the years because of the introduction of insect- and herbicide-resistant technologies. But it’s not his current and past successes that excite him; It’s the future ones. “I think we’re only seeing the tip of the iceberg of what transgenics can do for us,” he said. “As our population continues to grow in the world, transgenics hold the key to the future of farming, and that’s a future where we can feed and clothe the world” (Sauer, 2010).

The Changing Landscape of American Agriculture

Remarks by Cheryl Morley, Senior Vice President, Corporate Strategy, at the American Farm Bureau Federation Annual Meeting, Salt Lake City, Utah, Jan. 8, 2007

I also get to work in a company that is 100 percent committed to agriculture. That’s Monsanto. Ten years ago we did a lot things. We made synthetic chemicals with pharmaceuticals, artificial sweeteners, but today, we do agriculture. That’s all we do. It’s the only industry that we operate in. We serve

our consumers and our customers in our home state of Missouri, in our home country of the United States, and in many agricultural countries around the world.

We provide seed, biotechnology traits, agricultural chemistry for the production of corn, soy, cotton, and canola, and we produce products for swine, dairy, and vegetables. That’s what we do. And I suggest that today in a very, very enormously challenging and changing world, it helps to be 100 percent focused on agriculture...

So, there’s only one way to create this agricultural future, to make this great land we call the United States more technological, more sustainable, more productive, and to do that is going to require change in the way we work together. We have to embrace change. We have to anticipate change. When I tell you today that India is the largest cotton producing country in the world, did you know that? When I tell you that Brazil will be the largest producer of commodity soybeans in the world with incredibly cheap labor, does that make you uncomfortable? It should. But when I tell you how we’ve got the brains and the smarts and we always have had the innovation and the capabilities as a country for all these years to beat the system, to be more productive, that’s the possibility for all of us in this room.

So I, along with my Monsanto colleagues, am proud to work in agriculture, a little nervous, but proud nonetheless. I look forward to working together to make a mutually successful agricultural world and profitable one, and to meet the changes and challenges of a global world (Morley, 2007).

Debate 2: Local Foods

Stephen Budiansky

Author and blogger,

Stephen Budiansky's Liberal Curmudgeon Blog

Voice 3

History and science writer Stephen Budiansky wrote an opinion-editorial article, "Math Lessons for Locavores" for *The New York Times* on August 19, 2010. The following is an excerpt:

It's 42 steps from my back door to the garden that keeps my family supplied nine months of the year with a modest cornucopia of lettuce, beets, spinach, beans, tomatoes, basil, corn, squash, brussels sprouts, the occasional celeriac and, once when I was feeling particularly energetic, a couple of small but undeniable artichokes. You'll get no argument from me about the pleasures and advantages to the palate and the spirit of eating what's local, fresh and in season.

But the local food movement now threatens to devolve into another one of those self-indulgent — and self-defeating — do-gooder dogmas. Arbitrary rules, without any real scientific basis, are repeated as gospel by "locavores," celebrity chefs and mainstream environmental organizations. Words like "sustainability" and "**food-miles**" are thrown around without any clear understanding of the larger picture of energy and land use.

The result has been all kinds of absurdities. For instance, it is sinful in New York City to buy a tomato grown in a California field because of the energy spent to truck it across the country; it is virtuous to buy one grown in a lavishly heated greenhouse in, say, the Hudson Valley.

The statistics brandished by local-food advocates to support such doctrinaire assertions are always selective, usually misleading and often bogus. This is particularly the case with respect to the

energy costs of transporting food. One popular and oft-repeated statistic is that it takes 36 (sometimes it's 97) calories of fossil fuel energy to bring one calorie of iceberg lettuce from California to the East Coast. That's an apples and oranges (or maybe apples and rocks) comparison to begin with, because you can't eat petroleum or burn iceberg lettuce.

It is also an almost complete misrepresentation of reality, as those numbers reflect the entire energy cost of producing lettuce from seed to dinner table, not just transportation. Studies have shown that whether it's grown in California or Maine, or whether it's organic or conventional, about 5,000 calories of energy go into one pound of lettuce. Given how efficient trains and tractor-trailers are, shipping a head of lettuce across the country actually adds next to nothing to the total energy bill.

It takes about a tablespoon of diesel fuel to move one pound of freight 3,000 miles by rail; that works out to about 100 calories of energy. If it goes by truck, it's about 300 calories, still a negligible amount in the overall picture. (For those checking the calculations at home, these are "large calories," or kilocalories, the units used for food value.) Overall, transportation accounts for about 14 percent of the total energy consumed by the American food system.

Other favorite targets of sustainability advocates include the fertilizers and chemicals used in modern farming. But their share of the food system's energy use is even lower, about 8 percent.

The real energy hog, it turns out, is not industrial agriculture at all, but you and me. Home preparation and storage account for 32 percent of

all energy use in our food system, the largest component by far.

A single 10-mile round trip by car to the grocery store or the farmers' market will easily eat up about 14,000 calories of fossil fuel energy. Just running your refrigerator for a week consumes 9,000 calories of energy. That assumes it's one of the latest high-efficiency models; otherwise, you can double that figure. Cooking and running dishwashers, freezers and second or third refrigerators (more than 25 percent of American households have more than one) all add major hits. Indeed, households make up for 22 percent of all the energy expenditures in the United States.

Agriculture, on the other hand, accounts for just 2 percent of our nation's energy usage; that energy is mainly devoted to running farm machinery and manufacturing fertilizer. In return for that quite modest energy investment, we have fed hundreds of millions of people, liberated tens of millions from backbreaking manual labor and spared hundreds of millions of acres for nature preserves, forests and parks that otherwise would have come under the plow.

Don't forget the astonishing fact that the total land area of American farms remains almost unchanged from a century ago, at a little under a billion acres, even though those farms now feed three times as many Americans and export more than 10 times as much as they did in 1910.

The best way to make the most of these truly precious resources of land, favorable climates and human labor is to grow lettuce, oranges, wheat, peppers, bananas, whatever, in the places where they grow best and with the most efficient technologies — and then pay the relatively tiny energy cost to get them to market, as we do with every other commodity in the economy. Sometimes that means growing vegetables in your backyard. Sometimes that means buying vegetables grown in California or Costa Rica.

Eating locally grown produce is a fine thing in many ways. But it is not an end in itself, nor is it a virtue in itself. The relative pittance of our budget that we spend on modern farming is one of the wisest energy investments we can make, when we honestly look at what it returns to our land, our economy, our environment and our well-being (Budiansky, 2010, August 19).

This writing is an excerpt from Stephen Budiansky's September 3, 2010 blog posting, "Sustainable sentiments." Budiansky wrote this posting in response to letters from his response from letters regarding his *New York Times* Article. The following is an excerpt:

...Some of my instinctive suspicion of the local-food movement as a movement — as opposed to just people offering a product to compete with other products in the marketplace — is the wariness I feel towards anyone who puts on the razzamatazz to push their wares. Whenever anyone starts telling me I need to hand over my money as a moral imperative, a moral virtue, or for the salvation of the planet, my first instinct is to check to make sure my wallet is still in my pocket. The language of the huckster pervades this business; to look at most of the websites and literature of local/organic/sustainable sellers you'd think they wouldn't dream of taking your money, so noble is their calling ("We are in the redemption business: healing the land, healing the food, healing the economy, and healing the culture," reads one typical specimen). Old rule of commercial interaction: when someone says it's not about money . . . it's about money.

But what I really object to is the failure of local and organic advocates to confront the true implications of the agenda they are promoting — which would quite simply be devastating for the global environment were we ever compelled to do what an increasing number of its acolytes say we must do...(Budiansky, 2010 September 3).

Debate 2: Local Foods

Bill McKibben

Author, *Eaarth: Making a Life on a Tough New Planet* and *Fight Global Warming Now*

Voice 4

Environmental activist Bill McKibben wrote *Eaarth: Making Life on a Tough New Planet* on global climate change. The following is an excerpt:

...But many of my neighbors are de facto parts of the quieter movement for what might be called “functional independence,” the people working hard to figure out how Vermont might one day grow more of its own food and provide more of its own energy, deliver most of the goods and services necessary for a dignified life. They campaign against **federal subsidies** for big agriculture and work to build local **food networks**; against huge power plants and for laws to make windmills easier to build. There are people like this emerging in every state, and in every county, and in suburbs and cities as well as in the countryside...They’re enterprising and canny. Most of all, they’re *connected*. They sustain *communities*... (McKibben, 2010, p 132)

Eliminating all the middlemen that takes most of the agricultural dollar would keep prices affordable. By some estimates, seventy-five cents of every dollar spent on supermarket food covers that cost of advertising, packaging, lost distance transport, and storage; at a farmer’s market, by contrast, 95 percent of the price goes to the farmer growing the food.¹ For poor people, the price is particularly right; since inner-city supermarkets typically charge a third more than suburban ones, and since the produce on the bodega shelf usually defines wilted, urban farmers’ markets allow what one story called “ready access to wholesome and cheap food.” When such a market is nearby, the consumption of fruit and vegetables

increases,² and recent immigrants are often the most enthusiastic customers (perhaps because they can remember what actual food tastes like). They also save money because the food’s fresher: a local vegetable “might last a week in the fridge, whereas one that’s traveled might last only two days, since it’s aged,” says the Tufts University analyst Hugh Joseph.³ Since one out of four fruits and vegetables never makes it to the table because it spoils, that adds up...⁴ (McKibben, 2010, p 176)

If millions of people are going to work at least part-time as farmers again, they won’t all be in rural America. Much of the best land in the country – flat, fertile soils within easy reach of cities – has been converted to suburban tract housing. But there’s a lot of acreage left around each dwelling; an analysis of available land in American suburbs recently suggested that they could, on average, “realistically provide around 50 percent” of the food they need, acting “as a localized buffer against disruptions and providing a high percentage of vitamins, minerals, flavor, and culturally-important foods.”⁵ The number of American gardens grew 10 percent in 2008 and was expected to increase faster still in 2009; Burpee Seeds was one of the few companies prospering in the recession, reporting a sales rise of 40 percent between 2007 and 2008.

Many of these new gardens lie in our biggest urban areas. Los Angeles reports a waiting list for the ten-foot-by-thirty-foot plots it leases at seventy sites around the sprawling city.⁶ New Jersey? It would take 115,000 additional acres to feed everyone in the state a healthy vegetarian diet, the equivalent of 3.4 million two-hundred-square-foot gardens.⁷ That’s ten beds, each four by five feet – which could fit in your yard, over there next to the swing set. New York? The city

itself, by one study, could produce between 10 and 20 percent of its produce.⁸ (Shanghai, by comparison, employs 270,000 people in its urban farming industry.)⁹

And there's abandoned farmland surrounding the city – huge swaths of what we call “upstate New York” we once called America's “grain belt.” Food processing is returning to the city too; a recent *New York Times* survey of Brooklyn found entrepreneurs making everything from cheese to pickles to beer.¹⁰

The renewal is underway across much of the country. If you want a sense of what's possible, pull out a local map and see how many roads are named for the gristmill that once lay among them. In western Massachusetts, one bakery that wanted local wheat found that none of the farmers in the area had any idea anymore what varieties to plant, and they lacked the facilities to clean, mill and store the flour, so the owners persuaded a hundred of their neighbors to plant small patches in their yards. When New Mexico officials started a wheat-growing project in 1994, they found that the crop hadn't grown there for half a century; now local growers sell 350,000 pounds of flour a year.¹¹ Too expensive? In 2008, when food prices soared, our local Vermont wheat farmer Ben Gleason kept his price at fifty-nine cents a pound, even when the rice of King Arthur flour was twice that. His production costs hadn't gone up much; it didn't seem right to gouge his neighbors.

I'm not arguing for local food because it tastes better, or because it's better for you. (It does and it is. There's really not much debate.) I'm arguing that we have no choice – that the new Earth has much less margin than the planet we grew up on, and hence we're going to need to take advantage of opportunities we've passed by before. In a world more prone to drought and flood, we need the resilience that comes with three dozen different crops in one field, not a vast ocean of corn or soybeans. In

a world where warmth spreads pests more efficiently, we need the resilience of many local varieties and breeds; in the past century five thousand domestic breeds of animals and birds went extinct, and each time our danger increased a little.¹² And in a world with less oil, we need the kind of small **mixed farms** that can provide their own fertilizer, build their own soil (McKibben, p. 178-180).

¹ CSA in NYC, justfood.org/csa/press.

² Jules Pretty, *Agri-culture*, (London: Earthscan, 2002)p. 122.

³ Jennifer Wolcott, “In Search of the Ripe Stuff,” *Christian Science Monitor*, May 14, 2003.

⁴ Michael Shuman, *Going Local* (New York: Routledge, 2000), p. 59.

⁵ Jeff Vail, “A Resilient Suburbia,” the OilDrum.com, Nov. 24, 2008

⁶ Mary MacVean, “Victory Garden Sprouts Up Again,” *Los Angeles Times*, January 10, 2009.

⁷ Sharon Astyk and Aaron Newton, *A Nation of Farmers* (Gabriola Island, British Columbia: New Society, 2009), p. 193.

⁸ *ibid.*

⁹ Herbert Girard, in Ouda A. Girard, *Griffin, Ghost Town of the Adirondacks and Other Tales* (self-published, 1980) p. 95.

¹⁰ Oliver Schwaner-Albright, “Brooklyn's New Culinary Movement,” *New York Times*, February 25, 2009.

¹¹ Indrani Sen, “The Local Food Movement Reaches into the Breadbasket,” *New York Times*, September 9, 2008.

¹² Jules Pretty, *Agri-culture*, (London: Earthscan, 2002) p. 106.

Debate 3: Farming Practices

Kip Cullers

Champion soybean farmer

Voice 5

Farmer and world record holder for soybean production, Kip Cullers, was profiled in Bill Donahue's December 22, 2008 *Wired* magazine article called, "King of Bionic Ag Uses Turbocharged Seeds, Precision Chemistry, and a Little TLC." The following is an excerpt:

They came over the prairie in their pickup trucks, in the cool, quiet hours before dawn. They rolled through the gentle foothills of the Ozarks in air-conditioned tour buses with paintings of stagecoaches airbrushed on the black-lacquered side panels. They came wearing mud-smudged 10-gallon hats and frayed John Deere baseball caps. And then they stepped down out of their vehicles, each one of these farmers, and set foot on holy ground.

It is here, on the rust-colored loam of Stark City, Missouri (population 156), that Kip Cullers became the soybean king of the world. In 2007, Cullers harvested 155 bushels of soybeans per acre from a small plot—eclipsing his own world record of 139. (The US average is 40.) It is also here, on another section of his 11,000-acre farm in 2007, that Cullers grew 329 bushels of corn per acre—not a world record but enough for a top prize at the National Corn Yield Contest.

Cullers is 44. He is a devout Baptist who named his two sons Noah and Naaman after people in the Old Testament. He is thin—rail thin—and carries the twitchy, antic vibe of an early David Byrne. He blinks constantly and has a habit of furrowing his brow. When he takes a dip of chewing tobacco, he taps his tin of Copenhagen twice, quickly. The farmers have come here from Nebraska and Minnesota and Arkansas to behold his work.

Cullers' success has made him a celebrity in the farming world.

At conferences and conventions across the US and Canada, he gives speeches to crowds of thousands. He has taken his road show to Argentina and Chile. Missouri governor Matt Blunt has sonorously proclaimed him "the Babe Ruth" of soybean production. Cullers calls himself "an ignorant hillbilly," but there's no doubt he's a genius in the science of yield—and, some argue, a frontline warrior in the burgeoning global food crisis.

With demand for corn-based **ethanol** mounting, and China's and India's hunger for corn-fed chicken and beef climbing, the cost of **staple foods** has never been higher. The price of yellow corn has doubled over the past two years, and poor people worldwide are struggling. Thirty-three nations are now at risk for social unrest due to rising food prices, according to World Bank president Robert Zoellick. In Thailand, rice farmers guard their paddies at night. Last spring, in Haiti, five people died in a weeklong food riot that culminated with protestors storming the presidential palace.

This upheaval represents an opportunity for companies like Iowa-based Pioneer Hi-Bred, Cullers' main sponsor. A DuPont subsidiary, Pioneer grossed \$3.3 billion in 2007, primarily from the sale of **bioengineered seeds**; its chief rival, Monsanto, topped \$11 billion in 2008. These businesses are based on the promise that science can help farmers boost yield. "We have to feed the world," says William Niebur, Pioneer's vice president of **crop genetics R&D**, "and we can, by increasing productivity per acre. And if we bring people food, there will be political stability, which leads to economic growth."

Cullers has positioned himself as a liaison between **Big Biotech** and the farming community. "Kip believes that high yield is his mission, his role," Niebur says, "and so he shares what he learns. He talks with us at Pioneer; he talks with other farmers. It's like he's trying to create a Linux users' group for corn and soybeans. He's open source."

So open that he's hosting some 1,800 farmers in Stark City for Kip Cullers' Record Breaking **Field Day**. Sponsored by Pioneer and German chemical conglomerate BASF, the event is meant as an opportunity for Cullers to pass on his wisdom—and sing the praises of Pioneer's products...

Cullers tightened his operation. "I'm a micromanager," he says. "I'm a control freak. My wife thinks I'm stressed out. All I do every day now, all day long, is crisis management. With corn and soybeans, you've got your highest yield potential on the first day you plant. After that"—his tone grows wistful—"things start going wrong. I can walk through a field and find 5,000 things wrong with it. You're always dealing with something hypercritical, like an infestation of Japanese beetles. I work six days a week, right up until it gets dark, and when she's balls to the wall, I work Sundays, too."

Cullers adjusts his cap and stares off into the distance dolefully—trapped, it seems, by his own success. He has become the Grow Man, the superstar of bionic ag, and now he seems resolved to do whatever the role demands. When a BASF film crew approaches him later in the day seeking a sound bite, he dutifully plays along.

"We want employees to know you are pleased to be working with BASF," the producer tells him.

"You know," Cullers begins, "it's great to be working with BASF ..."

How does Kip do it? That's the question on everyone's mind at the field day, of course. Cullers doesn't just put seeds in the ground and hope for the best. Modern farming is science, awash in crazily capable machinery and in technicalities that can befuddle the average farmer of a few hundred acres. Cullers himself owns some 15 tractors, the fanciest of which costs \$185,000 and steers itself with GPS tech. He burns up thousands of cell phone minutes each month talking to Pioneer and BASF technical advisers—chemistry PhDs who can expound on the relative merits of Respect insecticide, formulated from zeta-cypermethrin, and ```, which is rich in pyraclostrobin.

Dozens of these experts are on hand for the field day. They set up little teaching stations and stand there—in the 90-degree heat, in stagnant air as humid as an athletic sock—explicating Cullers' strategies. At one station, BASF sales rep Dale Ashby extols Cullers' unusually high herbicide use. "What Kip does, to get early-season weed pressure out of the way," he says, "is spray an herbicide before he plants. Kip likes Extreme, and also Pursuit..."

"You know that passage in Genesis," I say, "the one about taking 'dominion' over 'all the earth'? Does that inspire you?"

"No," he says. "I don't think about that." He looks out toward his corn now. "Corn is my hobby. Some people go fishing. Some people ride bicycles. I grow corn. All I ever wanted to do was grow stuff. I love making stuff grow. I love seeing how far you can push it." He's possessed of a rare simplicity, a purity of focus that exists, usually, only in athletes—in people who spend their whole life in pursuit of perfection and glory.

I say good-bye and drive off over a long, straight gravel road. Corn lines my path. It is high and green in its rows, and I can't even imagine what sort of strange magic these fields will sprout in the future (Donahue, 2008).

Debate 3: Farming Practices

Wendell Berry

Farmer, and author of *Bringing it to the Table*

Voice 6

Wendell Berry is a small farmer and author of dozens of works of poetry, essays and fiction on land and community. He wrote the essay, "The Agrarian Standard," for *Orion Magazine* in Summer 2002. The following is an excerpt:

...In 2002 we have less than half the number of farmers in the United States that we had in 1977. Our farm communities are far worse off now than they were then. Our soil erosion rates continue to be unsustainably high. We continue to pollute our soils and streams with agricultural poisons. We continue to lose farmland to urban development of the most wasteful sort. The large agribusiness corporations that were mainly national in 1977 are now global, and are replacing the world's agricultural diversity, which was useful primarily to farmers and local consumers, with bioengineered and patented **monocultures** that are merely profitable to corporations. The purpose of this now global economy, as Vandana Shiva has rightly said, is to replace "food democracy" with a worldwide "food dictatorship."

To be an agrarian writer in such a time is an odd experience. One keeps writing essays and speeches that one would prefer not to write, that one wishes would prove unnecessary, that one hopes nobody will have any need for in twenty-five years. My life as an **agrarian writer** has certainly involved me in such confusions, but I have never doubted for a minute the importance of the hope I have tried to serve: the hope that we might become a healthy people in a healthy land.

We agrarians are involved in a hard, long, momentous contest, in which we are so far,

and by a considerable margin, the losers. What we have undertaken to defend is the complex accomplishment of knowledge, cultural memory, skill, self-mastery, good sense, and fundamental decency—the high and indispensable art—for which we probably can find no better name than "good farming." I mean farming as defined by agrarianism as opposed to farming as defined by industrialism: farming as the proper use and care of an immeasurable gift.

I believe that this contest between industrialism and agrarianism now defines the most fundamental human difference, for it divides not just two nearly opposite concepts of agriculture and land use, but also two nearly opposite ways of understanding ourselves, our fellow creatures, and our world.

The way of industrialism is the way of the machine. To the industrial mind, a machine is not merely an instrument for doing work or amusing ourselves or making war; it is an explanation of the world and of life. Because industrialism cannot understand living things except as machines, and can grant them no value that is not utilitarian, it conceives of farming and forestry as forms of mining; it cannot use the land without abusing it.

Industrialism prescribes an economy that is placeless and displacing. It does not distinguish one place from another. It applies its methods and technologies indiscriminately in the American East and the American West, in the United States and in India. It thus continues the economy of colonialism. The shift of colonial power from European monarchy to global corporation is perhaps the dominant theme of modern history.

All along, it has been the same story of the gathering of an exploitive economic power into the hands of a few people who are alien to the places and the people they exploit. Such an economy is bound to destroy locally adapted agrarian economies everywhere it goes, simply because it is too ignorant not to do so. And it has succeeded precisely to the extent that it has been able to inculcate the same ignorance in workers and consumers.

To the corporate and political and academic servants of global industrialism, the small family farm and the small farming community are not known, not imaginable, and therefore unthinkable, except as damaging stereotypes. The people of “the cutting edge” in science, business, education, and politics have no patience with the local love, local loyalty, and local knowledge that make people truly native to their places and therefore good caretakers of their places. This is why one of the primary principles in industrialism has always been to get the worker away from home. From the beginning it has been destructive of home employment and home economies. The economic function of the household has been increasingly the consumption of purchased goods. Under industrialism, the farm too has become increasingly consumptive, and farms fail as the costs of consumption overpower the income from production.

The industrial contempt for anything small, rural, or natural translates into contempt for decentralized economic systems, any sort of local self-sufficiency in food or other necessities. The industrial “solution” for such systems is to increase the scale of work and trade. It brings Big Ideas, Big Money, and Big Technology into small rural communities, economies, and ecosystems—the brought-in industry and the experts being invariably alien to and contemptuous of the places to which they are brought in. There is never any question of propriety, of adapting the thought or the purpose or the technology to the place.

The result is that problems correctable on a small scale are replaced by large-scale problems for which there are no large-scale corrections. Meanwhile, the large-scale enterprise has reduced or destroyed the possibility of small-scale corrections. This exactly describes our present agriculture. Forcing all agricultural localities to conform to economic conditions imposed from afar by a few large corporations has caused problems of the largest possible scale, such as soil loss, **genetic impoverishment**, and groundwater pollution, which are correctable only by an agriculture of locally adapted, solar-powered, diversified small farms—a correction that, after a half century of industrial agriculture, will be difficult to achieve.

The industrial economy thus is inherently violent. It impoverishes one place in order to be extravagant in another, true to its colonialist ambition. A part of the “externalized” cost of this is war after war.

Industrialism begins with technological invention. But agrarianism begins with givens: land, plants, animals, weather, hunger, and the birthright knowledge of agriculture. Industrialists are always ready to ignore, sell, or destroy the past in order to gain the entirely unprecedented wealth, comfort, and happiness supposedly to be found in the future. Agrarian farmers know that their very identity depends on their willingness to receive gratefully, use responsibly, and hand down intact an inheritance, both natural and cultural, from the past... (Berry, 2002).

Debate 4: Urban Agriculture

Erika Allen

Founder, Growing Food and Justice For All Initiative

Voice 7

Erika Allen, urban agriculture pioneer, was interviewed by Andrea King Collier for an article titled, “Erika Allen on Growing Food Justice Initiative” for WhyHunger.org’s Food Security and Learning Center: Race and the Food System.

Erika Allen, project leader for Growing Power’s Grant Park community garden project in Chicago, is a young woman with old school passion for the beloved community. She was one of the founders of the Growing Food and Justice For All Initiative (GFJI), which grew out of the Community Food Security Coalition’s committee work on race.

Allen, who is the daughter of Will Allen, the founder of Growing Power in Milwaukee and a 2008 MacArthur Fellow, spent much of her youth being around all aspects of farming including managing farmer’s markets. In partnership with the Chicago Park District and Moore Landscapes, Allen’s Growing Power site (one of three in Chicago) created a 20,000 square foot urban farm on Chicago’s lakefront adjacent to Buckingham Fountain and Lincoln Memorial in Grant Park. Allen says they grow over 150 varieties of **heirloom vegetables**, herbs, and edible flowers at the urban farm in the heart of downtown Chicago. In addition to regular farm activities, farm interns experience marketing produce and **value-added products** at small community farmers’ market building customer service and entrepreneurial skills needed by both farmers and area artists.

“Food is the next frontier of the civil rights movement,” Allen says. “As a child of that movement, I think about it a lot.”

Moving to form a new organization that would put its primary focus on dismantling racism in all aspects of the food system wasn’t a resurrection, according to Allen. “It was an epiphany,” she

says. Breathing life into a new organization helped to remove some of the institutional roadblocks to doing the work, Allen says.

The GFJI vision of tearing down the walls of racism reached a new level of reality in Milwaukee in September 2008, with the first Growing Food and Justice for All Initiative conference. Allen sees the conference as “a space for real dialogue.” She says “September set the tone for how things move forward,” she says. The event was designed to bring people together to network and forge new partnerships around issues of social justice and racial equality.

“This is an experiment. It offers a space and an initiative to move forward,” Allen says. “And it also offers an opportunity to accept and work with people where they are.” It is also about shifting and sharing power and self-determination around the food system. “Look at who is most often at the table making decisions for the low income people. They are usually academics,” Allen says. The GFJI efforts are designed to level the field and give everyone a voice.

The same principles that guide Allen’s Growing Power work in the community gardens of Chicago, also keep her focused on the larger structural issues that make the work of GFJI so important to the food equity and security movement. “Everybody eats,” Allen says. “So why don’t people have access? And why haven’t farmers of color been able to tap into the resources they need to grow good and fair food?”

Her hopes for GFJI and the conference are clear. “We want people to take the information and trainings home and heal. In the longer term, Allen would like to see people get empowered and challenged to help do the work of removing the obstacles of racism and the other “isms” that stand between all people and a fair and equitable food system (Collier, 2010).

Erika Allen was profiled as one of “40 people who are redefining green” for *Grist Magazine* on April 22, 2010:

“Erika Allen grew up on a farm in Rockville, Md., working in the fields with her father. “We didn’t have a TV and we relied on a wood stove, but we were known as the ‘food family’ because we had so much food. We could feed 30 people for supper,” she said recently. Today, her dad, Will Allen, is one of the world’s most famous farmers—the recipient of a MacArthur “genius” grant for his innovative work as an urban farmer/community organizer in Milwaukee, Wis. Erika is continuing the family mission as head of the Chicago operations of Growing Power, her dad’s nonprofit. Since launching the Chicago branch in 2002, she’s helped make one-time **“food deserts”** bloom, launching community gardens and bringing fresh food to economically devastated neighborhoods. Growing Power also employs inner-city teens to run a model veggie garden in Chicago’s lake-side Grant Park, where they harvest 50 varieties of heirloom vegetables, herbs, and edible flowers in the shadow of skyscrapers” (*Grist*, 2010).

Erika and her father Will were the subject of an article, “Growing Power” by Tram Nguyen in *Colorlines*, Sept. 30, 2008:

...From their base in Milwaukee, Wisconsin, (Will) Allen and his daughter Erika have been pioneering this work toward food justice through Growing Power, a unique organization that models how to grow and distribute ecologically and culturally appropriate food, as well as training communities locally and worldwide in sustainable food production.

Growing Power consists of an urban farm, along with a store that sells organic and affordable Black Southern foodstuffs, food from the local Hmong and Oneida Indian communities, a “Market Basket” program that delivers \$12 bags of organic produce and has become a national model for linking inner-city consumers with organic farmers, youth training programs, and ongoing innovations for urban agriculture.

For instance, they developed an **“aquaponics”** system to raise tilapia fish in simply constructed tanks where vegetables both filter the water and get fertilized by the fish waste. One low-tech, cheaply produced system yields a complete source of protein and fresh produce. “It’s about reinventing the way food is grown, showing people that we could do it in urban areas, too,” Erika Allen says. “We’re working to provide the fertility and systems so that you can grow anywhere from rooftops to parking lots and containers, so that people can be self-sufficient in their food needs.”

In a world where millions are being displaced and living in overcrowded, expanding cities, the need for year-round, sustainable urban food production goes beyond America’s inner cities. At the time of this interview, the Allens were giving a tour to a group of farmers from Macedonia and getting ready to travel to Kenya and Ghana to help establish aquaponic projects.

Next for Growing Power is to launch a “Growing Food and Justice Initiative” that will bring together a network of social justice groups to explicitly address a “food system that is unjust and very racist,” explains Erika. “We just see food as a really powerful organizing tool. It deals with land, housing, transportation, economics, everything. For us, it’s really a tool of transformation” (Nguyen, 2008).

Debate 4: Urban agriculture

John Hantz

Owner and CEO, Hantz Farms LLC

Voice 8

John Hantz, urban farm entrepreneur, was profiled in the *Fortune* magazine article titled, "Can Farming Save Detroit?" by David Whitford in December 2009. The following is an excerpt:

John Hantz is a wealthy money manager who lives in an older enclave of Detroit where all the houses are grand and not all of them are falling apart...

With a net worth of more than \$100 million, he's one of the richest men left in Detroit -- one of the very few in his demographic who stayed put when others were fleeing to Grosse Pointe and Bloomfield Hills. Not long ago, while commuting, he stumbled on a big idea that might help save his dying city.

Every weekday Hantz pulls his Volvo SUV out of the gated driveway of his compound and drives half an hour to his office in Southfield, a northern suburb on the far side of Eight Mile Road. His route takes him through a desolate, postindustrial cityscape -- the kind of scene that is shockingly common in Detroit.

Along the way he passes vacant buildings, abandoned homes, and a whole lot of empty land. In some stretches he sees more pheasants than people. "Every year I tell myself it's going to get better," says Hantz, bright-eyed, with smooth cheeks and a little boy's carefully combed haircut, "and every year it doesn't."

Then one day about a year and a half ago, Hantz had a revelation. "We need scarcity," he thought to himself as he drove past block after unoccupied block. "We can't create opportunities, but we can create scarcity." And that, he says one afternoon in his living room between puffs on an expensive cigar, "is

how I got onto this idea of the farm."

Yes, a farm. A large-scale, for-profit agricultural enterprise, wholly contained within the city limits of Detroit. Hantz thinks farming could do his city a lot of good: restore big chunks of tax-delinquent, resource-draining urban blight to pastoral productivity; provide decent jobs with benefits; supply local markets and restaurants with fresh produce; attract tourists from all over the world; and -- most important of all -- stimulate development around the edges as the local land market tilts from stultifying abundance to something more like scarcity and investors move in. Hantz is willing to commit \$30 million to the project. He'll start with a pilot program this spring involving up to 50 acres on Detroit's east side. "Out of the gates," he says, "it'll be the largest urban farm in the world."

This is possibly not as crazy as it sounds. Granted, the notion of devoting valuable city land to agriculture would be unfathomable in New York, London, or Tokyo. But Detroit is a special case. The city that was once the fourth largest in the country and served as a symbol of America's industrial might has lately assumed a new role: North American poster child for the global phenomenon of shrinking postindustrial cities...

As Hantz began thinking about ways to absorb some of that **(housing) inventory**, what he imagined, he says, was a glacier: one broad, continuous swath of farmland, growing acre by acre, year by year, until it had overrun enough territory to raise the scarcity alarm and impel other investors to act. Rick Foster, an executive at the Kellogg Foundation whom Hantz sought out for advice, nudged him gently in a different direction.

"I think you should make pods," Foster said, meaning not one farm but many. Hantz was taken right away with the concept of creating several pods -- or lakes, as he came to think of them -- each as large as 300 acres, and each surrounded by its own valuable frontage. "What if we had seven lakes in the city?" he wondered. "Would people develop around those lakes?"

To increase the odds that they will, Hantz plans on making his farms both visually stunning and technologically cutting edge. Where there are row crops, Hantz says, they'll be neatly organized, planted in "dead-straight lines -- they may even be in a design." But the plan isn't to make Detroit look like Iowa. "Don't think a farm with tractors," says Hantz. "That's old."

In fact, Hantz's operation will bear little resemblance to a traditional farm. Mike Score, who recently left Michigan State's **agricultural extension program** to join Hantz Farms as president, has written a business plan that calls for the deployment of the latest in farm technology, from compost-heated greenhouses to **hydroponic** (water only, no soil) and **aeroponic** (air only) growing systems designed to maximize productivity in cramped settings.

He's really excited about apples. Hantz Farms will use a **trellised system** that's compact, highly efficient, and tourist-friendly. It won't be like apple picking in Massachusetts, and that's the point. Score wants visitors to Hantz Farms to see that agriculture is not just something that takes place in the countryside. They will be able to "walk down the row pushing a baby stroller," he promises...

Some of Hantz's biggest skeptics, ironically, are the same people who've been working to transform Detroit into a laboratory for urban farming for years, albeit on a much smaller scale. The nonprofit Detroit Agriculture Network counts nearly 900 urban gardens within the city limits. That's a twofold increase

in two years, and it places Detroit at the forefront of a vibrant national movement to grow more food locally and lessen the nation's dependence on Big Ag.

None of those gardens is very big (average size: 0.25 acre), and they don't generate a lot of cash (most don't even try), but otherwise they're great: as antidotes to urban blight; sources of healthy, affordable food in a city that, incredibly, has no chain supermarkets; providers of meaningful, if generally unpaid, work to the chronically unemployed; and beacons around which disintegrating communities can begin to regather themselves.

That actually sounds a lot like what Hantz envisions his farms to be in the for-profit arena. But he doesn't have many fans among the community gardeners, who feel that Hantz is using his money and connections to capitalize on their pioneering work. "I'm concerned about the corporate takeover of the urban agriculture movement in Detroit," says Malik Yakini, a charter school principal and founder of the Detroit Black Community Food Security Network, which operates D-Town Farm on Detroit's west side. "At this point the key players with him seem to be all white men in a city that's at least 82% black."

Hantz, meanwhile, has no patience for what he calls "fear-based" criticism. He has a hard time concealing his contempt for the nonprofit sector generally. ("Someone must pay taxes," he sniffs.) He also flatly rejects the idea that he's orchestrating some kind of underhanded land grab. In fact, Hantz says that he welcomes others who might want to start their own farms in the city. "Viability and sustainability to me are all that matters," he says... Whitford, 2009).

Debate 5: Organic foods

Bob Goldberg

Director, Seed Institute, UCLA

Voice 9

Bob Goldberg, plant molecular biologist at University of California, Los Angeles, wrote an essay titled, "The Hypocrisy of Organic Farmers" for the website AgBioWorld, in June 2000. The following is an excerpt:

Organic farmers are an important part of farming. However, they are like the fundamentalists -- they ARE fundamentalists -- who think that agriculture must be done in a specific way. The amount of acreage devoted to organic farming is small in the total scheme of things...

Second, there is not one piece of valid scientific data that can show that organic foods are healthier than foods made by conventional farming. As a BOTANIST I know that a plant, is a plant, is a plant. The structure, cell types, biochemistry, genetics, etc. of organically grown and conventionally grown crops are the SAME. There's a perception that organic foods are healthier -- the reality is that they are no more nutritious or healthier than foods produced by **conventional farming**. I wonder why organic foods are not labeled stating this FACT.

Third, organic foods MAY be less safe for consumption than foods grown by conventional means. Because organic farmers use MANURE which can contain deadly strains of E. coli, salmonella, etc. there is a higher chance of picking up a bacterial infection from organically grown crops than from conventionally grown crops. The chance may be slight, but it IS higher than from food produced the conventional way. I wonder why organic food sellers don't LABEL their foods to warn consumers of that fact that there may be a chance of getting a bacterial infection and to wash their organic food well.

IF THEY ARE CONCERNED ABOUT HUMAN HEALTH, THIS SHOULD BE A NO-BRAINER.

Fourth, there are STRICT regulations on the amount of "pesticides" that can be on conventional plants as residues. In fact, ALL PLANTS contain natural chemicals (**secondary metabolites**) that are more harmful (in high doses) to humans than any of the residual pesticides present on conventional crops. Bruce Ames, a well-known UC Berkeley geneticist who developed the standard toxicity test used today (the Ames test) published this in a landmark paper in 1990 in the Proceedings of the National Academy of Sciences -- and Bruce Ames is a critical, careful scientist with impeccable credentials for objectivity -- he works with bacteria and has no hidden agenda in the plant world one way or the other. Conventional foods are safe...they have been eaten by BILLIONS of people. Organics, on the other hand, can pose a HIGHER risk.

Fifth, organic farming takes up much more LAND than conventional farming. It is naive to think that organic farming can feed the "world." Organic farming requires MANURE, which requires animals, which requires **FORAGE LAND**. Today there are 6.5 billion people on the face of the earth. By 2050, we may have 10 billion people. Because organic farming uses nitrogen in manure, they will have to produce significantly MORE manure to keep up with the demand to feed 3-4 billion more people. IT CANNOT BE DONE. In fact, all of the world's cultivatable land has already been taken up. In order to increase food production the key is to INCREASE YIELD --- grow more plants on the same or smaller space. Organic farming can use higher yielding varieties (developed by conventional breeding). However the demand for MANURE is too great.

It has been estimated, that, at most, organic farming practices can feed 4 billion people. We have passed that already. Sixth, high-yielding farming cannot be done on a large scale using organic farming practices. There is no way that organic farmers can control pathogen infections (viruses, fungi, bacteria, insects) using natural biological controls. These require some utilization of chemicals. In addition, one of the reasons why agricultural productivity has increased 300% IN THE LAST CENTURY HAS BEEN FROM THE USE OF nitrogen fertilizers, pesticides, herbicides, greater-yielding varieties, agricultural practices and GENETIC ENGINEERING. This increase has been obtained on LESS LAND USAGE than a 100 years ago and with less people. For example, in 1875 ~50% of the labor in the US was devoted to farming. Today, less than 2% of labor is devoted to farming. Yet we produce 300% more crops on LESS land. That's more land for forests, parks, open space, etc. that would not be there if it weren't for modern agricultural practices...

The important point is that there needs to be many different forms of agriculture and agricultural practices. And there needs to be rationale solutions to our problems based on sound science, objective science, and an open mind to a variety of solutions to problems that WILL arise. I am disturbed by the "anti-science" tone of the **anti-GMO** crowd. And I am disturbed by the ideologically-driven zeal that drives them to fight **genetic engineering**. Most of us who have SPENT OUR LIVES DOING SCIENCE TO IMPROVE AGRICULTURE AND THE LIVES OF PEOPLE are not wedded to one technology or one approach. We want to ensure that there will be adequate food for all of humanity and be able to do that by whatever methods can best bring that about in a safe and productive way (Goldberg, 2000).

Debate 5: Organic foods

Sandra Steingraber

Biologist, author of *Living Downstream*

Voice 10

Sandra Steingraber, author and ecologist, wrote *The Organic Manifesto of a Biologist Mother* for the Organic Valley dairy cooperative in June 2003. The following is an excerpt.

...Virtually all the groceries Jeff and I buy for our family are **organically grown**. As well as an investment in a healthy environment for my children, directing my food dollars toward organic farmers is part of my spiritual practice. Simply put, we choose to support an agricultural system that does not rely on toxic chemicals to produce the food we eat. In attempting to articulate the depth of my commitment toward organic food, I realized it was time to write my organic manifesto, complete with all the reasons why I believe the decision to buy organic is rational, ethical, and in the long run, cost-effective. And here it is.

Organic food contains fewer pesticide residues than conventional food.

This might seem a self-evident truth. After all, organic farming prohibits the use of synthetic pesticides and intends to offer crops virtually free of residues. And yet the evidence to support this claim has only been available since spring 2002, when a peer-reviewed scientific journal published the first systematic comparison of pesticide residues in organic and non-organic foods.¹ Examining the data from more than 90,000 samples of produce, the authors of this study found that nearly three-quarters of conventionally grown foods had detectable **pesticide residues**. Three-quarters of organic crops had none. And among the one-quarter of organic samples that did test positive, levels of pesticide contamination were far lower. Conventionally

grown foods were also more likely to test positive for multiple pesticides than were their organic counterparts.

Children fed organic food have lower residues of certain pesticides in their bodies than children fed conventionally grown food. **Organophosphate insecticides** kill by attacking the nervous systems of insect pests. They are frequently used in fruit and vegetable farming. A 2003 study measured levels of these chemicals in the urine of pre-school children living in Seattle. Children with conventional diets had, on average, nine times more organophosphate insecticides in their urine than children fed organic produce.² So, are organic foods healthier for our kids? Here is where science yields to mother wisdom. We in the scientific community do not yet know what levels of pesticide exposure are sufficient to endanger the health of human adults, and we know even less about their effects on children. Thus, the wide gray area called "uncertain risk."

The reasons for our ignorance are many. When researching my book, *Living Downstream*, I discovered that many pesticides on the market have never been adequately screened for their ability to cause cancer. Even less thoroughly have we tested their ability to affect fetal brain growth, contribute to miscarriages, disrupt hormonal signaling, alter the onset of puberty, or undermine fertility. Evidence from animal studies suggests we have reason to be concerned about these possibilities and investigate them further.

I also learned that most human dietary studies of pesticide exposure presume adult eating habits. And yet, as any mother will testify, children dine on fewer foods in proportionally higher quantities than their parents do. (I do not routinely consume two bananas and two avocados a day. My 27-pound son does.) Finally, consider that young children lack many of the biological defenses that protect adults against the toxic effects of pesticides. All of us grown-ups, for example, possess a blood-brain barrier. It works quite well to keep neurological poisons from entering the gray matter of our brains. However, we did not acquire this cerebral suit of armor until we reached the age of six months. Infants are thus far more susceptible to the brain-addling potential of insecticides and at much lower doses.

Pesticides, by design, are poisons. The science shows us that most organic produce is free from pesticide residues and most conventionally grown produce is not. The science shows that children fed organic produce have significantly lower pesticide residues in their bodies than children fed conventional produce. Whatever we do or don't know about threshold levels for harm, my intuition tells me that food with no poison is better for my children's developing minds and bodies than food with some...

Organic agriculture protects air and water. Last year, I received a phone call from a reporter at my hometown newspaper. He asked me to comment on the news that **herbicide drift** had now made it all but impossible to grow grapes commercially in central Illinois.³ In other words, in the place where I grew up, the wind itself now contains so much weed killer (2,4-D) that grape leaves curl up and die. Illinois's cherry trees are perishing for the same reason. Looking out at my son stacking blocks on our back deck, a spring breeze ruffling the blond feathers of his hair, I wondered what effect this pesticide-laden air was having on the children who were breathing it.

After I hung up, I thought about my pregnancy with my daughter Faith, the first five months of which were spent in downstate Illinois. While researching the drinking water data for the town in which I was living, I discovered that two herbicides—alachlor and atrazine—were routinely found in the tap water there. Neither had ever exceeded its legal maximum contaminant level. However, I was not entirely reassured. These limits were never set with human embryos and fetuses in mind.

Pesticides do not adhere to the fields in which there are sprayed. They evaporate and rise into the jetstream. They drift for miles in the wind. They fall in the rain. They are detectable in fog. They insinuate themselves into the crystalline structures of snowflakes. They follow storm run-off into gullies and streambeds. They descend through soil into groundwater.

Organic agriculture does not poison wells and reservoirs. It does not bring ruin to vineyards and orchards. It is respectful of snow, fog, wind, and rain—our life support system (Steingraber, 2003).

¹ B.P. Baker et al., "Pesticide Residues in Conventional, Integrated Pest Management (IPM)-grown and Organic Foods: Insights from Three US Data Sets," *Food Additives and Contaminants* 19(2002): 427-446.

² C.L. Curl et al., "Organophosphorus Pesticide Exposures of Urban and Suburban Pre-school Children with Organic and Conventional Diets," *Environmental Health Perspectives* 111(2003): 377-82.

³ S. Tarter, "Grapes Struggle in Illinois Due to Chemical Drift, Overspray," *Peoria Journal Star*, April 30, 2002.

Debate 6: Food Security

Malik Yakini

Chairman of the Detroit Black Community
Food Security Network

Voice 11

Malik Yakini, director of the African-centered learning community, Detroit's Nsoroma Institute Public School Academy, wrote this article titled, "Four strategies to build food security in Detroit's 'African American' Community" for *The Michigan Citizen* on Aug. 8, 2010. The following is an excerpt:

Detroit today is significantly different from the 1960s Detroit I remember as a child, where there were an abundance of options for families to obtain fresh, high-quality food. In addition to the produce trucks that drove through neighborhoods selling watermelons, apples, cherries, grapes, cabbage, green beans, potatoes and other fruits and vegetables, there were national chain supermarkets such as Wrigley's, Chatham, A and P, Great Scott, and Farmer Jack in most neighborhoods. In most households, families ate home-cooked meals together.

With the closing of the city's last Farmer Jack stores in 2007, Detroiters are left with few options for obtaining fresh, high quality foods. In a study released that same year, the Mari Gallagher Research & Consulting Group, researched food access in the City of Detroit. Among her findings, presented in a report titled *Examining the Impact of Food Deserts on Public Health in Detroit*, she noted:

"Detroit has 1,073 food venues, most of which are fringe locations — outlets that offer little fresh and healthy foods and specialize in alcohol, money orders, cigarettes, lottery tickets and other non-food products.

More than 550,000 Detroit residents live in areas defined as **food deserts** — areas that

require residents to travel twice as far or more to reach the closest mainstream grocer than to reach the closest fringe food location.

As a group, residents in food deserts are statistically more likely to suffer or die prematurely from diet-related disease than residents who live in areas with healthy food options." The reality is that poor diet resulting from the lack of fresh, high-quality foods is making us sick and killing us.

Here are four practical things that families and individual residents can do to address this crisis:

1) Improve Your Diet

The soul food diet, high in fat and salt, that is so popular in Black communities, is a direct carryover from slavery. Enslaved Africans were forced to make the best of poor options. Our ancestors took the least desirable parts of animals (intestines, tails, feet, neck bones, etc.) and made tasty meals that enabled us to survive. As we seek to become self-determining, whole, healthy human beings, we need to move from a slavery survival diet to one that allows us to achieve optimal health.

We need a shift in our thinking and dietary habits. We would all do well to reduce, or eliminate, the amount of meat, fast foods and other highly processed foods that we consume and increasing our consumption of fresh fruits, vegetables, nuts and whole grains. Our health would increase tremendously by eating more live/raw and organic foods.

2) Engage in Urban Agriculture

Detroiters have tremendous capacity for growing significant amounts of our own produce. Many Detroiters have backyards that can be transformed into lush gardens that can supply more food than one family can consume. Detroit

has more than 6,000 acres of vacant lots, that provide us with the opportunity to create community gardens and **micro-farms** that can improve our access to fresh produce, generate income and build community.

Every school should have a garden where children are actively engaged in learning how to grow food and grow community. Detroit currently has more than 1,000 backyard, community and school gardens and several small farms. Our burgeoning urban agriculture movement is attracting national and international attention.

3) Support Farmers' Markets

In addition to Detroit's historic Eastern Market, there are several smaller farmers' markets developing across the city. These markets are important because they support efforts to bring locally grown products to residents. They connect consumers directly with growers. Farmer's markets also become important community gathering places help us develop a sense of community.

4) Buy Cooperatively

When we pool our money and buy cooperatively, we are able to realize a savings on our food dollar by getting the wholesale prices available by buying in larger quantities. Cooperatives require members to work collectively to reduce labor costs. The Share Food Program operated by the Million Man Alumni and the Detroit Black Community Food Security Network's Ujamaa Food Co-op Buying Club are worthy of our support.

These four strategies can help to change the consciousness of our community about food, where it comes from, our relationship to it and who profits from it. As our consciousness changes, so does our reality.

Because white supremacy is still very much a reality in American society, food insecurity and food injustice impacts "African American" and other people of color more widely. We therefore have the responsibility of be in the leadership of efforts to eliminate those social ills (Yakini, 2010).

Rebecca Kanter of DC Food for All interviewed Malik Yakini on April 15th, 2010. The following is an excerpt from her article, "Malik Yakini to speak at Food Access Panel tomorrow":

...The Detroit Black Community Food Security Network, of which I am one of the founders, was established in 2006 and began with three main goals: 1) to influence public policy in Detroit; 2) to build a two acre organic farm ("D-Town Farm") and; 3) to build a food-co-op (a monthly buying club). These goals have been accomplished and we set (new) goals annually. One of the goals we are now working on is to establish our farm as an **agro-tourism** site (e.g. as a school field trip destination); and ways to break our dependence on grant funding. We currently sell produce from the farm in five farmers markets and we expect to begin operating a mobile produce truck this summer; one of the mobile markets (an initiative started by Michigan's governor Jennifer Granholm).

We recently provided leadership to and helped to organize a series of "Race, Food, and Resistance" discussions in the community in which most of the participants were white people involved with food security issues; and talking about how they can help in a respectful way that prevents the construction of an over-class. The discussions resulted in a training last month called "Undoing Racism in the Detroit Food System" in which participants were 50% black and 50% white. The New Orleans based The People's Institute for Survival and Beyond conducted the training that included a power analysis teaching about how race is the primary place where power is rested.

What does food access mean to you?

It means having an easy way to get high quality food, specifically produce, that's culturally appropriate. Not just having any [produce], but [produce] you are accustomed to. We also have to think about the environmental impact, we can have access to food, but at what cost? I am slanted towards food access in terms of produce because I am **vegan**, but I am not trying to force veganism (Kanter, 2010, para. 6-8).

Debate 6: Food Security
ConAgra Food Foundation
Packaged foods corporation

Voice 12

The following excerpts are from the website of ConAgra Food's charitable foundation. ConAgra is one of the largest packaged food corporations in the United States and owns many well-known food product brands such as Chef Boyardee, Healthy Choice, Peter Pan and Snack Pack.

Our Mission

According to the U.S. Department of Agriculture, an estimated 17.2 million children live in households that are food insecure, meaning they don't have access to enough food to live active healthful lives. The ConAgra Foods Foundation is committed to raising awareness of child hunger in America, aggressively pursuing sustainable solutions to end it and building a community of people who are passionate about joining us in this fight to end child hunger.

As the **philanthropic** arm of ConAgra Foods, a leading food company, we support worthy causes that reflect the company's social responsibility efforts. The key focus areas of our Foundation are child hunger and nutrition education. We work to ensure children have access to both food and facts about food to eat nutritiously, to live balanced lifestyles, and to succeed in school and life.

This is the essence of the ConAgra Foods Foundation's *Nourish Today, Flourish Tomorrow* mission, which seeks to meet immediate needs as well as find innovative, long-term solutions in the areas of child hunger and nutrition education, by:

- Investing in direct service programs such as Kids Cafes, summer feeding programs and Cooking Matters that feed and educate those in need.

- Building capacity in leading nonprofits, such as Feeding America and Share Our Strength, to serve more people as well as create and bring to life innovative solutions to end child hunger.
- Creating awareness and educating people about the problem of child hunger in America and then encouraging them to get involved

How We Do It

We know we can't do this alone. It's why we're committed to building a community of people who are passionate about ending child hunger. As we work toward this goal, we invest in partnerships with high-impact, nonprofit organizations that take an innovative approach to addressing needs in the areas of child hunger and nutrition education. We do this while continuing to build on our history of funding pilot programs that are proven to be groundbreaking, sustainable solutions (ConAgra Foods, n.d.a).

Our History

The roots of the ConAgra Foods Foundation date back to 1976 when ConAgra Foods, Inc., the primary funder of the Foundation, started the charitable entity to support communities where ConAgra Foods employees live and work.

In 1993, ConAgra Foods and the Foundation started working with Feeding America, formerly known as America's Second Harvest, donating both food and funds to the organization. Six years later, the company formed its Feeding Children Better initiative, focused solely on ending child

hunger in the United States. To date, ConAgra Foods and the ConAgra Foods Foundation have provided nearly 247 million pounds of food to families in need and invested \$35 million in programs to combat child hunger. In 2002, ConAgra Foods also stepped up to the plate to match the U.S. Department of Agriculture's commitment of 9 million pounds of food for summertime feeding programs for children. The company exceeded the match, contributing 15 million pounds of food. At the time, no other food manufacturer had ever made such a bold commitment in support of feeding hungry children in America.

In 2003, the Foundation's Feeding Children Better initiative received a Golden Halo award for its partnership with Feeding America, then known as America's Second Harvest. With the goal of helping end child hunger, a three-pronged strategy was developed to get food to children in need through 100 Kids Cafes, repairing breakdowns in food distribution, and raising national awareness about child hunger through a public service campaign with the Ad Council. During this time, the Foundation also sponsored research conducted by Brandeis University's Center on Hunger and Poverty, which demonstrated the negative impact food insecurity and hunger have on children.

Today, ConAgra Foods' continued partnership with Feeding America is the largest corporate initiative among the Feeding America's donors dedicated solely to fighting child hunger. ConAgra Foods is the first corporate partner to comprehensively fund child hunger programs nationwide. Those programs include:

First to fund the Kids Cafe program nationwide, supporting more than 250 sites that provide kids with a safe place to go after school to do homework and eat a free meal

First to create a national program for vehicle grants for Feeding America's network of food banks, enabling transportation of food from warehouses to the distribution sites where food is most needed

First to direct funding toward the national Simplified Summer Food Service Program – making sure that kids who rely on the federal free lunch and breakfast program during the school year don't go hungry over the summer

First to fund Child Hunger Research – specifically State-By-State Child Hunger Statistics – helping better understand the problem to find a sustainable solution

Leader in building the technology infrastructure for Feeding America to operate more efficiently and ultimately stretch every dollar further. (ConAgra Foods, n.d.)

Nourish Today, Flourish Tomorrow

At the ConAgra Foods Foundation, we work to make sure kids get the nourishment they need – both food and facts – so that they can flourish tomorrow. As such, our mission and the platform for all of our work is Nourish Today, Flourish Tomorrow, which reflects the Foundation's comprehensive, long-term commitment to fight child hunger and provide nutrition education so that all children will have a brighter future.

Child hunger is an issue that affects more than 17 million children in the United States, yet it is virtually invisible in this country, meaning people don't see it and some have a hard time believing it exists here, in the United States.

We are leading the charge to raise awareness of and find sustainable solutions for child hunger in America—fighting to nourish kids' bodies and minds today, so they will flourish tomorrow. We believe that it's not enough to simply feed those who are in need; it is also essential to provide tools and knowledge to help individuals sustain balanced lifestyles well into the future... (ConAgra Foods, n.d.).

Debate 7: Water privatization United Water

Water service corporation

Voice 13

These excerpts are from the brochure entitled, *Water: Real Solutions Real Challenges*, published by Suez Environment North America, the French company that owns United Water:

Integrating Sustainability

"Making Every Drop Count. Today's water challenges are tapping **finite resources** more than ever. While the expectation for continued growth and development persists, there has been no corresponding increase in the sources or availability of fresh water. Fortunately, we have the technology and resources to manage existing water supplies more efficiently and integrate sustainability into all our business practices...

Supply Solutions

Quenching A Constant Thirst. Whether we are designing plants, installing new distribution systems, maintaining water storage tanks or converting **gray water** into drinking water, SUEZ ENVIRONMENT NORTH AMERICA has demonstrated time and again its capabilities for making the most of a limited, precious resource.

At the root of our strength is a singular focus on integrating sustainable solutions into every aspect of our approach to water services. Sustainable water and **wastewater management** practices are intertwined to enhance the economic, social and environmental foundations of the communities we serve. This holistic approach encompasses more than just the pipes and pumps beneath the streets of our cities, but also takes into account the ecosystems that are inherently tied to the performance of our infrastructure. More importantly, it focuses on protecting the resources we need to quench the thirst of generations to come...

Holistic Solutions

Building 21st Century Infrastructure. When it is time to develop tomorrow's infrastructure, we must expand our thinking to include natural **watershed** systems. A 21st century sustainable infrastructure integrates the traditional pipes and pumps approach with the natural systems to which they are inextricably linked, including lakes, rivers, aquifers, forests and wetlands. Further, this holistic approach, embraced by Suez Environment North America integrates conservation, efficiency, re-use and reclamation. We believe that the incorporation of green infrastructure and low impact development is critical to ensure the reliability and resilience of our water resources...

Partnering for Success

Sustaining Quality. A massive investment in water infrastructure is needed simply to sustain current quality levels. It is clear that some governments and businesses do not have the necessary capital to do the job alone. The private sector's access to commercial capital markets along with its expertise in water and wastewater management and technology represents an invaluable resource. In fact, a National Association of Water Companies study determined that municipalities engaged in public- private partnerships for water and wastewater services often realize savings of anywhere from 10 – 40%. These agreements enable municipalities and even businesses to outsource the management and operation of their systems while retaining ownership of their assets. The partnerships often result in a range of benefits, from equitable rate designs that assure the long term viability of systems to improving operating efficiencies that free up capital for infrastructure improvements.

Energy Solutions

Renewing Our Resources. Among the improvements that are critical to economic sustainability is controlling energy costs. Just as the most cost effective water supply source is conservation, so it is with energy conservation and efficiency. Suez Environment North America understands that there is energy in water and has successfully demonstrated that treatment plants can serve as both environmental platforms and an energy source. We can recover value from **biomass** resources to provide access to permanently available sources of renewable energy. The result? Water and wastewater systems that are economically viable and environmentally sustainable (Suez Environment North America, 2010).

The following excerpts are from the United Water Suez brochure “We are 100% Committed”:

We Are Total Water Professionals

Here at United Water, we are experts in water and wastewater management for communities across the country. We offer sustainable, environmentally sound solutions, the best thinking in water management, a proven track record, plus the global resources of our parent company, Suez Environment.

Water is our life. Our first priorities are delivering safe, clean water to municipalities and protecting their rivers and streams. But we are equally committed to our roles as environmental leaders and community partners.

We support sustainable development in the cities we serve, and we strive to make a positive difference in the neighborhoods where we work and live.

We Are Champions of the Environment

Our primary tasks are providing clean drinking water and treating wastewater so it can be safely used to replenish rivers and streams.

All our treatment plants operate with utmost respect for the environment, but some have made exceptional technological breakthroughs

in preserving scarce natural resources. For instance, in West Basin, CA, we operate an innovative plant

that recycles wastewater for irrigation and industrial use. This facility eases the demand for scarce water supplies, conserves drinking water and helps safeguard the ocean.

As a water company, it’s only natural for us to help clean up the rivers, streams and beaches gracing our locations. We roll up our sleeves for the California Coastal Commission’s Adopt-a-Beach program and other initiatives across the country.

We are reducing the carbon footprint of our own operations through new technology and energy management projects. We’re also showing our customers how to use water wisely through our conservation programs and our partnership with the EPA WaterSense initiative.

We Are Advocates of Sustainable Development

What is sustainable development? It means finding ways to preserve a precious resource like clean water forever, while continuing to use it to meet our customers’ needs today and tomorrow.

At United Water, we are working to help some of our nation’s cities revitalize their water systems. Using our engineering expertise and innovative technology, we have contributed to sustainable solutions for cities by providing reliable, cost-efficient water treatment that can be the catalyst for economic renaissance and growth.

In one of the nation’s largest water services public-private partnerships, we’ve teamed with Jersey City, NJ, to operate and maintain its complex water system. We helped Jersey City achieve environmental compliance and meet water quality standards while saving the city millions of dollars.

We’ve partnered with Holyoke, MA, to build and operate a combined sewer overflow wastewater treatment facility, resulting in a Connecticut River that is cleaner and that invites recreation (United Water Suez, 2008).

Debate 7: Water privatization Vandana Shiva

Author, *Earth Democracy and Water Wars*

Voice 14

Indian philosopher and environmental activist Vandana Shiva authored *Earth Democracy: Justice, Sustainability and Peace*. The following is an excerpt:

The argument behind the privatization of water is that because some investment of work is made, or some corporate capital is invested, the resource itself should be redefined as private property. Advocates for the privatization of water argue, "Purifying water from the raw state, treating it, bringing it to people, taking it away again, is so much work. This is what renders it an industrial product." But these same people fail to recognize the work nature contributes by taking water down from the mountains, transporting it thousands of miles to the sea, evaporating it, and returning it back to the earth.

Recategorizing water as private property creates the possibility of excluding others from access to that which is necessary for living. A system which can claim that water will be allocated on this planet according to how capital can control and access it is saying that most species can go extinct. No species seeks its entitlement to its share of water through the market place; they get their access to water through being members of communities and ecosystems.

The eucalyptus, which is so beautiful in Australia, has created havoc in India where it robs other species of their share of water. The eucalyptus was introduced inappropriately, as a **monoculture cash crop**, and acts as an alien species in an environment where it doesn't fit. Trade treaties and the **commoditization** of water act in the same way.

In water privatization, as in the other fields where the privatization of life is directly involved—biodiversity and food—not a single project is actually fulfilling any of the promises to better the human condition. Privatization works for corporations even when it fails. For the public it is a recipe for losing access to public services while being trapped in debt...(p. 43-44).

We share this planet, our home, with millions of species. Justice and sustainability both demand that we do not use more resources than we need. Restraint in resource use and living within nature's limits are preconditions for social justice. The commons are where justice and sustainability converge, where ecology and equity meet.

The survival of pastures and forests as community property, or of a common good like a stable ecosystem, is only possible with social organizations with checks and controls on the use of resources built into their principles. The breakdown of a community, with the associated erosion of concepts of joint ownership and responsibility, can trigger the degradation of common resources...(p. 50).

Water is life. Without water democracy there can be no living democracy. The biosphere is a biosphere because it is a hydrosphere. The planet's hydrological cycle is a water democracy - a system of distributing water for all species - for the rain forest in the Amazon, the desert life in the Sahara.

Nature does not distribute water uniformly. It distributes it equitably. Uniformity would mean each part of the planet has the same amount of precipitation, in the same quantity, and the same pattern. It would mean the same plants grow across the planet, the same species are found everywhere. But the planet creates and maintains diversity, and this diversity evolves because of diversity in water regimes. However, within each ecosystem, each agro-climatic zone, water is equitably distributed—all species get their share of water. Nature does not discriminate between the needs of a microbe and a mammal, plants and humans. And all humans as a species have the same sustenance needs for water.

Globalization is undermining the planet's water democracy through overexploitation of groundwater, rerouting and diverting of rivers, and privatization of public supply. Since I wrote *Water Wars*, the projects, policies, and processes of water privatization and commodification are much more evident, and the movements for water democracy are much more pervasive. I wrote about Coca-Cola and Pepsi and their water grab. Across India, movements have emerged to resist their water theft and toxic sales. I wrote about dams. There are new plans to reroute all of India's rivers in a major river-linking project and movements are growing to fight these plans. I wrote about World Bank-driven privatization. We are in the midst of resistance to the privatization of Delhi's water supply. The stories about the struggles for water democracy in India are stories being repeated everywhere in the world.

Corporate hijacking of water is facilitated by the creation of corporate states—states that centralize power, destroy federal structures and the constitutional fabric, and usurp and erode fundamental community rights.

Struggles of water democracy against corporate giants thus also became struggles against centralizing states. Without centralized state control, privatization is not possible. The market rules through coercive, anti-people, undemocratic states. That is why Earth Democracy, and one of its facets, water democracy, is simultaneously a deepening of democracy and a defense of genuinely democratic structures. It is simultaneously a process of reclaiming the commons and community rights and defending common public goods and public services...(p. 167).

As a result of the water democracy movement in the Bundelkhand region (of India), the government of Uttar Pradesh has refused to transfer the water of the Ken (River) and the people of the Ken basin are determined to resist the river linking project. Every village in the basin has passed a resolution to declare that water is a commons and that community rights have to be the basis of any water plan or project...

A first **water parliament** was organized on July 23, 2003, at Orchha, to launch the non-cooperation campaign against the River Linking Project. Since then many river yatras (pilgrimages) and water parliaments have been organized in the region...The entire region has been charged with the spirit of water democracy. As a local organizer puts it, "They destroyed Iraq with bombs. But patents on seeds and diversion of rivers are also bombs that will destroy us. That is why we must resist them." Far away from the glare of global media, ordinary people are making history, not by organizing arms to fight a brutal empire but by self organizing their lives—their resources, their cultures, their economies—to defeat the empire by turning their back to it, rejecting its tools and its logic, refusing its chains and its dictatorship (p. 182).

Debate 1: Food Crop Preservation

Voice 1: Wes Jackson

agronomic – related to soil and plant sciences for land management and crop production
annual plants - plants that usually germinate, flower, produce seeds and die in a year or season
coastal dead zones - areas of low-oxygen in the world's oceans
monoculture - agricultural practice of producing or growing one single crop over a wide area
germplasm - genetic resources stored as a seed, cuttings or tissue culture in plants
herbaceous perennial grains – grain plants that will return each spring from their root stock
perennialization - the conversion of a plant from an annual to a perennial
perennial plants – plants that grow and produce flowers in successive years from the same roots
polyculture – agricultural practice of using multiple crops in the same space
sequestration of carbon - natural removal of carbon from the atmosphere by the soil and plants
soil salting – high levels of salt in the soil leading to decreased soil fertility
USDA - U.S. Department of Agriculture

Voice 2: Monsanto

Beltwide Cotton Conference – gathering of National Cotton Council growers in the cotton belt
biotechnology - use of biological lab techniques to develop new industrial and medical products
conventional crops – crops that have not been genetically engineered
crop protection chemical – herbicides and pesticides used in managing agricultural ecosystems
FDA – Food and Drug Administration: regulates the release of new foods and health products
EPA - Environmental Protection Agency: coordinates programs to protect the environment
genetic engineering - directly manipulating genetic material in a cell to produce desired traits
GMOs – genetically modified organisms
stacking – combining multiple characteristics or traits in one seed
transgenic crops - crops that have been genetically engineered

Debate 2: Local Foods

Voice 3: Stephen Budiansky

curmudgeon - a cantankerous or disagreeable person
food miles - distance food is transported from production until it reaches the consumer
locavore - someone who seeks out locally grown and produced foods

Voice 4: Bill McKibben

federal subsidy - government payment to agribusinesses to supplement their income
food network - group supporting good, nutritious food that is locally grown and purchased
mixed farms – farms which produce two or more products, often both crops and livestock

Debate 3: Farming Practices

Voice 5: Kip Cullers

Big Biotech – large agricultural biotech industry companies such as Monsanto, DuPont and Dow
bioengineered seeds – seeds created by genetic engineering
crop genetics R&D – company department devoted to genetic research and development
ethanol - type of alcohol made from crops or wood that can serve as the basis for fuel
field day - trade show for agricultural industry especially for large monoculture farming
staple food - main food consumed by a large proportion of the country's population

Voice 6: Wendell Berry

agrarian – relating to rural farm communities
agrarian writers – those who extol virtue of farm-based livelihood over mass-consumer society
genetic impoverishment – weakening of gene pool leading to loss of adaptive capacity
monoculture - agricultural practice of producing or growing one single crop over a wide area

Debate 4: Urban Agriculture

Voice 7: Erika Allen

aquaponics - symbiotic cultivation of plants and aquatic animals in a recirculating environment

food desert - area in which food is non-existent, not healthy or too expensive

heirloom vegetable – type of plant commonly grown in the past but less common today

value-added product – food modified for higher market value, e.g. fruits made into pies or jams

Voice 8: John Hantz

aeroponic - a technique of growing plants without soil in mist

agricultural extension program – university program for educational outreach in the community

housing inventory - number of existing homes available for sale in an area

hydroponic - a technique of growing plants without soil in water with dissolved nutrients

trellised system – growing system in which plants are held off the ground by a structure

Debate 5: Organic Foods

Voice 9: Bob Goldberg

anti-GMO – opposed to the use of genetically engineered organisms

conventional farming - uses synthetic chemicals to control insects and weeds

forage land- the area of land used for feeding or grazing livestock

genetic engineering - directly manipulating genetic material in a cell to produce desired traits

organic – farming based on supporting soil productivity with minimal use of synthetic chemicals

secondary metabolites - chemical compounds produced in plants not used for growth

Voice 10: Sandra Steingraber

herbicide drift - when pesticides "drift" via weather from a targeted area to a non-targeted area

organically grown – crops grown with limited use of synthetic chemicals

organophosphate insecticide – those that kill by interfering with an insect's nervous system

pesticide residue - pesticides that may remain on or in food after they are applied to food crops

Debate 6: Food Security

Voice 11: Malik Yakini

agrotourism - form of ecotourism, in which visitors experience agricultural life at first hand

food desert - area in which food is non-existent, not healthy or too expensive

food security - reliable availability of sufficient nutritious food for a population

micro-farm – farm managed by independent farmers who operate on a small acreage

vegan – one who chooses not to use animals for food, clothing, or any other purpose

Voice 12: ConAgra Foods

philanthropic – relating to charitable aid or donations

Debate 7: Water Privatization

Voice 13: United Water

biomass - biological material derived from living organisms such as wood and waste

finite resource – limited in supply such as fossil fuels

gray water - wastewater captured from washbasins, bathtubs, showers, and clothes washers

infrastructure - physical and organizational structures needed for the operation of an enterprise

wastewater management - removing contaminants from wastewater and household sewage

watershed - geographical area drained by a river and its tributaries

Voice 14: Vandana Shiva

commoditization - the transformation of goods and services into a commodity for sale

monoculture cash crop - growing one single crop over a wide area for profit

water parliament – gathering around the theme of water and the management of water resources

water privatization - private companies providing water services for profit



Student Worksheet

NAME _____

DATE _____

To access media documents, go to the *Student Materials* section on the Project Look Sharp homepage, www.projectlooksharp.org.

Read over the questions below as you consider how your advocate voice might interpret the selected media document. You may want to underline the sections from the *Student Reading* that are pertinent to each question in order to give textual examples to back up your conclusion.

Voice: _____

Title of Media Document: _____

- 1) What are the messages in this document that speak to the concerns of this advocate voice? Use evidence from the *Student Reading* to support your conclusion. How might this voice respond to the selected media messages?

- 2) From the perspective of this advocate, who might benefit or who might be harmed by this message?

- 3) What information is left out of this document that this advocate voice would want to note?

Lesson 7:

Farming, Community and Sustainability

Lesson Plan.....	179
Teacher Guide.....	181
PowerPoint.....	
(Access online or via Lesson 7 digital media folder)	
Film and Audio clips	
(Access online or via Lesson 7 digital media folder)	
Student Reading.....	195

LESSON PLAN



PowerPoint
Slide Show



Video Clips



Audio Clips

Farming, Community and Sustainability

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will understand and discuss the roles of community, farmers and farm labor in the sustainability of our food systems.
- Students will analyze and evaluate media construction in visual imagery, film and song.

Vocabulary:

USDA (Department of Agriculture), United Farmworkers (UFW), Farm Aid, commodity crop, community garden, migrant farm worker, community supported agriculture (CSA)

Media: mural, magazine cover, toy package, poster, Internet video image, web page, report title page, documentary film, video advertisement, song

Materials Needed:

- Thirteen-page *Teacher Guide*
- Two-page *Student Reading*
- Fourteen slide PowerPoint slideshow (Access online or via Lesson 7 digital media folder)
- Five video clips (Access online or via Lesson 7 digital media folder)
- Four song excerpts (Access online or via Lesson 7 digital media folder)

Time: 60-90 minutes, depending on length of discussion

Lesson Procedures

- Present the *Lesson Introduction* to the class.
- Distribute and have students read the *Student Reading*.
- Project the PowerPoint slides and have students summarize the patterns of messages about community in farming and compare the message patterns.
- Play the film clips and have students summarize the patterns of messages about human labor in farming and compare the message patterns.
- Play the song excerpts, have students summarize the patterns of messages about the purposes of farming and compare the message patterns.
- Lead a discussion of the essential question: **What is the role of community, farmers and farm labor in the sustainability of our food systems?**
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Farming, Community and Sustainability

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

This lesson will present visual images, films and songs from the 1930s to 2010 as a way to present the rich history of human labor and technology as an enduring and essential part of the national effort to feed families and communities. For this exercise, you we will practice the quick analysis of media messages by asking what immediately comes to mind on first exposure to constructed messages about food and farming.

3. Distribute and have students read the *Student Reading* either in-class or as a homework assignment.
4. Explain that students will be asked to apply knowledge gained from the student reading to a quick analysis of two series of media documents. Encourage students to take brief notes on the messages about farming in each of the PowerPoint slides. Explain that the first seven slides are media documents published by the US Department of Agriculture (USDA) over a seven-decade period from 1943-2002. Explain that the USDA has multiple and sometimes conflicting missions to provide citizens with solid nutrition information, to protect food safety and to promote the production and sale of crops in the marketplace. Project the publication image, pausing slightly on each to allow students to take notes.
5. Stop on the slide that includes all seven USDA yearbook covers. Ask students to take five minutes to discuss the patterns of messages about farming in these selected covers in pairs.
6. Ask the student pairs to offer their analyses of patterns in single words or short phrases. Write these words on the board. Ask if there is anything missing here in the summary of what farming is about.
7. Explain that the next group of PowerPoint slides includes media documents of popular culture images of farming over an eight-decade period from 1941-2001.
8. Project the popular culture images, pausing slightly on each to allow students to take notes.
9. Stop on the slide that includes all seven popular culture images. Ask students to take five minutes to discuss the patterns of messages about farming in these selected images in pairs.
10. Ask the student pairs to offer their analyses of patterns once again and write observations on the board. Ask if there is anything missing here in the summary of what farming is about.
11. Compare the patterns of messages about farming in the USDA publications with those in the popular culture images.



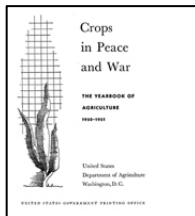
USDA Media Documents

Possible Messages about Farming



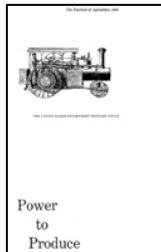
Document 1
USDA Yearbook of Agriculture
1943
Title Page

Farming includes scientific research



Document 2
USDA Yearbook of Agriculture
1950
Title Page

Farming involves national security



Document 3
USDA Yearbook of Agriculture
1960
Title Page

Farming involves mechanization



Document 4
USDA Yearbook of Agriculture
1977
Cover

Farming involves family garden plots



Document 5
USDA Yearbook of Agriculture
1981
Cover

Farming needs to provide food for urban populations

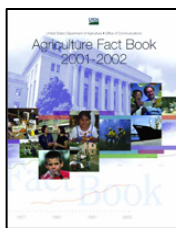
USDA Media Documents

Possible Messages about Farming



Document 6
USDA Yearbook of Agriculture
1992
Cover

Farm involves industry markets



Document 7
USDA Agricultural Fact Book
2001-2002
Cover

Farming grows through government support



Popular Culture Media Documents

Possible Messages about Farming



Corn School
1941
Mural

Farming is a community celebration



"Farm Work is War Work"
Country Gentleman
1943
Magazine cover

Farming is a patriotic, intergenerational effort



Large Farm Set
1950s
Toy package

Farming is a nuclear family vocation



"Boycott Lettuce and Grapes"
1970s
Poster

Unionization of farm workers



Farm Aid: Vol. One
2000
CD cover

Public support for family farms



"Farmers Markets: Growing Communities"
2008
Internet video

Direct farmer/consumer relations are increasing



City Farmer News
2011
Web page

Urban community gardens feed millions

[NOTE: As students compare the patterns of messages about farming in the USDA publications with those in the popular culture images, make sure that they identify differences in the portrayals of the central role of community (cooperative gardens, farmers markets, parades), shared labor (collective work, unions), technology (mechanization, scientific research) and markets (biofuels, pharming). If students do not identify these, you may want to ask “How do these two sets differ in their messages about community (or about labor, technology or markets)?”]

16. Explain that students will perform a similar analysis process with a series of five short film clips created between 1939 and 2009. Encourage students to take brief notes on the messages about human labor in farming in each film clip.
17. Play the clips, pausing slightly after each to allow students to take notes.
18. After the final clip, ask students to take five minutes to discuss the patterns of messages about human labor in farming in these selected excerpts in pairs.
19. Ask the student pairs to offer their analyses of patterns in single words or short phrases and write these words on the board. Ask if there is anything missing here in the summary of labor and work in farming.



Video Clips

Possible Messages about Human Labor in Farming



The City
1939
1:22 min. clip
Documentary

People design machines to ease labor, work collectively and gather socially. Doing chores was a lifetime teaching about how to live a life in balance.



"Pioneer: Big Picture"
2010,
0:34 min. clip
Internet advertisement

Farmers work with corporate partners for success through science and technology.



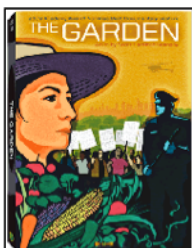
Dirt! The Movie
2009
1:50 min. clip
Documentary

Rural farmers grow food for city dwellers through community supported agriculture, which provides jobs and benefits for farmers and fresh produce for consumer subscribers.



"Inside the USA - The State of Agriculture 22 Aug 08 - Part 1"
22 Aug 08 - Part 1"
1:43 min. clip
Internet news clip

Undocumented migrant farm workers are the "backbone of American agriculture." The United Farm Workers union fights for better conditions for exploited workers.



The Garden
2009
1:16 min. clip
Documentary

People work together to reclaim urban landscapes to grow food collectively in community gardens.

[NOTE: As students compare the patterns of messages about human labor in farming in the film clips make sure that they identify differences in the portrayals of community organizing (dances, unions, CSAs), technological development (1939 low tech vs 2010 high tech) and rural and urban worksites (corporate farms, small organic farms, city gardens). If students do not identify these you may want to ask “How do these films differ in their messages about the role of human labor in community organizing (or in technology or rural/urban settings)?”]

16. Explain that the final set of documents will be song excerpts. Once again, encourage students to take brief notes on the messages about the purposes of farming as expressed in each song.
17. Play the song clips while showing the lyrics on the PowerPoint slides, pausing slightly after each song to allow students to take notes.
18. After the final clip, ask students to take five minutes to discuss the patterns of messages about the purpose of farming in these selected excerpts in pairs.
19. Ask the student pairs to offer their analyses of patterns in single words or short phrases and write these words on the board. Ask if there is anything missing here in the summary of the purpose of farming.



Song Excerpts

"The Farmer is the Man"

Pete Seeger (1956)

1:44 min. clip

When the farmer comes to town
With his wagon broken down,
The farmer is the man that feeds them all.
If you'll only look and see,
I think you will agree,
That the farmer is the man that feeds them all.

The farmer is the man
The farmer is the man
Lives on credit till the fall,
Then they take him by the hand,
And they lead him from the land,
And the middleman's the one that gets it all.

When the lawyer hangs around
and the butcher cuts a pound,
The farmer is the man that feeds them all.
And the preacher and the cook
They go strolling by the brook,
But the farmer is the man that feeds them all.

The farmer is the man
The farmer is the man
Lives on credit till the fall.
With the interest rate so high
It's a wonder he don't die;
For the mortgage man is the one that gets it all.

When the banker says he's broke,
And the merchant's up in smoke,
They forget it's the farmer feeds them all.
It would put them to the test
If the farmer took a rest.
Then they'd know it's the farmer feeds them all.
The farmer is the man
The farmer is the man
Lives on credit till the fall,
And his pants are wearing thin,
His condition it's a sin;
He's forgot that he's the man that feeds them all.

Possible Messages about the Purpose of Farming

Farming is meant to provide food for everyone and profit for bankers.



Song Excerpts

"Annie's Lover"

Taj Mahal (1969)

1:48 min. clip

Annie's lover was a big ol' man
He was a farming man
Never spent much time worry 'bout the peoples
In the big, big city

'Cause all he did know about was the cows and the chickens
The pigs and the horses and the sheeps and the goats and the ducks
They fly

Sat on the hillside, playing his guitar
Watching the whole thing
Come down in a harmony

Well, Annie's lover was a big ol' man
He was a African man
He walked around and looked and saw and saw everything
That his eyes could see

'Cause all he did know about was the cows and the chickens
The pigs and the horses and the sheeps and the goats and the trees
And the water and the fields and the mountains
And the blue skies and the big clouds and the ducks they fly

He sat on the hillside, playing his guitar
Watching the whole thing
Come down in a harmony

Possible Messages about the Purpose of Farming

Farming is meant to bring people into harmony with
one another and the natural world.



Song Excerpts

"Pastures of Plenty"

Odetta (1972)

1:55 min. clip

California, Arizona, I've worked all your crops
Then northward up to Oregon to gather your hops
I dug beets from your ground,
I cut grapes from your vine
To set on your table that light sparkling wine

Green pastures of plenty from dry desert ground
From the Grand Coulee Dam where waters run down
Every state of this Union us migrants have been
We come with the dust and we're gone with the wind

It's always we rambled, that river and I
All along your green valleys, I work till I die
Travel this road until death sets me free
Cause pastures of plenty must always be free

Possible Messages about the Purpose of Farming

Farming is meant to provide labor and sustenance for people.



Song Excerpts

"Daddy Won't Sell the Farm"

Montgomery Gentry (2008)

1:20 min. clip

He worked and slaved in '68,
he bought these fields and trees.
He raised his corn and a big red barn
and a healthy family.
He learned to love the woodlands,
he can't stand to do them harm.
There's concrete all around him,
but Daddy won't sell the farm.

You can't roll a rock, up a hill that steep.
You can't pull roots when they run that deep.
He's gonna live and die,
in the eye of an urban storm.
Daddy won't sell the farm.

One day he's gonna leave it all to me and
I'll start my own branch of the family tree.
They'll get the message written
on the roof of the barn,
Daddy won't sell the farm.

Possible Messages about the Purpose of Farming

Farming is meant to preserve land for raising crops and family.

20. Lead a culminating discussion on the essential question: **What is the role of community, farmers and farm labor in the sustainability of our food systems?**

[NOTE: As students discuss the essential question they should address questions of social justice, labor needs and economic pressures as raised in the documents and the reading. If students do not identify these you may want to ask, “How does the issue of social justice (or labor needs or economic pressures) effect the sustainability of our food systems?”]

[NOTE: You may want to consider using the essential question as an opportunity for a written essay prior to or instead of a group discussion.]

FURTHER QUESTIONS

Analyzing Media Messages

Which media form – visual image, film or song – is most effective in conveying immediate messages and why?

Which media document did you find most credible, which least credible and why?

You have compared murals from the 1940s, films from the 1930s and songs from the 1950s with their counterparts from more recent time. **What do you notice about the differences between media constructions over time?**

Self Reflection

Which media form was most effective in encouraging you to take action toward sustainability and why?

How far back do you have to go in your family history to find a farmer? Which type of farming has been practiced by your family members over past generations?

Have you ever lived/worked on a farm? Would you like to? Why or why not? What would be the benefits and challenges of having your own farm or community garden?

What role does your community plays in collective farming? Are there any farms or gardens in your neighborhood that you may have access to?

Underlying Values and Motives

Consider the conflicting values implied by these media documents ranging from valuing community cohesion and mutual aid to valuing high technology and free markets. **Which of these value systems is most compelling as a foundation for sustainable agriculture and why?**

Who do we consider to be farmers? (Include corporations, cooperatives, family farms, migrant farm workers and home gardeners in the discussion)

Discuss how different beliefs about “who is a farmer?” might shape our perspectives about social justice and farming. What is your view of a farmer? Why do you think some people may have negative views on farmers?

Consider the various energy sources used by farmers in these documents including horse power, water power, manual labor, oil and electricity. **Which of these energy sources is most compatible with sustainable agriculture and why?**

Should people who live in cities be concerned about agricultural practices that occur mostly in rural areas? Why or why not?

Why might a magazine or TV network that earns income from fast food advertising hesitate to question industrial farming?

What factors are at work in getting a government publication to promote ethanol or other agribusiness products?

EXTENDED ACTIVITIES

Research media reports on the viability of small farms in your region.

Pick a farm labor population and examine how community cohesion impacts their quality of life. Consider both current labor populations such as agribusiness owners, small family farmers and CSA cooperatives as well as historic labor populations in slavery and tenant farm systems.

Reflect on the various systems represented in farming practice. Examples include monoculture and polyculture growing systems, individual and community work systems, corporate and cooperative economic systems and unionized and non-union labor workforce systems. Construct a “systems map” to compare the strengths and weaknesses of one pair of these systems in meeting the sustainable demands of energy use, soil and water preservation, social justice and community cohesion.

Design your own media portrayal of an imagined farming community that might be sustainable in your home community.

Explore the impact of climate change on farming communities around the world.

Study the ways in which community input is solicited on issues of soil and water preservation in your foodshed and watershed. Interview members of these bodies to discover their impressions on the role of community in resource preservation.

Write an article on farming, community and sustainability for your school newspaper.

One way to consider the role of farming in the history and culture of our country is to reflect on the people who sang as they worked the soil century by century in our history. Research the music related to farming in the U.S. Include Native American women’s planting songs, African American slave field hollers, country western farmer ballads and hip hop rhymes on 21st century farming.

Interview a supermarket manager and a food coop manager about purchasing/pricing tasks in their stores and report to the class. Ask them how much money leaves the community vs. circulating within the community.

CONNECTIONS

L6, 7, 9, 10, 16, 17, 19
 (local food)

L6, 7, 10, 15, 16, 17, 19
 (organic & conventional farming)

L6, 7, 9, 19
 (urban agriculture)

L 6, 7, 9, 10, 14, 15, 16, 17, 18, 19
 (food security)

L6, 7, 10, 12, 14, 15, 16
 (agrarian cultures)

L2, 7, 11, 13, 17, 19
 (creative arts)

L2, 6, 7, 9, 10, 12, 13, 14, 15, 18
 (film & video)

L2, 7
 (songs)

L6, 7, 13, 14, 17, 18, 19
 (advertising)

Farming, Community and Sustainability

In his memoirs, Benjamin Franklin referred to agriculture as “the most useful, the most independent, and therefore the noblest of employments” (Franklin, p. 597). Franklin’s idea of the centrality of agriculture in the life and work of the country was affirmed two centuries later by author Wes Jackson in his book, *The Virtues of Ignorance: Complexity, Sustainability and the Limits of Knowledge*:

If we don’t get sustainability right in agriculture, it won’t matter whether we get it right anywhere else. If we can’t feed our bodies without causing others to starve, or poisoning ourselves, or mining the soil, it won’t make much difference whether we recycle our beer cans or use compact fluorescent light bulbs since we are creating a future in which there isn’t likely to be any work, or culture, or fertility, or prosperity or posterity – a future, in other words, in which we cannot enjoy our beer under an electric light. (Jackson & Vitek, 2008)

One way to examine the transformations of farming over the past century is to focus on farm labor, farming community and the purposes for farming as they appeared in three distinct periods: the pre-World War Two era, the early 1980s and the first decade of the 21st century. In the decade before World War Two a large part of the U.S. workforce was in the business of agriculture. In 1935 there were nearly seven million farms in the U.S. employing over 12 million people mostly on small family farms (USDA 2011; Lachky, 2010). Although there were some very large farms in the west and in the south, the average size of U.S. farms was only 155 acres (Economic Research Service/USDA, 2005). Most farms were diverse operations, with farm families working together to grow a variety of crops for family consumption and for local sale, raising livestock and using a combination of horsepower and human labor to manage the harvest.

Community was central to farm life in the pre-war years. Young people would learn about the practices of farming in school and while working with their elders in the fields. Local parades, festivals and barn dances provided regular means for social connection where farmers could talk over the latest article from *Country Gentleman* magazine or the weather predictions in

The Farmer’s Almanac. Farmers’ concerns included a need for higher crop yields to feed people during the lingering Depression years, soil preservation in the face of Dust Bowl erosion and the toll of hard manual labor that was a constant for families trying to eke out a living on small plots of land. Farm laborers organized for better conditions in groups like the interracial Southern Tenant Farmers Union and the fruit pickers’ unions depicted in John Steinbeck’s classic novel, *The Grapes of Wrath*.

By 1985, farming in the United States had transformed dramatically, partly as a result of agribusiness efforts to maximize profit by increasing market opportunities for the global sale of agricultural commodities and inputs. Since 1935, the number of U.S. farms had decreased by two thirds to 2.3 million, while numbers of farm workers had reduced by 75% to just over 3 million (Kandel, 2008; USDA 2011). Some people like President Nixon’s Agriculture Secretary Earl Butz applauded the reduction of farms as relief from the drudgery of farm labor and as the gateway to “modern, scientific, technological agriculture” in the new “big business...the corporation farm” (Butz & Berry, 1986, p. 118). By 2002, the average size of farms nearly tripled to 441 acres (Economic Research Service/USDA, 2005). Enormous monocrop farms proliferated, each one growing a single commodity crop like corn or soybeans, often for export. These farms were able to achieve dramatically higher crop yields as a result of intensive applications of herbicides and pesticides required to maintain the unnatural monocultures that now dominated much of the Midwest.

During this period, many rural communities were devastated by farm foreclosures on families who had lived for generations on the land but could no longer afford to keep up with investments in new machinery and fluctuations in farm commodity prices. Those family farmers who were able to hold on often did so by working two jobs, one of these off the farm in local towns (Munoz, 2010). Gathering places for farmers moved from village square to agricultural trade shows where agribusiness representatives demonstrated the latest technology developed by their colleagues in the “ag school” research labs.

In the 1980s, farmers were concerned about holding on to their family farms in the face of emerging global markets. They were concerned about the health effects of pesticides and about nitrogen contamination of groundwater from agricultural runoff. Farmers

organized tractor rallies in Washington to demand government protection for the family farmer. Migrant farm workers organized under the banner of the United Farm Workers union to demand humane working conditions and a living wage in return for their essential work in harvesting the nation's food.

By 2010, the number of farms in the U.S. had fallen to 2.2 million and the number of workers on farms had remained at just over 3 million (USDA, 2011). Although a majority of U.S. farms continued to be family operations the numbers of small commercial farms continued to decline with more farm production and profit shifting to larger corporate farms (Hoppe, MacDonald & Korb, 2010). Websites like *BioTech News* heralded genetically modified seed and other new products developed for sale by huge agribusiness firms like Monsanto and DuPont. Profit-making opportunities in energy and pharmaceuticals led to farm acreage being shifted from food production to the planting of biofuel and pharma crops.

Meanwhile new "back to the land" agricultural initiatives like community supported agriculture and urban farming ventures blended with growing interest in farmers markets and organic foods to create an opening for a new generation of farmers who were more likely to meet at young farmer mixers or at a food justice conference than at an agribusiness trade show. This generation of farmers organized groups like the Detroit Black Community Food Security Network and Latino community gardens in New York City to combine issues of urban food production and community food justice. Climate change activists encouraged people to develop local food networks as a way to address our carbon footprints and fossil fuel depletion. Farmers pushing for cooperative solutions organized in local and regional organic growers networks, and established relationships with food coops, farmers markets and CSA groups to market their produce.

Across the decades, people have worked together to produce food for themselves and to provide sustenance for their communities. Some have argued that free markets and biotechnology will lead to a sustainable future. Others say that community cooperatives and small-scale fixes to big-scale problems are the way to keep communities intact. This lesson encourages you to explore the media forms that shine a light on these differing approaches and encourages you to make up your own mind.



According to its Facebook profile, the social network game Farmville attracted over 34 million monthly active users in 2011.

What messages about farming, marketing and community are suggested by the wide popularity of this game?

Lesson 8:

Sustainable Economics

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LESSON PLAN



Printed
Document

Sustainable Economics

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will analyze different perspectives on the relationship of economics to the sustainability of food systems in the US and around the world.
- Students will reflect on the qualities needed for an economic system to be sustainable.
- Students will identify how magazine articles typically reflect the perspective and readership of the periodical.

Vocabulary:

gross domestic product (GDP), index of sustainable economic welfare (ISEW), resilience, no-growth economy, market mechanisms, blue economy, solidarity economics, Landless Workers Movement, Solidarity Economy Forum, Rural Coalition/Coalición Rural, United States Federation of Worker Cooperatives, free trade, American Farm Bureau Federation, tariff, Central American Free Trade Agreement, World Trade Organization, agricultural subsidies, free market, commodity market, government price supports, supply management programs, World Trade Organization, regulatory controls

Media: magazine articles

Materials Needed:

- Eight-page *Teacher Guide*
- Five separate one-page *Student Readings*
- One-page *Student Glossary*
- Two-page *Student Handout - Media Producers' Mission Statements*
- One-page *Student Worksheet*

Time: 55 minutes

Lesson Procedures:

- Present the *Lesson Introduction* to the class.
- Distribute the *Student Handout – Media Producers’ Mission statements*.
- Divide the class into five groups, one for each magazine article in the *Student Readings*.
- Distribute the one-page Student Worksheet, a *Student Glossary*, and one of the *Student Readings* to each of the five groups. Have the groups read, discuss and complete the worksheets for their reading.
- As a whole class, have groups summarize the essential key points about sustainability and economics as presented in their reading.
- Lead a discussion using the *Media Sample Question & Answers* in the *Teacher Guide* followed by a discussion of the essential question: **What qualities do we need in our economic system for it to be sustainable?**
- (Optional) Discuss *Further Questions* and investigate *Extended Activities*.

TEACHER GUIDE

Sustainable Economics

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

What does a sustainable economy look like? The answers will differ depending on whom you ask. CEOs from around the globe who were interviewed for the United Nations Global Compact-Accenture CEO Study 2010, *A New Era of Sustainability*, agreed that consumer demand, technological innovation and stakeholder partnerships are at the heart of corporate sustainability (Lacy, Cooper, Hayward, and Neuberger, 2010, p. 20-21). Contrast this understanding with that of agrarian essayist Wendell Berry who, in his “17 Rules for a Sustainable Economy,” proposes that “a community economy is not an economy in which well-placed persons can make a ‘killing’. It is an economy whose aim is generosity and a well-distributed and safeguarded abundance” (as cited in Sustainable Traditions, 2010).

Traditionally, the health of the U.S. economy has been measured by the gross domestic product (GDP). In recent years, new tools to measure economic welfare have been devised, such as the gross national happiness index and the index of sustainable economic welfare (ISEW). The Friends of the Earth website suggests that the ISEW is “an attempt to measure the portion of economic activity which delivers genuine increases in our quality of life - in one sense 'quality' economic activity. For example, the ISEW makes a subtraction for air pollution caused by economic activity, and makes an addition to count unpaid household labor, such as cleaning or child-minding. It also covers areas such as income inequality, environmental damage, and depletion of environmental assets” (Friends of the Earth, n.d.). Like economies, economic measures are human-made constructions. As you might imagine, the GDP and the ISEW will lead to very different conclusions about the sustainability of the economy.

In this lesson, you will read excerpts from five articles on economics and sustainability in order to reflect on the qualities needed for a sustainable economy. You will also be asked to consider how magazine articles often reflect the mission and readership of the periodical in which they appear.

3. Distribute the *Student Handout - Media Producers' Mission Statements*. Explain that in this lesson, students will study five magazine articles that have been published by the producers on the handout. Students will be asked to use the handout to answer the question, “How do the views presented in the article reflect the readership and editorial perspective of the magazine?”
4. Divide the class into five teams and distribute a Student Worksheet and one of the five *Student Readings* to each group. Explain that these magazine article excerpts focus on the relationship between economic systems and sustainability, particularly as related to agriculture.

5. Have students read the excerpts and complete the worksheet using the *Student Readings*. This can be done either as an in-class activity or as a homework assignment. **[NOTE: You may elect to have teams read more than one Student Reading in order to compare different economic models.]**
6. Have students present key points about sustainability and economics as featured in their reading. While students listen to the other presentations, they should note the points they most agree and disagree with. As students give their presentations, use the *Media Sample Questions & Answers* for evaluation and support.



“Theses on Sustainability: A Primer”

Eric Zencey

Orion Magazine, May/June 2010

Media Sample Questions & Answers

1) What are the key points about sustainability and economics in this text?

Possible Answer:

Sustainable economics must:

- use nature as a model, operating “within ecological limits;”
- use energy based on the “current solar income” of renewable sources rather than the “irreplaceable stocks” of fossil fuel;
- not exploit ecosystems or people “held in slavery or penury” anywhere around the globe.

2) Who might benefit and who might be harmed from actions consistent with these views?

Possible Answer: Those who might benefit include businesses and individuals using renewable energy sources and those promoting “fair trade” economics. Those who might be harmed include businesses and individuals dependent on fossil fuel and on economic practices that exploit laborers.

3) How do the views presented in this article reflect the readership and editorial perspective of the magazine?

Possible Answer: Zencey’s article focuses on the ecological and social aspects of economic sustainability, appealing to the views of foundations and individuals who support the magazine’s goal to become a “significant cultural force for healing nature and community.”



“Building the Blue Economy”

Gunter Pauli

Ode Magazine, December 2009

Media Sample Questions & Answers

1) What are the key points about sustainability and economics in this text?

Possible Answer:

Sustainable economics must:

- design business models that function as ecosystems do to “cascade nutrients and energy using the enduring laws of physics;”
- support young entrepreneurs who will “offer meaningful work, valuable products and social equity;”
- create economic value through efficiency and job creation and by “reducing the risks and social costs of pollution.”

2) Who might benefit and who might be harmed from actions consistent with these views?

Possible Answer: Those who might benefit include businesses that are modeled on natural systems and local entrepreneurs who embrace “blue economy” practices. Those who might be harmed include businesses adhering to “current unsustainable models of production and consumption” and those who oppose technological or entrepreneurial approaches to sustainability.

3) How do the views presented in this article reflect the readership and editorial perspective of the magazine?

Possible Answer: Pauli’s article concludes with the promise of the blue economy to “enhance our lifestyles, benefit our planet and use and conserve materials and energy in remarkable ways” appealing to the views of the “affluent and influential...cultural creatives” that make up Ode’s target audience.



“Other Economies are Possible!”

Ethan Miller

Dollars and Sense, July/August 2006

Media Sample Questions & Answers

1) What are the key points about sustainability and economics in this text?

Possible Answer:

Sustainable economics must:

- be based in “solidarity economics” which unites collective enterprises for mutual support;
- work on the local, national and global level to create a social movement of “chains of solidarity production;”
- use cooperative community efforts for democratic participation as its foundation.

2) Who might benefit and who might be harmed from actions consistent with these views?

Possible Answer: Those who might benefit include grassroots and cooperative enterprises that might build strength from networking with similar groups to share projects, organizing and movement building. Those who might be harmed include those individuals and groups who are tied to “capitalist economic dogma” and economic models that devalue cooperation.

3) How do the views presented in this article reflect the readership and editorial perspective of the magazine?

Possible Answer: Miller’s article focuses on social justice movement models for collective networking, appealing to the views of professors, students, and activists who value our smart and accessible economic coverage.”



“Betting the Farm on Free Trade”

Paul Magnusson

Business Week, June 6, 2005

Media Sample Questions & Answers

1) What are the key points about sustainability and economics in this text?

Possible Answer:

Sustainable economics must:

- be based on free trade allowing farmers to compete for export markets without government controls;
- use “large-scale, mechanized, and superefficient” farming operations;
- involve international free trade policies like CAFTA and the World Trade Organization’s proposal to cut agricultural subsidies.

2) Who might benefit and who might be harmed from actions consistent with these views?

Possible Answer: Those who might benefit include large agribusiness companies with enough capital investment to compete on the world commodities market and lobbying organizations like the American Farm Bureau that support free trade policies. Those who might be harmed include small farmers that are not able to compete in the world trade markets and organizations like the National Farmers Union and the National Family Farm Coalition that oppose free trade policies.

3) How do the views presented in this article reflect the readership and editorial perspective of the magazine?

Possible Answer: Magnusson’s article supports policies that will benefit large agribusiness companies seeking to profit from world commodity trading appealing to the views of target audience who look for a “global perspective...to help senior executives profit from smarter, faster, and more informed decisions.”



“US Farm Subsidies and the Farm Economy: Myths, Realities, Alternatives”

Karl Beitel

Food First Backgrounder, 11(3), Summer 2005

Media Sample Questions & Answers

1) What are the key points about sustainability and economics in this text?

Possible Answer:

Sustainable economics must:

- maintain farm subsidies for small to medium-sized commodity farmers who cannot compete with large agribusiness;
- curb free market policies by supporting government regulation of agricultural policy to “defend the existence of small- to medium-sized family farms;”
- remove US farm policy from WTO regulation and “allow developing countries to determine and direct their own internal development policies.”

2) Who might benefit and who might be harmed from actions consistent with these views?

Possible Answer: Those who might benefit include small and medium-size farmers who need government regulation to survive. Those who might be harmed include free trade advocates who want an end to government regulation of farm policy.

3) How do the views presented in this article reflect the readership and editorial perspective of the magazine?

Possible Answer: Beitel argues for government support to protect small farmers, a perspective appealing to those who support Food First’s goal for “farmers and communities (to) take back control of the food systems presently dominated by transnational agri-foods industries.”

7. Lead a discussion of the essential question:

What qualities do we need in our economic system for it to be sustainable?

[NOTE: You may want to begin the discussion by having students identify (in pairs or as a full class) the points they most agreed or disagreed with.]

Help students reflect on the impact of economic systems. You may want to ask, “Who might benefit and who might be harmed from actions resulting from these views?”

Make sure that students discuss the sources of economic vitality identified in the different articles. If students do not identify these, you may want to ask, “How do these articles differ in their messages about the role individuals communities, governments and corporations in economic models for sustainability?” and “Why might the different sources have highlighted such different economic models for sustainability?”

FURTHER QUESTIONS

Analyzing Media Messages

What kinds of actions might people take in response to each of these articles?

What values about food and community are implied in each article?

What techniques did each author use to persuade and inform?

How might different people interpret these messages differently?

Are these articles fact, opinion, or both? Explain.

Self Reflection

Which of these documents was the most disturbing to you and what did you learn about yourself from your response?

Who else in your family, community, circle of friends talks about issues of economic sustainability?

Where have you learned about how our economy works within a capitalist and free market economic system?

Underlying Values and Motives

The United Nations has declared that access to food is a basic human right. An agricultural commodity is defined as any plant or animal product, produced by a person primarily for sale, consumption, propagation, or other use by people or animals. **In a sustainable economic system, should food be viewed as a human right or as a commodity for sale?**

In what ways do social justice, climate change and fossil fuel depletion impact your thinking on the best means to achieve a sustainable economic system?

On a scale of one to ten, what importance should these economic actors have in a sustainable economic system: governmental agencies like the US Department of Agriculture, large agribusinesses like Monsanto, large food retailers like WalMart, food producer cooperatives like Organic Valley and small farmers like the ones who sell produce at your local farmers market?

EXTENDED ACTIVITIES

Research articles that provide different economic models than the ones presented here, such as eco-feminist, anarcho-capitalist, state-monopoly, Mondragon cooperatives and natural capitalism. Write about the one that most captures your imagination.

Reflect on the various systems represented in each economic model presented in these articles. Construct a “systems map” to compare the strengths and weaknesses of one pair of these systems in meeting the sustainable demands of food security, energy use, soil and water preservation, social justice and community cohesion.

Design your own media portrayal of the ways in which consumerism shapes our imagination of what sustainable economies might look like.

Explore the impact of economic systems on the food security of indigenous communities around the world.

Study the ways in which alternative economic models have been initiated in your region. Interview people familiar with these models in order to better understand their point of view about sustainable economy.

Write an article on economics and sustainability and post to a blog.

Undertake a scavenger hunt to find popular culture documents that explore sustainable economics. See how many of these media forms you can find: feature film, documentary film, song, political cartoon, comic book, play, virtual reality game, and social network site.

Find an article extolling the positive outcomes that come with corporate capitalism and another that decries the negative aspects of moving away from small, rural, local agriculture economy. Use these articles to stage a debate on the question: How does agriculture fit into a vision of sustainable economy?

Read the book *Losing Our Cool* by Stan Cox. Write a one-page summary of what you learn about the economics of sustainability by looking at the question of air conditioning.

CONNECTIONS

L7, 8, 10, 12, 15, 16, 17, 18
(work & labor)

L8, 9, 11, 12, 13, 15, 16, 18, 19
(global trade)

L3, 6, 8, 9, 14, 16, 17, 18, 19
(fossil fuel)

L2, 3, 8, 9, 16, 18
(text analysis)

"Theses on Sustainability: A Primer"

Eric Zencey

Orion Magazine, May/June 2010

(excerpt)

[1] The term has become so widely used that it is in danger of meaning nothing. It has been applied to all manner of activities in an effort to give those activities the gloss of moral imperative, the cachet of environmental enlightenment. "Sustainable" has been used variously to mean "politically feasible," "economically feasible," "not part of a pyramid or bubble," "socially enlightened," "consistent with **neoconservative** small-government dogma," "consistent with liberal principles of justice and fairness," "morally desirable," and, at its most diffuse, "sensibly far-sighted."

[2] Nature will decide what is sustainable; it always has and always will. The reflexive invocation of the term as cover for all manner of human acts and wants shows that sustainability has gained wide acceptance as a longed-for, if imperfectly understood, state of being.

[3] An act, process or state of affairs can be said to be economically sustainable, ecologically sustainable, or socially sustainable. To these three some would add a fourth: culturally sustainable.

[4] Nature is malleable and has enormous resilience, a resilience that gives healthy ecosystems a dynamic equilibrium. But the resiliency of nature has limits and to transgress them is to act unsustainably. Thus, the most diffuse usage, "sensibly far-sighted," is the usage that contains and properly reflects the strict ecological definition of the term: a thing is ecologically sustainable if it doesn't destroy the environmental preconditions for its own existence...

[8] Human civilization has been built on the exploitation of the stored solar energy found in four distinct carbon pools: soil, wood, coal, petroleum. The latter two pools represent antique, stored solar energy, and their stock is finite. Since agriculture and forestry exploit current solar income, civilizations built on the first two pools—soil and wood—had the opportunity to be sustainable. Many were not...

[16] Accepting a limit on the economy's uptake of matter and energy from the planet does not mean that we have to accept that history is over, that civilization will stagnate, or that we cannot make continual improvements to the human condition. A no-growth economy is not a no-development economy; there would still be invention, innovation, even fads and fashions. An economy operating within ecological limits will be in dynamic equilibrium (like nature, its model): just as ecosystems evolve, so would the economy. Quality of life (as it is measured by the Index of Sustainable Economic Welfare, an ecologically minded replacement for **GDP**) would still improve. If a sustainable economy dedicated to development rather than growth were achieved through **market mechanisms**, consumers would still reign supreme over economic decision making, free to pursue satisfactions—and fads and fashions—as they choose.

[17] Our challenge is to create something unprecedented in human history: an ecologically sustainable civilization that offers a high standard of living widely shared among its citizens, a civilization that does not maintain itself through more-or-less hidden **subsidies** from antique solar income, or from the unsustainable exploitation of ecosystems and peoples held in slavery or penury, domestically or in remote regions of the globe. The world has never known such a civilization. Most hunting-and-gathering tribes achieved a sustainable balance with their environments, living off current solar income in many of its forms rather than on the draw-down of irreplaceable stocks, but we can't say that any of them achieved a high standard of material well-being. Medieval western Europe lived in balance with its soil community, achieving a form of sustainable agriculture that lasted until the invention of coal- and steam-propelled agriculture a few centuries ago, but few of us would trade the comforts and freedoms we enjoy today for life as a serf on a baronial estate, or even for the pre-electricity, pre-petroleum life of a mid-nineteenth-century farmer.

[18] No, there is no precedent for what we are struggling to create. We have to make it up ourselves.

“Building the Blue Economy “

Gunter Pauli

Ode Magazine, Issue 65

December 2009

(excerpt)

Humanity’s leap toward sustainability requires more than buildings with a green feature or a recycling program for a single waste stream. We will achieve sustainability when we design our systems the way ecosystems function and evolve. Ecosystems connect, creating networks of networks, where each contributes to the best of its ability, operates with clearly defined boundaries and endlessly cascades nutrients and energy using the enduring laws of physics. The same management principles apply in deserts, alpine mountain ranges, wetlands or tropical rainforests.

Traditional business thinks that only shedding jobs can increase productivity. Nature knows better. At a time of crisis, with millions out of work and hundreds of millions facing bleak futures, we need to put the blue job machine to work. Natural systems unleash local **entrepreneurship**. They show us the ways of right livelihood, what is right for the planet, right for the commons and right for a generation of youth seeking useful, rewarding work...

Every people, every nation needs pragmatic means to achieve sustainability and resource efficiency. The principles of the Blue Economy will work because they can be, and have already been, adopted in commerce, large and small. Cheerleading people to do the right thing or incremental improvements in energy efficiency will never accomplish what can be achieved by producing income, cutting costs or improving marketability.

The Blue Economy seeks sustainability by creating economic value. Business can use these principles to become more efficient, to provide jobs and to earn income while reducing the risks and social costs of pollution. Young entrepreneurs, and entrepreneurs young at heart, can develop sustainable enterprises that offer meaningful work, valuable products and social equity.

The Blue Economy articulates a set of principles. One central principle is to cascade nutrients and energy the way ecosystems do. A cascade is a waterfall. It requires no power; it flows with the force of gravity. It transports nutrients between biological kingdoms - absorbed minerals feed microorganisms, microorganisms feed plants, plants feed other species, with the waste of one becoming nourishment for another. Cascading energy and nutrients leads to sustainability by reducing or eliminating **inputs** such as energy and eliminating waste and its costs, not just as pollution but also as inefficient use of materials. In eco-systems there is no waste because the byproducts of one process are inputs to another process.

These principles closely align with the ways ecosystems thrive: All aspects are sustainable; toxins are contained; use what is locally available, such as naturally recurring energy resources that depend on the laws of physics; respond to all environmental and human needs; always evolve to higher levels of efficiency, from efficiency to sufficiency to abundance; always cascade energy and nutrients, leverage multiple revenue streams to create a geometric return on investment; leave nothing to waste, everything generates value; everyone plays a unique role-full employment; use a bundle of innovations to solve a systemic problem.

Innovators and entrepreneurs around the world are finding ways to use natural physics and bio-chemistry to cascade matter and energy in fully harmonious and renewable flows. They are accumulating wealth, generating value and providing jobs using what is readily available.

In a Blue Economy, the current unsustainable models of production and consumption will be outdated and eliminated. A vicious cycle of over-exploitation of labor and the Earth, with an ever-increasing burden of carbon emissions, will cease. It will become a virtuous cycle of using what is available, increasing **social capital** incrementally and bringing innovations to the marketplace that help meet the basic needs of all. The Blue Economy can enhance our lifestyles, benefit our planet and use and conserve materials and energy in remarkable ways. Let us cease to demand more of the Earth and those who toil. Let us do more with what we have, and with what nature generates unceasingly.

"Other Economies are Possible!"

Ethan Miller

Dollars and Sense, July/August 2006

(excerpt)

This is, perhaps, the heart of solidarity economics—the process of networking diverse structures that share common values in ways that strengthen each. Mapping out the economic terrain in terms of "**chains of solidarity production**," organizers can build relationships of mutual aid and exchange between initiatives that increase their collective viability. At the same time, building relationships between solidarity-based enterprises and larger social movements builds increased support for the solidarity economy while allowing the movements to meet some of the basic needs of their participants, demonstrate viable alternatives, and thus increase the power and scope of their transformative work.

In Brazil, this dynamic is demonstrated by the Landless Workers Movement (MST). As a broad, popular movement for economic justice and agrarian reform, the MST has built a powerful program combining social and political action with cooperative, solidarity-based economics... The Brazilian Solidarity Economy Forum, of which the MST is a part, works on an even broader scale, incorporating twelve national networks and membership organizations with twenty-one regional Solidarity Forums and thousands of cooperative enterprises to build mutual support systems, facilitate exchanges, create cooperative **incubator programs**, and shape public policy.

The potential for building concrete local, national, and even global networks of solidarity-based support and exchange is tremendous and yet barely realized. While some countries, notably Brazil, Argentina, Colombia, Spain, and Venezuela, have created strong solidarity-economy networks linked with growing social movements, others have barely begun. The United States is an example. With the exception of the Rural Coalition / Coalición Rural, a U.S.-Mexico cross-border agricultural solidarity organization, the United States has

been nearly absent from global conversations about solidarity economics. Maybe it's harder for those in the "belly of the beast" to imagine that alternatives to capitalism are possible. Are alternative economic practices somehow rendered more invisible, or more isolated, in the United States than in other parts of the world? Are there simply fewer solidarity-based initiatives with which to network?

Perhaps. But things are changing. An increasing number of U.S. organizations, researchers, writers, students, and concerned citizens are questioning capitalist economic dogma and exploring alternatives. A new wave of grassroots economic organizing is cultivating the next generation of worker cooperatives, **community currency** initiatives, housing cooperatives and collectives, community garden projects, **fair trade** campaigns, community land trusts, anarchist bookstores ("infoshops"), and community centers. Groups working on similar projects are making connections with each other. Hundreds of worker-owners from diverse cooperative businesses across the nation, for example, will gather ... at the second meeting of the United States Federation of Worker Cooperatives. In the realm of cross-**sector** organizing, a broad coalition of organizations is working to create a comprehensive public directory of the cooperative and solidarity economy in the United States and Canada as a tool for networking and organizing.

It takes no great stretch of the imagination to picture, within the next five to ten years, a "U.S. Solidarity Economy Summit" convening many of the thousands of democratic, grassroots economic projects in the United States to generate a stronger shared identity, build relationships, and lay the groundwork for a U.S. Solidarity Economy Alliance. Move over, **CEOs** of the Business Roundtable!

Wishful thinking? Maybe not. In the words of Argentinian economist and organizer Jose Luis Corragio, "the viability of social transformation is rarely a fact; it is, rather, something that must be constructed." This is a call to action.

"Betting the Farm on Free Trade"

Paul Magnusson

***Business Week*, June 6, 2005**

(excerpt)

Across the midwest, rural radio stations are airing ads that feature a famous quote from President Dwight D. Eisenhower: "Farming looks mighty easy when your plow is a pencil and you're a thousand miles from the cornfield." The ads are sponsored by the National Farmers Union, a group representing family farms, and it's no secret that the Washington pencil-pusher being targeted is American Farm Bureau Federation President Bob Stallman.

Even Stallman, who grew up on a 1,100-acre rice and cattle farm in Columbus, Tex., ruefully calls himself "a cell-phone farmer." But it's not his pinstripe suits or corner office overlooking the U.S. Capitol that get the goat of the NFU (National Farmers Union). It's the way Stallman is dividing farm country by leading the 5.6 million-member Farm Bureau, the nation's most powerful **agricultural lobby**, in a strong **free-trade** direction. Stallman favors low worldwide **tariffs** and a cut in government handouts, reasoning that large-scale, mechanized, and superefficient American farmers can export their way out of the commodity glut dogging the industry.

That stance puts Stallman at the epicenter of a raging controversy over the future of American farming. Other voices representing small farmers and their struggling rural communities -- the NFU and the National Family Farm Coalition among them -- fear being crushed between giant U.S. agribusiness and tons of food from developing countries.

The debate will heat up in the coming months. In June, Congress will take up the Central American Free Trade Agreement (CAFTA) between the U.S. and six Caribbean Basin countries -- a deal that would open the U.S. to increased imports of sugar, among the most heavily protected crops in America. Meanwhile, the Geneva-based World

Trade the Geneva-based **World Trade Organization** is pushing Europe and the U.S. to trim the hefty **subsidies** that provide some farmers with a third or more of their income. Agriculture "is the tiebreaker" that will bring developing nations to the table for an overall deal that will include manufactured goods and services, says U.S. agricultural trade negotiator Allen F. Johnson. The Farm Bureau supports CAFTA and the **WTO** initiative in the face of critics who insist that trade deals will hasten **consolidation** of U.S. farms into large-scale corporate agriculture.

Despite skepticism among some farm families and rebellions by state Farm Bureau offices in North Dakota, Louisiana, and Colorado, Stallman remains an adamant **free marketer**. During nearly six years heading the Bureau, he has beefed up its economic analysis and insists that its studies demonstrate that America's farming future lies in exports.

If Stallman has any sentimental attachment to the family farm, it doesn't show in the number-crunching. "It is important to maintain a productive and profitable agriculture **sector**, but the questions of who should be farmers, and what size farms should be, and what the countryside should look like -- those are social issues," Stallman declares. "If you want a social program, look at what the European Union spends to maintain its countryside and keep individual families on farms." Washington would have to pay **subsidies** four times as high as it does now to halt the trend toward consolidation, he says.

Such hard-nosed calculations draw considerable support from farm economists. "He is seeing the whole forest instead of looking to save every single tree," says Paul A. Drazek, an independent farm analyst and adviser to the Bush Administration. The nation's First Rancher also is a fan, and little wonder: As head of the Texas Farm Bureau, Stallman engineered an endorsement of long-shot challenger George W. Bush in his successful campaign for governor in '94.

**“US Farm Subsidies and the Farm Economy:
Myths, Realities, Alternatives”**

Karl Beitel

Food First Backgrounder, 11(3), Summer 2005
(excerpt)

Over the last five years, groups spanning the ideological spectrum have come out in opposition to US and EU farm support payments, or **subsidies**. Critics of US and EU farm policy claim that **subsidies** are a major cause of overproduction. Overproduction depresses global prices, leading to a loss of economic viability and the destruction of small-scale agriculture, both in the US and globally. While US farm policy is highly discriminatory against smaller farmers, the excessive focus on **subsidies** has served to obscure the deeper forces underlying the long-term decline in global farm **commodity** prices. This *Backgrounder* will argue that declining agricultural **commodity** prices are rooted in the market's lack of self-correcting mechanisms. Even in the absence of **subsidies**, **commodity** markets do not tend to equilibrium or operate to ensure fair returns on farm labor. Recognizing this reality is essential to any sound reform of US **commodity** policy...

Large growers' ability to “beat the market” means that removing **subsidies** could actually improve their competitive advantage. Furthermore, though **subsidy** payments favor large growers, many small- to medium-sized **commodity** farmers do depend on **subsidies** to survive. Cutting subsidies to these **farmers** would accelerate US farm **consolidation**.

The **commodities** market by itself will never guarantee farmers a price that will cover their costs, because it cannot correct itself in the ways other market **sectors** can. **Deregulating** this market further—which is what eliminating **subsidies** would entail—will not and cannot defend the existence of small- to medium-sized family farms, either in the US or abroad. The only way to stabilize farmers' incomes and preserve a viable, diverse agricultural system is through some combination of **price supports** and supply management. Government **price supports** are the most effective means of stabilizing price and

offsetting the negative consequences of rapidly falling prices: farmer bankruptcy, land loss, accelerated farm **consolidation**, and the competitive pressure to shift to more **input**-intensive farming methods. Supply management programs, which allow the government to mandate **land set-asides** when surpluses arise, can help compensate for farmers' lack of control over **commodity** prices; they can also be extended to embrace conservation initiatives and sustainable land management practices, benefiting the environment as well.

To be effective, **price supports** need to be complemented by better **tariff** controls on imported farm goods. Such a policy prescription, of course, runs completely counter to the entire **neoliberal** thrust of the last twenty-five years, and would effectively remove US farm policy from the regulatory jurisdiction of the **WTO** (World Trade Organization), signaling the end of the **WTO's** Agreement on Agriculture. This would, in our estimation, be a welcome development. If tied to complementary reforms of the international financial system that would allow developing countries to determine and direct their own internal development policies, this shift could open the path to real alternatives that would allow small and midsize farms to cover their costs and continue to serve as stewards of the land.

Pursuing such alternatives is an urgent necessity. **Market liberalization** does not, in itself, launch developing countries on a path of sustainable long-term growth capable of lifting their populations out of poverty. In fact the market, left to operate free from government intervention, will only exacerbate economic pressures in large segments of the rural farm **sector**, both in the US and globally. The farm **sector** has historically been subjected to extensive regulatory controls, which are needed to compensate for the market's inherent failures. An alternative to crippling **free market** policies exists: what is required is the political will to bring it about. Progressive agricultural and trade groups North and South must move beyond the **subsidy** debate and unite in support of alternatives that will sustain the world's farmers and ecosystems.

Glossary

Glossary terms appear in **bold** in the *Student Readings*.

agricultural lobby – a group trying to influence legislation on behalf of a farm business

CEO - chief executive officer, the executive who is responsible for a company's operations

chain of production - stage of production from raw materials to finished product

commodity – a raw material or primary agricultural product that can be bought and sold

community currency - a medium for exchanging goods and services within a community

consolidation - the process of joining small plots of land together to form larger farms

deregulation - the removal of government controls from an industry or sector

entrepreneurship - practice of starting new businesses or developing new products

free market - system in which prices are determined by unrestricted competition

fair trade - trade in which fair prices are paid to producers in developing countries

free trade - international trade without tariffs, quotas, or other restrictions

GDP – gross domestic product or annual market value of all goods and services produced

incubator program - program that provides support and mentoring for new enterprise

inputs - resources that are used in farm production, such as chemicals, equipment, feed, seed

land set-aside - removal of land from production, sometimes for controlling supply

market liberalization - abstaining from using state controls to control trade markets

market mechanisms - means by which forces of demand and supply determine prices

neoconservative - movement in favor of political, economic, and social conservatism

neoliberal – movement blending liberal political views and economic growth

price support - minimum-price supported by a government to protect vulnerable producers

regulatory control - government supervision over the obligations and rights of an industry

sector - a subdivision of a market with distinctive characteristics

social capital - network of social connections that exist between people

subsidy – government payment to supplement income such as farm subsidies paid to farmers

tariff - a tax or duty to be paid on a particular class of imports or exports

WTO - World Trade Organization, an agency which encourages international trade

Media Producers' Mission Statements

"Theses on Sustainability: A Primer"

Eric Zencey

***Orion Magazine*, May/June 2010**

***Orion Magazine*, Mission and History**

www.orionmagazine.org/index.php/mag/5863/

"With no advertising, about 30% of *Orion's* operating budget comes from subscriptions and sales and about 70% from donations from foundations and individuals. *Orion's* mission is to inform, inspire, and engage individuals and grassroots organizations in becoming a significant cultural force for healing nature and community."

"Building the Blue Economy"

Gunter Pauli

***Ode Magazine*, Issue 65**

Dec 2009

***Ode Magazine*, Advertise: A Positive Change Experience**

www.odemagazine.com/p/advertise

"The market for goods and services focused on health, the environment, social justice, personal development and sustainable living is worth almost \$230 billion. The consumers who make up this market have been described as "the fourth sector," some 50 million or so cultural creatives and early adopters whose purchasing decisions are guided as much by ethical and environmental concerns as by economic considerations. But there is an even better term to describe these affluent, influential consumers: *Ode* readers."

"Other Economies are Possible!"

Ethan Miller

***Dollars and Sense*, July/August 2006**

***Dollars and Sense*, About**

www.dollarsandsense.org/about4.html

"*Dollars & Sense* publishes economic news and analysis, reports on economic justice activism, primers on economic topics, and critiques of the mainstream media's coverage of the economy. Our readers include professors, students, and activists who value our smart and accessible economic coverage."

"Betting the Farm on Free Trade"

Paul Magnusson

***Business Week*, June 6, 2005**

***Bloomberg Business Week*, Bloomberg Solutions**

www.bloomberg.com/solutions/bloomberg_news/businessweek/

"*Bloomberg Businessweek* is a trusted source of essential, comprehensive insight that business leaders depend on to get ahead. Combining the innovation and scale of Bloomberg with the insight and depth of *Businessweek*, the new *Bloomberg Businessweek* offers a global perspective to help senior executives profit from smarter, faster, and more informed decisions."

"US Farm Subsidies and the Farm Economy: Myths, Realities, Alternatives"

Karl Beitel

Food First Backgrounder, 11(3), Summer 2005

Food First, Bridging Food Justice and Food Sovereignty

www.foodfirst.org/about/programs

"Called one of the country's "most established food think tanks" by the *New York Times*, the Institute for Food and Development Policy, also known as Food First, is a "people's think-and-do tank." Our mission is to end the injustices that cause hunger, poverty and environmental degradation throughout the world. We believe a world free of hunger is possible if farmers and communities take back control of the food systems presently dominated by transnational agri-foods industries."



DATE _____

1) What are the key points about sustainability and economics in this text?

3) How do the views presented in this article reflect the readership and editorial perspective of the magazine?

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Lesson 9:

Food Security

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LESSON PLAN

Food Security



Video Clips



Printed
Document

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will understand the conditions required for food security, the causes of food insecurity and potential solutions leading to food security.
- Students will reflect on the best means to achieve food security as a basic human right.
- Students will recognize ways in which media messages are shaped by the mission of the message producer.

Vocabulary:

community food security, culturally appropriate food, food insecurity, food availability, food access, food utilization, food production costs, biofuels, agricultural subsidies, protectionist policies, crop yields, transnational community networking, Band Aid hunger relief movement, Disaster Risk Management (DRM) approach, community resilience, World Food Prize, Oxfam, US Agency for International Development (USAID), Monsanto, Business Alliance against Chronic Hunger (BAACH), nongovernmental organizations (NGOs), agricultural inputs, Millennium Promise

Media: video clips, text from online publications and websites

Materials Needed:

- Eight-page *Teacher Guide*
- One-page *Student Handout: Media Producers' Mission Statements*
- One-page *Student Worksheet – Video Excerpts*
- Four video clips (Access online or via Lesson 9 digital media folder)
- Four one-page *Student Readings*
- One-page *Student Worksheet – Text Excerpts*
- One-page *Student Assessment*

Time: 60 minutes, with additional time out of class for the essay assessment

Lesson Procedures:

- Present the *Lesson Introduction* to the class.
- Distribute the *Student Handout – Media Producers’ Mission Statements* and the *Student Worksheet – Video Clips*.
- Play Videos Clips 1 and 2 while students log their answers on the *Student Worksheet*. Lead a brief discussion on the conditions required to attain food security.
- Play Video Clips 3 and 4 while students log their answers on the worksheet. Lead a brief discussion of causes of food insecurity.
- Distribute the *Student Worksheet – Text Excerpts* and the four *Student Readings*. Have students read and complete the worksheet. Lead a discussion of possible solutions to food security and sources.
- Distribute the *Student Assessment* Have students write on the essential question: **Why would guaranteeing food security for everyone benefit me, my family, my community, or my country?**
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Food Security

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

On December 10, 1948, the General Assembly of the United Nations adopted and proclaimed the *Universal Declaration of Human Rights*. Article 25 began, “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food...” (UN General Assembly, 1948, para. 46).

In 1996, at the World Food Summit in Rome, heads of state from around the world in the *Rome Declaration on World Food Security*:

- “...reaffirm[ed] the right of everyone to have access to safe and nutritious food, consistent with the right to adequate food and the fundamental right of everyone to be free from hunger...
- pledge [their] political will and [their] common and national commitment to achieving food security for all and to an ongoing effort to eradicate hunger in all countries, with an immediate view to reducing the number of undernourished people to half their present level no later than 2015...
- consider[ed] it intolerable that more than 800 million people throughout the world, and particularly in developing countries, do not have enough food to meet their basic nutritional needs. This situation is unacceptable...” (Food and Agriculture Organization, 1996, para. 3)

As plant scientist Wes Jackson has written, “if we don’t get sustainability right in agriculture, it won’t matter whether we get it right anywhere else.” (as cited in Vitek and Jackson, 2008, p. 6). The ability to provide food for all is central to the sustainability of human life on our planet.

In this lesson, you will be asked to consider the conditions required to attain food security, the threats to food security and some possible solutions to the problems of food insecurity. You will consider the ways in which producers shape media messages based on their worldview and mission. Finally you will be asked to reflect on your own ideas about how global food security might matter to you and your community.

3. Distribute the *Student Handout - Media Producers’ Mission Statements*. Explain that in this lesson, students will study eight media documents (four video clips and four text excerpts) that have been created by the eight producers on the *Student Handout*. Upon reviewing each document, students will be asked to consider which group produced which document. Ask students to take five minutes to read the handout and familiarize themselves with the media producers’ mission statements.
4. Distribute the *Student Worksheet – Video Excerpts*. Explain that students will now see two short video clips that offer different ideas about the conditions required to attain food security. Play the two clips, pausing briefly between each so students may fill in the questions on their worksheet.



Video Clip 1

"Detroit Urban Agriculture Movement Looks to Reclaim Motor City"

0:32 min. clip

Democracy Now!



- 1) **What are the conditions required to attain food security as presented by this source?**

Conditions for food security: adequate amounts of culturally appropriate foods, easily accessible, grown by sustainable means

- 2) **Use the mission statement on the *Student Handout* to guess the sources of this video. State your evidence.**

Source and evidence: Democracy Now! profiles a "grassroots leader" and "independent analyst" as referenced in the mission statement (Malik Yakini of the Detroit Black Community Food Security Network).



Video Clip 2

"Science for a Hungry World Part 4: Food Security"

0:52 min. clip

Science for a Hungry World, NASA

October 21, 2009



- 1) **What are the conditions required to attain food security as presented by this source?**

Conditions for food security: food availability, food access and food utilization

- 2) **Use the mission statement on the *Student Handout* to guess the sources of this video. State your evidence.**

Source and evidence: NASA in its program, *Science for a Hungry World*, is using scientific definitions and global maps to benefit mankind by explaining food security. Molly Brown is a NASA Senior research scientist.

5. After playing Video Clips 1 and 2, ask students what conditions were named for food security. Teachers might want to jot these down on the board for future reference. Ask students which groups they selected as the likely producers of each clip and why. Explain that clip one was produced by Democracy Now! and clip two by NASA. Ask students to reflect on the similarities and differences between the two definitions of food security conditions and why each source might have chosen the spokesperson they offered.

[NOTE: As students compare the patterns of messages about food security in these different sources, make sure that they identify similarities in both clips as they present the words of a single spokesperson videotaped in what appears to be a garden. They should also recognize differences in the concentration on community food security in the first clip, which is characterized by attention to culture and sustainable growing practices, and on individual food security in the second clip, which is characterized by individual concerns of insufficient money or poor health. If students do not identify these you may want to ask, "How do these two sets differ in their messages about community food security and individual food security?"]

7. Explain that students will now see two short video clips that offer different ideas about the causes of food security. Play Video Clips 3 and 4, pausing briefly between each one so students may fill in the questions on their worksheet.



Video Clip 3

"Running Out: The Global Food Crisis, "

1:33 min. clip

Great Decisions: Critical Foreign Policy Issues

Foreign Policy Association, FORA.tv

February 1, 2009



- 1) **What are the causes of food insecurity presented by this source?**
- 2) **Use the mission statement on the *Student Handout* to guess the sources of this video. State your evidence.**

Causes of food insecurity: higher food production costs due to rising fuel & fertilizer prices, corn used for biofuels instead of for food, global prosperity and consumer demand for meat, governmental food subsidies and food protectionist policies

Source and evidence: The Foreign Policy Association is focusing on global issues by addressing international policy issues like biofuel production, agricultural subsidies and protectionism.



Video Clip 4

"Global Food Security: US Commitment to Action"

1:11 min. clip

Goodspot, US State Department

Posted Sept 24, 2009



- 1) **What are the causes of food insecurity presented by this source?**
- 2) **Use the mission statement on the *Student Handout* to guess the sources of this video. State your evidence.**

Causes of food insecurity: climate change causing reduced crop yields, rising oil prices, water shortages, population growth, political unrest and civil instability

Source and evidence: The US State Department addresses the need for citizen support for US government action to "sustain a more democratic, secure, and prosperous world composed of well-governed states that respond to the needs of their people."

7. After playing both clips, ask students what causes were identified as contributing to food insecurity. You might want to jot these down on the board. Ask students which groups they selected as the likely producers of each clip and why. Explain that clip three was produced by the Foreign Policy Association and FORAtv.com and clip four by Goodspot and the U.S. State Department. Ask students to reflect on the similarities and differences between the two explanations of food insecurity and why each source might have chosen the explanations they offered.

[NOTE: As students compare the patterns of messages about food insecurity in these different sources make sure that they identify similarities in production using a montage of international images and in content noting the impact of rising fuel prices. They should also recognize differences in the first clip's concentration on US government policy as a factor in the problem (biofuel production and agricultural subsidies) and the second clip's focus on issues largely beyond US government policy control (global oil prices, population growth and political unrest).]

If students do not identify these you may want to ask, “How do these two sets differ in their messages about the role of government policy in creating conditions of food insecurity?” and “Why might the nonpartisan Foreign Policy Association and the US State Department have such different explanations of the role of government policies in creating food insecurity?”]

8. Distribute the *Student Readings* and Student Worksheet – Text Excerpts. Explain that the set of four excerpts is from magazine articles and websites that focus on potential solutions to the ongoing crisis of food insecurity in Africa.
9. Have students read the excerpts and complete the worksheets using the *Student Handout - Media Producers’ Mission Statements* to consider which group produced each document.



Student Reading 1

“Farmers Without Borders” Excerpt
Laird Townsend and Annie Murphy
Cultural Survival Quarterly, p. 19-27
 Winter, 2010

- 1) **What are the possible solutions to food insecurity as presented by this source?**

Possible solutions to food insecurity: using ancestral knowledge; transnational networking for cultural information exchange; land and seed preservation; agrotourism

- 2) **Use the mission statement on the *Student Handout* to guess the sources of this text. State your evidence.**

Source and evidence: *Cultural Survival Quarterly* “partners with Indigenous Peoples around the world to help them defend their lands, languages, and cultures.”



Student Reading 2

“Summary”

Band Aids and Beyond: Tackling Disasters in Ethiopia 25 Years After the Famine

Oxfam Briefing Paper 133, p. 3-4

October 22, 2009

- 1) **What are the possible solutions to food insecurity as presented by this source?**

Possible solutions to food insecurity: relief movements like Band Aid to solicit public funds for imports of food aid; Disaster Risk Management collaboration between communities, governments, NGOs & the UN; identification of threats, analysis of community vulnerability and risk reduction strategies; donor investment in local production; World Food Program contributions to sustainable development

- 2) **Use the mission statement on the *Student Handout* to guess the sources of this text. State your evidence.**

Source and evidence: Oxfam prioritizes international collaborations with partners and allies to support the capacity of local communities to help themselves.



Student Reading 3

“Fact Sheet: USAID-supported Scientist Wins World Food Prize”

Laura Ashbaugh

US Agency for International Development, p. 1-2.

October 19, 2009

- 1) **What are the possible solutions to food insecurity as presented by this source?**

Possible solutions to food insecurity: individual awards for scientific advances; genetic engineering of new seed varieties; development of commercial seed industry; research support programs; fertilizer sales; farmer training in new agricultural techniques; local market development; mentoring students in agricultural programs

- 2) **Use the mission statement on the *Student Handout* to guess the sources of this text. State your evidence.**

Source and evidence: USAID’s work in agriculture, economic growth, education, global partnerships, and humanitarian assistance are reflected in this article.



Student Reading 4
“Community Focus”
MonsantoAfrica.com
2011

- 1) What are the possible solutions to food insecurity as presented by this source?

Possible solutions to food insecurity: business partnerships; support for private-sector strategies, business models, market linkages and entrepreneurialism; discounted inputs (fertilizer and seeds); donations to aid programs; genetic modification of staple crops (cow pea)

- 2) Use the mission statement on the *Student Handout* to guess the sources of this text. State your evidence.

Source and evidence: Monsanto’s commitment to selling seeds, traits developed through biotechnology, and crop protection chemicals is reflected in solutions having to do with the distribution and sale of these products.

10. Lead a discussion of possible solutions to food security and sources.

[NOTE: As students compare the messages about possible solutions to food insecurity in these different text excerpts, make sure that students identify what groups, individuals, or corporations can affect food security. If students do not identify them, teachers may want to ask, “How do these articles differ in their messages about the role individuals communities, governments and corporations in solutions to food insecurity?” and “Why might the four different sources have highlighted such different possible solutions to the food insecurity crisis?”]

11. Distribute the *Student Assessment*. Have students write an essay on the essential question: The United Nations’ *Universal Declaration of Human Rights* states, “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food.” **Why would guaranteeing food security for everyone benefit me, my family, my community, or my country?**

FURTHER QUESTIONS

Analyzing Media Messages

Which of the media formats – text or video – seems to have the most emotional impact and why?

In terms of food security, in what situations would someone want to make a more emotional case and when might they benefit more from emphasizing reason over emotion?

Who are the target audiences for each of the 8 documents? How do the differences in target audience serve to shape the media construction of each document?

Who might benefit from each of these messages and who might be harmed?

Which of these documents is the most credible? Why?

Self Reflection

Which media document was most effective in moving you toward action on the issue of food security and why?

Which of these documents was most disturbing to you and what do you learn about yourself from your response?

Who else in your family, community and friendship circle is concerned with issues of food security?

On a scale of one to ten how important are issues of food security to you?

Where does your knowledge and opinions about food security and insecurity come from?

Do you know of any time in your family's history where your family members experienced food insecurity? What were the reasons?

Underlying Values and Motives

Consider the conflicting values implied by these media documents ranging from valuing ancestral knowledge and community cohesion to valuing biotechnology and business models. Which of these value systems is most compelling as a foundation for food security and why?

Are issues of food security equally important for people in different parts of the world?

In what ways do social justice, climate change and fossil fuel depletion impact your thinking on the best means to achieve food security?

What does food security have to do with sustainable agriculture?

Do you think that food aid should be used as a tool of foreign policy? Why or why not?

Is food security a right or privilege?

EXTENDED ACTIVITIES

Collect media reports on food security in your region in order to determine which media sources have reported on this issue and which have not.

Organize a “Community Food Security” workshop in your community. Consider whom to invite in order to reach stakeholders who are already working on this issue.

Interview elders in your family and community about their definitions of community food security and ask them how their ideas about this have evolved over time.

Research the history of the terms “food security” and “food insecurity” in order to discover who first used these terms and how have they changed in meaning over time.

Create a “systems map” for food security in your immediate circle. Include in your map pathways to food security for you and your immediate family, for your friends and for your community. Consider the people and organizations that will be included in your map and those that are not. Make sure to include inputs (seed, land, advice) as well as outputs (food, community, markets) in your systems map.

Write a letter to someone you admire about your beliefs on food security and asking for their input in return.

Design your own media representation on issues of food security. Consider your target audience and which media form might be best suited to reach them.

Contact one of the media sources from the documents in this lesson and communicate with them regarding your feelings, ideas or questions about their work.

Research the beliefs and practices regarding food security among sustained farming cultures in your region especially the Native American people who lived where you do prior to the conquest.

In groups of three, come up with a plan of action to combat food insecurity in your region.

Write a letter to a pen pal from a different region exchanging ideas on the ways you get your food. What can you both learn from each other about farming and food security?

CONNECTIONS

L 6, 9, 10, 15, 16, 18, 19
(seeds & crops)

L6, 7, 9, 10, 16, 17, 19
(local food)

L6, 7, 9, 19

(urban agriculture)

L 6, 7, 9, 10, 14, 15, 16, 17, 18, 19
(food security)

L8, 9, 11, 12, 13, 15, 16, 18, 19
(global trade)

L3, 6, 8, 9, 14, 16, 17, 18, 19
(fossil fuel)

L3, 6, 9, 11, 16, 17, 18, 19
(climate change)

L2, 6, 7, 9, 10, 12, 13, 14, 15, 18
(film & video)

L2, 3, 8, 9, 16, 18
(text analysis)

Media Producers' Mission Statements

***Cultural Survival Quarterly* - <http://www.culturalsurvival.org/about>**

"For nearly 40 years Cultural Survival has partnered with Indigenous Peoples around the world to help them defend their lands, languages, and cultures. Our work is predicated on the United Nations Declaration on the Rights of Indigenous Peoples. We publicize their issues through our award-winning publications, we mount letter-writing campaigns and other advocacy efforts to stop environmental destruction and abuses of Native Peoples' rights, and we work on the ground in Indigenous communities, always at their invitation" (CulturalSurvival.org, 2010, para. 1-2).

***Democracy Now!* - <http://www.democracynow.org/about>**

"*Democracy Now* is a national, daily, independent, news program providing our audience with access to people and perspectives rarely heard in the U.S. corporate-sponsored media, including independent and international journalists, ordinary people from around the world who are directly affected by U.S. foreign policy, grassroots leaders and peace activists, artists, academics and independent analysts" (n.d., para. 1)

Foreign Policy Association - <http://www.fpa.org>

"FPA is a non-profit organization dedicated to inspiring the American public to learn more about the world, serves as a catalyst for developing awareness, understanding of, and providing informed opinions on global issues. Through its balanced, nonpartisan programs and publications, the FPA encourages citizens to participate in the foreign policy process" (2011, para. 1).

Monsanto - <http://www.monsanto.com/whoweare>

"Producing more conserving more improving lives. That's sustainable agriculture and that's what Monsanto is all about. Monsanto could not exist without farmers. Billions of people depend upon what farmers do. And so will billions more. In the next few decades, farmers will have to grow as much food as they have in the past 10,000years-combined. It is our purpose to work alongside farmers to do exactly that. We do this by selling seeds, traits developed through biotechnology, and crop protection chemicals" (Monsanto Company, 2011, para. 1).

NASA (National Aeronautics and Space Administration) -

http://www.nasa.gov/about/highlights/what_does_nasa_do.html

"NASA's vision: To reach for new heights and reveal the unknown so that what we do and learn will benefit all humankind. Our Goddard Television provides essential resources for educators, news media, museums and all others interested in exploring and understanding Earth and space" (Wilson, 2011).

Oxfam - <http://www.oxfam.org/about>

"Oxfam is an international confederation of 14 organizations working together in 98 countries and with partners and allies around the world to find lasting solutions to poverty and injustice. We work directly with communities and we seek to influence the powerful to ensure that poor people can improve their lives and livelihoods and have a say in decisions that affect them" (2011, para. 1-2).

U.S. Agency for International Development (USAID) - http://www.usaid.gov/our_work/

"USAID works in agriculture, democracy & governance, economic growth, the environment, education, health, global partnerships, and humanitarian assistance in more than 100 countries to provide a better future for all" (2011, para. 3).

U.S. State Department - <http://www.state.gov/s/d/rm/index.htm>

"The Department of State's overarching mission is to 'advance freedom for the benefit of the American people and the international community by helping to build and sustain a more democratic, secure, and prosperous world composed of well-governed states that respond to the needs of their people, reduce widespread poverty, and act responsibly within the international system'" (GAO.gov, n.d., para. 1).



Student Worksheet – Video Clips

NAME _____

DATE _____

Video 1 – “Detroit Urban Agriculture Movement Looks to Reclaim Motor City”

1. What are the conditions required to attain food security as presented by this source?
2. Use the mission statement handout to guess the source of the video. State your evidence.

Video 2 – “Science for a Hungry World”

3. What are the conditions required to attain food security as presented by this source?
4. Use the mission statement handout to guess the source of the video. State your evidence.

Video 3 – “Running Out: The Global Food Crisis”

5. What are the causes of food insecurity presented by this source?
6. Use the mission statement handout to guess the source of the video. State your evidence.

Video 4 – “Global Food Security”

7. What are the causes of food insecurity presented by this source?
8. Use the mission statement handout to guess the source of the video. State your evidence.

“Farmers Without Borders” (excerpt)

Climate change ... is particularly hard for traditional small farmers who live in the most affected zones and lack high-tech tools to insulate themselves against the changing climate. But today, small food producers are calling on ancestral knowledge to find ways to adapt, as well as some transnational networking to share that information. One of those efforts, an exchange between Ethiopian and Peruvian small farmers, could become a model for the future.

The [Gamo Highlands of southern Ethiopia] are home to more than 50 communities ... [that] depend on the enset plant [“false banana”] for their survival. ... Enset is a staple. It’s prepared in many forms and in many contexts—from a nutritious gelatin mothers eat after childbirth to the ground, boiled root served to funeral mourners. And the plant is naturally drought resistant, with one fully mature plant able to support five people for two to three months. No academic record exists to document such matters, though the villagers in the Gamo Highlands say this area has never experienced famine, and they believe enset is why.

But this ancient survival strategy is no longer a sure bet. During the past 10 years, community members and local agronomists have reported a drastic fall in enset production; crops have declined, and plants are growing weaker, thinner, and more susceptible to disease. The cause is a familiar refrain worldwide: climate change. And like traditional communities around the world, the Gamo are being forced to adapt—a fate that will eventually hit even the most developed spots on the globe. ...

Eager to find a solution, Shagre Shano [(an elderly head of the compound)] had recently returned from a journey of thousands of miles, which took him from the Doko compound to Peru’s Sacred Valley.

[The members of the] Quechua community of Paru Paru ... grow the favas, the corn, and the region’s staple: potatoes, ... known here as the daily bread of the Andes. [M]any villagers [are] working to preserve native potato varieties in this area. “The entire system is changing,” said [a Quechua farmer,] Julian Quispe... “We’re

planting a full month later than before, and the potatoes are moving to higher altitudes,” he said.

“The amount of rain isn’t the same, nor is the amount of sun. Everything about the growing cycle is different. For the sake of our daily lives, we had to find a way to respond to it.” These are the same problems that increasingly confront villages like Shagre’s in Ethiopia and around the globe. But Paru Paru is one of six local communities that have developed a strategy that aims to adapt to climate change, while protecting not just the potato, but the entire area, its people, and their way of life. The communities have declared all their land—in a sense, their lives—a park: the Potato Park. The land has been officially registered and granted park status by the Peruvian government, which means it’s protected from mining, logging, and other private business interests...

“The most impressive thing for me so far is the way they respect traditions and culture here, in every way,” Shagre said. “In my culture, in the past we had the same relationship, but it’s diminished recently.” Shagre said a community-run restaurant could be incorporated into the Enset Park they envision in Gamo Highlands. And Feleke [Woldeyes Gamo, a botanist who specializes in enset,] added that resource-generating tourism projects are an important incentive for locals to invest in adaptation to climate change. “Creating a park and finding ways to adapt to climate change is just one aspect of this project,” he said. “We must find a variety of ways to make this project appealing and profitable to the people in Shagre’s area, and this [restaurant] is ideal, because enset enters into all kinds of food...

Like any other ambitious plan, this one must deal with a host of external variables; but its success will depend on community members like the people assembled here in Doko. “Climate change has gotten worse in my community,” said Shagre. “But if we work harder, it won’t be that difficult to regain [enset varieties] and preserve their seeds, their type,” he said. “I am ready to practice what I saw in Peru...”

“Summary,” from *Band Aids and Beyond: Tackling Disasters in Ethiopia 25 Years After the Famine* (excerpt)

In 1984, one million Ethiopians died during a catastrophic famine. The government at the time hid the scale of hunger until a shocking BBC television report ignited a massive relief effort, supported by the Band Aid movement. Though this was too late for too many, thousands of lives were saved.

The severity of suffering seen 25 years ago has not returned to Ethiopia. But, as we are seeing again this year, drought still plagues the country. (We) estimate that drought costs Ethiopia roughly \$1.1 billion a year – almost eclipsing the total annual overseas assistance to the country. The damage done by drought could increase too. Climatic projections predict that, by the 50th anniversary of the 1984 famine, what we now call drought will be the norm, hitting the region in three years out of four.

Each drought demands that the government co-ordinate timely humanitarian response, but we have to ask: what can be done to prevent the next drought from becoming a disaster? The humanitarian response to drought and other disasters is still dominated by ‘band-aids’ such as imported food aid. This saves lives now, but it does little to help communities withstand the next shock.

Seventy per cent of humanitarian aid to Ethiopia comes from the USA. Most of this is ‘in-kind’ food aid, subject to conditions which have nothing to do with development and mean that it costs up to \$2 of US taxpayers’ money to deliver \$1 of food aid. This begs a second question: are there any more cost-effective ways of dealing with disasters?

The Disaster Risk Management (DRM) approach goes a long way to answering both these questions. DRM means the government, non-government organizations (NGOs), and the UN working in partnership with communities to identify what the threats are, such as drought or

flood; to analyze how vulnerable a community or country is to them; and to decide how best to reduce the risks posed by these events, before they happen....

Framing the response to disasters within DRM, as the Ethiopian government is now trying to do, compared with the current over-reliance on band-aid responses, is:

- More cost-effective: aiming to reduce the need for expensive emergency response; for instance, in a drought providing food in exchange for work on a water conservation project that increases farmers’ productivity;
- More sustainable: within DRM, immediate needs are met but there is greater focus on how communities can prepare for the next disaster. DRM gives communities, and especially women, the dignity of building on their assets, abilities, and practices;
- Better suited to the situation of Ethiopians: the DRM approach emphasizes local capacity, where people are best placed to understand and address the risks.

Over the past 25 years, the advantages of this DRM approach have become so plain that the remaining question is: why it is not already the guiding approach to disasters in Ethiopia? Donors in particular have further to go to link humanitarian response to development, but all humanitarian stakeholders have a role in making DRM common practice:

- The Ethiopian government should bring together all relevant actors, including national civil society and donors, to lead a coordinated, ambitious approach to disasters that targets vulnerability and disaster risk, especially linked to climate change.
- The Ethiopian government should also ensure that all those affected by humanitarian disasters get the right aid at the right time.
- Donors should increase investment in building communities’ resilience to disasters and alternatives to imported food aid, including investment in local and regional production.
- The World Food Program (WFP) should make their emergency food aid programs contribute more to sustainable development.

"[...] Scientist Wins World Food Prize"

Gebisa Ejeta is just as comfortable wading through knee-high sorghum fields in the most remote regions of Africa as he is in a laboratory where he creates hundreds of new crop varieties. The scientist's motivation for his research, which won him the 2009 World Food Prize, is not just to create stronger crops, but to solve societal problems in his homeland of Africa.

On October 15, 2009, Ejeta stood on the steps of the Iowa State Capitol to receive the World Food Prize for developing drought and striga resistant sorghum varieties that are widely grown across Africa. The honor comes with a \$250,000 prize.

"The fact that I come from a poor background has given me the empathy to understand the difficulties of life in rural Africa," said Ejeta, who was born in Ethiopia. Ejeta's award-winning work was funded by (our) Sorghum, Millet, and Other Grains Collaborative Research Support Program and its predecessors.

Ejeta discovered the way the striga weed attacks sorghum, the staple crop of sub-Saharan Africa, and developed varieties that would withstand the attack. He also developed varieties that could withstand drought. The effort enhanced the food supply of millions of people, increased farmers' yields, and enabled the first commercial seed industry to develop in sub-Saharan Africa.

"Just because a drought resistant variety is available, it doesn't mean it gets to the farms," Ejeta said. "When you are operating in a developing country where few institutions are functioning, the farmers don't have an understanding of the value of agricultural research so they don't look to research to solve their problems. You need to work with farmers and demonstrate to them how this

technology you developed is better than what they practice."

Ejeta said that a critical part of his work is developing institutions to ensure the new crop varieties are sustainable. This involves everything from creating businesses to sell fertilizer to making sure seed markets are accessible.

The Purdue University professor helped create thriving local markets and trained farmers across Africa in new agricultural techniques. With (our) support, his crops are now grown in his home country as well as in Eritrea, Kenya, Mali, Mozambique, Niger, Rwanda, Senegal, Somalia, Sudan, Tanzania, and Zimbabwe.

"I believe that the respect for agricultural sciences in developing countries needs to be strengthened," he said. "It builds economies and can be a tremendous vehicle for change, but that has to be a sustained area of support."

One of Ejeta's top priorities is mentoring African students. He has trained 30 doctorate and 10 post-doctorate students both here and in Africa, and has been involved in a University of Wisconsin program to train 220 African PhD candidates over the past 10 years. Ejeta said he values mentoring because he received so much support during his own education. (We) supported Ejeta's education from high school in Ethiopia through his doctorate program at Purdue.

"It doesn't mean that this is the only way that one can get to be a World Food Prize laureate, but that was the path for me, and I am extremely grateful for those opportunities," Ejeta said. "For (ours), or any other agency, it underscores the value of creating these educational institutions. Without that kind of foundation, it is difficult to produce the kind of the scientists that you need to solve these kinds of societal problems."

"Community Focus"

[Our organization] is an active partner in various partnerships across Africa that are making a real difference for thousands of farmers, their families, and their communities. A few of these joint projects are described below.

BAACH (Business Alliance against Chronic Hunger)

One partnership tackling the local challenges in Siaya is the Business Alliance against Chronic Hunger (BAACH). In December 2006, a group of international, regional, and national companies collaborated with the government of Kenya and nongovernmental organizations. They agreed on a single focus: to apply all available private-sector expertise to develop new strategies to increase food production, nutrition, and incomes.

The participating companies wanted to leverage their expertise and capabilities to improve value chains — from production, processing and packaging to retailing and marketing — through business development and market linkages. Companies implement these solutions in partnership with governments, NGOs, international agencies, and local communities. In Kenya, the BAACH action plan is to improve production of staple and high-value crops and to strengthen entrepreneurship.

One action that has already had an effect is a pilot voucher program for agricultural inputs. It has provided more than 10,000 farmers in the Siaya district with access to their choice of maize seeds and fertilizer. A key feature is that smallholder farmers are issued vouchers that can be redeemed for discounted seed and fertilizer at their local input dealers (stockists). Stockists are often the most sustainable and effective distribution channel to serve smallholder farmers in rural areas, so this program reinforces food security and local businesses at the same time. A business model for packaging, storing, selling, and processing surplus maize has also been developed. It could benefit up to 12 percent of the district population.

Millenium Villages

The Millennium Villages Project is an arm of the Millennium Promise organization a non-profit organization dedicated to ending extreme poverty by 2025. (We have) made a commitment to the program, through 2010, to donate 240 tons of high-quality hybrid maize seed each year to villages in Malawi, Tanzania and Kenya, enough to reach 24,000 smallholder farming families. The Millennium Villages Project ensures that the seed is coupled with effective development efforts, so that resource-poor farmers have access to all the tools they need for successful agriculture: quality seeds, fertilizer, extension services, credit, markets, and knowledge of best management practices from their local environment. In the past year, (Our) vegetable seed company, Seminis, also donated vegetable seed to the Millennium Village Project in Malawi to help diversify farm production and nutrition.

Hunger Project Malawi

The Hunger Project Malawi (THP-Malawi) works in five sections of the country to improve food security, water supply and sanitation, microcredit, education, and health services for a population of 85,000. For the last several years, THP-Malawi has procured hybrid maize seed from (us) on behalf of farmers in the program because they expressed satisfaction with the products. In addition, (our) field representatives provide farmers in the program with training and advice about how to get the best yields from the seed.

Network for the Genetic Improvement of Cowpea for Africa (NGICA)

The cowpea, also called the black-eyed pea, is a staple grown across western Africa. It is essential for the nutritional health in the region. Unfortunately, up to 90 percent of the crop can be lost to insects. (Our) researchers are working with Network for the Genetic Improvement of Cowpea for Africa scientists, USAID, the Rockefeller Foundation, and the African Agricultural Technology Foundation to develop insect-resistance technology for the cowpea. Early results are promising, and confined field trials are planned for 2008.



Student Worksheet – Text Excerpts

NAME _____

DATE _____

Text 1 – “Farmers Without Borders”

1. What are the possible solutions to food insecurity presented by this source?
2. Use the mission statement handout to guess the source of the text. State your evidence.

Text 2 – “Summary” from *Band Aids and Beyond...*

3. What are the possible solutions to food insecurity presented by this source?
4. Use the mission statement handout to guess the source of the text. State your evidence.

Text 3 – “[...] Scientist Wins World Food Prize”

5. What are the possible solutions to food insecurity presented by this source?
6. Use the mission statement handout to guess the source of the text. State your evidence.

Text 4 – “Community Focus”

7. What are the possible solutions to food insecurity presented by this source?
8. Use the mission statement handout to guess the source of the text. State your evidence.



Student Assessment

NAME _____

DATE _____

Use the information you have gathered concerning the conditions necessary for food security, the causes of food insecurity and the potential solutions leading to food security to write an essay question below.

Essay Question

The United Nations' *Universal Declaration of Human Rights* states, "Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food."

Why would guaranteeing food security for everyone benefit me, my family, my community, or my country?

In your essay, be sure to:

- state your own opinion on the UN resolution to end hunger
- reference at least three of the documents
- reference key issues of social justice, climate change and fossil fuels.

Lesson 10:

Sustainable Cultures

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(Access online or via Lesson 10 digital media folder)	
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LESSON PLAN

Sustainable Cultures



Printed
Document



PowerPoint
Slide Show



Video Clips

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will learn about diverse agricultural practices for sustainable growing among traditional land-based cultures and the cultural values that support these practices.
- Students will reflect on the role of traditional wisdom in preserving resources of food, land and community in Amish, African American, Native American, Mayan, Japanese American, Latino and Hawaiian farming cultures.
- Students will analyze communication techniques used by web page designers and film and video producers.

Vocabulary:

land grant university, George Washington Carver, Booker T. Whatley, crop diversification, crop rotation, cover crop, monoculture, food sovereignty, heirloom seeds, seed saving, GE (genetic engineering), GMO (genetically modified organism), milpa, biodiverse, top-seeded, fungicide, tith, no-till farming, internment camp, agrotourism, biocultural crops, foodshed, chaquegue (corn drink), tole (cereal), perennial, annualization, pinon (pine nut), land reform, community garden, kalo or taro plant, poi

Media: documentary film, web video, web page

Materials Needed:

- Twelve-page *Teacher Guide*
- Four separate one-page *Student Readings*
- Six slide PowerPoint slideshow (Access online or via Lesson 10 digital media folder)
- Four video clips (Access online or via Lesson 10 digital media folder)
- One-page Student Worksheet – Web pages
- One-page Student Worksheet – Video Clips

Time: 75 minutes

Lesson Procedures

- Present the *Lesson Introduction* to the class.
- Divide the class into four teams and distribute one of the four *Student Readings* with web page texts and the Student Worksheet – Web Pages to each group.
- Have teams study the web pages and complete the accompanying worksheet.
- Project the web page slides and lead a document decoding using *Media Sample Questions & Answers* in the *Teacher Guide*.
- Lead a brief discussion about common themes regarding practices and beliefs supporting sustainability among the four groups profiled in the *Student Readings*.
- Distribute the Student Worksheet – Videos Excerpts.
- Play the video clips while students log their answers on the worksheet.
- Lead a discussion of the clips using the *Media Sample Questions & Answers* in the *Teacher Guide*.
- Lead a discussion of the essential question: **What do traditional cultural values and practices teach us about sustainability today?**
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Sustainable Cultures

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

All over the world, there are land-based cultures that have been in place for centuries. The elders of these groups have passed down traditional ecological knowledge about how to obtain food and water in a way that ensures both the survival of future generations and the natural resources on which their descendants will rely. This commitment was expressed by Onondaga Faithkeeper Oren Lyons in his speech to the United Nations at the opening ceremony to mark 1993 as the UN year of the Indigenous People's:

Our leaders were instructed... to make every decision on behalf of the seventh generation to come; to have compassion and love for those generations yet unborn. We were instructed to give thanks for All That Sustains Us. Thus, we created great ceremonies of thanksgiving for the life-giving forces of the Natural World, as long as we carried out our ceremonies, life would continue. We were told that 'The Seed is the Law.' Indeed, it is The Law of Life. It is The Law of Regeneration. Within the seed is the mysterious force of life and creation. Our mothers nurture and guard that seed and we respect and love them for that. Just as we love...our Mother Earth, for the same spiritual work and mystery (1992).

In this lesson, you will view web pages and film and video excerpts that help to explain the presence of the word "culture" in agriculture. These excerpts also illustrate different forms of media construction. Consider the elements involved in an Internet video, documentary film and web page design that caused each media developer to choose one particular form over another as a means to communicate their varied messages about the sustainability of food, water, land and community.

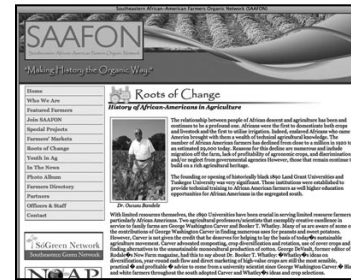
3. Write the word "agri-culture" on the board (divide it into two parts as designated by the hyphen). Have a brief discussion about why agriculture includes the word "culture."
4. Divide the class into four teams and distribute the one of the four *Student Readings* and the *Student Worksheet – Web pages* to each group.
5. Have teams study the web pages and complete the accompanying worksheet.
6. Project the web page slides in the PowerPoint slideshow and have the teams decode their respective web pages. Use the *Media Sample Questions and Answers* in the *Teacher Guide* to help deepen understanding.
7. Following the web page decoding, lead a brief discussion about common themes regarding practices and beliefs supporting sustainability among the four groups profiled. Discuss techniques used in web page design.

Probe questions include:

 - Are these effective as home pages? Why or why not?
 - What messages are communicated by the choice of buttons, headers or banners?
 - What do these choices tell you about what is important to this group?



Student Reading 1
"Roots of Change"
Southeastern African-American Organic
Farmers (SAAFON)
2010



Media Sample Questions & Answers

1) What group produced this web page and for what purpose?

Possible Answer: The Southeastern African-American Farmers Organic Network (SAAFON) produced this page to highlight the important legacy of African American professors and scientists in service to family farmers.

2) What messages does this document provide about how agricultural wisdom has been passed down generation-to-generation in this culture?

Possible Answer: Agricultural wisdom has been passed down through the teaching within black Land Grant Universities, Tuskegee University and via contemporary web pages like this one.

3) What agricultural crops and methods are referenced in this web page?

Possible Answer: Crops include peanuts, sweet potatoes and cotton. Agricultural methods include domestication of crops and livestock, the use of irrigation, composting, crop diversification and rotation and the use of cover crops.

4) What values are explicit or implied regarding agricultural practice and humans' role within the natural world?

Possible Answer: Implied values include community cohesion and respect for ancestral teaching.

5) What techniques does the web page designer use to communicate messages about wisdom and values? Give examples to support your answer.

Possible Answer: The designer uses a mixture of images, menu buttons and text to convey these messages. African-American agrarian scholarship is communicated in the photo of Dr. Bandeje in the cornfield and in the text within the final paragraph devoted to the achievements of George Washington Carver and Booker T. Whatley. The value of community cohesion is indicated by menu buttons for featured farmers, farmer's markets, and a farmer's directory and partners. Respect for ancestral teaching is introduced by the page title "Roots of Change" and by references in the first paragraph to the historic contributions of agronomists of African descent who introduced domestication of crops and livestock and the use of irrigation systems. The choice to use brown as a main color refers both to skin color and to plant growth, which is also referenced in the other main color, green.



Student Reading 2
“Traditional Native American Farmers’ Association”
White Earth Land Recovery Project & Native American
Farmers’ Harvest Online Catalog
2011



Media Sample Questions & Answers

1) What group produced this web page and for what purpose?

Possible Answer: The White Earth Land Recovery Project & Native American Harvest Online Catalog produced this page to highlight the community-centered goals of their association, to sell their products and to solicit donations for their project.

2) What messages does this document provide about how agricultural wisdom has been passed down generation to generation in this culture?

Possible Answer: Agricultural wisdom has been passed down through family commitments to save heirloom seeds and through contemporary projects, like a farm to school program and an indigenous farming conference.

3) What agricultural crops and methods are referenced in this web page?

Possible Answer: Crops include wild rice and coffee. Agricultural methods include seed saving, composting and the cultivation of local plants and herbs.

4) What values are explicit or implied regarding agricultural practice and humans’ role within the natural world?

Possible Answer: Explicit values include community self-reliance and a spiritual and ethical basis for agricultural practice.

5) What techniques does the web page designer use to communicate messages about wisdom and values? Give examples to support your answer.

Possible Answer: The designer uses a mixture of images, menus, titles and text to convey these messages. Seed saving is communicated through the photos of coffee beans and wild rice and through the bullet points in the text. Community self-reliance is communicated through photos of members meeting and the caption “Interns and volunteers.” Text and menu items are also related to various community projects. The connections between agriculture, spirit and ethics are made clear in the text title, “Revitalizing traditional agriculture for spiritual and human need” and in the second bullet point, “a holistic approach to sustainable agriculture based upon community ethics and traditions.” The choice to center images of people places the focus on “association” over production or profit.



Student Reading 3
"Mayan Forest Garden"
El Pilar Maya Forest Garden Network
2009



Media Sample Questions & Answers

1) What group produced this web page and for what purpose?

Possible Answer: The El Pilar Forest Garden Network produced this page to inform readers about the legacy of forest gardening and to highlight the market potential of Mayan forest produce. *[NOTE: Ask students why the page is in English rather than in Mayan or Spanish.]*

2) What messages does this document provide about how agricultural wisdom has been passed down generation to generation in this culture?

Possible Answer: Agricultural wisdom has been passed down through farmers like Alfonso Tzul, who learned about forest gardens implicitly in his spiritual training and through his professional training as an agricultural extension officer. Wisdom is also passed on today through networks and websites like this one.

3) What agricultural crops and methods are referenced in this web page?

Possible Answer: Crops include plantains. Agricultural methods include seed saving, cultivation of milpa (cleared forest land), garden and forest through selective planting and plant removal.

4) What values are explicit or implied regarding agricultural practice and humans' role within the natural world?

Possible Answer: Implicit values include respect for the creator and the natural world and careful human interaction with natural systems.

5) What techniques does the web page designer use to communicate messages about wisdom and values? Give examples to support your answer.

Possible Answer: The designer uses a mixture of images, buttons and text to convey these messages. Respect for the natural world is illustrated in the top banner image showing a gardener with a fist to his chin, contemplating the forest and plants surrounding him. Careful human interaction with natural systems is represented by the seed packets and by the photo of Alfonso Tzul in his plantain grove within the forest. The text also highlights these messages of respect and interactivity in the scientific language of the second paragraph ("gardeners who cultivated the cycle of...") and the spiritual language of the last paragraph ("God created...").



Student Reading 4
“The Lessons of Amish Agriculture”
David Kline
Connexions Library



Media Sample Questions & Answers

1) What group produced this web page and for what purpose?

Possible Answer: According to the URL on the student reading this was produced for the web site, www.connexions.org. Unless students did further research, they would not know about the site which states “Connexions works to connect individuals and organizations working for social change with each other, with information and ideas, and with the wider community” (n.d., para. 1)

2) How has agricultural wisdom been passed down generation to generation in this culture?

Possible Answer: Agricultural wisdom has been passed down from parents to children for many generations.

3) What agricultural crops and methods are referenced in this web page?

Possible Answer: Crops include corn, oats and wheat. Agricultural methods include seasonal crop rotation, top-seeding, manure and straw covers, no chemical application and plowing with horses.

4) What values are explicit or implied regarding agricultural practice and humans’ role within the natural world?

Possible Answer: Implicit values include working with natural systems, respect for wildlife, soil stewardship and independence from chemicals and electricity.

5) What techniques does the web page designer use to communicate messages about wisdom and values? Give examples to support your answer.

Possible Answer: Amish values of simplicity and humility are reflected in the simple page layout, which includes only text and excludes images, bright colors or other means to attract attention. Values of working with natural systems and respect for wildlife are expressed in the stories of summer thundershowers, horned lark’s nests and vesper sparrow’s songs. The value of soil preservation is expressed in the fourth paragraph appreciation of weeds, grasses and horse plowing. Independence from chemicals and electricity is conveyed in the third, fifth and sixth paragraphs extolling the values of traditional practices and the dangers of fossil fuel based systems.

8. Explain that you will now play four short videos about contemporary farmers who practice traditional agriculture. Students will answer questions about the media messages in each clip.
9. Distribute four Student Worksheets – Video Clips to each student. Play the video clips, pausing for students to log their answers on their worksheets.
10. Lead a discussion of the clips using the *Media Sample Questions and Answers* in the *Teacher Guide*.



Video 1
“Blossoms of Hope”
4:05 min. clip
Episode 418, *America’s Heartland*
2008



Film 1 Introduction

This excerpt about an Oregon farm family aired on the program, *Americas Heartland*, a magazine-style series produced by the public television station in Sacramento, California. The program is sponsored by the Monsanto Company and the American Farm Bureau Federation.

Media Sample Questions & Answers

1) What does this video tell you about family and cultural values regarding food, land and community?

Possible Answer: Japanese cultural values and Tamura family values include hard work, friendship, resilience, perseverance and strength through diversity.

2) What does this video tell you about how one generation passes its knowledge of the land to the next in this culture or family?

Possible Answer: Generational transmission in this family traditionally happened by family story telling. Stories today are related through consumer-grower connections in sales and agro-tourism and through television programs like this.

3) What does this video tell you about how historical events serve to strengthen or to threaten this family or cultural group?

Possible Answer: The Tamura family was threatened during World War II by the internment of people of Japanese ancestry and thereafter by anti-Japanese racism. The family was strengthened by its strong relationships of friendship with a neighbor and by family values of resilience and perseverance in the face of adversity.

4) What techniques does the filmmaker use to communicate these messages?

Possible Answer: The filmmaker mixes contemporary footage of Ken Tamura telling his story and working on his farm with archival and family photos of his grandparents during the internment period. The filmmaker conveys Japanese heritage by using a soundtrack of Japanese flute music and by juxtaposing the image of a traditional Japanese painting of Mount Fuji with a video shot of Mount Hood. The story of racism and internment is told with archival audio of the radio announcement of the outbreak of war and with muted piano and horns lending an air of sorrow. As the story moves on to recent family success, the filmmaker chooses a soundtrack of acoustic guitars, which conveys a more upbeat and happy tone.



Video 2
“Biocultural Crops and Traditional Farming”
3:46 min. clip
Bioneers
2010



Film 2 Introduction

This video was posted on the Bioneers’ site of the Vimeo Internet channel. Bioneers seeks to “inspir[e] a shift to live on Earth in ways that honor the web of life, each other and future generations” (2011, para. 1). This video as made as part of Bioneers’ “Dreaming New Mexico” project. It portrays Native American and Latino community leaders, academics, farmers, activists and government officials in New Mexico as they speak to traditional farming in the quest for a healthy statewide food system.

Media Sample Questions & Answers

1) What does this video tell you about family and cultural values regarding food, land and community?

Possible Answer: Pueblo, Kiowa and Latino cultural values include a spiritual relationship between people and the land, a direct relationship with the corn plant and a reverence for local food crops and culinary traditions.

2) What does this video tell you about how one generation passes its knowledge of the land to the next in this culture or family?

Possible Answer: Generational transmission occurs through the spiritual teachings of creation stories and other stories told by elders such as the origin of “mother corn” in the milk of the corn kernel. The preparation and sharing of family meals are a means of passing knowledge as in the story of the hot corn cereal and the corn drink, chaquegue.

3) What does this video tell you about how historical events serve to strengthen or to threaten this family or cultural group?

Possible Answer: Kinship groups are strengthened by the historic breeding of chili as an annual crop and by the discovery of methods to find, cultivate and prepare blue corn and pinon nuts. People have been threatened by the loss of local food crops like the blue corn and bison and by the loss of food sources during famine periods.

4) What techniques does the filmmaker use to communicate these messages?

Possible Answer: The filmmaker uses short interviews with a variety of speakers to tell the tale of cultural diversity and resiliency within the traditional farming of biocultural crops. The selection of backgrounds is an important filmmaking choice; backgrounds include scenes in nature, offices and homes. Each of these settings represents a venue of cultural learning and teaching. The images of tribal elders behind Peter Pino of Zia Pueblo bring the faces of the ancestral community into the picture as Pino talks about the teachings of the elders.



Video 3
Homecoming
3:51 min. clip
California Newsreel
1999



Film 3 Introduction

This documentary film was directed by filmmaker Charlene Gilbert who, in the film, returns to the Georgia farming family to which she belongs. The film's website states that "*Homecoming* is the first film to explore the rural roots of African American life. It chronicles the generations-old struggle of African Americans for land of their own which pitted them against both the Southern white power structure and the federal agencies responsible for helping them" (California Newsreel, n.d.). The selection you will see appears near the end of the film. The filmmaker is shown in her community garden in Philadelphia in the last part of the clip.

Media Sample Questions & Answers

1) What does this video tell you about family and cultural values regarding food, land and community?

Possible Answer: African-American farmers value land as a means to nurture family, set roots for the next generation and become producers on their own property. They also value family and community cooperation as a means to hold on to what they have.

2) What does this video tell you about how one generation passes its knowledge of the land to the next in this culture or family?

Possible Answer: Knowledge is passed on when land itself is passed on generation to generation. Knowledge is also passed on as experienced elders tell the stories of the struggles they had to maintain a presence on the land.

3) What does this video tell you about how historical events serve to strengthen or to threaten this family or cultural group?

Possible Answer: Through the Department of Agriculture, the US government has disenfranchised African-American farmers, leading to a dramatic loss of land base for African-American farmers between the 1950s and the 1980s. The heirs of former farmers should be financially compensated for the land that was taken from them due to discriminatory policies.

4) What techniques does the filmmaker use to communicate these messages?

Possible Answer: The filmmaker uses short interviews with historians and farmers to tell the story of African-American farmer displacement. The visual images of farming practice indicate that some African-American farmers continue to farm today. The filmmaker presents an image of herself in her garden with a voice over of personal reflections to underscore the first person story-telling in this film. It is clearly not a dispassionate document of other people's struggles. Rather, the documentary is a personal testimony that asks the viewer to consider his or her own place in the story, such as when the cotton farmer asks of the interviewer, "What you think?"



Video 4
"From Kalo to Poi: A Waipi'o Tradition"
4:14 min. clip
Big Island TV
2009



Film 4 Introduction

This video excerpt was featured on Big Island TV, a cable channel on the island of Hawaii. This video focuses on the cultivation of kalo or taro, a starchy plant used to make the traditional Hawaiian dish, and poi, which is a kind of fermented paste made from the plant's tuber.

Media Sample Questions & Answers

1) What does this video tell you about family and cultural values regarding food, land and community?

Possible Answer: Morgan says that "taro culture," or Hawaiian cultural values, include responsibility, love, unity, family and "coming back to the land".

2) What does this video tell you about how one generation passes its knowledge of the land to the next in this culture or family?

Possible Answer: Generational transmission occurs through the continued cultivation of the traditional plant, taro, and the making of poi. Generational transmission of Hawaiian traditions is also achieved by mentoring by people like Morgan and by the transmission of Hawaiian origin stories.

3) What does this video tell you about how historical events serve to strengthen or to threaten this family or cultural group?

Possible Answer: Ties to traditional culture are strengthened by the efforts to cultivate large fields of taro as an economic boost to the people of Waii'o valley. Threats to the Hawaiians include depopulation, wars, disease, droughts, tsunamis and flooding.

4) What techniques does the filmmaker use to communicate these messages?

Possible Answer: The filmmaker uses the story of one man's efforts to increase poi production from taro growing in the field to community canning to communicate the importance of land, family and culture to the Hawaiian people. The images of landscapes, children and community taro cultivation bring these practices into view, while the animation and archival images communicate the legacy of Hawaiian tradition.

11. Lead a discussion of the essential question: **What do traditional cultural values and practices teach us about sustainability today?**

FURTHER QUESTIONS

Analyzing Media Messages

How are each of these messages shared with the public and how might that distribution channel impact who receives the message and who does not?

Which of these eight documents was most informative in explaining the role of living water systems in cultural and food sustainability? The role of healthy soil?

What is the role of media in creating or obscuring voices or cultures?

How do media stories differ from stories from other sources?

What is the role of the Internet and film in perpetuation or undermining cultures?

Self Reflection

Which of these cultural agricultural practices were familiar to you and which are not?

Where did your ancestors practice sustainable farming? Are any of your relatives still tied to the land?

Who are the elders or mentors in your life who speak to you about sustainability issues?

What traditional land-based farming cultures exist in your region? Are they part of the organized sustainability systems where you live? Why or why not?

There are at least a dozen food crops referenced in these eight documents. Which of these have you eaten before and which not? Why? *[NOTE: foods include peanuts, sweet potatoes, corn, oats, wheat, wild rice, coffee, plantains, chilis, pinon nuts, cherries and taro root.]*

Underlying Values and Motives

Which energy forms were portrayed or referred to as supports for traditional agriculture?

Be expansive in your view to include forms of human energy, fossil fuel source, alternative energy source and geologic forces (gravity, rainfall).

Which of these eight documents speaks to the challenges associated with fossil fuel use and/or climate change and what points are made?

What role did racism, cultural exclusion and cultural destruction act as a barrier to the efforts of ensuring the sustainability of these agricultural traditions? *[NOTE: Teachers may want to discuss the displacement of African American farmers as referenced in the SAAFON web page and the Homecoming clip, the WWII internment of Japanese farming families in Blossoms of Hope, the loss of indigenous food sources in the Bioneers clip and the threat to Hawaiian land and culture in the Kalo to Poi clip.]*

What is the function of associations and networks in maintaining traditional agriculture in the modern world?

ADDITIONAL INFORMATION

About the sustainability of culture and traditional agriculture as seen by the producers, directors or main characters in each of the four film/video excerpts:

America's Heartland (from Education – Teachers & Video On Demand, Episode 418)

Environmental Stewardship: "Farmers are true environmentalists at heart. Through innovations like conservation tillage, renewable fuels and high tech equipment, they are discovering new ways to sustain our most natural resources. They love the land and are committed to preserving our environment for generations to come" (America's Heartland, 2011).

Blossoms of Hope: "A journey that began half a world away is part of the rich history of Japanese American farm family growing sweet produce in Oregon" (America's Heartland, 2008).

Dreaming New Mexico (from Food and Farming)

"The Dreaming New Mexico project seeks to reconcile nature and cultures at the state level. Taking care of nature means taking care of people, and taking care of people means taking care of nature. We seek systemic, collaborative approaches toward a common vision of restoration. Our focus is on both practical and visionary solutions.

A central element of the Dreaming New Mexico project is to help build a far more self-reliant local food system including a community-based, restoration economy that:

- Strengthens the vitality of the environmental and social fabric of the state and region
- Builds local prosperity, creates good jobs and locally owned businesses
- Places a central emphasis on providing food security while honoring vital cultural traditions and bio-cultural diversity." (Creative Heritage Institute/Bioneers, 2011)

Homecoming (from About the Film)

"*Homecoming*, is...a mediation on the unfinished work of redeeming the land African Americans worked as slaves for hundreds of years. August Wilson once asserted that African Americans are a rural people who, after the Great Migration, found themselves in an alien urban milieu. This film argues that Black farms, though small in number today, can continue to provide African Americans with a sense of cultural stability and family unity into the 21st Century. In a country that has never tried to make African Americans feel at home, this film, like the farming families it celebrates, offers a real 'homecoming'" (California Newsreel, n.d.).

Morgan Toledo, from a 2001 Waipi'o Valley community planning report

"For generations, our ancestors and members of our (Waipi'o Taro Farmers) Association have overseen and directed the necessary emergency and routine river and stream maintenance work required to keep taro farming alive in Waipiyo Valley. We have always been considered the historical and cultural representatives in Waipiyo Valley, particularly in regards to river and stream maintenance because the waterways and water systems represent lifeblood of taro farming. Years of first hand experience and knowledge have been passed down from generation to generation with the recognition of the importance and significance of the waterways. We have the deepest respect for all of the land and water in Waipiyo Valley and would not do anything which would be contrary to the natural life systems of the valley. They have a direct impact on our lives and livelihoods" (as cited in Department of Urban and Regional Planning, 2001).

EXTENDED ACTIVITIES

Explore the transition from traditional farming to modern farming in a particular area. What factors played a part in changing attitudes and practices? Consider demographic, economic, social and cultural factors including migration, capital markets, beliefs about modernity and tradition and attitudes toward diverse cultures.

Investigate and report on contrasting beliefs regarding the capacity for traditional agricultural practices to feed a growing population.

Trace your own family lineage on the land by researching which of your ancestors were based on a farm. Look for archival media reports that tell about farming from that time and place. Consider almanacs, agricultural yearbooks and folk songs in your research.

Contact several of the groups presented in this lesson to follow up with questions of your own about cultures of sustainability.

Engage students from traditional land-based cultures in dialog over the Internet about how they learn and carry forward the traditional farming practices of their elders.

Analyze and compare media reporting on traditional farming cultures from the first decade of the 20th century and the first decade of the 21st century.

Do a systems analysis of the means of generational transmission of agricultural knowledge for two of the groups presented in this lesson. Trace the various learning and teaching methods and channels in each culture in order to better understand the intricate web of exchange represented by each culture. Consider the question of whether all teachers are human or whether plants, animals or other natural beings are also considered as teachers.

Investigate the sales opportunities for traditional farmers in your region. Which supermarkets, farmers markets, coops and CSAs sell food from these vendors and why? Make sure to communicate both with producers and with vendors.

Research beliefs about local food security or seed saving among traditional farming cultures in order to understand the difference between living in place and in season and living in an economic system that receives and extracts inputs from everywhere in every season.

CONNECTIONS

L 6, 9, 10, 15, 16, 18, 19

(seeds & crops)

L6, 7, 9, 10, 16, 17, 19

(local food)

L6, 7, 10, 15, 16, 17, 19

(organic & conventional farming)

L6, 7, 10, 12, 14, 15, 16

(agrarian cultures)

L7, 8, 10, 12, 15, 16, 17, 18

(work & labor)

L2, 6, 7, 9, 10, 12, 13, 14, 15, 18

(film & video)

L6, 10, 17, 19

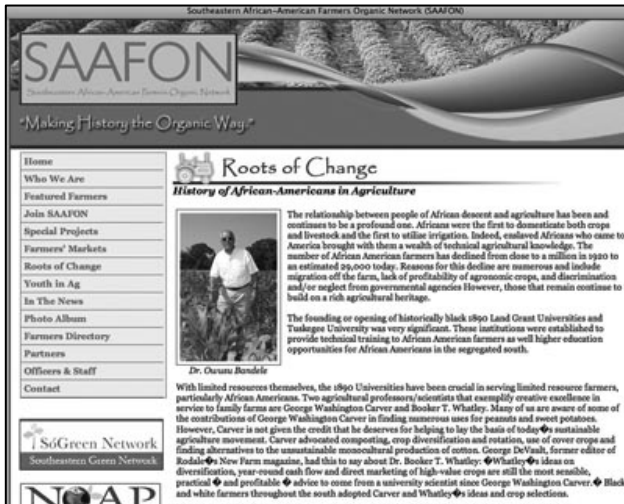
(webpage analysis)

"Roots of Change"

Sustainable Cultures

Web page text excerpts

Southern African-American Farmers



To the left is an image of the Southeastern African-American Farmers Organic Network (SAAFON) website. The web page describes SAAFON as “a network of farmers using sustainable growing methods. The Network is comprised of small and limited resource farmers that are either certified organic or growing organically” (SAAFON, 2010, para. 1).

History of African-Americans in Agriculture

“The relationship between people of African descent and agriculture has been and continues to be a profound one. Africans were the first to domesticate both crops and livestock and the first to utilize irrigation. Indeed, enslaved Africans who came to America brought with them a wealth of technical agricultural knowledge. The number of African American farmers has declined from close to a million in 1920 to an estimated 29,000 today. Reasons for this decline are numerous and include migration off the farm, lack of profitability of agronomic crops, and discrimination and/or neglect from governmental agencies. However, those that remain continue to build on a rich agricultural heritage.

The founding or opening of historically black 1890 Land Grant Universities and Tuskegee University was very significant. These institutions were established to provide technical training to African American farmers as well as higher education opportunities for African Americans in the segregated south.

With limited resources themselves, the 1890 Universities have been crucial in serving limited resource farmers, particularly African Americans. Two agricultural professors/scientists that exemplify creative excellence in service to family farms are George Washington Carver and Booker T. Whatley. Many of us are aware of some of the contributions of George Washington Carver in finding numerous uses for peanuts and sweet potatoes. However, Carver is not given the credit that he deserves for helping to lay the basis of today’s sustainable agriculture movement. Carver advocated composting, crop diversification and rotation, use of cover crops and finding alternatives to the unsustainable monocultural production of cotton. George DeVault, former editor of Rodale’s New Farm magazine, had this to say about Dr. Booker T. Whatley: “Whatley’s ideas on diversification, year-round cash flow and direct marketing of high-value crops are still the most sensible, practical and profitable advice to come from a university scientist since George Washington Carver.” Black and white farmers throughout the south adopted Carver and Whatley’s ideas and crop selections” (SAAFON, 2010, para. 1-3).

“Traditional Native American Farmers’ Assn.”

Sustainable Cultures

Web page text excerpts

Native American Farmers



To the left is an image from the Native Harvest/White Earth Land Recovery Project website, whose mission is “to facilitate recovery of the original land base of the *White Earth Indian Reservation*, while preserving and restoring traditional practices of sound land stewardship, language fluency, community development, and strengthening our spiritual and cultural heritage” (MELDI, 2011, para. 1).

“Revitalizing traditional agriculture for spiritual and human need”

“Based in the indigenous communities in New Mexico, but with projects as far as Belize, the Traditional Native American Farming Association is a leading voice for food sovereignty, with many successes getting farmers back on the land, farming organically and with traditional methods. Brascoupé and other TNAFA members believe that family oriented farming is the best approach in developing a sound future in agriculture, which has always been at the heart of the community's economy. A fine show indeed.

- To revise the decline in traditional, family-scale farming among the community by developing educational programs that demonstrate sustainable agriculture.
- To demonstrate and train communities and youth in a holistic approach to sustainable agriculture based upon community ethics and traditions.
- To help the community access heirloom/ traditional seeds
- To educate the community on traditional seed saving and the GE, GMO threat to our traditional seed heritage.
- Identify local resources for agriculture, compost materials, local plants, local herbs, water supplies, local farmers, local markets, etc.
- Revive and restore a sustainable economic base through organic agriculture for our youth” (White Earth Land Recovery Project, 2011, para. 1-2)

“Maya Forest Garden”
Sustainable Cultures
Web page text excerpts

Mayan Farmers



Website of El Pilar Maya Forest Garden Network which “is comprised of forest gardeners in Belize and Guatemala...drawing on their ancestral knowledge of plants in the Maya forest, they are working together to teach and share their unique knowledge of plant use, soils, and ecology, and provide economic incentive for conserving the tropical forest” (El Pilar Forest Garden Network, 2007, para. 2).

Maya Forest Garden

“Home to the advanced ancient culture the Maya, humans have lived under the majestic canopy of the Maya Forest for thousands of years, influencing the forest as we know it today.

We often think of the rainforest as untouched by humans, or “virgin forest.” In reality, it can be understood as the garden of the ancient Maya: the product of millennia of management by forest gardeners who cultivated the cycle of milpa, forest garden, and forest. In fact, 90% of plants in the forest are useful to humans, indicating considerable human influence. The Maya Forest remains the second most biodiverse place in the world (the Amazon forest is the first). The legacy of the ancient Maya forest gardeners is continued by the Maya farmers of the El Pilar Forest Garden Network.

Alfonso Tzul, a modern Maya farmer and retired agricultural extension officer, describes how forest gardens came to be: “God created plants and animals and the world around us. Trees grew in the forest, seeds spread, birds sang, and animals flourished. All was already there. Man came along and preferred this plant, favored that seed, enjoyed those birds, and supported those animals, creating and using the forest as a garden to sustain those plants and animals. The job of the forest gardener is to manage the forest by adding, removing and nurturing plants, to make sure that certain species grow where they will be most viable” (El Pilar Maya Forest Garden Network, 2007, para. 1-3).

"The Lessons of Amish Agriculture"

Sustainable Cultures

Web page text excerpts

Amish Farmers

The Lessons of Amish Agriculture

"To talk about Amish agriculture is to talk about traditional agriculture. Its origins date back to Europe, yet innovations and improvements have constantly been added along the way. The Amish are not necessarily anti-technologists. We have simply chosen not to be controlled by technology.

Amish farming has been handed down from parents to children for so many generations that the reasons for doing so are almost forgotten. For example, the rotations of our field crops work so well that they're seldom questioned. This is a four or five year rotation with corn in a given field every fourth or fifth year. The corn is followed with oats. In the falls after the oats are harvested the stubble is plowed and wheat sowed. This is then top-seeded the following March or April with legume seeds using a hand-cranked or horn type seeder, usually on frozen ground. This is also the time we find the early nesting, horned lark's nest. The dropping seeds cause enough disturbance to flush the incubating bird.

After the wheat is cut and threshed in July, the stubble is mowed, and almost miraculously, the wheat field converts to a hay field. The next spring and summer several cuttings of hay are made, and then the hay field is pastured in the fall. During the winter the old sod is liberally covered with strawy manure in late winter or early spring the sod is plowed and in may planted again the corn, and the rotation or cycle is completed.

From an ecological, angle, what has to be bought and added in the form of chemicals to raise a crop of corn in a field like this? Nothing, except the seed corn which is usually treated with a fungicide. With the legumes converting free nitrogen to the soil from the air, no extra fertilizer is needed.

Likewise no insecticides are needed in this field, because in corn following hay there are not crop damaging insects. We have never used a soil insecticide.

Most of us aren't too concerned if there are some weeds and grasses in our corn. in fact, I want some there. Occasionally we get summer thundershowers that dump several inches of rain in half an hour or less, which is more than even the most absorbent soil can take. it is during storms like this when we depend on a smattering of quack grass and sod waterways to hold the top soil.

Preserving the topsoil can be attributed to the tilth of our soils. Research at Oberlin college shows our traditional, horse-worked farms absorb almost seven times more water before becoming saturated than conventional, no-till farms.

At this time no-till farming with its dependence upon vast amounts of chemicals is being touted as an answer to prayers. This method is promised to give us green fields forever, but they fail to say that these green fields will be strangely silent -gone will be the bobolink, the meadowlark and the sweet song of the vesper sparrow in the gloaming.

By farming and living independent of the electrical grid, the Amish are not contributing, at least not directly, to the destruction of hundreds of farms and communities in southeastern Ohio, where the Ohio power plants spew out sulfur dioxides which are blamed as part of the acid rain soup which is killing forests and lakes in the Adirondacks..." (Kline, n.d., para. 1-9).



Student Worksheet – Web pages

NAME _____

DATE _____

Title of Web page: _____

- 1) What group produced this web page and for what purpose?

- 2) What messages does this document provide about how agricultural wisdom has been passed down generation-to-generation in this culture? (Consider both text and graphic evidence, if available.)

- 3) What agricultural crops and methods are referenced in this web page?

- 4) What values are explicit or implied regarding agricultural practice and humans' role within the natural world?

- 5) What techniques does the web page designer use to communicate messages about wisdom and values? Give examples to support your answer.



Student Worksheet – Video Clips

NAME _____

DATE _____

Title of Video: _____

- 1) What does this video tell you about family and cultural values regarding food, land and community?

- 2) What does this video tell you about how one generation passes its knowledge of the land to the next in this culture or family?

- 3) What does this video tell you about how historical events serve to strengthen or to threaten this family or cultural group?

- 4) What techniques does the filmmaker use to communicate these messages?

Lesson 11:

The Value of Water

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LESSON PLAN

The Value of Water



PowerPoint Slide
Show

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will learn about potential threats to community water supplies and proposed means to protect water resources.
- Students will reflect on the values they hold about water and how those values impact the sustainability of our water resources.
- Students will identify how the value system and policy positions of an author are reflected in the imagery and language of a book cover and table of contents.

Vocabulary:

greenhouse gas, groundwater, water wars, methyl mercury, dioxin, North American Water Office, stewardship, wastewater reclamation, water utility, infrastructure, private equity, desalination, commodity, water cycle, water privatization

Media: book covers, tables of contents

Materials Needed:

- Ten-page *Teacher Guide*
- Eight slide PowerPoint slideshow (Access online or via Lesson11 digital media folder)
- One-page Student Worksheet

Time: 40 minutes

Lesson Procedures

- Ask the question, “What is water for?”
- Present the *Lesson introduction* to the class.
- Divide the class into four teams and distribute one *Student Worksheet* to each group.
- Assign each team a pair of media documents and have teams study the document covers and tables of contents as they complete the worksheet.
- Project the slides and lead a document decoding using *Media Sample Questions & Answers*.
- Lead a discussion of the essential question: **What values do you hold about water and how do those values impact the sustainability of our water resources?**
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

The Value of Water



PowerPoint
Slide Show

1. Organize and make copies for the class activities.
2. Ask the question: "What is water for?" Solicit a wide range of possible answers without critiquing or analyzing them. This should be a brief opening exercise designed to get students thinking about the value they place on water. If students have a hard time answering, you might offer some tentative ideas: "For instance, some would say that water is essential for health or that water is the key to all life or that water is a precious commodity."
3. Introduce the lesson:

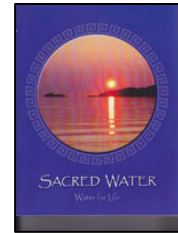
Lesson Introduction

In July 2010, the United Nations General Assembly "declare[d] the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights" (p. 3). In making this declaration, the UN "call[ed] upon on states and international organizations to provide financial resources, capacity-building and technology transfer, through international assistance and cooperation, in particular to developing countries, in order to scale up efforts to provide safe, clean, accessible and affordable drinking water and sanitation for all (2010, p. 3)." Everyone can agree that water is necessary for life, but people differ on whether water is a right or a privilege - a commodity to be sold, or a sacred trust to be protected. In this lesson you will be asked to consider the values we place on water by exploring the classic media literacy question: "Can you judge a book by its cover," or for that matter, by its table of contents? In most cases, the table of contents lists that you will see are excerpts from the longer lists included in the books. The writer of this curriculum chose these chapter headings to accentuate certain value statements and to save space on the PowerPoint slides.

4. Divide the class into four teams and distribute the *Student Worksheets*. **[NOTE: If you need to shorten the lesson, you may elect to offer this as a full class decoding and dispense with assigning teams and distributing worksheets.]**
5. Assign teams one of the four pairs of PowerPoint slides (numbered 1-8). Explain how students can access the Student Materials section on the Project Look Sharp homepage. **[NOTE: Teachers can also print out the slide pairings and distribute a pair to teach of the four groups.]**
6. Explain that each team should study their pair of media document covers and tables of contents, looking for evidence from the documents to address the three questions on the worksheet. Encourage teams to discuss the different values ascribed to water as represented in their document pairing and how those different values might impact the effort to maintain sustainable water resources.
7. Project the PowerPoint slides and lead a document decoding using *Media Sample Questions & Answers* in the *Teacher Guide*. *Possible Answers* are included to model application of key knowledge through evidence-based analysis. Chapter headings are referenced by numbers in parentheses in the *Possible Answers*.



Document 1
Sacred Water: Water for Life
Teacher guide
Lea Foushee
2010



Media Sample Questions & Answers

1) What threats to water supplies are suggested in the cover and chapter headings?

Possible Answer: Threats include environmental contamination and subsequent human health concerns. (B)

2) What potential ways to protect our water supply are suggested in the cover and chapter headings?

Possible Answer: Protection solutions include learning from traditional native wisdom (A & C) and community based education and energy development (C).

3) What are the values about water that are explicit or implied in this book cover and chapter headings?

Possible Answer: Explicit values include water as a sacred gift uniting people with all creation (cover & A).



Document 2
"The Science of Water"
Brochure
American Water
2008



Media Sample Questions & Answers

1) What threats to water supplies are suggested in the cover and chapter headings?

Possible Answer: Threats include unspecified environmental challenges (D).

2) What potential ways to protect our water supply are suggested in the cover and chapter headings?

Possible Answer: Protection solutions include research (B), testing and controls (C), and wastewater reclamation (E).

3) What are the values about water that are explicit or implied in this book cover and chapter headings?

Possible Answer: Explicit values include water is a resource to be protected by science and industry (cover & A).



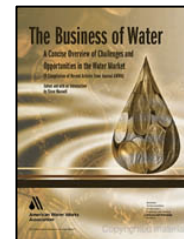
Document 3

The Business of Water: A Concise Overview of the Challenges and Opportunities in the Water Market

Report

American Waterworks Association

2008



Media Sample Questions & Answers

1) What threats to water supplies are suggested in the cover and chapter headings?

Possible Answer: Threats include population growth and climate change (E), failing water system infrastructure (C), and freshwater scarcity (N).

2) What potential ways to protect our water supply are suggested in the cover and chapter headings?

Possible Answer: Protection solutions include supporting the for-profit water market (cover, (A-C) by corporate consolidation (G), private equity investment (H), wastewater reclamation (I), desalination (J) and technological innovation (K, L).

3) What are the values about water that are explicit or implied in this book cover and chapter headings?

Possible Answer: Explicit values include water is a commodity that can best be managed by capital investment strategies (cover & B, H, M, O).



Document 4

Thirst: Fighting the Corporate Theft of our Water

Book

Alan Snitow, Deborah Kaufman, and Michael Fox

2007



Media Sample Questions & Answers

1) What threats to water supplies are suggested in the cover and chapter headings?

Possible Answer: Threats include corporations taking control of community water supplies (cover, B-E).

2) What potential ways to protect our water supply are suggested in the cover and chapter headings?

Possible Answer: Protection solutions include struggling against corporate takeover of water resources (B, D).

3) What are the values about water that are explicit or implied in this book cover and chapter headings?

Possible Answer: Implied values include water is a human right that should not be managed by corporations (cover, A, G).



Document 5
“Water: A Challenge, Our Business, Complete Control of the Water Cycle”
Brochure
Suez Environment
2009



Media Sample Questions & Answers

1) What threats to water supplies are suggested in the cover and chapter headings?

Possible Answer: Threats include unspecified threats to the coastline. (K)

2) What potential ways to protect our water supply are suggested in the cover and chapter headings?

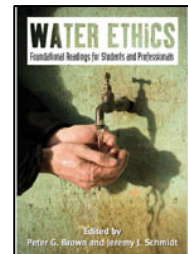
Possible Answer: Protection solutions include Suez’s ability to completely control the water cycle (cover & B), business modeling (D), monitoring (I) and managing customers (L) and water assets. (M)

3) What are the values about water that are explicit or implied in this book cover and chapter headings?

Possible Answer: Explicit values include water is an asset that must be completely controlled by management experts. (cover, B, G & M)



Document 6
Water Ethics: Foundational Readings for Students and Professionals
Book
Peter G. Brown and Jeremy J. Schmidt
2010



Media Sample Questions & Answer

1) What threats to water supplies are suggested in the cover and chapter headings?

Possible Answer: Threats include the human assumption of dominion over water (B) and the absence of a common water ethic (E).

2) What potential ways to protect our water supply are suggested in the cover and chapter headings?

Possible Answer: Protection solutions include development of a collective water ethic (cover, A-F), understanding the social and cultural framework of water ethics (B) and pragmatic, adaptive management of water resources (D).

3) What are the values about water that are explicit or implied in this book cover and chapter headings?

Possible Answer: Explicit values include water is a natural common wealth for all species (E).



Document 7
National Geographic Investigates: Not a Drop to Drink: Water
Children's Book
Michael Burgan
2008



Media Sample Questions & Answers

1) What threats to water supplies are suggested in the cover and chapter headings?

Possible Answer: Threats include short supplies (C), irrigation and water wars (D).

2) What potential ways to protect our water supply are suggested in the cover and chapter headings?

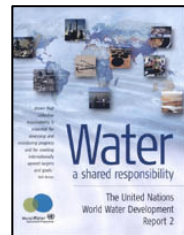
Possible Answer: Protection solutions include education and research (A, B).

3) What are the values about water that are explicit or implied in this book cover and chapter headings?

Possible Answer: Implied values include water is a finite resource that should be shared (cover & D).



Document 9
Water a Shared Responsibility: The United Nations World Water Development Report 2
Book
United Nations
2006



Media Sample Questions & Answers

1) What threats to water supplies are suggested in the cover and chapter headings?

Possible Answer: Threats include urbanization (A), agricultural and industrial needs. (C)

2) What potential ways to protect our water supply are suggested in the cover and chapter headings?

Possible Answer: Protection solutions include monitoring water resources (cover), managing water resources, charging for water (D) and sharing responsibilities for water governance (cover & E).

3) What are the values about water that are explicit or implied in this book cover and chapter headings?

Possible Answer: Explicit values include water is a collective responsibility for shared human stewardship (cover & D).

8. Lead a discussion of the essential question: **What values do you hold about water and how do those values impact the sustainability of our water resources?**

Probe questions might include:

- Which value statements do you most support and why?
- Which values statements do you oppose and why?
- What are the strengths and weaknesses of each of the books' value summaries as a value system to support the sustainability of water resources?
- How have you arrived at your own beliefs about the meaning and value of water?
- How do values impact policy or behavior?

FURTHER QUESTIONS

Analyzing Media Messages

Why are book covers considered to be advertisements? Are tables of contents advertisements as well? Why or why not?

What other parts of the book could you skim to get information about perspective?

Which book cover is most effective in encouraging further reading? Which is least effective? Why?

The writer of this curriculum chose the book covers from a wide range of options. He selected the chapter headings to accentuate certain value statements and to save space on each slide.
Is this curriculum a media construction? Is this true of all curricula? Why or why not?

Can you judge a book by its cover? Can you judge a book by its table of contents? Which is the better indicator of the substance of the book?

Self Reflection

Which of these books most closely reflects your own value system about water? Why?

With whom have you reflected on the meaning of water in your life?

What does water mean to you?

What is the source of the water you use every day?

Underlying Values and Motives:

The United Nations General Assembly declared “the right to safe and clean drinking water and sanitation as a human right that is essential for the full enjoyment of life and all human rights.”

Should the UN also declare clean air and soil as basic human rights? Why or why not?

Should people who choose to live in the desert southwest have the same right to drinking water as people who choose to live near the Great Lakes? Why or why not?

Should homeowners be allowed to use an unlimited amount of water to water their lawns and gardens? Should they pay for the water they use?

Should corporations be allowed to use an unlimited amount of water to manage their operations? Should they pay for the water they use?

Large rivers like the Colorado travel many miles from the river source in the mountains to the river mouth at the sea. In between the water is used by individual homeowners and communities and for agricultural, recreational and industrial uses. **Who should decide how water is to be used along the length of such a river? Is it fair for those living or working closer to the river’s source to have more access to water than those living nearer to its mouth?**

What other human rights are sometimes controlled by corporations? (education, labor organizing, etc.). Who benefits when corporations control the exercise of human rights?

What actions has your local water utility taken that illustrate the utility’s values about water and sustainability? Do the actions reflect your values? If not, what could you do?

ADDITIONAL INFORMATION

The value of water as seen by individuals and groups represented in each of these books:

Sacred Water: Water for Life (from frontispiece & back cover)

“Water for life. We must listen. The water sings life. Mother earth is our natural delight. The water roars and rises in spirit strength. The water tells us we are one.” (John Trudell)

‘Dedicated to seven generations in the future. In honor of seven generations past.

But, yet there is hope. As it is said that in the time of the Seventh Fire a new people shall arise. What are you doing, what you are trying to do is part of what they were talking about.’” (Bawdwaywidun Benaise & Eddie Benton-Benai)

The Science of Water

“American Water was founded in 1886 as American Water Works and Guarantee Company. We formalized our water research program 25 years ago to show our continued commitment to environmental leadership.

‘Our primary mission is to provide high-quality water and wastewater service to our customers while enhancing the environment in which we live. We take very seriously our role as protectors and innovators in the water industry. And because trust is something we earn every day, we take great care to protect it.’” - Dr. Mark W. LeChevallier (as cited in American Water, 2008, p. 1).

The Business of Water

“We need to remember and remind our friends and neighbors that the amount of freshwater is essentially fixed. We need to become much smarter and much more efficient in our treatment and usage of this increasingly scarce resource...As the global water crisis intensifies we face numerous and daunting political and economic challenges but there will also be almost limitless opportunities for creative, innovative and well-managed solutions. I hope that the articles in this compilation will shed new light on this challenge and will serve as useful background to those technology developers, investigators, business managers, and policy makers who will contribute to solving these problems and meeting these challenges in the future.” (Maxwell, 2008, p. 1,13).

Thirst (from the beginning of the last chapter, “Whose Water, Whose World Is It?” p 195)

“The stories we tell in this book are just a few examples of a growing grassroots rebellion that has stunned the private water industry. In the space of a few years, scattered local coalitions to protect water as a public trust have coalesced into the beginnings of a formidable national and international movement. As we have traveled across the United States we have seen an increasing awareness of, and involvement in this new movement-from groups of college students rallying against the abuses of bottled-water companies, to local citizen’s groups challenging privatization, to national consumer, environmental, and labor organizations fighting to protect public resources. The wellspring of energy and depth of commitment signal a remarkable reaffirmation of public participation in our communities and in political life” (Snitow, Kaufman, & Fox, 2007, p. 195).

Water: A Challenge, Our Business from the opening statement by Suez Environment CEO

"Suez Environment is universally recognised for the professionalism of its women and men in water business lines. Our know-how, expertise, and ongoing innovation enable us to meet all the water service needs of municipalities, industrial companies and consumers. In the 19th century, Lyonnaise des Eaux teams began to produce and distribute drinking water for towns and cities across France. Today, we continue this tradition at Suez Environment Each contract we are awarded is an opportunity to gain further experience and to build a community of experts and technicians whose sole ambition is to achieve excellence. The defining characteristic of this community is its willingness to share and maximize expertise, from the head office to the treatment plant floor" (as cited in Suez Environment, 2010, p. 3).

Water Ethics from the editor's introduction

"The last transfiguration in the process of evolution appears as the ethics of mankind...By his arts, institutions, languages and philosophies he has organized a new kingdom of matter over which he rules. The beasts of the field, the birds of the air, the denizens of the waters, the winds, the waves, the rivers, the seas, the mountains, the valleys, are his subjects. The powers of nature are his servants, and the granite earth his throne. – Major John Wesley Powell

In the literature on ethics, and in environmental ethics in particular, the term dominion has come to represent the position that water, and indeed all of the earth's natural resources, is to be used at humanity's discretion. Regardless of any other uses these resources may be put to now or in the future, human uses take priority. Human claims to water vary from property rights to the rightful place of water within social or religious belief systems. Many authors criticize a dominion view of water as anthropocentric, instrumental and patriarchal. Here we offer a brief explanation of the idea of dominion, introduce criticisms of it, and provide some subsequent responses to these criticisms" (Brown & Schmidt, 2010, p. 19).

Not a Drop to Drink from consultant's message by Peter Gleick

"We are creatures of water. We evolved from the oceans, and if we didn't now live on dry land, we would call the planet "Water," not "Earth," because it is largely covered with this most precious resource. We depend on water for all we do, from growing the food we eat to cleaning our homes and clothes to producing the goods and services we consume every day. Yet the world is in a water crisis. Billions of people still lack safe drinking water and adequate sanitation, leading to unnecessary illness and death...Countries and regions fight over access to increasingly scarce water resources. Our oceans are overfished, underprotected and still largely mysterious to us. And we are changing the very climate of the planet. The good news is that smart people around the world are studying our water resources, learning how those resources can be used carefully, and helping all of us move from a world in crisis to a world that supports people, birds, fish, animals and the natural environment sustainably into the future" (as cited in Burgan, 2008, p. 8).

Water: A Shared Responsibility from the foreword by UN Secretary General Kofi Annan

"Water is an essential life-sustaining element. It pervades our lives and is deeply embedded in our cultural backgrounds. The basic human needs of a secure food supply and freedom from disease depend on it. Social development – endeavours such as the smooth functioning of hospitals – likewise relies on the availability of clean water. Economic development requires energy resources and industrial activities, and both are in turn water-dependent. The provision of sanitation for girls in schools offers yet another example of water's broader links – it has positive effects on hygiene and health, keeps girls in school, and helps to safeguard the natural environment. For these reasons and many more, access to safe drinking water and sanitation is both a development target in its own right and integrally linked to achieving all the Millennium Development Goals" (United Nations, 2006, iv).

EXTENDED ACTIVITIES

Some people consider themselves to be “waterkeepers,” or stewards of the watersheds in their region. Interview a waterkeeper in your area about the values they bring to his/her stewardship.

Organize an action to promote the sustainability of water in your home community. Who will you include in your organizing efforts and who might be left out? Make an effort to reach out to people and groups with whom you do not know well in order to expand your own circle of awareness.

Research how efficiently water is used and conserved in your school and post your findings in a public forum. Make sure to include all forms of water used in your school including in restrooms and showers, building maintenance, heating and cooling systems, kitchens, and landscaping.

Study the role of social justice in water decisions in your community and region. Who participates in decisions about water use and who is left out? Why are certain individuals and groups making decisions that impact the water use of others? Write an opinion piece for your local newspaper based on your findings.

Create your own media production based on a primary question about water such as “What is water for?” or “Who controls your water?”

Find the people in your community who are studying local impacts of climate change. Ask them about the impact of climate change on water usage in your area. Share this information with your peers and take action in response to your findings.

Read the brief excerpts in the *Additional Information* and select one source to read. Make a report on this source to your class. Explain how your perceptions about the value of water have been changed or informed by your reading.

Undertake a comparative study of media coverage of the impact of POPs (persistent organic pollutants), like methyl mercury and dioxin in your area, in the country and around the world.

From what you see on the cover and in the chapter headings, write a brief summary of each media document.

CONNECTIONS

L 6, 11, 12, 13, 19

(water rights)

L8, 9, 11, 12, 13, 15, 16, 18, 19

(global trade)

L3, 6, 9, 11, 16, 17, 18, 19

(climate change)

L2, 7, 11, 13, 17, 19

(creative arts)



Student Worksheet

NAME _____

DATE _____

To access media documents, go to the *Student Materials* section on the Project Look Sharp homepage - **www.projectlooksharp.org**

Title of media document: _____

- 1) What threats to water supplies are suggested in the cover and chapter headings?

- 2) What potential ways to protect our water supply are suggested in the cover and chapter headings?

- 3) What are the values about water that are explicit or implied in this book cover and chapter headings?

Title of media document: _____

- 1) What threats to water supplies are suggested in the cover and chapter headings?

- 2) What potential ways to protect our water supply are suggested in the cover and chapter headings?

- 3) What are the values about water that are explicit or implied in this book cover and chapter headings?

Lesson 12:

Who Owns the Water?

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LESSON PLAN



Video Clips

Who Owns the Water?

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will understand how water rights decisions impact local communities.
- Students will recognize the power of words, images and sounds to shape impressions.
- Students will reflect on their own interpretations of contrasting media messages.

Vocabulary:

United Water, Suez Environment, desalination, green technology, potable water, recycled water, waste water management, branding campaign, Dine, Navajo nation, Northeastern Indian Water Rights Settlement Agreement, tribal council, Rajendra Singh, Ghopalpura village, water conservation, water harvesting, recharge, aquifer, Irrigation Drainage Act

Media: documentary film, feature film, web video

Materials Needed:

- Eight-page *Teacher Guide*
- Four video clips (Access online or via Lesson 12 digital media folder)
- One-page Student Worksheet

Time: 50 minutes

Lesson Procedures:

- Present *Lesson Introduction* to the class.
- Distribute the Student Worksheet and play the video clips while students log their responses on the worksheet.
- Lead students through a decoding of the video clips using *Media Sample Questions & Answers*.
- Lead a discussion of the essential question: **What values and practices regarding water ownership will lead to ongoing universal access to water in your community?**
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Who Owns the Water?

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

The sustainability of water resources will be determined in large part by those who make decisions about who has the right to use water. In this lesson, you will see four video clips that portray different sets of decision makers, including multi-national corporations, government councils, grassroots community groups and individuals acting on their own. As you watch these clips, reflect on your own ideas about which of these bodies is best equipped to ensure sustained and universal access to water in your community.

These excerpts also illustrate different forms of video media, chosen by filmmakers with different intentions. Consider what it is about the forms of Internet video, documentary film and feature film that caused each filmmaker to choose one particular form over another as a means to communicate his or her varied messages about water stewardship.

The clips that you will see are part of longer productions. They are not meant to show the full story as told in the complete works from which they are taken.

3. Distribute the Student Worksheet.
4. Play the four video clips, pausing between each video for students to log their answers.
5. Lead a discussion of the clips using the *Media Sample Questions & Answers* as a guide. Make certain to give time for each type of questions. The first question is a content question about control of water resources. The next pair of questions are the “hows” and “whys” of media construction. The final question is about personal interpretations, which will lead to the subsequent essential question.
6. Lead a discussion of the essential question:
What values and practices regarding water ownership will lead to ongoing universal access to water in your community?



"United Water Managers' Conference," 3:14 min. clip United Water (2009)



Video 1 Introduction

This video entitled "United Water Manager's Conference" was uploaded to the United Water education channel website with the description: "Our leaders share their knowledge" (2009). United Water is one of the largest water service companies in the United States. Its "About Us" homepage says: "With the world's largest water and wastewater research program, United Water and our corporate parent, Suez Environment, devote global resources to create local solutions" (2008, para. 3).

Media Sample Questions & Answers

1) What is the message about who should control community water supplies? Give evidence from the document to support your answer.

Possible Answer: United Water is the best provider of water due to its long history of expertise in best practices for water management. The company lists its credentials as innovation, expertise, global resources and sustainability. These attributes are conveyed by slides highlighting these words, by the on-screen commentary of United Water employees and by the scripted voice of the off-screen narrator. Local communities benefit from having their water owned and managed by United Water, who is committed to environmental protection and sustainable development. The company describes the local community as "part of our team."

2) What techniques does the filmmaker use to deliver the message? Consider choices for scripting, visual imagery and soundtrack in your answer.

Possible Answer: The filmmaker stresses the corporate commitment to local communities by showing images of parents, children, elders and workers at work and at play, at home and on the streets. They highlight the company's global resources by showing spinning globes with arcs of light connecting the dots of Suez Environment locations. The narrative of on-screen workers, identified by name, encourages viewers to see the company as made up of individuals "like you and me."

3) Why was this made?

Possible Answer: The title, "United Water Managers' Conference," suggests that this video is a resource for company managers to use in presentations to local communities in order to highlight United Water's community commitment.

4) What is your reaction to this clip and what do you learn about yourself from your interpretation or reaction?

Possible Answer: Answers to this question will vary. Encourage students to reflect on the ways in which their interpretations of media messages may influence their personal decisions and actions regarding water use in their homes and communities.



“Water Rights March,” 3:48 min. clip
DineWaterRights.org (2010)



Video 2 Introduction

This video was produced by “Concerned Citizens for Diné Water Rights, a grassroots effort by and for Diné (Navajo) People” according to their website (n.d.). The website details the group’s opposition to a September, 2010 water rights decision made by the Navajo tribal council: “The proposed Northeastern Indian Water Rights Settlement Agreement gives away, waives, does not protect, and does not claim the Navajo People’s and Navajo Nation’s priority rights to all waters that fall on, run by or through, or are under the land surface between the Four Sacred Mountains” (n.d.). The comments about presidential candidates refer to the candidates for president of the Navajo nation.

Media Sample Questions & Answers

1) What is the message about who should control community water supplies? Give evidence from the document to support your answer.

Possible Answer: The community, rather than elected tribal leaders, should decide on water control. This is conveyed through the images of the marchers with signs opposing the tribal council’s decision on the water settlement and the speakers who comments that elected leaders cannot be trusted to make decisions about this sacred natural resource.

2) What techniques does the filmmaker use to deliver the message? Consider choices for scripting, visual imagery and soundtrack in your answer.

Possible Answer: The filmmaker intersperses images of marchers, speakers and natural wonders with on-camera interviews to express the message that grassroots community members are protecting the sacred waters of mother earth. The footage of the tribal council chambers with men sleeping and texting one another about favors give a visual frame to the voice over of the young woman who speaks of the lack of accountability of the Navajo Nation electoral leadership.

3) Why was this made?

Possible Answer: To educate people about the water rights campaign and to encourage Navajo nation members to pressure their elected leaders to rescind their decision.

4) What is your reaction to this clip and what do you learn about yourself from your interpretation or reaction?

Possible Answer: Answers will vary.



***The Milagro Beanfield War*, 4:06 min. clip**
Universal Pictures (1988)



Video 3 Introduction

This clip is from the feature film, *The Milagro Beanfield War*, directed by Robert Redford. The film takes place in a small town in the southwest called Milagro, where the water rights have been bought by a resort developer in order to drive the local Hispanic community farmers off the land. As this scene begins, Joe Mondragon drives up to the site of the new development looking for work. Following this excerpt, Joe decides to keep the water flowing to irrigate his bean field, causing a confrontation with the development owners and leading to the “beanfield war” referenced in the title.

Media Sample Questions & Answers

1) What is the message about who should control community water supplies? Give evidence from the document to support your answer.

Possible Answer: Community members should have the right to irrigate their fields. Land developers are insensitive to the irrigation needs of local communities. The director encourages sympathy for Joe and his need for water by showing him being turned down as he asks for work at the development and then speaking with remorse about selling his land since “the field’s dying of thirst.” He encourages disdain for the developer by portraying him as a partier in a mansion on the hill, while Joe appears to be on the verge of surrendering his land.

2) What techniques does the filmmaker use to deliver the message? Consider choices for scripting, visual imagery and soundtrack in your answer.

Possible Answer: He humanizes Joe by showing both his drive (persisting in his efforts to get work, not shutting the water gates once he knows they have been illegally opened) and his anger (giving the finger to the developers and kicking the “Community Water Use Prohibited” sign). He introduces the dream of recovery for Joe and his community by having Amarante share his “talk” with Joe’s deceased father about his dreams of squash, corn and reclaiming the land with the image of the dry field being bathed in fresh water.

3) Why was this made?

Possible Answer: To earn profits for Universal Studios and for the producers and to tell a “David and Goliath” story about local communities battling (and winning) against large corporate interests.

4) What is your reaction to this clip and what do you learn about yourself from your interpretation or reaction?

Possible Answer: Answers will vary.



“Flow,” 3:52 min. clip
Oscilloscope Laboratories (2008)



Video 4 Introduction

This film was directed by French filmmaker Irena Salina. The “About the Film” website says that the film deals with what “experts label the most important political and environmental issue of the 21st Century - the world water crisis. Salina builds a case against the growing privatization of the world's dwindling fresh water supply with an unflinching focus on politics, pollution, human rights, and the emergence of a domineering world water cartel” (n.d., para. 1). In this section, you will see a water project initiated by activist Rajendra Singh in the Indian village of Ghopalpura, Rajasthan.

1) What is the message about who should control community water supplies? Give evidence from the document to support your answer.

Possible Answer: Water supplies should be governed by traditional cultural wisdom about water conservation. Water harvesting is accomplished through community mobilization, as portrayed in the images of community water harvest and the words of project leader Rajendra Singh. Singh contends that water is a community resource and not a form of property.

2) What techniques does the filmmaker use to deliver the message? Consider choices for scripting, visual imagery and soundtrack in your answer.

Possible Answer: The filmmaker allows the initiator of this water project, Rajendra Singh, to tell the story of how the desert turned into a green forest in his own voice. She uses video of the natural surroundings - barren hills transformed into lakes and verdant fields - by community work to illustrate Singh's narrative of transformation. The soundtrack of community voices, goat bells, picks on rock and a gurgling stream brings natural sounds to the mix accompanied by percussion and synthesizer.

3) Why was this made?

Possible Answer: It was made to educate people about issues of water ownership and to argue for community control of water supplies as indicated by the “about the film” information and the heroic story of hundreds of community water projects throughout India.

4) What is your reaction to this clip and what do you learn about yourself from your interpretation or reaction?

Possible Answer: Answers will vary.

FURTHER QUESTIONS

Analyzing Media Messages

How are each of these messages shared with the public and how might their distribution channel impact who receives the message and who does not?

What are the economic costs and target audience opportunities within Internet videos, documentary films and feature films that caused each filmmaker to choose one particular form over another as a means to communicate their varied messages about water stewardship?

Self Reflection

What is the source of your drinking water supply?

Who controls access to the water that you drink?

Who makes sure that your water is potable?

Who pays for your water?

Underlying Values and Motives

What would happen in each of these scenarios if people could not pay for water or pay to keep up the infrastructure to distribute water?

How does transporting water over long distances, rather than relying on local water harvest, impact climate change and fossil fuel depletion?

Which of these clips makes an explicit connection between access to water and access to food?

United Water is owned by Suez Environment, a multinational corporation with headquarters in France. **How does international ownership of water resources impact local communities in the US and other parts of the world? What would happen if there were no multinational corporations making water accessible in developed and developing nations?**

How does climate change impact water access? For instance how does glacial melt, drought and other severe weather events contribute to the ability of people to have sustained access to fresh drinking water?

How are culture and/or racism illustrated in each clip? For instance, how does United Water illustrate its position on cultural diversity? How do the Dine/Navajo and Indian village leaders use cultural wisdom and pride to protect their water rights? What role does racism play in Joe Mondragon's actions that lead to the irrigation of his bean field?

United Water shows corporate employees working to maintain local water supplies. "Water Rights March" portrays people marching in the streets to pressure their legislators to overturn a water rights settlement. *The Milagro Beanfield War* portrays an individual breaking a water channel lock resulting in irrigation of his bean field. *Flow* shows a mobilized community digging a deep trench to harvest water from the aquifer beneath their village. **Which of these actions do you think will be most useful as an example of water resource sustainability in your community and why?**

ADDITIONAL INFORMATION

Sustainability and water as seen by individuals and groups represented in each of these four excerpts:

United Water

“Sustainable development means finding ways to preserve a precious resource like clean water forever—and meeting our customers’ needs not just today, but tomorrow.

Four Priorities:

1. Conserve resources and engage in the circular economy.
2. Innovate to respond to environmental challenges.
3. Empower our employees as actors of sustainable development.
4. Build our development goals with all stakeholders” (2008, para 1-2).

Dine Water Rights

“The proposed Northeastern Indian Water Rights Settlement Agreement gives away and does not claim –

- Navajo priority water rights — “first in time, first in right”;
- Navajo water rights established by the Winter’s Supreme Court Doctrine to enough water to serve all purposes for which the Navajo homeland was established; and
- Navajo water rights provided for in Arizona v California to enough water to irrigate all practicably irrigable acreage” (n.d., para. 1-2).

Robert Redford, director of *The Milagro Beanfield War*

(interview with Amanda Little for *Crist Magazine*)

“I made that film about taking these people's water -- their inheritance over 400 years versus the big development company that wants to build golf courses -- [about] the power of the bottom-up collective versus the top-down powers that be, and the whole story that surrounded a limited resource. We used that movie to help NGOs address development issues” (as cited in Little, 2003, para. 25).

Irena Salina, director of *Flow*

(interview with Nayelli Gonzalez for *EcoLocalizer*)

“The earth is made of almost 70 percent water, and we are made of almost 70 percent of it. Without it, we won’t exist. From the moment we are born, to when we are adults we are surrounded by water and it is one of the main things we need to live. And we need clean water because every 8 seconds a child dies from diseases from unsanitary water. There is so much to water and most people don’t know about it” (as cited in Gonzalez, 2008, para. 4).

Rajendra Singh, water conservation activist in *Flow*

“Water quality is directly affected by its exploitation, encroachment and pollution. The encouragement of agricultural boom post independence has increased the exploitation of water. Water bodies are seen as common property that has led to an increase in encroachment of the river bed area especially after a boom in real estates. One has to balance recharge and discharge to address the water quality” (as cited in The Energy Resource Institute, 2010, para. 3).

EXTENDED ACTIVITIES

Find and compare contrasting media constructions of water management. For example, you might contrast support for the diversion of water over great distance for irrigation (water pipelines from distant reservoirs) with support for the idea of local water harvest.

See how many examples you can find in popular culture relating to the issue of water rights. Search in feature films, songs, comics, graphic novels, cartoons, TV shows and video games.

Do a systems analysis of how water impacts the health of our bodies, our soil and our communities. For example, draw a web showing the ways in which water enters and leaves each of these systems. Draw webs to show the impact of too much or too little water on each of these systems.

Research and study the points of view of each source in the *Additional Information* section. Use these voices to debate the question, "Who is best suited to steward water in the 21st century?" (See Lesson 6, Voices Role-Play as example.)

Interview your family and friends about their opinions on who should make decisions about water sustainability in our community and why.

Investigate media coverage of water rights control in your community. What media forms have covered this issue and have they taken editorial positions on one side or another? Consider a variety of media sources, including local daily and weekly newspapers, network TV local news, citizens cable video, student newspapers, websites and YouTube and blog postings.

Research the nearest bottling plant to where you live, either of bottled water or soft drinks. Find out the source of the primary ingredient of these beverages: water. Look for media portrayals of those beverages and see if any of these indicate the source, ownership or profit made from the primary water source.

Report on an example of water resources that are used communally from sourcepoint to endpoint. Consider rainwater harvest, wetland management, river protection and irrigation and farming practices in your analysis.

CONNECTIONS

L 6, 11, 12, 13, 19
(water rights)

L6, 7, 10, 12, 14, 15, 16
(agrarian cultures)

L7, 8, 10, 12, 15, 16, 17, 18
(work & labor)

L8, 9, 11, 12, 13, 15, 16, 18, 19
(global trade)

L2, 6, 7, 9, 10, 12, 13, 14, 15, 18
(film & video)



Student Worksheet

NAME _____

DATE _____

Read over the questions below before watching the short video clips. You may want to take notes as you view the clips. After viewing the clips, you will be given time to write your answers.

Title of Film Clip: _____

- 1) What is the message about who should control community water supplies? Give evidence from the document to support your answer.
- 2) What techniques does the filmmaker use to deliver the message? Consider choices for scripting, visual imagery and soundtrack in your answer.
- 3) Why was this made?
- 4) What is your reaction to this clip and what did I learn about myself from my interpretation or reaction?

Lesson 13:

Consumerism &

Sustainability

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Video Clips:.....	
(Access online or via Lesson 13 digital media folder)	
Student Worksheet	311



Video Clips

LESSON PLAN

Consumerism & Sustainability

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will analyze different perspectives on the consumption of bottled water.
- Students will reflect on their personal choice to purchase or not purchase bottled water.
- Students will identify omissions of information and persuasion techniques used by media producers to further their messages. Students will also identify possible actions in response to media messages.

Vocabulary:

International Bottled Water Association, the Story of Stuff Project, consumerism, manufactured demand, product life cycle, downcycle

Media: television commercials, documentary

Materials Needed:

- Eight-page *Teacher Guide*
- Four video clips (access online or via Lesson 13 digital media folder)
- One-page Student Worksheet

Time: 90 minutes

Lesson Procedures:

- Present the *Lesson Introduction* to the class.
- Have students brainstorm reasons that people drink bottled water.
- Distribute the Student Worksheets and play the video compilation, “Bottled Water Commercials.” Allow time for students to log their responses on the worksheet. Discuss messages that promote bottled water and their persuasion techniques and omissions.
- Play the video “The Story of Bottled Water – 1” then have students log their answers on the worksheet. Discuss messages that condemn bottled water, persuasion techniques and omissions.
- Play the video “The Story of Bottled Water – 2” and discuss who produced it, whom it might benefit and harm and possible actions in response to the message.
- Play the video “Bottled Water: Show Your Support” and discuss who produced it, whom it might benefit and harm and possible actions in response to the message.
- Lead a discussion of the essential question: **Why do we make consumer decisions and how can we consider sustainability as we consider consumer choices?**
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Consumerism and Sustainability

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

This lesson will use the bottled water industry as a means to reflect on how our habits as consumers may impact sustainability. We will encounter different perspectives about how consumerism impacts sustainability depending on whom we ask. Joseph Doss, president and CEO of the International Bottled Water Association says: “advances made in light-weighting bottled water containers reduce waste, preserve resources and deliver a more sustainable product to consumers” (as cited in International Bottled Water, 2010 para. 3). Journalist Charles Fishman, author of *The Big Thirst*, says that “in the U.S., we spend \$21 billion a year buying bottled water, and we spend \$29 billion a year maintaining the entire water system: pipes, treatment plants, pumps. We spend almost as much on crushable plastic bottles of water as we do maintaining the water system” (as cited in Gross, 2011).

Who are we to believe? Should we buy bottled water or drink tap water? The video clips you will see ask you to consider this question, along with several key media literacy questions: What techniques do media producers use to persuade us to accept their message? What important information is left out of media messages? What actions may I choose to take in response to media messages? Since we all consume water as well as media messages on a daily basis, it is a good idea to have these kinds of questions in mind every time we reach for a drink, reach for our wallets, or our TV remote.

3. Ask students who Charles Fishman is referring to when he says, “in the US, we spend \$21 billion a year buying bottled water.” Responses might include people with money, people in emergency situations, people who want to look cool, etc. Tell students that it is important to question how people in media use pronouns like “we,” “us” and “them.” Ask for a show of hands, “Who has purchased bottled water within the last month?” Ask those who have what they remember from the bottle’s label and what ideas the label conveys. Ask students to take five minutes to write as many reasons as they can think of as to why people buy bottled water.
4. Distribute the Student Worksheet and explain that students will now view eight short commercials created by a variety of bottled water companies. Call their attention to the worksheet and encourage them to jot notes about the messages that encourage people to buy bottled water and the techniques used to persuade as they watch the commercials. Tell them that the commercials will play one after the other and that they will have a few minutes to finish their worksheets at the end of the collection.
5. Play the video compilation, “Bottled Water Commercials,” pausing briefly between ads as students log their answers on the worksheet.
6. Ask student to list messages that promote bottled water. Use the *Possible Answers* to ensure a comprehensive listing. You may want to list ideas on the board as they are offered.



“Bottled Water Commercials”

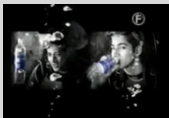
Featured Bottled Waters



“Nestle Pure Life – Let Life Flow 15 sec English Commercial Pure Life”
0:15 min. clip



“Poland Spring – Born Better”
0:30 min. clip



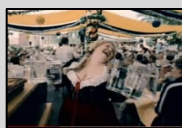
“Aquafina: Waterbody”
0:30 min. clip



“Beyonce Crystal Geyser water commercial 2008”
0:30 min. clip



“Nestle pure life”
1:00 min. clip



“Drink, Drink, Drink! Aquafina”
1:00 min. clip



“Crystal Geyser Natural Alpine Spring Water Ad – Compare the Source”
0:30 min. clip



“DASANI: PlantBottle” Commercial
0:30 min. clip

Possible messages about bottled water:

- It keeps your body healthy.
- It's natural, from the earth.
- It's indulgent, blissful and pure.
- Celebrities drink it. It's sexy.
- It leads to good relations. It tastes good.
- Everybody drinks it. It's a party drink.
- It's genuine, taken right from the source.
- It's green with recyclable bottle made from plants.

7. Ask students if in their initial writing they had listed any reasons that people buy bottled water that were not included in the commercial messages.
8. Ask students, "What techniques were used to persuade consumers to act on the message to buy bottled water?" Techniques in this collection include: animated special effects, appealing background music, authoritative voice over, still images highlighting the product brand, humorous interactions, quick- paced choreography, emotion-filled mini-plots and beautiful nature displays.
9. Ask students, "What is left out of these messages that might be important to know?" Omitted content includes: the environmental costs of discarded bottles, the carbon footprint of the production process including the extraction of raw materials, manufacturing, transport and disposal, the psychological and social impact of increased consumer desire, economic impacts resulting from increased bottled water dependence and the ability of governments to fund water supply infrastructure repairs.
10. Explain that you will now show an excerpt from the video, "Story of Bottled Water – 1." Play the video, pausing briefly as students log their answers on the worksheet.
11. Lead a discussion using the *Media Sample Questions & Answers* to help deepen understanding.



"The Story of Bottled Water – 1"

4:29 min. clip

Free Range Studios (2010)



Media Sample Questions & Answers

1) What are the messages about bottled water?

Possible Answer:

- It is expensive
- Corporations manufacture demand for bottled water by scaring people about unclean tap water and seducing and misleading consumers with nature imagery.
- Bottled water requires vast amounts of oil to manufacture and transport.
- Discarded bottles fill landfills and incinerators. Even "recycled" bottles often end up in landfills in developing countries.

2) What techniques were used to persuade consumers to act on the message to not buy bottled water?

Possible Answer: Techniques include humorous and ironic animation, casting the narrator as a friendly and familiar woman standing in for mom or teacher who gives first person testimonials ("I went to India to see for myself"), constructing hero/villain plot line and creating a low-budget production that could be replicated by viewers to make their own "stories of stuff" videos.

3) What is left out of this message that might be important to know?

Possible Answer: Omitted content includes: the usefulness of bottled water in emergency situations, the relative benefits of selling bottled water instead of sugary drinks in school vending machines, the economic impact on workers and communities that are associated with bottled water plants should bottled water become unavailable, the bottled water industry's response to the points made in this video, testimonials from consumers who like bottled water, who funded this video and why Annie Leonard made this video.

12. Ask, "Why is bottled water a twenty-one billion dollar industry given the information you have just seen in "The Story of Bottled Water – Part 1?"
13. Explain that you will now show part of the conclusion to the video they have just seen. Encourage students to think about three questions as they view this excerpt:
 - whom might the message benefit and whom might it harm?
 - who produced it and what is your evidence?
 - what are some possible actions a viewer might take in response to the message?
14. Play the video, "Story of Bottled Water - 2" and lead a discussion of the questions. Use the *Media Sample Questions & Answers* to help ensure comprehensive answers.



"The Story of Bottled Water – 2"
1:48 min. clip
Free Range Studios (2010)



Media Sample Questions & Answers

1) Whom might the message benefit and whom might it harm?

Possible Answer:

- it might benefit the producer, Annie Leonard, by urging viewers to buy her book or DVDs,
- it might benefit anti-bottled water campaigns,
- it might benefit the environment by reducing waste,
- it might hurt the bottled water industry by encouraging consumer boycotts,
- it might hurt other industries that use "manufactured demand" sales strategies.

2) Who produced it and what is your evidence? How could you find out if you do not know?

Possible Answer: An accurate guess would be that it was produced by the woman who narrated it. To find out more you could find the producer of the video and the source of its funding by means of an Internet search of the video title.

3) What are some possible actions a viewer might take in response to the message?

Possible Answer:

- not to buy or drink bottled water unless community water is unhealthy,
- use reusable bottles,
- join a campaign to encourage investment in water infrastructure,
- work on preventing pollution of water sources,
- lobby city officials to install public drinking fountains,
- organize bottled water boycotts,
- reject the “manufactured demand” thinking that encourages bottled water use

ADDITIONAL INFORMATION

The Story of Bottled Water “About” webpage includes a list of “production partners” including the Corporate Accountability International, Environmental Working Group, Food and Water Watch, Pacific Institute and Polaris Institute (The Story of Stuff Project, 2010, para. 2). The “About the Project” webpage notes:

The Story of Stuff Project was created by Annie Leonard to leverage and extend the film’s impact. We amplify public discourse on a series of environmental, social and economic concerns and facilitate the growing Story of Stuff community’s involvement in strategic efforts to build a more sustainable and just world. Our on-line community includes over 150,000 activists and we partner with hundreds of environmental and social justice organizations worldwide to create and distribute our films, curricula and other content. The Story of Stuff Project is fiscally sponsored by the Tides Center. We are supported by grants from both private and public foundations, contributions from viewers, and earned revenue from speaking appearances and DVD and book sales. (n.d., para. 1)

15. Explain that you will now show a final video, “Bottled Water: Show Your Support.” Encourage students to think about the three questions as they view this clip. Play the video, “Bottled Water: Show Your Support” and lead a discussion with help from the *Media Sample Questions & Answers*.



“Bottled Water: Show Your Support”
1:33 min. clip
Bottled Water Matters (n.d.)



Media Sample Questions & Answers

- 1) Whom might the message benefit and whom might it harm?**

Possible Answers:

- it might benefit the bottled water industry,
- it might benefit those who support corporate advertising and sales strategies,
- it might hurt those who oppose bottled water like Annie Leonard,
- it might hurt the environment by adding to landfill waste,
- it might hurt other anti-corporate campaigns that challenge consumer questions about corporate sales efforts.

- 2) Who produced it and what is your evidence? How could you find out if you do not know?**

Possible Answers:

The final frame suggests that it was made by the producers of the bottledwatermatters.com site. To find out more you could find the producer of the video and the source of its funding by means of an Internet search of the video title. NOTE: The International Bottled Water Association has produced more than a dozen videos featuring this young woman and others posted on the bottledwatermatters.org site. See *Additional Information* below.

- 3) What are some possible actions a viewer might take in response to the message?**

Possible Answers:

- buy and drink bottled water,
- speak out publicly like the young woman in the video in support of bottled water,
- lobby state and national legislators not to limit bottled water sales,
- visit the bottledwatermatters.com site and follow their suggestions for action

ADDITIONAL INFORMATION

Bottled Water Matters, the organization that uploaded the video “Bottled Water: Show Your Support,” is the consumer website of the International Bottled Water Association (IBWA). In a recent new release included on the BottledWaterMatters.org website, the IBWA advertised the following petition supporting bottled water:

I, the above signed, drink bottled water and understand that it is a safe, healthy, high-quality beverage choice. Bottled water is a modern-day choice because of its convenience and good taste. With bottled water, I'll always have a source for clean, drinkable water in times of emergencies such as hurricanes, floods, or “boil alerts” (2010).

A third party page describes BottledWaterMatters.org as “Giving Consumers a Voice”:

Bottled Water Matters is a coalition formed by the International Bottled Water Association. We give bottled water consumers a voice to share their ideas about bottled water safety, healthy beverage choices and commitment to recycling. This coalition is a channel to communicate with fellow bottled water drinkers, lawmakers and regulators, media, and others (Bottled Water Store, 2009).

16. Lead a discussion of the essential question:

Why do we make consumer decisions and how can we consider sustainability as we consider consumer choices?

[NOTE: You may want to begin the discussion by having students identify (in pairs or as a full class) the values and beliefs about consumerism that are conveyed in the bottled water commercials, “The Story of Bottled Water” and in “Bottled Water: Show Your Support.”]

You may discuss the economic intent of each of these video messages. If students do not identify the economic intent of each media document, you may want to ask, “Who might benefit economically if consumers accepted the bottled water commercial messages?” and “Who might benefit economically if consumers accepted the ‘The Story of Bottled Water’ messages?”

Make sure that students reflect on the impact of consumerism on sustainability. You may want to ask, “What would sustainable consumerism look like?” or “Is there such a thing as sustainable consumerism?”

FURTHER QUESTIONS

Analyzing Media Messages

Which media form – commercials, animation or homemade-appearing testimonial – is most effective in conveying media messages and why?

Which media document did you find most credible, which the least credible and why?

The “Bottled Water: Show Your Support” video was produced by Bottled Water Matters, the consumer website of the International Bottled Water Association (IBWA). The IBWA represents the multi-billion dollar bottled water industry. **Why do you suppose the IBWA chose to make a video that, in production quality, looks like it might have been homemade rather than using the available production means used to make the commercials look high-tech and state-of-the-art?**

Consider the organizations that are in partnership with Annie Leonard’s “The Story of Bottled Water” and those associated with the Bottled Water Matters (see *Additional Information*). **What issues do they address? How do the various organizations’ mission relate to bottled water? How do they relate to social justice? How do they relate to consumerism?**

Self Reflection

Which media form was most effective in encouraging you to reflect on your own consumer habits and why?

What are the forces that have shaped your own consumer habits?

How did your parents and your grandparents develop their consumer habits?

What is one thing you would like to change about your own habits as a consumer?

Whom do you know who practices a sustainable lifestyle as a consumer? What habits have he or she cultivated that you perceive as supporting sustainability?

What local and global impacts do you think you have as a consumer?

Underlying Values and Motives

What values are explicit or implied in the commercials and what values are explicit or implied in “The Story of Bottled Water?”

Which of these value systems is most compelling as a foundation for sustainability and why?

Should people have to purchase water? Why or why not?

Should people be able to sell water? Why or why not? If so, how much of the profit should they be able to keep for themselves? What price would you put on water?

EXTENDED ACTIVITIES

Study *The Geneva Guide to Sustainable Living's* guidelines for sustainable purchasing. Write a paper or produce a video on how to choose goods and services in accordance with the principles of sustainable development.

Economist Thorstein Veblen wrote that, "Invention is the mother of necessity" (1997, p. 63). Write an essay connecting this quote with the concept of "manufactured demand" as described in "The Story of Bottled Water" and analyze where our desire for possession of goods comes from.

Joseph Doss, CEO of the International Bottled Water Association said: "Advances made in light-weighting bottled water containers reduce waste, preserve resources and deliver a more sustainable product to consumers" (as cited in IBWA, 2010, para. 3). Stage a debate supporting and opposing this statement.

Analyze the messages conveyed by the labels of the water sold in your school's vending machines. and discover who makes decisions about what drinks are sold in your school's vending machines. Lead a discussion about the relative merits of schools providing liquid nourishment in the form of bottled water, soda or drinking fountains.

Research water access in third world and developing countries. Where is water scarcity a real problem? How do you think water consumption habits of the Western nations influence water access in the Southern Hemisphere?

Organize a water tasting station at your school. Without disclosing the origin of the water, pour a glass of tap water and a glass of bottled water. Have the class figure out which one is which by tasting them. Make this into a research project. Check with your science teacher to see how you can do this so that the results are reliable.

Investigate bottled water where your family shops. Count the different brands, identify where each comes from and note each unit price. Are there large differences in prices? Can you decide from looking at the labels? Ask the manager about sales of each brand in her/his store.

Investigate your local water system. This could include rain from individual wells in the country to a municipal system in a large city. How is water safety monitored? How much does water cost your family per month? How is your local system paid for? Is it a private or public system?

Charles Fishman, the author of "The Big Thirst" said in an interview on the radio program, *Fresh Air*: "As a community we are water illiterate. We don't know what's required to acquire the water we use – to treat it, to deliver it or to take it away from us" (as cited in Gross, 2011). Make your school more "water literate" by constructing a "systems map" comparing the pathways of bottled water and tap water from source to consumer and back to source. Be sure to include all the various steps in the process including extraction, treatment, bottling, water system infrastructure, delivery, sales, consumption, bottle disposal and waste treatment.

CONNECTIONS

L 6, 11, 12, 13, 19

(water rights)

L8, 9, 11, 12, 13, 15, 16, 18, 19

(global trade)

L2, 7, 11, 13, 17, 19

(creative arts)

L2, 6, 7, 9, 10, 12, 13, 14, 15, 18

(film & video)

L6, 7, 13, 14, 17, 18, 19

(advertising)



Student Worksheet

NAME _____

DATE _____

Bottled Water Commercials

1) What are the messages about bottled water?

2) What techniques were used to persuade consumers to accept the messages?

3) What is left out of these messages that might be important to know?

“The Story of Bottled Water – 1”

1) What are the messages about bottled water?

2) What techniques were used to persuade consumers to accept the messages?

3) What is left out of these messages that might be important to know?

Lesson 14:

BP Oil and Gulf Fisheries

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(Access online or via Lesson 14 digital media folder)	
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LESSON PLAN



Printed
Document



Video Clips

BP Oil and Gulf Fisheries

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will understand the impact of the BP oil spill on Gulf fisheries and the seafood industry in the immediate aftermath of the disaster.
- Students will recognize the influence of headlines on our understanding of an event.
- Students will understand how and why different groups construct the unintended consequences of technology.

Vocabulary:

British Petroleum (BP), Deepwater Horizon, NOAA (National Oceanic and Atmospheric Administration), unintended consequences

Media: newspaper front page headlines, website titles, Internet videos

Materials Needed:

- Seven-page *Teacher Guide*
- One-page Student Worksheet – Headlines
- Five video clips (Access online or via Lesson 14 digital media folder)
- One-page Student Worksheet— Videos

Time: 60 minutes

Lesson Procedures

- Present the *Lesson Introduction* to the class.
- Distribute the Student Worksheet – Headlines. Have the students work in pairs to answer the questions. Then, lead a brief full-class discussion on how headlines can influence our understanding of an event.
- Distribute the Student Worksheet – Videos. Project the video clips and have students work in pairs to determine which organization might have produced each clip.
- After playing all the clips, lead a discussion on which group might have produced each clip and on the differing perspectives on impact.
- Lead a discussion of the unintended consequences of the BP oil drilling and on bias in sources.
- (Optional) Discuss *Further Questions* and take on *Extended Activities*.

TEACHER GUIDE

BP Oil & Gulf Fisheries

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

On April 20, 2010 a gas explosion on the Deepwater Horizon oil rig in the Gulf of Mexico killed 11 workers, injured more employees and began to release enormous amounts of oil into the ocean. British Petroleum (BP), the company which was responsible for the drilling, spent nearly three months working on various efforts to seal the well before it was capped on July 15, 2010. In a study published in the journal *Science*, Columbia University scientists Timothy Crone and Maya Tolstoy estimated that 4.4 million barrels of oil were released into the Gulf (2010). However, no one knows the exact dimensions of this event. For some, this incident has become a symbol of human incapacity to comprehend the unintended consequences of modern technology based on an extractive economy. For others, this has become a learning process that demonstrates how technological ingenuity can overcome even the most difficult circumstances, such as capping an oil well nearly one mile beneath the ocean's surface.

This lesson will present differing perspectives on the impact of the BP oil spill on the fisheries in the Gulf and will ask you to consider how headlines and video representations of one "news event" can be constructed in different ways for different purposes. In this media literacy case study, you are invited to consider how the construction of the news informs our ideas of about technology and its impacts on the sustainability of a favorite food source for many consumers, seafood from the Gulf.

3. Divide the class into pairs and distribute the Student Worksheet – Headlines. Tell students that in newspapers and magazines, headlines are often written by an editor, or a person different than the reporter who wrote the article. If you get your news just by reading headlines, you may be easily misled.
4. Have pairs study the headlines and complete the accompanying worksheet.
5. Lead a brief discussion on how headlines can influence our understanding of an event. Probe questions can include, **"Why might these sources choose such different phrases to describe the same event?"** and **"How might the different missions of *The Anniston Star*, *British Petroleum* and *the Wonk Room* influence their headline choices?"**
6. Explain that you will now play five short video clips from different sources each pertaining to the impact of the oil on Gulf fisheries and the seafood industry in the immediate aftermath of the incident from June through September 2010. Tell the students that they will work with their partner to guess which source produced which video, providing evidence for their choices. The producers are listed in alphabetical order on the worksheet:
British Petroleum (BP), Coastal First Nations (CFN), the Environmental Defense Fund (EDF), U.S. Coast Guard (USCG) and the World Fishing Network (WFN).

7. Distribute the Student Worksheet – Videos. Play the video clips, pausing (without full-class discussion) between each video for pairs to consider messages about the impact on fisheries and which producer might have produced each clip.
8. After playing the videos, tally the student's guesses for each video. After collecting the guesses from all the pairs announce the actual sources as listed below. Ask students if they were surprised by the actual sources and if so, why. Lead a brief discussion about how content and production techniques can give clues to who might have produced a video or other media document.
9. Ask, **"What were the messages on each clip about the impact of BP oil on Gulf fisheries?"**
Use *Possible Answers* help ensure comprehensive responses.



Video Clip 1

"Business is Tough in Louisiana Due to Oil Spill"

2:54 min. clip

World Fishing Network (2010)



Possible Answers: Fishing guide and charter business has dropped dramatically, threatening the livelihood of those who make their living from Gulf fishing.



Video Clip 2

"Glee's 'Somewhere Over the Rainbow' with Oil Spill Images"

2:23 min. clip

Environmental Defense Fund (2010)



Possible Answers: Images of dead seabirds, oil stained beaches and marshes, oiled water samples, closed bait shops and oil stained boat hulls suggest that wildlife and fisheries have been severely damaged by the oil.



Video Clip 3

"Part 1 – CFN visits the Gulf to hear Fishermen & 1st Nations tell their story"

1:49 min. clip

Coastal First Nations (2010)



Possible Answers: Long-standing cultural and family traditions of Coastal First Nations' fishing and gathering medicinal plants have been destroyed by the oil.



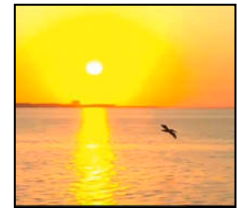
Video Clip 4
"Seafood Safety in the Gulf of Mexico"
1:41 min. clip
US Coast Guard (2010)



Possible Answers: Scientific testing of seawater and seafood samples by the US government indicates that Gulf seafood is safe to eat five months after the Deepwater Horizons explosion.



Video Clip 5
"Gulf Coast Economic Tourism Recovery – 1 October 2010"
3:11 min. clip
British Petroleum (2010)



Possible Answers: Gulf fisheries have not been damaged by the oil. The problem is the public misperception that Gulf seafood has been tainted by oil.

10. Ask, "Why might these sources have represented the unintended consequences of BP oil drilling so differently?"

[NOTE: Encourage students to reflect on what we can be certain of and what we cannot know for certain. For example, the fishermen, EDF and Coastal Nations peoples in the first three videos seem certain that the oil has severely damaged their livelihoods, environment and culture, whereas the spokespeople for the US government and BP seem certain that scientific research, testing and the demands of business indicate that the oil is not a problem. Ask students to think about what parts of the story would be missing if they just scanned the headlines that opened this lesson.]

11. Lead a discussion asking students to consider the strengths and weaknesses of each source: what each source got right, what it got wrong, and what it omitted or manipulated to the point of being misleading.

FURTHER QUESTIONS

Analyzing Media Messages

Which video did you find most credible, which least credible and why?

Words, images and music are all part of the power of video production. **Which words, images and musical choices were most compelling for you in these videos and why?**

Who were the target audiences for each of these productions?

All these video messages were made within a 4-month period shortly following the event. **How might these videos have been different if they were made a year later?**

Self Reflection

What media have most influenced your own view of this incident?

What terms do you use to refer to this event? Which of the headline characterizations do you feel is most accurate and why: Gulf oil spill, Deepwater Horizon accident or BP blowout disaster?

What other example of unintended consequences of technology has impacted your life?

How do you decide whom to trust in the event of calamity?

Underlying Values and Motives

What values are explicit or implied in the videos you have just seen?

What values should guide the development of technological innovations like deepwater oil drilling?

The first nations people in video #3 express deep appreciation and concern for family and culture. The representatives of BP and the Southern Restaurant Group in video #5 express appreciation and concern for the tourism industry. **Which of these concerns most furthers sustainable food production and why?**

In what ways does our society's dependence on oil cause us to take dangerous risks in the search for more oil?

Who decides on where and how oil is extracted and "cleaned up" when spilled?

ADDITIONAL INFORMATION

About the BP spill from the producers of the five video excerpts:

WFN report, "A Year After The BP Oil Spill," April 12, 2011

"Scientific studies show that oil spills affect wildlife for at least decades following the spill. Fiddler crabs in Massachusetts are still affected by a 1969 oil spill, and oysters and mangroves in the Gulf are still damaged by a 1979 spill. The 1989 Exxon Valdez spill is still harming fish, birds and whales. "The BP Deepwater Horizon disaster is a tragic lesson that politicians are refusing to learn. Catastrophic oil spills will continue to threaten our nation's wildlife as long as our country continues to push for more and more offshore drilling," said Tierra Curry of the Center For Biological Diversity" (2011).

EDF article from *Solutions Newsletter*: "One year later: Lessons learned from BP oil disaster"

"On January 11, the presidential commission on the 2010 Gulf oil spill released its final report: *Deepwater: The Gulf Oil Disaster and the Future of Offshore Drilling*. It was dedicated to "the 11 men who lost their lives on the Deepwater Horizon rig" and their families. Among the commission's findings: The disaster could have been prevented. It was caused by a series of mistakes made by BP, Halliburton and Transocean, the companies responsible for the Macondo well drilled by the Deepwater Horizon rig...

The federal government effectively allowed the industry to operate without oversight. The report recommends the creation of a safety board, paid for by the industry, and an independent monitoring office at the Department of Interior. It also recommends that 80% of fines imposed on BP and others be used to restore the Gulf Coast. EDF and seven other nonprofits urged Congress and the President to follow that recommendation" (2011, p. 14).

Marketwire report: "B.C. First Nations Return From Gulf Spill Determined to Stop Enbridge Tankers"

"On a boat tour of Louisiana's Barataria Bay, the delegation witnessed the massive cleanup attempt. "It struck us how futile these cleanup efforts appear to be, despite all of the resources and technology being thrown at them," said Art Sterritt, executive director of Coastal First Nations. "If there's a one-foot chop on the water, it shuts down the cleanup effort. It made us realize that cleaning up a spill in the weather and water conditions of the B.C. coast would be impossible." The delegation met with the United Houma Nation, an Indian tribe living on Louisiana's southeast coast. "It was powerful to meet the Houma and share our experiences as indigenous people," said Amos. "The oil spill just adds to a whole lot of other impacts on their territories. They fear this oil spill could be the straw that breaks their culture's back..."

"We've now seen what losing the Big Oil gamble looks like," said Gerald Amos, a councilor with the Haisla Nation. "There are no economic benefits that could possibly justify living through something like Louisianans are living through right now." The members of the delegation plan to share the story of their trip with their communities over the coming months" (2010).

ADDITIONAL INFORMATION

About the BP spill from the producers of the five video excerpts:

Article from RestoreTheGulf.gov, U.S. government website on the BP spill
“Oil Spill Cost and Reimbursement Fact Sheet”

“The Obama Administration is committed to holding responsible parties accountable for all eligible costs associated with the BP Deepwater Horizon Oil Spill (Oil Spill). To date, the Administration has sent ten bills to BP and other responsible parties (Transocean, MOEX, and Andarko) for oil removal costs, of which the first nine have been reimbursed in full by BP. The Administration will continue to identify and document costs that are related to the Oil Spill in order to ensure appropriate stewardship and accounting of these expenses, maintain accountability to taxpayers, and support current and prospective claims for reimbursement under the Oil Pollution Act of 1990 and other laws. We will continue to bill responsible parties as appropriate...

Responsible parties in connection with an oil spill from an offshore facility are financially responsible for all removal costs associated with the oil spill which could include such items as payment to cleanup contractors, equipment used in removal operations (generally at established standard rates or lease costs), testing to identify the type and source of oil, disposal of recovered oil and oily debris, and preparation of associated cost documentation” (2011).

BP Global’s article, “Restoring the Economy”

“BP is working to foster economic restoration throughout the Gulf Coast, with special emphasis on two of the region’s most impacted industries: tourism and seafood. With beach closures and the closing of fishing waters in the Gulf of Mexico, the Deepwater Horizon incident had a dramatic impact on the economy of the Gulf Coast during the summer and autumn of 2010. Even after the well had been killed and no further oil was reaching shore, the region struggled to change public perceptions of the impact of the spill.

We are also working with officials in the region to design programs to test and monitor the safety of seafood and to promote Gulf seafood along the coast and around the country. In Louisiana, for example, BP is providing \$18 million over a three-year period for testing of oil, dispersants and other spill-related impacts on seafood and is funding a three-year, \$13-million fishery-resource monitoring plan to study the effects of the oil spill on the state’s fisheries resources.

BP is working with state and local organizations to promote Gulf seafood. For example, more than 290 restaurants throughout the Gulf Coast and around the country supported “America Night Out for Gulf Seafood” in December 2010, serving their favourite seafood dishes and recipes using seafood from the Gulf of Mexico. In Louisiana, BP is providing \$30 million over a three-year period to the Louisiana Wildlife and Fisheries Foundation for the marketing of Louisiana gulf seafood. Louisiana’s Seafood Promotion and Marketing Board will manage the funding” (BP Global, 2011).

EXTENDED ACTIVITIES

Use the *Additional Information* pages to compare reports created in 2010 and 2011.

Research media reports on a human-induced environmental crisis in your region to see how it was reported by different sources.

Most energy production technologies require large inputs of water. Investigate the requirements for water inputs in several energy production forms. Be sure to include extractive technologies, such as deepwater oil drilling or hydrofracking in shale deposits, as well as renewable technologies, such as hydroelectric or geothermal energy. Construct a “systems map” to compare the need for water inputs in these varied energy production techniques.

Interview peers and elders on the risks and benefits of new technologies such as deepwater oil exploration. Inquire about people’s perspectives regarding the role of new technologies in the search for sustainable food and water resources.

Stage a debate about what, if any, precautions should be put in place to protect people and the environment from unintended consequences of technological innovation.

The search for oil beneath the ocean floor is a further effort to exploit what is known as “the extractive economy,” economic exchange based on extracting fossil fuels from the earth. Create a media production of some sort that explores what life would be like if there was no further exploitation of fossil fuels. What would it be like to live by harvesting only energy in the form of contemporary sunlight?

Study and present a report to your class on what is known of the long-term environmental and health impacts of another great oil spill, that of the Exxon Valdez in Alaska’s Prince William Sound in 1989. Use this information to propose what should be done to study impacts of the BP oil.

Write an essay tying fossil fuel extraction to sustainability and social justice. Consider who benefits and who is harmed in the process of fossil fuel extraction, sale and use.

Find media commentaries from representatives of cultural groups in the Gulf whose lives

CONNECTIONS

L 6, 7, 9, 10, 14, 15, 16, 17, 18, 19
(food security)

L3, 6, 8, 9, 14, 16, 17, 18, 19
(fossil fuel)

L2, 6, 14, 15, 16, 18, 19
(unintended consequences)

L2, 6, 7, 9, 10, 12, 13, 14, 15, 18
(film & video)

L6, 7, 13, 14, 17, 18, 19
(advertising)



Student Worksheet - Headlines

NAME _____

DATE _____

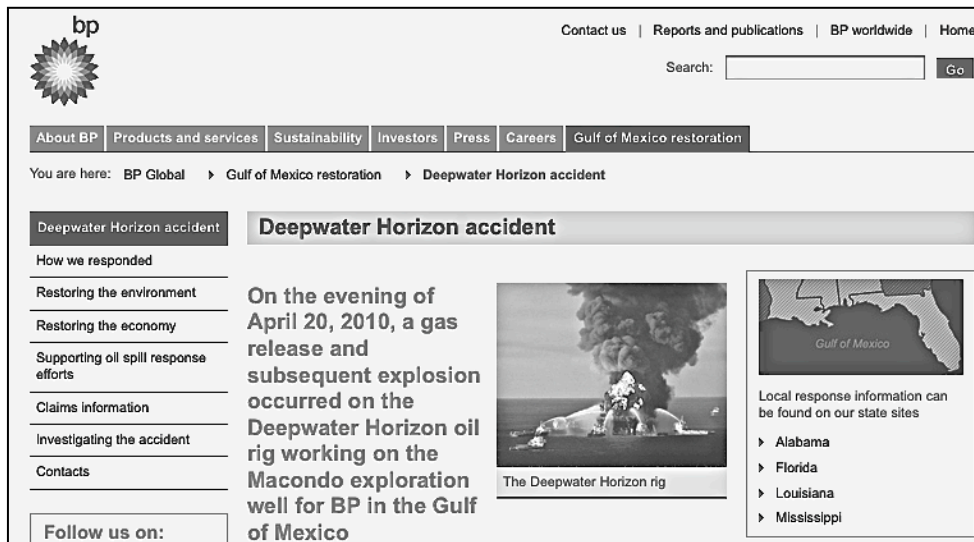
Task: For each of the following images, answer the following:

1. What phrase(s) do the editors use to characterize the event of April 20, 2010?
2. Why might the editors have chosen this characterization?



Image from Newseum.org

The Anniston Star is the daily newspaper serving Anniston, Alabama, and published by the locally-owned Consolidated Publishing Company.



BP describes itself as “a global group; employing over 80,000 people and operating in over 80 countries worldwide” (BP Global 2011).

Image from BP.com webpage



Wonk Room is a project of the Center for American Progress Action Fund, “a progressive think-tank dedicated to improving the lives of Americans through ideas and action” (2010).

Image from ThinkPress.org webpage, article by Brad Johnson



Student Worksheet - Videos

NAME _____

DATE _____

For each video, describe the perspective on the impact of BP oil on Gulf fisheries and the seafood industry and **circle** which source you think produced the video. Give evidence for your selection. (BP = British Petroleum), (CFN = Coastal First Nations), (EDF = Environmental Defense Fund), (USCG = US Coast Guard), (WFN = World Fishing Network)

Video 1

Impact:

Producer: **BP** **CFN** **EDF** **USCG** **WFN** (circle one)

Evidence:

Video 2

Impact:

Producer: **BP** **CFN** **EDF** **USCG** **WFN** (circle one)

Evidence:

Video 3

Impact:

Producer: **BP** **CFN** **EDF** **USCG** **WFN** (circle one)

Evidence:

Video 4

Impact:

Producer: **BP** **CFN** **EDF** **USCG** **WFN** (circle one)

Evidence:

Video 5

Impact:

Producer: **BP** **CFN** **EDF** **USCG** **WFN** (circle one)

Evidence:

Lesson 15:

Who Stewards Seeds?

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(Access online or via Lesson 15 digital media folder)	
Student Reading.....	339
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LESSON PLAN



Video Clips

Who Stewards Seeds?

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will understand and evaluate different practices and beliefs relating to the stewardship of corn seeds.
- Students will debate and take a position on the control of the genetic inheritance of corn.
- Students will recognize the purpose and point of view of media documents.

Vocabulary:

planting stick, tassel, pollen, pollination method, open-pollinated, cross pollination, cultivar, controlled cross, zea mays, teosinte, outcrop, diclinous, monoecious, anther, silks, ear, kernel, seed research program, hybrid seed, product advancement trial, agronomist, formal seed system, informal seed system, poverty cycle, conventional crop, BT (biotech) crop, genetically engineered crops, crop yield, pesticide, monoculture, livestock chain

Media: documentary film, Internet videos

Materials Needed:

- Eight-page *Teacher Guide*
- Two-page *Student Reading*
- Two-page Student Worksheet
- Six video clips (Access online or via Lesson 15 digital media folder)

Time: 90 minutes, with additional time for in-class reading

Lesson Procedures:

- Present the *Lesson introduction* to the class.
- Distribute the *Student Reading* and have the students read.
- Distribute the Student Worksheet and play the video clips while students log their answers on the worksheet.
- Divide the students into seven groups representing various stakeholders in corn stewardship. Have groups construct arguments as to why their group should have the right and responsibility to steward corn seeds.
- Facilitate a discussion in which representatives from each group make their case for primary stewardship of corn.
- Have each student write on the essential question: **Who should have the responsibility for stewarding the inheritance of corn?**
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Who Stewards Seeds?

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

We need seeds to live. Have you ever thought about who cares for the essential genetic inheritance of the seeds, on which human life depends? Without seeds, there would be no vegetables, fruits, or grains to feed humans or to feed the livestock that many people eat. In this lesson, you will see six short videos, each presenting a different view on the stewardship of corn, one of the key crops on which we base our food security. After learning about the diverse beliefs and practices of corn preservation, you will express your own opinion about the best pathway to steward corn.

3. Have students read the *Student Reading* in-class or as homework.
4. Explain that students will be asked to apply knowledge gained from the *Student Reading* to analyze a series of video clips.
5. Distribute the Student Worksheet.
6. Play each video clip, followed by a pause, giving students time to complete their worksheets.
7. Following each film each film, hold a brief discussion of the worksheet questions. Use the *Media Sample Questions & Answers* to help ensure comprehensive responses.



Hopi: Songs of the Fourth World
4:58 min. clip
New Day Films (1985)



Video 1

Hopi: Songs of the Fourth World is a documentary film made by Pat Ferrero for distribution in educational institutions. The film's producer, New Day Films, describes the film as "a compelling study of the Hopi that captures their deep spirituality and reveals their integration of art and daily life" (n.d., para. 1).

Media Sample Questions & Answers

- | | |
|--|--|
| 1) Who stewards seeds? | Possible Answer: Native American record keepers, farmers and songs and by the sun. |
| 2) What is required for seed stewardship? | Possible Answer: Keeping track of seasonal changes, planting to maximize moisture, planting stick that carries knowledge, planting songs, cheerfulness |
| 3) Why is seed stewardship important? | Possible Answer: We are rooted into our cornfields; corn is a newborn needing tender care; corn follows the natural processes of birth; farming is sacred, a work of art and an act of faith. |
| 4) Why was this made? | Possible Answer: To educate others about the Hopi way of life and the importance of blending spirituality with daily life |



"Pollination Methods: Corn"
2:39 min. clip
Karl Mogel (2008)



Video 2

This video was posted by WiscPlantBreeding, the Plant Breeding and Plant Genetics program at the University of Wisconsin-Madison "for professionals and backyard breeders looking to experiment" (2008, para. 1).

Media Sample Questions & Answers

- | | |
|--|--|
| 1) Who stewards seeds? | Possible Answer: Small to large scale plant breeders |
| 2) What is required for seed stewardship? | Possible Answer: Knowledge of cross -pollination techniques |
| 3) Why is seed stewardship important? | Possible Answer: To breed new varieties with improved traits or to protect the integrity of popular cultivars |
| 4) Why was this made? | Possible Answer: To instruct professional and backyard breeders in how to make controlled crosses between corn varieties in order to improve the vitality of corn |



"Pioneer's IMPACT Seed Research Program"

2:57 min. clip

Penton Media (2010)



Video 3

This video was posted by Penton Media's agriculture channel. Greg Frey, Agricultural Market Leader at Penton, explains the company's agricultural market as "reach[ing] the large, commercial ranchers, producers, and farmers that feed the world" (Penton Media Inc, n.d.).

Media Sample Questions & Answers

- | | |
|---|---|
| 1) Who stewards seeds? | Possible Answer: The Pioneer company, research scientists, professional agronomists, cooperating farmers |
| 2) What is required for seed stewardship? | Possible Answer: High-tech application, big machinery, research investment, experimental trials |
| 3) Why is seed stewardship important? | Possible Answer: To improve the product line |
| 4) Why was this made? | Possible Answer: To encourage US farmers to rely on Pioneer to tell them what works best and to make more food available to people who need it by offering Pioneer's technological expertise |



"Seeds and Sustainability: Maize Pathways in Kenya"

4:20 min. clip

Hannington Odame (2011)



Video 4

This video was posted by the STEPS Centre, a British global research and policy center funded by the Economic and Social Research Council. It was created to "show the importance of informal seed systems, as well as formal ones, for food security in these areas" (2011, para. 1).

Media Sample Questions & Answers

- | | |
|---|---|
| 1) Who stewards seeds? | Possible Answer: Subsistence farmers, government programs and agencies, seed companies |
| 2) What is required for seed stewardship? | Possible Answer: Exchange with neighbors via green stores, quality seed from seed companies, indigenous knowledge, seed saving |
| 3) Why is seed stewardship important? | Possible Answer: Protection from dependence, which leads to a poverty cycle; independence for small farmers |
| 4) Why was this made? | Possible Answer: To show the importance of informal as well as formal seed systems for food security |



“Richard Sithole Discusses BT Maize”
1:53 min. clip
BiotechGMO (2008)



Video 5

This video was posted by Monsanto’s Biotech GMO channel. Monsanto’s website, Conversations about Plant Biotechnology, “offers information about genetically modified Bt maize and other genetically modified crops through video podcasts with farmers and experts from around the world” (2008, para. 1). This video is of lower production quality.

Media Sample Questions & Answers

- | | |
|--|---|
| 1) Who stewards seeds? | Possible Answer: A family farmer in collaboration with a biotech seed company |
| 2) What is required for seed stewardship? | Possible Answer: Bio-tech GMO seeds |
| 3) Why is seed stewardship important? | Possible Answer: To feed a large extended family improving living standards and educational opportunity |
| 4) Why was this made? | Possible Answer: To support the idea that biotech GMO seeds are best option for farmers in the developing world that needs more food at lower prices |



“Genetic engineering: The world's greatest scam?”
3:32 min. clip
Greenpeace Switzerland (2009)



Video 6

This video was posted by the international NGO Greenpeace to communicate its position that “genetic engineering is a threat to food security, especially in a changing climate” (2009, para. 1).

Media Sample Questions & Answers

- | | |
|--|--|
| 1) Who stewards seeds? | Possible Answer: Corporations, like Monsanto, that produce GMO seeds and NGOs, like Greenpeace, that sound that warnings against this type of seed production |
| 2) What is required for seed stewardship? | Possible Answer: An awareness of the dangers of untested technologies |
| 3) Why is seed stewardship important? | Possible Answer: Because we do not know the potentially deadly consequences of GMO technology |
| 4) Why was this made? | Possible Answer: To urge viewers to challenge the spread of GMO seed in order to protect people and the environment |

8. Divide the students into seven groups representing various stakeholders in corn stewardship as referenced in the videos. Stakeholders involved in corn stewardship are:

- **individual farmers** (Richard Sithole, Video 5)
- **communities** (green store cooperatives, Video 4)
- **cultures** (Hopi, Video 1)
- **corporations** (Pioneer, Video 3)
- **universities** (University Wisconsin-Madison, Video 2)
- **governments** (Kenyan government, Video 4)
- **non-governmental agencies (NGOs)** (Greenpeace, Video 6)

9. Instruct each group to construct several arguments as to why they should have the right and responsibility to steward corn seeds. Have the groups select a single spokesperson who will make the case for their group in the roundtable discussion. Remind students that people can have good intentions even if there are problems with their solutions. They should remember that people act out of complex - and sometimes conflicting - motives. They should also be careful not to oversimplify people or debates the way that media sometimes do.

10. Facilitate a roundtable discussion in which the selected representative of each group makes a case as to why their stakeholder group should become the primary steward of corn. ***[NOTE: You may have students from the stakeholder groups tap their representatives on the shoulder to switch places if they have a point they would like to make.]***

11. Following the discussion, have each student write on the essential question:
Who should have the responsibility for stewarding the inheritance of corn?

FURTHER QUESTIONS

Analyzing Media Messages

Who paid for the production of each clip and how might the funder influence the message?

Who are the target audiences for each of the video clips? How do the differences in target audience serve to shape the media construction of each document?

Who might benefit from these messages and who might be harmed?

Self Reflection

Which media document was most effective in moving you toward action on the issue of seed stewardship and why?

Which of these documents was most disturbing to you and what did you learn about yourself from your response?

Who will tend the genetic lines of the corn your children will eat?

Who are the indigenous people who tended corn in your region prior to European conquest?

Do you know how much genetically modified crops your food contain? In European countries, it is required by law to label GMOs on food packages. **Would you want to be aware of this knowledge on your food labels? Why or why not?**

Underlying Values and Motives

Consider the different perspectives regarding risk, tolerance and urgent action in these videos. For instance, the Greepeace video places a high value on avoiding risk by cautioning against the use of untested technologies. The STEPS Centre video on seeds in Kenya includes a voice calling for urgent action by encouraging the use of seed company products in order to prevent communities from falling into the “poverty cycle” trap. **What precautionary measures should be maintained to protect people and the environment in the face of our inability to know unintended consequences of technological advances?**

Consider the conflicting values implied by these media documents, ranging from valuing ancestral knowledge and community cohesion to valuing biotechnology and business models. **Which of these value systems is most compelling as a foundation for seed stewardship and why?**

Are issues of seed stewardship equally important for people in different parts of the world? Why or why not?

In what ways do social justice, climate change and fossil fuel depletion impact your thinking on the best means to steward seeds?

What does seed stewardship have to do with sustainable agriculture?

How have the processes of seed stewardship changed throughout the past century?

EXTENDED ACTIVITIES

Collect media reports on seed stewardship in your region in order to determine which media sources have reported on this issue and which have not.

Organize a “Who Stewards Seeds?” workshop in your community. Consider whom to invite in order to reach stakeholders who are already working on this issue.

Create a “water systems map” for a variety of approaches to seed stewardship. For example, you might compare the “water footprints” of a community seed saving exchange in green stores with the development and delivery of GMO corn by the Monsanto Corporation. Research and show the water inputs needed for each form of stewardship and how the input requirements might affect the local water supply.

Write a letter to someone you admire about your beliefs on food security and ask for their input in return.

Design your own media representation on issues of seed stewardship. Consider your target audience and which media form might be best suited to reach them.

Contact one of the media sources from the documents in this lesson and communicate with them regarding your feelings, ideas or questions about their work.

Research the beliefs and practices regarding seed stewardship among sustained farming cultures in your region, especially Native American peoples who lived in your area prior to the European conquest.

Organize a classroom “scavenger hunt” to find as many corn based products in the homes of your class as you can. Remember that such a hunt will require extensive research into the origin of products in the kitchen, pantry, bathroom and garage among other locations.

Investigate the impact of stakeholder lobbying on agricultural policy by corporations, big farm associations, small farm associations, NGOs and individual farmers.

Research online seed saver games. Design a game of your own about stewarding seeds.

CONNECTIONS

L 6, 9, 10, 15, 16, 18, 19
(seeds & crops)

L6, 7, 10, 15, 16, 17, 19
(organic & conventional farming)

L 6, 7, 9, 10, 14, 15, 16, 17, 18, 19
(food security)

L6, 7, 10, 12, 14, 15, 16
(agrarian cultures)

L7, 8, 10, 12, 15, 16, 17, 18
(work & labor)

L8, 9, 11, 12, 13, 15, 16, 18, 19
(global trade)

L2, 6, 14, 15, 16, 18, 19
(unintended consequences)

L2, 6, 7, 9, 10, 12, 13, 14, 15, 18
(film & video)

*The Mystery is deep
On a hot still day in August
The high yellow tassels of the male plume
Break joyfully in the air
And release the golden pollen
Down below the cob, beneath the shuck
The bride waits.*
- Meridel Le Sueur, "Oh Corn"

The Stewardship of Corn

This lesson will invite you to consider the question, "Who should steward the genetic inheritance of corn?" Corn, or maize as it is known in many parts of the world, has been the primary food for countless humans ever since the first native agronomists figured out how to breed it and transform it from a native grass in Mexico to a staple crop. Corn holds a central place in the culture of many Native American tribes who create dances, songs, stories and festivals that affirm the central place of corn in their cultural life and worldview. For centuries, the success of corn harvests has meant the difference between well-being and extreme hardship for families, communities and entire nations. This was true for the early colonists arriving in the New World in the 17th century and is true today for people ranging from the Midwest of the United States to the heartland of Africa.

In recent decades, corn has shifted from food crop and natural inheritance to market commodity and patented product. The idea of trade in "corn futures" would have been a bizarre concept for the residents of colonial Jamestown, but for traders working in the Chicago Board of Trade in the 21st century, corn has become an investment product on which fortunes are made or lost without ever seeing the "high yellow tassels" of Le Sueur's poem. Corn Products International, Inc. uses corn as a product base for "ingredient solutions" in the manufacture of products for "food, beverage, pharmaceutical, corrugating, animal feed, and health & wellness" (2011, para. 1). Corn is now the basis for so many items in everyone's home that Corn Products International's Chairman, Ilene Gordon, describes the company as "a critical component of global commerce, and a vital part of everyday life" (as cited in Corn Products International, 2011, para.1).

The word "steward" means to manage or to supervise. So what does it mean to "steward" corn? For some, the stewardship of corn is a means to save a vast, diverse variety of corn seeds and to preserve the genetic vitality of a plant that has hundreds of variations. For others, stewarding corn means discovering and patenting new products and developing marketing techniques to guarantee the continued profitability of corn as a market commodity. Others believe stewarding corn means to care for a sister being among the family of living things, or a gift from the Creator to the people. Yet others believe the very idea of stewardship is an example of human arrogance that should be discarded in the awareness that people cannot possibly know what is best for corn in a world where the unintended consequences of manmade technologies create only greater problems for humanity and the biosphere.

Who, then, are the best stewards of corn? One argument holds that cultures are the best stewards. Following this line of reasoning, the Mesoamerican natives of Oaxaca, Mexico, the Quechuan people of Bolivia and the Hopi of Arizona are best placed to preserve corn through traditional beliefs in the sacred nature of the human/corn relationship and the development and use of tools to further this relationship. In this cultural context, the tools used for corn stewardship would include the pottery urn filled with corn seeds and the planting stick to place the kernel in soil, as well as the songs and dances offered to the corn, the soil and the rain as a prayer for the living systems to work together to carry on the tradition of corn as part of an integral culture.

Another argument suggests that it is individuals and communities who can steward open-pollinated corn seed in a process called controlled cross-breeding. Controlled cross-breeding enables people to use knowledge and experience of plant genetics to select the traits that will keep corn vital and able to survive climate change and the demands of an ever-growing human population. Individual farmers and rural communities work with groups like the Seed Savers Exchange and the Land Institute to develop corn strains using simple tools - a knife and bags to collect pollen and protect corn silk. Groups like the Green Stores in Kenya help small farmers connect with seed savers to obtain the seeds necessary for next season's crop in a process called the "informal system" of seed exchange (STEPS Centre, 2011).

“Pioneer was [originally] known as the Hi-Bred Corn Company, and was the first seed company to develop, produce and market hybrid seed corn. The focus was to bring better products to the market that would increase farmer productivity and profitability” (Pioneer Hi-Bred, 2011).

Some feel that corporations are best positioned to steward seed because they have access to capital to fund large-scale research and development projects and support the infrastructure necessary to bring the next generation of seeds to the marketplace. Companies like DuPont’s Pioneer Hi-Bred International work with hybrid seed technology to create new strains of corn that can be planted in vast monoculture fields and require inputs of chemical herbicide and pesticide to produce record yields of corn per acre. Companies like Monsanto work with biotech or BT corn, a genetically modified (GMO) technology that is owned and controlled by the company, which funds research scientists to help discover ways to genetically alter the corn seed for resistance to both insects and pesticides and to weeds and herbicides. Companies like Archer Daniels Midland plant corn as a means to increase profit by processing corn into ethanol fuel. These corporate forms of seed stewardship are known as the “formal system” of seed exchange (STEPS Centre, 2011).

Finally, government institutions, universities and non-governmental organizations (NGOs) also work as stewards of corn seed. Governments create laws and policies that support one or another of these forms of seed stewardship. University research facilities explore methods of seed preservation and development in both the formal and informal systems. NGOs advocate for or against these systems based on their mission statements and the point of view of their primary funders.

Given all these options, who is best suited to steward the essential genetic inheritance of the teosinte grass that has been cultivated over the centuries to become the corn and maize we know today? Should stewardship be left to cultures, individuals, communities, corporations, governments, universities, or NGOs? These are the questions that you will be asked to consider as you develop your own answers in this lesson on the stewardship of corn.



What messages about the stewardship of seeds are implied by this poster and magazine cover?

Why might the messages be so different?



Student Worksheet

NAME _____

DATE _____

Title of video: _____

- 1) According to this video, who stewards seeds?
- 2) According to this video, what is required for seed stewardship?
- 3) According to this video, why is seed stewardship important?
- 4) Why was this video made?

Title of video: _____

- 1) According to this video, who stewards seeds?
- 2) According to this video, what is required for seed stewardship?
- 3) According to this video, why is seed stewardship important?
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- 3) According to this video, why is seed stewardship important?
- 4) Why was this video made?

Lesson 16:

Green Revolution

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LESSON PLAN



Printed
Document

Green Revolution

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will understand arguments for and against green revolution technology.
- Students will recognize how writers and editors shape perceptions through word choice and the decision to include or omit certain information.
- Students will identify the unintended consequences of the green revolution and discuss the possible unintended consequences of contemporary technology solutions.

Vocabulary:

Norman Borlaug, green revolution, population growth, plant breeding, hybrid crops, nitrogen fertilizer, Haber process agricultural inputs, monocrop agriculture, soil depletion, water depletion, genetically modified crops, organic farming, deforestation, peak oil

Media: newspaper articles, blog posting

Materials Needed:

- Eight-page *Teacher Guide*
- Seven-page *Student Reading* (divided into four separate news articles)
- Two-page Student Worksheet

Time: 60 minutes

Lesson Procedures

- Present the *Lesson Introduction* to the class.
- Distribute the seven-page *Student Reading* and the Student Worksheet. Have the students work to answer the questions on the worksheet using the readings.
- Lead a discussion on the arguments for and against the green revolution. Discuss what information was left out of each article and why that might be.
- Have students share their own ideas about whether the green revolution has led to greater or lesser sustainability of food, water and agriculture.
- Lead a discussion about the unintended consequences of the green revolution.
- Lead a discussion about other current technologies that may have unintended consequences leading to sustainability concerns in the future.
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Green Revolution

1. Organize and make copies for the class activities.
2. Ask for a show of hands as to how many students know who Norman Borlaug was. Ask anyone who knows to say a little about what they know about him. If no one knows the name, ask how many have heard of the green revolution. Ask those who know the term to explain its meaning.
3. Introduce the lesson:

Lesson Introduction

Historical context matters a great deal when it comes to understanding meanings and messages in media. For instance, in the 1960s and 1970s, most media referred to scientist Norman Borlaug as a savior of humankind for his role as “father” of green revolution technologies. These technologies led to great yields in agricultural crops and fed millions of hungry people around the world, particularly in the global South. Later in the 20th century, many critics suggested that Borlaug’s green revolution was actually an environmental and economic disaster, leading to devastating unforeseen consequences ranging from soil and water depletion to small farmer dependence on fossil fuel-based agricultural inputs like pesticides and tractors. Which perspective is accurate?

One’s perspective on Norman Borlaug and the green revolution is undoubtedly shaped not just by *when* a media construction was authored, but also by *who* authored the construction, in addition to the ideological perspective of editors who differ in their worldview. In this lesson, you will consider the shaping of media reports on the life of Norman Borlaug as represented in four articles written shortly after his death in 2009. You will be asked to consider how the meaning of Borlaug’s work and the green revolution are shaped by the use of particular descriptive words and phrases and by the choice of what information was included and omitted in each article. You will be asked to draw your own conclusions about whether the green revolution has contributed to sustainability and what the green revolution can teach us about unintended consequences.

4. Distribute the *Student Reading* and Student Worksheet. Explain that the four articles in the *Student Reading* were written in the weeks immediately following Norman Borlaug’s death. Two of the articles come from sources in the United States (*The New York Times* and the *Wall Street Journal* online). The other two, *The Oil Drum* and the *Guardian*, come from Australia/New Zealand and from England. The first two articles are excerpts of longer pieces while the last two are full text. Go over the worksheet questions to make sure students understand the assignment. **[NOTE: You may elect to give this assignment as homework.]**

5. After students have completed the worksheet, ask them to list the arguments for and against green revolution technology. You may want to list these on the board for reference in the subsequent discussion. See the *Media Sample Questions & Answers* for a comprehensive listing of pro- and anti-arguments.
6. Discuss what information was omitted from each article and why that might be.
Probe questions may include:
 - **Why might these sources have such different analyses of the green revolution?**
 - **Why might each source have included and excluded particular information?**
 - **Why might the *Wall Street Journal* have printed an article that was mainly praise for Borlaug, while *The Oil Drum* printed one that was mostly criticism?**
7. Invite students to share their own ideas about whether the green revolution has led to greater or lesser sustainability of food, water and agriculture.
Probe questions may include:
 - **Overall, do you think the green revolution has been a success or a failure?**
 - **Do you think people's lives have been improved or harmed by the green revolution?**
8. Lead a discussion about the unintended consequences that emerged from the technological advances of the green revolution.
Probe questions may include:
 - **What are some of the negative consequences of green revolution technology that Norman Borlaug could not have predicted in the 1960s?**
 - **Can we understand the overall success of a technology that has consequences we may not understand for decades after its introduction?**
9. Lead a discussion about other current technologies that may have unintended consequences leading to sustainability concerns in the future. Examples include nuclear power, deepwater drilling, hydrofracking, biotechnology, nanotechnology, etc.



“Norman Borlaug, Plant Scientist Who Fought Famine, Dies at 95”
Justin Gillis, *The New York Times*
September 14, 2009

Media Sample Questions and Answers

- 1) What arguments in favor of green revolution technology are mentioned?

Possible Answer:

- created varieties of wheat climate-adapted to resist disease
- bred semi-dwarf wheat and rice with high yields
- led to spectacular success in increasing food production in Latin America and Asia
- “helped to avert mass famines”
- “countries that had been food deficient, like Mexico and India, became self-sufficient in producing cereal grains”
- “(proved) that intensive, modern agriculture could be made to work in the fast-growing developing countries where it was needed most, even on the small farms predominating there”

- 2) What arguments opposing green revolution technology are mentioned?

Possible Answer:

- it “displaced smaller farmers”
- it “encouraged overreliance on chemicals”
- it “paved the way for greater corporate control of agriculture”

- 3) Overall, would you say the article is praise, criticism, or a mixture of both? List at least five words or phrases in the article that suggest praise or criticism of Norman Borlaug to support your conclusion.

Possible Answer: Praise – “did more than anyone else in the 20th century,” “credited with saving hundreds of millions of lives,” “international acclaim,” “his work had a far-reaching impact on the lives of millions of people,” “a storied life in agriculture,” “he knew what it was they needed to do, and he didn’t give up.”



“Norman Borlaug: Saint Or Sinner?”

**Posted by Big Gav to *The Oil Drum: Australia and New Zealand*
September 30, 2009**

Media Sample Questions and Answers

- 1) What arguments in favor of green revolution technology are mentioned?

Possible Answer: Helped provide bread for a hungry world

- 2) What arguments opposing green revolution technology are mentioned?

Possible Answer:

- made farmers dependent on a range of industrial products leading to small scale farmers being pushed off the land
- soil and aquifer depletion
- resulted in large scale agribusinesses that produce monoculture crops that are prone to pests and diseases unless large amounts of pesticide are applied
- large scale fertilizer and pesticide use led to higher cancer rates and other health problems
- inputs created “dead zones” in Gulf of Mexico
- created a food production system that is dependent on a finite supply of fossil fuel based inputs and thus not sustainable
- profits reaped by multinational corporations creating national food insecurity with dependence on foreign suppliers
- gave rise to genetically modified crops raising concerns regarding food safety issues, ecological concerns and economic concerns

- 3) Overall, would you say the article is praise, criticism, or a mixture of both? List at least five words or phrases in the article that suggest praise or criticism of Norman Borlaug to support your conclusion.

Possible Answer: Criticism - “Borlaug's ‘green revolution’ has been criticised for decades by a wide variety of different groups for all sorts of reasons.”



"The Man Who Defused the 'Population Bomb'"
Gregg Easterbrook, *The Wall Street Journal*
September 16, 2009

Media Sample Questions and Answers

- 1) What arguments in favor of green revolution technology are mentioned?

Possible Answer:

- ended the India-Pakistan food shortage of the mid-1960s and allowed both nations to become self-sufficient in wheat production
- saved the lives of one billion human beings
- developed hybrid plants with genetic vigor and disease immunity
- developed cereals able to be grown in diverse climates
- enabled reliable harvests and high yields
- prevented deforestation by reducing acres under cultivation
- reduced population by requiring less "muscle power" for farmers to survive

- 2) What arguments opposing green revolution technology are mentioned?

Possible Answer:

- requires some pesticide and lots of fertilizer
- affluent environmentalists claimed it was "inappropriate" for Africans to have tractors or use modern farming techniques

- 3) Overall, would you say the article is praise, criticism, or a mixture of both? List at least five words or phrases in the article that suggest praise or criticism of Norman Borlaug to support your conclusion.

Possible Answer: Praise – "arguably the greatest American of the 20th century," "the very personification of human goodness, Borlaug saved more lives than anyone who has ever lived," "brilliant man who forsook privilege and riches in order to help the dispossessed of distant lands," "great man and benefactor to humanity."



“Against the Grain on Norman Borlaug”
Leo Hickman, *The Guardian*
September 15, 2009

Media Sample Questions and Answers

- 1) What arguments in favor of green revolution technology are mentioned?

Possible Answer:

- saved a billion people from starvation
- high-yield crops helped protect rainforests because they allowed farmers to continue exploiting existing farmland

- 2) What arguments opposing green revolution technology are mentioned?

Possible Answer:

- nurtured monocrop agriculture
- led to genetically modified food
- spread the intensive use of petro-chemical pesticides and fertilizers
- contributed to consequences of "conventional" farming methods such as overpopulation, peak oil, climate change and water depletion

- 3) Overall, would you say the article is praise, criticism, or a mixture of both? List at least five words or phrases in the article that suggest praise or criticism of Norman Borlaug to support your conclusion.

Possible Answer: Criticism - “critics say he planted the seed for future environmental woes,” “Has there ever been a person in human history whose legacy has pivoted so precariously on the fulcrum between good and bad? “

FURTHER QUESTIONS

Analyzing Media Messages

What sources would you need to study in order to further explore the arguments made in each of the articles?

How could you find information about the editorial perspective of these four publications?

How does the editorial perspective or mission statement of a media source shape its reporting?

Two of these articles were from US publications and two were international publications. **Do you think the geographic source of each article might have impacted its perspective in Borlaug and the green revolution? Why or why not?**

The first two of these articles are excerpts of longer pieces. **How might reading an excerpt rather than a full article change your understanding of media messages?**

Self Reflection

Had you ever heard of Norman Borlaug before? Had you heard of the green revolution? If so, where did you learn about them? If not, why had you not heard of Borlaug or the green revolution?

In what ways has your life been influenced by the green revolution?

Might your view of the green revolution change if you were living in India, Pakistan or Mexico? If so, how might it change? If not, why not?

Underlying Values and Motives

What values are explicit or implied in these articles?

What values should guide the development of technological innovations, like the genetic manipulation of plants?

Who does and who should decide whether crops should be grown with green revolution technologies?

Where else have you encountered the term “revolution?” What positive and negative connotations does “revolution” have? Was “revolution” an appropriate label for what Borlaug’s work? Why or why not? Why do you think people chose that term to describe Borlaug’s work? How are the changes that Borlaug’s work sparked like or unlike the changes brought by other revolutions?

EXTENDED ACTIVITIES

In the late 20th and early 21st century, there has been an epidemic of farmer suicides in India. Study media reports of this pattern to understand possible links between the suicides and green revolution technologies and economics.

The article “Norman Borlaug: Saint Or Sinner?” refers to the Haber process of nitrogen fixation that is used to produce ammonia for fertilizer. The Haber process is also central in the making of some explosives. Make a systems map revealing the many ways in which this process has changed and transformed modern life.

Research the term “commodity” as it applies to food. Find out when and how food was transformed from a survival necessity to a market commodity. Explain the ways in which the green revolution has played a part in the commoditization of food.

Compare the characterizations of soil within advertisements from organic farmers, agribusiness companies and fertilizers producers. Produce your own media document to highlight the diverse understandings on the meaning and value of soil from these various sources.

Interview other students about their awareness of how the depletion of fossil fuel resources will impact food production. Organize an event to educate your peers about the connections between peak oil, climate change and world hunger.

Find media reports on the impact of the green revolution on farm labor in your country and elsewhere around the world. Explore green revolution connections to farm worker immigration, farmer suicides in India and rural community health concerns. Write a paper connecting labor issues and green revolution technology.

Population growth was an issue of great concern to Norman Borlaug. Investigate how this concern has been reported in the media of your region. Include citizen-produced media like blogs, Internet videos and letters to the editor in your research.

Research when and how Borlaug’s work became labeled a “revolution,” how this labeling fit into the cold war politics of the era and how Borlaug felt about that characterization.

CONNECTIONS

L 6, 9, 10, 15, 16, 18, 19
 (seeds & crops)

L6, 7, 9, 10, 16, 17, 19
 (local food)

L6, 7, 10, 15, 16, 17, 19
 (organic & conventional farming)

L 6, 7, 9, 10, 14, 15, 16, 17, 18, 19
 (food security)

L6, 7, 10, 12, 14, 15, 16
 (agrarian cultures)

L7, 8, 10, 12, 15, 16, 17, 18
 (work & labor)

L8, 9, 11, 12, 13, 15, 16, 18, 19
 (global trade)

L3, 6, 8, 9, 14, 16, 17, 18, 19
 (fossil fuel)

L3, 6, 9, 11, 16, 17, 18, 19
 (climate change)

L2, 6, 14, 15, 16, 18, 19
 (unintended consequences)

**Gillis, Justin. "Norman Borlaug, Plant Scientist Who Fought Famine, Dies at 95"
The New York Times, September 14, 2009
(excerpt)**

Norman E. Borlaug, the plant scientist who did more than anyone else in the 20th century to teach the world to feed itself and whose work was credited with saving hundreds of millions of lives, died Saturday night. He was 95 and lived in Dallas...

Dr. Borlaug's advances in plant breeding led to spectacular success in increasing food production in Latin America and Asia and brought him international acclaim. In 1970, he was awarded the Nobel Peace Prize.

He was widely described as the father of the broad agricultural movement called the Green Revolution, though decidedly reluctant to accept the title. "A miserable term," he said, characteristically shrugging off any air of self-importance.

Yet his work had a far-reaching impact on the lives of millions of people in developing countries. His breeding of high-yielding crop varieties helped to avert mass famines that were widely predicted in the 1960s, altering the course of history. Largely because of his work, countries that had been food deficient, like Mexico and India, became self-sufficient in producing cereal grains. "More than any other single person of this age, he has helped provide bread for a hungry world," the Nobel committee said in presenting him with the Peace Prize. "We have made this choice in the hope that providing bread will also give the world peace..."

The Green Revolution eventually came under attack from environmental and social critics who said it had created more difficulties than it had solved. Dr. Borlaug responded that the real problem was not his agricultural techniques, but the runaway population growth that had made them necessary. "If the world population continues to increase at the same rate, we will destroy the species," he declared.

Traveling to Norway, the land of his ancestors, to receive the award, he warned the Nobel audience that the struggle against hunger had not been won. "We may be at high tide now, but ebb tide could soon set in if we become complacent and relax our efforts," he said. Twice more in his lifetime, in the 1970s and again in 2008, those words would prove prescient as food shortages and high prices caused global unrest.

His Nobel Prize was the culmination of a storied life in agriculture that began when he was a boy growing up on a farm in Iowa, wondering why plants grew better in some places than others. His was also an unlikely career path, one that began in earnest near the end of World War II, when Dr. Borlaug walked away from a promising job at DuPont, the chemical company, to take a position in Mexico trying to help farmers improve their crops.

The job was part of an assault on hunger in Mexico that was devised in Manhattan, at the offices of the Rockefeller Foundation, with political support in Washington. But it was not a career choice calculated to lead to fame or honor...

Dr. Borlaug's initial goal was to create varieties of wheat adapted to Mexico's climate that could resist the greatest disease of wheat, a fungus called rust. He accomplished that within a few years by crossing Mexican wheats with rust-resistant varieties from elsewhere.

His insistence on breeding in two places, the Sonoran desert in winter and the central highlands in summer, imposed heavy burdens on him and his team, but it cut the time to accomplish his work in half. By luck, the strategy also produced wheat varieties that were insensitive to day length and thus capable of growing in many locales, a trait that would later prove of vital significance. The Rockefeller team gradually won the agreement of Mexican farmers to adopt the new varieties, and wheat output in that country began a remarkable climb. But these developments turned out to be a mere prelude to Dr. Borlaug's main achievements.

By the late 1940s, researchers knew they could induce huge yield gains in wheat by feeding the plants chemical fertilizer that supplied them with extra nitrogen, a shortage of which was the biggest constraint on plant growth. But the strategy had a severe limitation: beyond a certain level of fertilizer, the seed heads containing wheat grains would grow so large and heavy, the plant would fall over, ruining the crop.

In 1953, Dr. Borlaug began working with a wheat strain containing an unusual gene. It had the effect of shrinking the wheat plant, creating a stubby, compact variety. Yet crucially, the seed heads did not shrink, meaning a small plant could still produce a large amount of wheat.

Dr. Borlaug and his team transferred the gene into tropical wheats. When high fertilizer levels were applied to these new “semidwarf” plants, the results were nothing short of astonishing.

The plants would produce enormous heads of grain, yet their stiff, short bodies could support the weight without falling over. On the same amount of land, wheat output could be tripled or quadrupled. Later, the idea was applied to rice, the staple crop for nearly half the world’s population, with yields jumping several-fold compared with some traditional varieties. This strange principle of increasing yields by shrinking plants was the central insight of the Green Revolution, and its impact was enormous.

By the early 1960s, many farmers in Mexico had embraced the full package of innovations from Dr. Borlaug’s breeding program, and wheat output in the country had soared sixfold from the levels of the early 1940s.

Urgent queries began to pour in from other poor countries, for they were caught in a bind. After World War II, the introduction of basic sanitation in many developing countries caused death rates to plunge, but birth rates were slow to follow. As a result, the global population had exploded, putting immense strain on food supplies.

On the Indian subcontinent in particular, a crisis developed. The population was growing so much faster than farm output that it was not clear how

the masses could be fed. In the mid-1960s, huge grain imports were required to avert starvation. At the invitation of the Indian and Pakistani governments, Dr. Borlaug offered his advice. He met resistance at first from senior agricultural experts steeped in tradition, but as the food situation worsened, the objections faded. Soon, India and Pakistan were ordering shiploads of Dr. Borlaug’s wheat seeds from Mexico...Indian and Pakistani farmers took up the new varieties, receiving fertilizer and other aid from their governments. Just as in Mexico, harvests soared: the Indian wheat crop of 1968 was so bountiful that the government had to turn schools into temporary granaries...

Dr. Borlaug’s later years were partly occupied by arguments over the social and environmental consequences of the Green Revolution. Many critics on the left attacked it, saying it displaced smaller farmers, encouraged overreliance on chemicals and paved the way for greater corporate control of agriculture.

In a characteristic complaint, Vandana Shiva, an Indian critic, wrote in 1991 that “in perceiving nature’s limits as constraints on productivity that had to be removed, American experts spread ecologically destructive and unsustainable practices worldwide.”

Dr. Borlaug declared that such arguments often came from “elitists” who were rich enough not to worry about where their next meal was coming from. But over time, he acknowledged the validity of some environmental concerns, and embraced more judicious use of fertilizers and pesticides. He was frustrated throughout his life that governments did not do more to tackle what he called “the population monster” by lowering birth rates...

Gary H. Toenniessen, director of agricultural programs for the Rockefeller Foundation, said in an interview that Dr. Borlaug’s great achievement was to prove that intensive, modern agriculture could be made to work in the fast-growing developing countries where it was needed most, even on the small farms predominating there.

**"Norman Borlaug: Saint Or Sinner?"
Posted by Big Gav on *The Oil Drum:*
Australia & New Zealand blog
Sep 30 2009 (excerpt)**

The father of the "green revolution" in agriculture, Norman Borlaug, recently passed away due to cancer, at the age of 95.

Borlaug didn't approve of the "green revolution" moniker, dubbing it "a miserable term" (what he would have made of "The Agrichemical Revolutionary" isn't clear) but his work has had a far-reaching impact on the course of human development.

Borlaug received both praise ("More than any other single person of this age, he has helped provide bread for a hungry world. We have made this choice in the hope that providing bread will also give the world peace", said the Nobel peace prize committee, while the UN's Food and Agriculture Organization declared him "A towering scientist" and a "great benefactor of humankind") from those impressed by the rise in agricultural productivity he engineered, and condemnation ("Aside from Kissinger, probably the biggest killer of all to have got the peace prize was Norman Borlaug, whose "green revolution" wheat strains led to the death of peasants by the million" is a typical example from Alexander Cockburn at *Counterpunch*) from those concerned by the impact of the introduction of industrial agriculture around the globe.

Borlaug grew up on a farm in Iowa and then studied for a Ph.D. in plant pathology and genetics at the University of Minnesota. In 1944, Borlaug took up an agricultural research position in Mexico as part of the Rockefeller Foundation project to help farmers modernise crop production, where he developed semi-dwarf, high-yield, disease-resistant wheat varieties over a period of 16 years. The Foundation's interest may not have been entirely altruistic - the Mexican government had nationalised the country's oil supply in 1939, to the dismay of the family's "Standard Oil"

company, and there were concerns that the country may align itself with Germany during the war...

Over time Borlaug became convinced that we could feed the world adequately (given projections that global population will eventually plateau at around 9.5 billion people), as long as the methods he recommended were adopted universally, stating in 2000 : "I now say that the world has the technology — either available or well advanced in the research pipeline — to feed on a sustainable basis a population of 10 billion people. The more pertinent question today is whether farmers and ranchers will be permitted to use this new technology? While the affluent nations can certainly afford to adopt ultra low-risk positions, and pay more for food produced by the so-called 'organic' methods, the one billion chronically undernourished people of the low income, food-deficit nations cannot."

Borlaug's work earned him the Nobel Peace Prize in 1970 and (amongst numerous other awards) the 1977 US Presidential Medal of Freedom and the US Congressional Gold Medal in 2006.

Borlaug's "green revolution" has been criticised for decades by a wide variety of different groups for all sorts of reasons - ranging from making farmers dependent on a range of industrial products to soil and aquifer depletion to creating a food production system that is dependent on a finite supply of fossil fuel based inputs. One memorable description of this combined school of thought came from Zaid Hassan, who noted "there are so many criticisms around the current global food system that for a while I started wondering if in fact it had already collapsed and I was studying a post-apocalyptic food system..."

The primary criticism of "green revolution" style industrial agriculture is that it results in farmers becoming dependent on a range of industrial inputs - farming machinery, fertiliser, pesticides, irrigation equipment, seeds and even capital (debt) to purchase these inputs - often resulting in small scale farmers being pushed off the land

(particularly if they are unable to repay their debts during a bad season) and resulting in large scale agribusinesses that produce monoculture crops that are prone to pests and diseases unless large amounts of pesticide are applied. Critics from the developing world often note that the profits from this transformation seem to be reaped by multinational corporations like Monsanto, Dupont, Cargill and Archers Daniels Midland rather than the farmers growing the crops (who often saw crop prices fall as yields increased) - and that their national food security was now dependent on foreign suppliers...

The side effects of large scale fertiliser and pesticide use are also pointed to by Borlaug's critics, noting increased rates of cancer and other health problems in rural areas and damage to the ecosystems that these inputs drain into (for example, the "dead zone" in the Gulf of Mexico)...

As a result of modern irrigation practices, aquifers in places like India (once Borlaug's greatest triumph) and the US midwest have become depleted. Soil depletion is also a problem - since the 1880s almost half of the topsoil of the Great Plains of North America has disappeared...

The risks associated with genetically modified crops - the next frontier for increasing crop yields in the wake of the first green revolution, which Borlaug dubbed "The Gene Revolution" - remain hotly debated, with critics raising objections based on food safety issues, ecological concerns and economic concerns (centering on the application of patents and intellectual property rights to engineered seeds)...

The inputs for green revolution style industrial agriculture are almost entirely derived from fossil fuels. Production of nitrogen fertiliser via the Haber process (mostly in the form of anhydrous ammonia, ammonium nitrate, and urea) consumes between 3 and 5% of world natural gas production. Farm machinery like tractors and irrigation pumps consume fuel, and tractor tyres and plastic irrigation pipes are made from petrochemicals, as are pesticides. Writers like Richard Manning (*The Oil We Eat*),

Dale Allen Pfeiffer (*Eating Fossil Fuels*) and Glenn Morton (*The Connection Between Food Supply and Energy: What Is the Role of Oil Price?*) have argued that the green revolution will prove unsustainable once we have passed their peak production point for fossil fuels.

Borlaug dismissed the claims of most critics. Of environmental lobbyists he said, "some of the environmental lobbyists of the Western nations are the salt of the earth, but many of them are elitists. They've never experienced the physical sensation of hunger. They do their lobbying from comfortable office suites in Washington or Brussels. If they lived just one month amid the misery of the developing world, as I have for fifty years, they'd be crying out for tractors and fertilizer and irrigation canals and be outraged that fashionable elitists back home were trying to deny them these things."

Borlaug was also indignant about arguments in favour of natural fertilisers like cow manure rather than inorganic fertilisers. Using manure would require a massive expansion of the lands required for grazing the cattle, he said, and consume much of the extra grain that would be produced. He claimed that such techniques could support no more than 4 billion people worldwide, well under the current global population of almost 7 billion.

This point is still being debated, with researchers at the University of Michigan and University of California claiming that organic farming techniques can indeed feed the world. We can also increase food production by making better use of urban land (something "guerilla gardeners" are fond of - and similar ideas are being put into practice by large scale tree planting programs in India).

Even if we don't fully take the organic agriculture path, some of the objections based on fossil fuel depletion would seem to be solvable. If we shift completely to renewable energy sources for power production, we can eliminate a large proportion of our natural gas and coal usage, freeing the remaining reserves for agricultural applications and extending the lifespan of green revolution techniques far out into the future. Whether or not we choose to do so quickly enough remains to be seen.

Easterbrook, Gregg. "The Man Who Defused the 'Population Bomb'"
The Wall Street Journal
September 16, 2009

Norman Borlaug arguably the greatest American of the 20th century died late Saturday after 95 richly accomplished years. The very personification of human goodness, Borlaug saved more lives than anyone who has ever lived. He was America's Albert Schweitzer: a brilliant man who forsook privilege and riches in order to help the dispossessed of distant lands. That this great man and benefactor to humanity died little-known in his own country speaks volumes about the superficiality of modern American culture.

Born in 1914 in rural Cresco, Iowa, where he was educated in a one-room schoolhouse, Borlaug won the Nobel Peace Prize in 1970 for his work ending the India-Pakistan food shortage of the mid-1960s. He spent most of his life in impoverished nations, patiently teaching poor farmers in India, Mexico, South America, Africa and elsewhere the Green Revolution agricultural techniques that have prevented the global famines widely predicted when the world population began to skyrocket following World War II.

In 1999, the *Atlantic Monthly* estimated that Borlaug's efforts combined with those of the many developing-world agriculture-extension agents he trained and the crop-research facilities he founded in poor nations saved the lives of one billion human beings. As a young agronomist, Borlaug helped develop some of the principles of Green Revolution agriculture on which the world now relies including hybrid crops selectively bred for vigor, and "shuttle breeding," a technique for accelerating the movement of disease immunity between strains of crops. He also helped develop cereals that were insensitive to the number of hours of light in a day, and could therefore be grown in many climates.

Green Revolution techniques caused both reliable harvests, and spectacular output. From the Civil War through the Dust Bowl, the typical American farm produced about 24 bushels of corn per acre; by 2006, the figure was about 155 bushels per acre.

Hoping to spread high-yield agriculture to the world's poor, in 1943 Borlaug moved to rural Mexico to establish an agricultural research station, funded by the Rockefeller Foundation. Borlaug's little research station became the International Maize and Wheat Center, known by its Spanish abbreviation CIMMYT, that is now one of the globe's most important agricultural study facilities. At CIMMYT, Borlaug developed the high-yield, low-pesticide "dwarf" wheat upon which a substantial portion of the world's population now depends for sustenance.

In 1950, as Borlaug began his work in earnest, the world produced 692 million tons of grain for 2.2 billion people. By 1992, with Borlaug's concepts common, production was 1.9 billion tons of grain for 5.6 billion men and women: 2.8 times the food for 2.2 times the people. Global grain yields more than doubled during the period, from half a ton per acre to 1.1 tons; yields of rice and other foodstuffs improved similarly. Hunger declined in sync: From 1965 to 2005, global per capita food consumption rose to 2,798 calories daily from 2,063, with most of the increase in developing nations. In 2006, the United Nations Food and Agriculture Organization declared that malnutrition stands "at the lowest level in human history," despite the global population having trebled in a single century.

In the mid-1960s, India and Pakistan were exceptions to the trend toward more efficient food production; subsistence cultivation of rice remained the rule, and famine struck. In 1965, Borlaug arranged for a convoy of 35 trucks to carry high-yield seeds from CIMMYT to a Los Angeles dock for shipment to India and Pakistan. He and a coterie of Mexican assistants accompanied the seeds. They arrived to discover that war had broken out between the two nations.

Sometimes working within sight of artillery flashes, Borlaug and his assistants sowed the Subcontinent's first crop of high-yield grain. Paul Ehrlich gained celebrity for his 1968 book *The Population Bomb*, in which he claimed that global starvation was inevitable for the 1970s and it was "a fantasy" that India would "ever" feed itself. Instead, within three years of Borlaug's arrival, Pakistan was self-sufficient in wheat production; within six years, India was self-sufficient in the production of all cereals.

After his triumph in India and Pakistan and his Nobel Peace Prize, Borlaug turned to raising crop yields in other poor nations especially in Africa, the one place in the world where population is rising faster than farm production and the last outpost of subsistence agriculture. At that point, Borlaug became the target of critics who denounced him because Green Revolution farming requires some pesticide and lots of fertilizer. Trendy environmentalism was catching on, and affluent environmentalists began to say it was "inappropriate" for Africans to have tractors or use modern farming techniques. Borlaug told me a decade ago that most Western environmentalists "have never experienced the physical sensation of hunger. They do their lobbying from comfortable office suites in Washington or Brussels. If they lived just one month amid the misery of the developing world, as I have for 50 years, they'd be crying out for tractors and fertilizer and irrigation canals and be outraged that fashionable elitists in wealthy nations were trying to deny them these things."

Environmentalism criticism of Borlaug and his work was puzzling on two fronts. First, absent high-yield agriculture, the world would by now be deforested. The 1950 global grain output of 692 million tons and the 2006 output of 2.3 billion tons came from about the same number of acres three times as much food using little additional land.

"Without high-yield agriculture," Borlaug said, "increases in food output would have been realized through drastic expansion of acres under cultivation, losses of pristine land a hundred times greater than all losses to urban and suburban expansion." Environmentalism criticism was doubly puzzling because in almost every developing nation where high-yield agriculture has been introduced, population growth has slowed as education becomes more important to family success than muscle power.

In the late 1980s, when even the World Bank cut funding for developing-world agricultural improvement, Borlaug turned for support to Ryoichi Sasakawa, a maverick Japanese industrialist. Sasakawa funded his high-yield programs in a few African nations and, predictably, the programs succeeded. The final triumph of Borlaug's life came three years ago when the Rockefeller Foundation, in conjunction with the Bill & Melinda Gates Foundation, announced a major expansion of high-yield agriculture throughout Africa. As he approached his 90s, Borlaug "retired" to teaching agronomy at Texas A&M, where he urged students to live in the developing world and serve the poor.

Often it is said America lacks heroes who can provide constructive examples to the young. Here was such a hero. Yet though streets and buildings are named for Norman Borlaug throughout the developing world, most Americans don't even know his name.

Hickman, Leo. "Against the Grain on Norman Borlaug"
The Guardian
September 15, 2009

The feted agronomist may have saved a billion from starvation, but critics say he planted the seed for future environmental woes.

Accolades don't come much more gushing than those expressed this week following the death of Norman Borlaug, the agronomist whose lifelong work developing high-yield crops played a major role in heralding the so-called "green revolution" and who has often been credited as the "man who saved a billion lives". Throughout his life he was feted with awards and honours across the world: the Nobel Peace Prize, the US Presidential Medal of Freedom, India's Padma Vibhushan, to name just a few.

But despite the passionate humanitarian zeal that drove much of his work, he certainly had his critics. The criticism was not so much aimed at the man himself, but for the biotech legacy he played such a major role in creating. After all, this was the man who arguably did more than any other to nurture the era of monocrops, GM foods and the intensive use of petro-chemical pesticides and fertilisers. He may well have saved a billion people from imminent starvation, but by doing so, say his critics, he also inadvertently helped to plant the seed for future environmental woes.

Has there ever been a person in human history whose legacy has pivoted so precariously on the fulcrum between good and bad? We will only know the complete answer in the decades to come once the full implications of the world being so reliant on what are now called "conventional" farming methods have been borne out in the context of overpopulation, peak oil, climate change, water depletion and all the other issues now so inextricably linked to modern farming.

Borlaug was not naive on these issues, though. In his Nobel acceptance speech, he recognised that "we are dealing with two opposing forces, the scientific power of food production and the biologic power of human reproduction":

"There can be no permanent progress in the battle against hunger until the agencies that fight for increased food production and those that fight for population control unite in a common effort. Fighting alone, they may win temporary skirmishes, but united they can win a decisive and lasting victory to provide food and other amenities of a progressive civilization for the benefit of all mankind."

Borlaug said this in 1970 when the global human population stood at 3.7 billion. Today, it is fast approaching seven billion. Modern farming has won the "battle" with population control convincingly. Borlaug also dismissed the sometimes barbed attack of the environmentalists by arguing that his high-yield crops helped protect rainforests because they allowed farmers to continue exploiting existing farmland, therefore avoiding the need to stray into neighbouring forests with their chainsaws and firesticks.

As he grew older, though, he became an increasingly fervent supporter of GM technology, arguing that without it the booming human population would face widespread famine. It was another subject for which he often came into combat with some environmentalists. But he saved much of his disdain for the organic farming movement. This is what he told *Reason* magazine in 2000 when asked what he thought of organic farming: "Don't tell the world that we can feed the present population without chemical fertiliser. That's when this misinformation [about the merits of organic farming] becomes destructive."

Borlaug's vision and subsequent success was underpinned by the widespread availability of cheap oil. His solution for feeding the world was one that could only have ever been dreamed up in that post-war era when the energy source was obvious and unquestioned. But times have changed: with Borlaug's passing we are reminded how impatiently we await a successor to dream up the answer to our battle between rising population levels and sustainable food production.



Student Worksheet

NAME _____

DATE _____

“Norman Borlaug, Plant Scientist Who Fought Famine, Dies at 95 ”

1) What arguments in favor of green revolution technology are mentioned?

2) What arguments opposing green revolution technology are mentioned?

3) Overall, would you say the article is praise, criticism, or a mixture of both? List at least five words or phrases in the article that suggest praise or criticism of Norman Borlaug to support your conclusion.

“Norman Borlaug: Saint Or Sinner?”

1) What arguments in favor of green revolution technology are mentioned?

2) What arguments opposing green revolution technology are mentioned?

3) Overall, would you say the article is praise, criticism, or a mixture of both? List at least five words or phrases in the article that suggest praise or criticism of Norman Borlaug to support your conclusion.



Student Worksheet

NAME _____

DATE _____

"The Man Who Defused the 'Population Bomb'"

1) What arguments in favor of green revolution technology are mentioned?

2) What arguments opposing green revolution technology are mentioned?

3) Overall, would you say the article is praise, criticism, or a mixture of both? List at least five words or phrases in the article that suggest praise or criticism of Norman Borlaug to support your conclusion.

"Against the Grain on Norman Borlaug"

1) What arguments in favor of green revolution technology are mentioned?

2) What arguments opposing green revolution technology are mentioned?

3) Overall, would you say the article is praise, criticism, or a mixture of both? List at least five words or phrases in the article that suggest praise or criticism of Norman Borlaug to support your conclusion.

Lesson 17:

Guiding Our

Food Choices

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LESSON PLAN

Guiding Our Food Choices



Printed
Document



PowerPoint
Slide Show

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will consider how food choices impact personal, social and environmental health.
- Students will analyze web pages and food diagrams to discern messages, communication techniques and how media messages are shaped by the mission of the source.
- Students will discuss the connection and/or disconnection between their personal food choices and sustainability.

Vocabulary:

USDA, nutrition facts label, food guide pyramid, basic four food groups, dietary guidelines, vegan diet, dairy substitutes, federal food production subsidies, federal nutrition recommendations, Supplemental Nutrition Assistance Program (food stamps), impact assessment, carbon offset, wild-caught seafood, stewardship farming, GMO-free, CSA (community supported agriculture), bioregional diet, food miles, food sovereignty, community food security, fair trade

Media: Web pages

Materials Needed:

- Eleven-page *Teacher Guide*
- Two-page *Student Reading*
- Two-page *Student Handout - Media Producers' Mission Statements*
- One-page *Student Worksheet*
- Fifteen slide PowerPoint slideshow (Access online or via Lesson 15 digital media folder)

Time: 75 minutes

Lesson Procedures

- Present the *Lesson Introduction* to the class.
- Distribute the *Student Reading* and divide the class into a maximum of 15 teams (or individuals). Distribute the Student Worksheet and *Student Handout* to each group.
- Have each team independently view and analyze the message about food and sustainability on their assigned web page and how the mission of the organization shapes the message.
- Present each web page to the class using the PowerPoint slideshow. Have each team present their analysis to the class using their worksheet.
- Lead a vote tallying the top three perspectives that they think are the most sustainable in terms of personal, social and environmental health.
- In small groups, have each student pick one food choice that they often make and discuss the personal, social and environmental health implications of that choice.
- Lead a full class discussion of the connection and/or disconnection between our personal food choices and sustainability for personal, social and environmental health.
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Guiding Our Food Choices

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

Who decides what food we eat? How do those decisions get made? What do media constructions have to do with the sustainability of food for people and the health of the environment? This lesson examines these questions by viewing media messages within web pages. Like all media documents, web pages are constructed by individuals and organizations that have a point of view and their own objectives to further. We will begin this lesson with a *Student Reading* on how our food choices are guided. After this, you will be asked to analyze web pages and their messages about sustainability. Additionally, you will examine how the mission statements of the organizations within this lesson shape their messages about sustainability.

3. Have students read the *Student Reading* either as an in class reading or for homework. **OPTIONAL:** Have a brief discussion about objectivity and credibility in the construction of advice for food consumers.
Probe questions might include:
 - How can one discover the economic and political factors that might influence the perspective of a media source that is dispensing nutrition advice?
 - Why might it be helpful to consult a variety of sources (corporate, government and citizen-produced) when seeking information about food choices?
4. Divide the class into a maximum of 15 teams (or individuals, depending on class size) and distribute the *Student Handout – Media Producers’ Mission Statements* and Student Worksheet. Assign one of the web pages (each web page is on a separate PowerPoint slides) to each team. Explain how students can access the Student Materials section from the Project Look Sharp home page.
5. Have each team fill in their worksheet as they independently view and analyze their assigned web page and its messages about food, sustainability and how the organization’s mission statement shapes its messages.
6. Project the PowerPoint slides and have each team present their analysis to the class. Use the *Media Sample Questions and Answers* as a guide to facilitate the student presentations. Tell students that they will need to pay attention to other presentations because they will be asked at the end of the presentations to select the three web pages that they believe present the best sustainable food choices. Students can use the *Student Handout* to keep track of their top choices.



Document 1
“Let’s Eat for the Health of It”
USDA, ChooseMyPlate.gov



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: The US Department of Agriculture (USDA) produced this to advise the public on nutrition guidelines.

2) What are the messages about sustainability and food?

Possible Answer: The health of one’s body can be sustained by adhering to USDA nutritional advice.

3) How does the mission of the organization shape the message about sustainability?

Possible Answer: This image serves to advance and promote dietary guidance for all Americans within the organization, which also has the mission to support the agriculture industry.

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: Images of families eating and biking encourage family engagement in food choices for sustainable personal health.



Document 2
“The New Four Food Groups”
Physicians Committee for Responsible Medicine



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: Physicians Committee For Responsible Medicine produced this web page to encourage a plant-based diet.

2) What are the messages about sustainability and food?

Possible Answer: A plant-based diet greatly increases the prospect for good health.

3) How does the mission of the organization shape the message about sustainability?

Possible Answer: The “new four food groups” design is an innovative effort to promote preventive medicine.

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: Bright colors and a cartoon-type character of an older male playing with fruit are designed to catch the eye and perhaps spark a chuckle.



Document 3
“McDonald’s – A Balancing Act”
McDonald’s



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: McDonald’s produced this to sell its products.

2) What are the messages about sustainability and food?

Possible Answer: A consumer can achieve a balanced diet for personal sustainable health by careful selection of McDonald’s meals.

3) How does the mission of the organization shape the message about sustainability?

Possible Answer: McDonald’s efforts to maintain its status as a leading global foodservice retailer requires ongoing new marketing approaches. This one is in response to the USDA’s MyPyramid guidelines (guidelines preceding “My Plate”).

4) What techniques does the web page designer use to communicate messages about

Possible Answer: Sustainable health is communicated by



Document 4
“The Newly Designed and Updated Vegan Food Pyramid”
Vegan Food Pyramid



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: Joshua Wold produced this web page to share his vegan food pyramid design and to sell vegan products.

2) What are the messages about sustainability and food?

Possible Answer: A vegan diet promotes good health and a healthy environment.

3) How does the mission of the organization shape the message about sustainability?

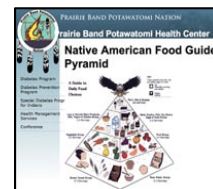
Possible Answer: Wold’s joint desire to spread the word about “all the amazing foods that I can eat” and to sell his posters and postcards are the basis for his message (2010).

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: The images of an undisturbed sky, land and water as a background to the pyramid suggest that a vegan diet is good for the earth as well as the body.



Document 5
“Native American Food Guide Pyramid”
Prairie Band Potawatomi Health Center



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: The Prairie Band Potawatomi Health Center produced this to encourage Potawatomi people to eat a diet which will help to prevent diabetes.

2) What are the messages about sustainability and food?

Possible Answer: Native American people must be conscious of the risk of diabetes to ensure sustainable community health.

3) How does the mission of the organization shape the message about sustainability?

Possible Answer: This pyramid is intended “to reduce the burden and incidence of diabetes among our patients” (2009).

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: Native American references (feather shield, eagle, wild rice) enforce the messages about sustainable community as rooted in respect for cultural tradition.



Document 6
“Rod Dreher: Why Does a Salad Cost More Than a Big Mac?”
Beliefnet



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: Beliefnet produced this to draw people to their web site and to educate people about ethics and food policy.

2) What are the messages about sustainability and food?

Possible Answer: The federal government should subsidize fruit and vegetables growers rather than the meat and dairy industry to support national health.

3) How does the mission of the organization shape the message about sustainability?

Possible Answer: Beliefnet hopes that this provocative exposition of the conflict between federal nutrition recommendations and federal food subsidies will draw new readers.

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: The dramatic juxtaposition of the two pyramids is a clever means to invite questioning of the mixed messages about sustainability delivered by federal programs.



Document 7
“Eating Well on \$68.88 a Week”
MSNBC



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: MSNBC produced this to draw people to its web site and to educate the public about family income and nutrition.

2) What are the messages about sustainability and food?

Possible Answer: Feeding families a healthy and sustainable diet of high quality, unprocessed foods is a difficult challenge for families on food stamp budgets.

3) How does the mission of the organization shape the message about sustainability?

Possible Answer: This article combines “journalism, lifestyle and commentary” in a single story on food and sustainability (MSNBC 2010).

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: A provocative headline and colorful image invite the reader to look more deeply at the issues raised about food justice.



Document 8
“What the organizers do to limit carbon emissions”
International Association for Impact Assessment



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: The International Association for Impact Assessment (IAIA) produced this to encourage attendance at their conference by highlighting carbon reduction efforts.

2) What are the messages about sustainability and food?

Possible Answer: Eating local and seasonal foods will reduce CO₂ emissions and mitigate climate change.

3) How does the mission of the organization shape the message about sustainability?

Possible Answer: The CO₂ food pyramid is an example of their efforts to seek solutions and actions to adapt to and mitigate the impacts of climate change.

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: The familiar food pyramid design next to the phrase “what the organizers do to limit carbon emissions” will spark interest among those who associate the pyramid with nutrition rather than environment.



Document 9
“Delicious! Ogilvy Advertising wins prestigious
Otarian low-carbon restaurant chain task”
Ogilvy & Mather Advertising



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: Ogilvy & Mather Advertising produced this to demonstrate their creative advertising capacities in order to attract potential clients to their advertising firm.

2) What are the messages about sustainability and food?

Possible Answer: Low carbon restaurants will appeal to consumers who are conscious of the carbon footprint of the food they eat.

3) How does the mission of the organization shape the message about sustainability?

Possible Answer: This firm works for many large corporations and will presumably craft a message about sustainability for any client who believes such a message will increase profits.

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: Colorful, inviting images of meals combined with the provocative messages are meant to encourage potential diners to consider how they might save the planet while choosing to dine at a world class restaurant.



Document 10
“Discover the Environmental Impact of Foods”
Barilla Center for Food and Nutrition



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: The Barilla Center for Food and Nutrition produced this double pyramid design to associate Barilla Foods with environmental issues and to educate about environmental impact of food.

2) What are the messages about sustainability and food?

Possible Answer: The lower one eats on the food pyramid, the less adverse environmental impact of one's food choices.

3) How does the mission of the organization shape the message about sustainability?

Possible Answer: The Barilla food products company seeks to connect their brand with principles of good nutrition and good environmental stewardship.

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: The intriguing double pyramid is designed to make viewers look twice and the top headline urges readers to think of Barilla products when they consider food choices and environmental action.



Document 11
“New Wild-Caught Seafood Sustainability Ratings”
Whole Foods Market



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: Whole Foods Market produced this to encourage shoppers to buy “sustainably caught” seafood at their market.

2) What are the messages about sustainability and food?

Possible Answer: Sustainable fisheries are defined by scientists as those in which fish are abundant and caught in “environmentally friendly ways”

3) How does the mission of the organization shape the message about sustainability?

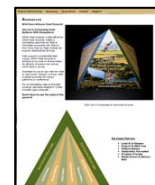
Possible Answer: Whole Foods intention to build a business in which high standards permeate all aspects of our company steers the company toward demonstrating its adherence to best practices in selling sustainable seafood.

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: Centering the color-coded labels lead the reader to wonder “What is best and what should I avoid?” in purchasing sustainable seafood.



“Wild Farm Alliance Food Pyramid”
Wild Farm Alliance
Document 12



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: The Wild Farm Alliance produced this to urge consumers to consider connections between eating habits and ecosystem health.

2) What are the messages about sustainability and food?

Possible Answer: “Stewardship farming” food choices include pasture-raised, predator-friendly, local and organic (Wild Farm Alliance 2005).

3) How does the mission of the organization shape the message about sustainability?

Possible Answer: This new food pyramid reflects a diet that promotes a healthy, viable agriculture that helps protect and restore wild nature.

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: The three dimensional pyramid at top includes images of a hawk, a river and fields, providing a visual clue to what a “wild farm” might look like. The pyramid at the bottom uses the familiar USDA shape with new information on sustainable farming encoded along vertical bars.



Document 13
“Sustainable Beef Resource Center (SBRC)
Sustainable Beef Resource Center



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: The Sustainable Beef Resource Center produced this to encourage those associated with the beef industry to recognize its efforts toward sustainability.

2) What are the messages about sustainability and food?

Possible Answer: Beef can be produced in ways that are safe, affordable and that use fewer natural resources.

3) How does the mission of the organization shape the message about sustainability?

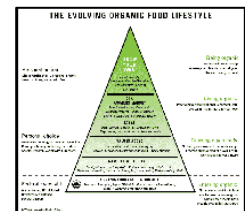
Possible Answer: Marketing and technical representatives of the beef industry want to characterize their brand as safe, affordable and sustainably produced.

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: The “sustainable images” of cattle include a cow and calf in a pasture (top right), a cow silhouette beneath a tree with a dollar sign (bottom left) and a cow silhouette beneath two green arcs (top left).



Document 14
“Beyond USDA Organic: The Evolving Organic Food Lifestyle”
Organic Valley Family Farms



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: The Organic Valley Family Farms produced this to encourage consumers to consider an “organic food lifestyle” and to buy their line of organic products (2011).

2) What are the messages about sustainability and food?

Possible Answer: Organic foods grown locally by farmers in the community are the basis for a sustainable food lifestyle.

3) How does the mission of the organization shape the message about sustainability?

Possible Answer: Organic Valley’s goal of promoting regional farm diversity and economic stability by the means of organic methods products is reflected in the multiple layers of this pyramid.

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: An “organic food lifestyle” is suggested by the choice and lifestyle columns on the left and right sides which can be realized by the action steps within the pyramid.



Document 15
“What is ‘Real Food’?”
Real Food Challenge



Media Sample Questions & Answers

1) Who produced this web page and for what purpose?

Possible Answer: The student campaign, Real Food Challenge, produced this as a way to communicate their complex understanding of what constitutes “real food.”

2) What are the messages about sustainability and food?

Possible Answer: The sustainability of food systems involves the complex interplay of systems and values.

3) How does the mission of the organization shape the message about sustainability?

Possible Answer: The students’ commitment to ideals of environmental sustainability and social justice is reflected in the twelve categories of concern around which their diagram is based.

4) What techniques does the web page designer use to communicate messages about sustainability?

Possible Answer: The integration of concerns and engagement is reflected in the wheel design with images and text provided as a means to define each of the component parts of a “real food” system.

7. To manage the PowerPoint slides during the full-class discussion, select the “slide sorter” view to see all fifteen media documents. Ask students to review the notes they took during the presentations on their mission statement handout sheets. Lead a slide-by-slide vote, tallying each student’s top three perspectives for the most sustainable ideas in terms of personal, social and environmental health. Identify the top three or four choices as selected by the entire class. As you project each of these top choice slides ask students, **“What is it about these web pages and organizational mission statements that makes these perspectives most sustainable for personal, social and environmental health?”**
8. Have students get into groups of two or three. Ask students to each pick one food choice that they often make and discuss the personal, social and environmental health implications of that choice.
9. Lead a discussion of the connection and/or disconnection between our personal food choices and sustainability for personal, social and environmental health.
Probe questions include:
 - Do our personal food choices tend to lead toward a sustainable future?
 - How can we change our food choices sometimes to make them more consistent with our values about sustainability?

FURTHER QUESTIONS

Analyzing Media Messages

Which of these web pages are targeted toward a young audience? What makes you think that?

Could any of these web pages' messages potentially harm the interests of any particular interest group or population? If so, which one(s) and how?

What is the impact of "sustainability appeals" by media producers on people who have fewer choices?

In her book *Food Politics*, Marion Nestle wrote, "The primary mission of food companies is to sell products. Food companies are not health or social service agencies and nutrition becomes a factor in corporate thinking only when it can sell food" (2002, p. 2). **Which of the selected web pages confirms this analysis?**

One of Marion Nestle's detractors said, "Here at the Center for Consumer Freedom, we struggle every day with food-activist claims that are flat-out false, from the supposed 'dangers' lurking in high-fructose corn syrup to the so-called 'health hazards' of mercury traces in fish" (Center for Consumer Freedom, 2010). **Which of the presented web pages confirms this accusation?**

Self Reflection

What factors impact your decisions on what foods will make up your primary diet?

Which of these web pages caused you to reconsider your food choices and why?

Underlying Values and Motives

How do economic factors impact the food choices of individuals, families and communities? For instance, are low-income people more or less likely to know about and have access to local and organic food sources? Why or why not?

When people feel trapped by their economic circumstances, where can they get nutritious food?

How important is culture in guiding food choice? Which websites appeal to cultural associations with food and how are those appeals made?

These websites measure the sustainability of food by examining one or more of its aspects: the nutritional value, equitable access, carbon footprint, as well as the profitability of the food industry. **What is the relative importance of each of these elements of food sustainability?**

In traditional societies, food was chosen based on what local plants were currently in season. **Is the ability to access foods grown in a different season halfway around the world sustainable?**

EXTENDED ACTIVITIES

Design your own sustainable food media presentation for your school or community. What media form(s) will you choose? What aspect of food choice(s) will you focus on? Who is your target audience? What do you hope your audience will learn or do as a result of your efforts?

Investigate and report on contrasting beliefs regarding plant-based and meat-based diets as models for sustainable food production.

Do a systems analysis of the food choices highlighted in the web pages, focusing on their carbon footprint. Trace the amount of fossil fuels needed to bring each of these food choices from earth to table including agricultural inputs, transportation, marketing, etc.

Interview elders in your family and community to discover who provided food choice guidance for them when they were your age.

Contact several of the groups presented in this lesson to follow up with questions of your own about food guidance and sustainability.

Pick a web page from this lesson and evaluate it using Marion Nestle's ethical questions on the social and environmental impact of food choices from your *Student Reading*.

Find three food-related web pages not included in this set and evaluate how the page's mission statement of the page creator shapes the message(s) about sustainability.

For three days, keep a detailed diet log of everything you eat. Based on these notes, calculate the average daily footprint of your food choices. You can use the calculator tools available on-line, for example at eatlowcarbon.org.

Investigate where your school cafeteria gets its food from and whether the food choices you are provided with are sustainable. Brainstorm about what can be done to make the food served at your school healthier and more environmentally responsible.

Interview a supermarket manager to ask how the decision is made as to the arrangement of the breakfast cereals on the shelf.

Research The Jemima Code to investigate how food advertising is linked to race and class.

CONNECTIONS

L6, 7, 9, 10, 16, 17, 19
 (local food)

L6, 7, 10, 15, 16, 17, 19
 (organic & conventional farming)

L 6, 7, 9, 10, 14, 15, 16, 17, 18, 19
 (food security)

L7, 8, 10, 12, 15, 16, 17, 18
 (work & labor)

L3, 6, 8, 9, 14, 16, 17, 18, 19
 (fossil fuel)

L3, 6, 9, 11, 16, 17, 18, 19
 (climate change)

L2, 7, 11, 13, 17, 19
 (creative arts)

L6, 7, 13, 14, 17, 18, 19
 (advertising)

L6, 10, 17, 19
 (webpage analysis)

Guiding Our Food Choices

In 1971, Frances Moore Lappe wrote a popular and influential book entitled *Diet For a Small Planet*, in which she argued that the United State's agricultural system wastes resources and promotes hunger by growing grain to feed livestock. In her book, she proposed a plant-centered vegetarian diet that would be healthier for people and would result in a more equitable distribution of food resources to a hungry world. A generation later, her daughter Anna Lappe published a new volume, *Diet for a Hot Planet*. In the book, she criticized the high carbon costs of industrial farming and offered her idea for a diet based on organic local food production that would support a climate-friendly food system.

In contrast, Alex Avery, author of *The Truth About Organic Foods*, argued that the industrial food system made people healthier and that organic food was more likely to be a health risk than conventional food. Avery suggested that the alleged impacts of industrial agriculture - pesticide contamination, topsoil loss and nitrogen fertilizer pollution - are not the problems that they are made out to be. Avery wrote that concerns about industrial agriculture are advanced by individuals who are opposed to corporations and who want a return to "a mythical agrarian past." His father, Dennis Avery, author of *Saving the Planet with Pesticides and Plastic*, supported these views, claiming that salt-tolerant genetically modified crops are the answer to the "modern warming" trends characterized by prolonged periods of drought (2000, p. 277).

How can we explain the difference between the views of the Lappes and the Averys? One way to explore the contrasts is to look at the mission statements of the organizations that support their research. Alex and Dennis Avery work for The Center for Global Food Issues, a project of the Hudson Institute. The Hudson Institute works to "promote free trade in agricultural products for both economic efficiency and environmental conservation [and] combat efforts to limit technological innovation in agriculture, the foundation for continued innovation in agriculture, the foundation for continued agricultural sustainability [and to] heighten awareness of the connection between agricultural productivity and

environmental conservation" (Avery, Avery, Juday, Elam & Durham, n.d. para. 3). This mission statement is consistent with the Averys' arguments in support of industrial agriculture.

Anna and Frances Lappe founded the Small Planet Institute "to further an historic transition: a worldwide shift from the dominant, failing notion of democracy — as something done to us or for us — toward democracy as a rewarding way of life: a culture in which citizens infuse the values of inclusion, fairness and mutual accountability into all dimensions of public life. We call this Living Democracy" (2011, para. 1). Similarly, the Lappes' arguments are ones which support local, cooperative and non-corporate solutions.

In her 2002 book, *Food Politics: How the Food Industry Influences Nutrition and Health*, author Marion Nestle argued that "the primary mission of food companies is to sell products. Food companies are not health or social service agencies and nutrition becomes a factor in corporate thinking only when it can sell food" (p. 2). Nestle proposed a set of ethical questions, listed below, as a means to evaluate the social and environmental impact of the food choice decisions made by those who produce, sell and advise us about our food. Her questions relate to three areas:

Production methods – those who produce our food

- Do they protect and preserve natural resources?
- Do they avoid pollution of air, land, and water?
- Do they adequately reward producers of basic farm products?
- Do they ensure food safety?
- Do they ensure worker safety and economic benefits?
- Do they promote nutritional quality?

Marketing methods – those who sell our food

- Do they avoid inappropriate targeting of children?
- Do they emphasize products of high nutritional quality?
- Do they disclose the contents of products?
- Do they avoid making inappropriate or misleading health claims?
- Do they avoid exerting inappropriate pressure on officials in legislative, judiciary, and executive branches of government?
- Do they avoid exerting inappropriate pressure on journalists or their employers?
- Do they avoid exerting pressure on nutrition and food professionals to engage in activities that give rise to conflicts of interest?

Advising methods – those who advise us about our food

Do they consider the balance between risks and benefits whenever possible?

Do they take ethical issues into consideration?

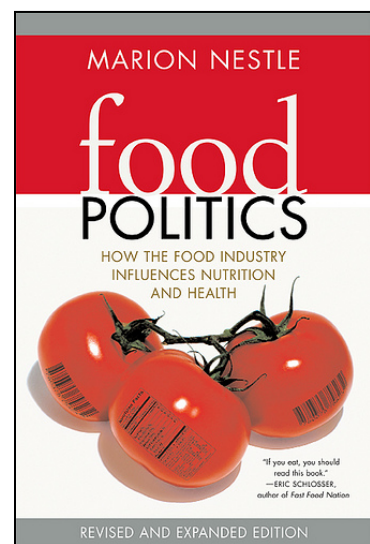
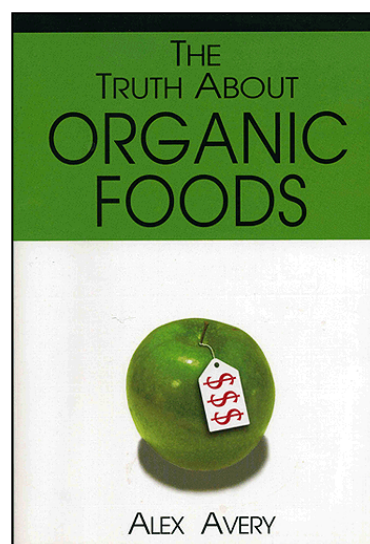
Do they promote ethical choices whenever possible? (p. 372)

The Center for Consumer Freedom is a nonprofit organization devoted to promoting personal responsibility and protecting consumer choices: “We believe that the consumer is King. And Queen” (2011, para. 1). The Center alleged that Marion Nestle’s perspectives on food industry motives amounted to an attack on the free speech rights of corporations. In a blog post, the Center for Consumer Freedom called Nestle a “food fascist,” charging that she used the “guise of ‘good nutrition to push a purely anti-corporate dogma...Here at the Center for Consumer Freedom, we struggle every day with food-activist claims that are flat-out false, from the supposed ‘dangers’ lurking in high-fructose corn syrup to the so-called “health hazards” of mercury traces in fish.” (2010, para. 10).

As you work on this lesson, consider questions of sourcing and credibility as they apply to the media documents you analyze. For instance, you might ask who made this media message, for what purpose, who might benefit from this information and who might be harmed? Also, you may consider the messages about sustainability in our food choices. Will this food choice help you to sustain the health of your body? Will this food choice help to sustain the health of others in your community and in the world? Will this food choice help to support the availability of sufficient food for others? Will this food choice help to reduce fossil fuel use and protect the health of water, air and soil? The bottom line question is about food choice: Who makes the essential choices about the food we eat and how do those choices impact food justice and environmental health for all?

Can you judge a book by its cover?

What messages about food choices are implied by the images on the apple and on the tomatoes in these two book covers?



Media Producers' Mission Statements

1. USDA, http://www.choosemyplate.gov/global_nav/about.html

"The Center for Nutrition Policy and Promotion, an organization of the U.S. Department of Agriculture, was established in 1994 to improve the nutrition and well-being of Americans. Toward this goal, the Center focuses its efforts on two primary objectives:

- Advance and promote dietary guidance for all Americans, and
- Conduct applied research and analyses in nutrition and consumer economics" (2011).

2. Physicians Committee For Responsible Medicine, <http://www.pcrm.org/about/>

"PCRM is a nonprofit organization supported by physicians and laypersons to promote preventive medicine through innovative programs and to encourage higher standards for ethics and effectiveness in research" (n.d.).

3. McDonald's, http://www.aboutmcdonalds.com/mcd/our_company.html

"McDonald's is the leading global foodservice retailer with more than 32,000 local restaurants serving more than 60 million people in 117 countries each day. More than 75% of McDonald's restaurants worldwide are owned and operated by independent local men and women" (2010).

4. Vegan Food Pyramid, <http://veganfoodpyramid.com/>

"Hi I'm Joshua Wold and I'm an artist. I've been a vegetarian or vegan my whole life. In 2006 I designed the Vegan Food Pyramid to help people see all the amazing foods that I can eat. I soon realized that others could make use of this as well. I've let people download free wallpapers of the vegan food pyramid for years. Feel free to share it with friends and family. If you want to buy postcards or posters check out my shop" (2010).

**5. Prairie Band Potawatomi Health Center,
<http://www.pbpindiantribe.com/health-and-wellness.aspx>**

"The Prairie Band Potawatomi Health Center currently operates a number of projects designed to reduce the burden and incidence of diabetes among our patients including this pyramid as part of our Diabetes Prevention Program" (2009).

6. Beliefnet, <http://www.beliefnet.com/About-Us/About-Beliefnet.aspx>

"Beliefnet, the largest spiritual web site, has a mission is to help people find, and walk, a spiritual path that will bring comfort, hope, clarity, strength, and happiness. We are independent and not affiliated with any spiritual organization or movement. Beliefnet receives a significant percentage of its revenue from advertising. Like other media companies, we have to balance our need for happy advertisers with our commitment to editorial integrity" (n.d.).

7. MSNBC, http://www.msnbc.msn.com/id/35484928/ns/who_we_are-msnbccoms_brands

"The Msnbc Digital Network is a collection of innovative and powerful news brands that deliver the most compelling, diverse and visually engaging stories on your platform of choice. We provide something for every news consumer with our comprehensive offerings that deliver the best in breaking news, original journalism, lifestyle features, commentary and local updates down to the block level" (2010).

- 8. International Association for Impact Assessment, <http://www.iaia.org/>**
"IAIA promotes development of local and global capacity for the application of environmental, social, health and other forms of assessment in which sound science and full public participation provide a foundation for equitable and sustainable development. This special symposium will focus on the solutions and actions to adapt to and mitigate the impacts of climate change" (2009).
- 9. Ogilvy & Mather Advertising, <http://www.ogilvy.co.uk/>**
"Ogilvy & Mather Advertising produces 'big picture advertising for big picture clients.' Our client list, a mixture of blue-chip global and domestic brands, is one of the most enviable in the business and includes: American Express; BP; Castrol; Cisco; Coke Zero; Dove; Fanta; Ford; Hellmann's; Huggies; IBM; Kodak; Mattel; Motorola; Munch Bunch; Perrier; Slimfast & UPS" (2011).
- 10. Barilla Center For Food and Nutrition, <http://www.barillacfn.com/en/why-barilla>**
"As a food products company, we are keenly aware of the key role that food and nutrition play now, and that this role will be even more determining for future generations. This is what underlies our conviction of the need for the Barilla Center for Food & Nutrition, a think tank and engine of change with the objective of assembling the best available global knowledge on themes of food and nutrition and how they relate to people, the environment, science and economics" (2011).
- 11. Whole Foods Market, <http://wholefoodsmarket.com>**
"Whole Foods Market is a dynamic leader in the quality food business. We are a mission-driven company that aims to set the standards of excellence for food retailers. We are building a business in which high standards permeate all aspects of our company. Quality is a state of mind at Whole Foods Market" (1997).
- 12. Wild Farm Alliance, <http://www.wildfarmalliance.org/about/index.htm>**
"The Wild Farm Alliance was established by a national group of wildlands proponents and ecological farming advocates who share a concern for the land and its wild and human inhabitants. Our mission is to promote a healthy, viable agriculture that helps protect and restore wild Nature" (2005).
- 13. Sustainable Beef Resource Center, <http://www.sustainablebeef.org/about-us.shtml>**
"The Sustainable Beef Resource Center (SBRC) is comprised of marketing and technical representatives from leading global animal-health companies. The Sustainable Beef Resource Center is a single-purpose team focused on supporting the use of technology to provide safe, affordable, wholesome beef produced sustainably" (n.d.).
- 14. Organic Valley Cooperatives, <http://www.organicvalley.coop/about-us>**
"The mission of the Cooperative Regions of Organic Producer Pools (CROPP) is to create and operate a marketing cooperative that promotes regional farm diversity and economic stability by the means of organic agricultural methods and the sale of certified organic products" (2011).
- 15. Real Food Challenge, <http://realfoodchallenge.org>**
"We are a student-led campaign representing thousands of students who are already working to create a more just and sustainable food system, and have demonstrated a commitment to the highest ideals of environmental sustainability and social justice" (n.d.).



Student Worksheet

NAME _____

DATE _____

To access media documents, go to the *Student Materials* section on the Project Look Sharp homepage - **www.projectlooksharp.org**

Title of Web page: _____

- 1) Who produced this web page and for what purpose?

- 2) What are the messages about sustainability and food? Consider sustainability as it applies to the health of the individual, society, the environment and the food system constituting all of these.

- 3) How does the mission of the organization shape the message about sustainability?

- 4) What techniques does the web page designer use to communicate messages about sustainability? Give examples to support your answer.

Lesson 18:

Biofuels

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LESSON PLAN



Printed
Document



Video Clips

Biofuels

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will understand arguments for and against growing corn as a biofuel commodity.
- Students will recognize how video producers use techniques to persuade consumers to accept their message.
- Students will articulate their own views about whether corn should be grown as a biofuel.

Vocabulary:

biofuel, corn ethanol, commodity, Renewable Fuels Standards, production cap, flex fuel vehicle, soil degradation, Conservation Reserve Program, dead zone, deforestation, ethanol lobby, ethanol subsidy

Media: newspaper articles, Internet videos

Materials Needed:

- Six-page *Teacher Guide*
- Three-page *Student Reading* (includes three separate news articles)
- One-page Student Worksheet – Text
- Six video clips (Access online or via Lesson 18 digital media folder)
- Two-page Student Worksheet - Video

Time: 90 minutes

Lesson Procedures

- Present the *Lesson Introduction* to the class.
- Distribute the Student Worksheet – Text. Have the students work to answer the questions, then lead a discussion on the arguments for and against ethanol and biofuels. Discuss what information was omitted from each article and why that might be.
- Divide the class into pairs and distribute the Student Worksheets – Videos. Play the video clips and have the pairs answer the questions about media messages and techniques. Students will also guess the source of each video.
- After playing all the clips, lead a discussion on which group might have produced each clip and on the differing messages and techniques.
- Have students write a paper on their own views as to whether corn should be grown as a biofuel using information from the media documents to support their position.
- (Optional) Discuss *Further Questions* and investigate the *Extended Activities*.

TEACHER GUIDE

Biofuels

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

Biofuels are fuels made from living material, as opposed to fossil fuels, which are the products of decomposed ancient plants and animals. In the United States, the most common biofuel is ethanol. It is made from corn and is used as a gasoline additive. Proponents of biofuels argue for the merits of ethanol as a “green” fuel source because it reduces dependence on foreign oil, provides jobs in rural communities, creates profits for agribusinesses and offers a boost for alternate technologies, like flex-fuel vehicles, as a means to reduce greenhouse gas emissions. The Renewable Fuels Association and other members of the ethanol lobby have successfully lobbied the federal government to establish a Renewable Fuel Standard that requires oil companies to blend biofuels into the nation’s gasoline supply.

Opponents of corn ethanol and other biofuels argue that devoting rural land to fuel production is environmentally damaging, leading to deforestation, soil degradation, groundwater depletion and dead zones in the Gulf of Mexico due to the vast amounts of nitrogen inputs required to grow corn. Ethanol opponents also argue that taking land out of food production and turning it to fuel production raises the price of grain by decreasing supplies, thus leaving people in the global South at risk of hunger and starvation.

Advocates on every side of this complex issue craft media messages to influence citizens and consumers to embrace their point of view. In this lesson, you will be asked to consider the pro and con arguments for biofuels and the techniques of persuasion that are used by various interest groups. You will then be asked to articulate your own point of view about whether corn should be grown as a biofuel.

3. Distribute the *Student Reading* and explain that these three articles originally appeared in the spring of 2008. The first article is an excerpt from a *Time* cover story; the next two articles were written in response to the *Time* article. Distribute the Student Worksheet – Text. Ask students to read all three articles and to list the authors’ arguments for and against biofuels on their worksheets. **[NOTE: You may elect to give out this assignment as homework.]**
4. After students have completed the accompanying worksheet, lead a discussion on the arguments for and against ethanol and biofuels. You may want to list responses in pro- and anti- columns on the board. Use the following *Media Sample Questions & Answers* to help focus the discussion.

Probe questions might include:

- **Why might these sources have such different analyses of the issue?**
- **Why might each source have selected the particular information to include and leave out?**



“The Clean Energy Scam”
Michael Grunwald, *Time*
March 27, 2008
(excerpt)

Media Sample Questions & Answers

1) What arguments in favor of biofuels are mentioned?

Possible Answer: Pro-arguments – Biofuels provide alternatives to fossil fuels and reduce dependence on foreign oil. They create rural jobs and are an investment opportunity for agribusinesses.

2) What arguments opposing biofuels are mentioned?

Possible Answer: Anti-arguments – Biofuel production destroys rainforests, eliminates essential carbon storehouse and thus accelerates global warming. Raising grain prices makes it harder for hungry people to access food.



“Ethanol Promotion Information Council Responds to Time Article Entitled ‘The Clean Energy Scam’”
Toni Nuernberg, *Biofuels Journal*
April 1, 2008

Media Sample Questions & Answers

1) What arguments in favor of biofuels are mentioned?

Possible Answer: Pro-arguments – Biofuels are a currently available alternative to fossil fuels, absorb CO₂ and burn cleaner. They provide the foundation for the next generation of “advanced biofuels” while creating an incentive for the auto industry to produce flex- and alt-fuel vehicles.

2) What arguments opposing biofuels are mentioned?

Possible Answer: Anti-arguments – No real argument is put forth. The author refers noncommittally to the carbon footprint question by writing that the researchers “reach conclusions regarding the greenhouse gas emissions associated with potential global land-use changes caused by increasing biofuels demand - specifically for corn-based ethanol.”



“Drive 1,000 Miles or Feed a Person for a Year? The Biofuels Dilemma: Can the pumping of ethanol into American fuel tanks really make it harder for parents to feed their families?”
Stan Cox, *AlterNet*
May 9, 2008
(excerpt)

Media Sample Questions & Answers

1) What arguments in favor of biofuels are mentioned?

Possible Answer: Pro-arguments – None

2) What arguments opposing biofuels are mentioned?

Possible Answer: Anti-arguments – Biofuels cause soil degradation by reducing the amount of land held in the Conservation Reserve Program and contribute to water pollution. Transfer of land from grain production to fuel production exacerbates global food crisis.

5. Explain that you will now play six short video clips from different sources, each pertaining to the production of ethanol as a biofuel. Tell the students that they will work with partners to guess which source produced which video and to give evidence for their choice. The producing groups are listed in alphabetical order on the worksheet and include a mix of pro- and anti-ethanol groups. They will also be asked to state whether the message is pro- or anti-ethanol and to name the production techniques used to persuade viewers.
6. Distribute the Student Worksheets – Videos Clips. Play the video clips, pausing without class discussion between each video for pairs to consider answers.

[NOTE: Video titles and producers are listed in the Teacher Guide as answers to the worksheet. Titles are not to be shared with students while they are logging their answers.]

7. After playing the videos survey the class to tally the guesses regarding the source for each one. After collecting the guesses from all the pairs announce the actual sources. Ask whether they were surprised by the actual sources and if so, why. Lead a brief discussion about how content and production techniques can give clues to who might have produced a video or other media document.
8. Ask **“What were the messages on each clip about the production of ethanol?”**
NOTE: Use the Possible Answers guide below to help ensure comprehensive answers.



Video 1: "Ethanol: Now is the Time (NCGA)"

0:34 min. clip

National Corn Grower's Association (2010)



Possible Answers

Message: pro- protects national security and environmental health, creates jobs; it is renewable, abundant and safe.

Techniques: ominous images and quiet drone highlight dangers of oil followed by uplifting strings and images of cornfields with farmers, scientists, families



Video 2: "Biofuels Disaster for Food, People and Planet"

1:28 min. clip

Canadian Biotechnology Action Network (2008)



Possible Answers

Message: anti – drives up food prices, increases greenhouse gas emissions, clear cuts forests, depletes water supplies

Techniques: fast-speaking narrator stands in front of gas station to couple ethanol with dependence on gasoline economy



Video 3: "Ethanol Blues"

0:43 min. clip

Growing Productions (2010)



Possible Answers

Message: anti - drives down land prices, threatens groundwater supplies and is unfair to farmers not receiving ethanol subsidies

Techniques: easy to follow folk song lyrics to "Ethanol Blues" with images of barn and farm



Video 4: "Ethanol is Evil...E85 is Bad"

1:35 min. clip

Jonny Energy, LLC (2009)



Possible Answers

Message: pro – oil is far more damaging to the environment and likely to lead to middle east wars while ethanol leads to a less oil- dependent economy

Techniques: uses irony to contrast satiric phrases with images that make the real point ("I worry about American soldiers dying to protect corn fields" juxtaposed with image of fighter jets over middle eastern oil fields)

Video 5: "GM: Maize Alternative"

0:34 min. clip

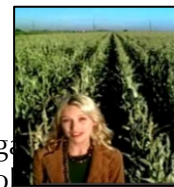
General Motors (2006)



Possible Answers

Message: pro – reduces dependence on oil and greenhouse gas emissions. Vehicles are already in production to run on ethanol.

Techniques: young people stand near corn fields to make the case for "living green"



Video 6: "The Corn Ethanol Debacle"

0:34 min. clip

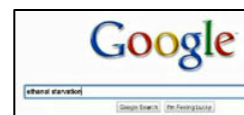
Biodiversivist (2010)



Possible Answers

Message: anti – trading corn as food for corn as ethanol creates starvation, dead zones in the Gulf, deforestation and is fueled by billions spent by ethanol lobbyists

Techniques: ominous low percussive music behind quick google scrolls highlight aspects of ethanol concern



9. Ask, "Why might these sources have represented the impacts of ethanol production so differently?" *[NOTE: Encourage students to reflect on what is deliberately highlighted and what is left out as each media producer makes his or her case. For instance, none of the pro-ethanol videos mention the issue of rising corn prices, which lead to hunger concerns, while none of the anti-ethanol videos address the argument that ethanol production creates jobs in the US. Be sure to discuss the difficulties in presenting complex answers in the thirty second to minute-and-a-half spots represented by these videos.]*
10. Ask, "Which of these perspectives do you find the most compelling and why?"
11. Have students write a paper on their own views as to whether corn should be grown as a biofuel using information from the media documents to support their position.

FURTHER QUESTIONS

Analyzing Media Messages

What sources would you need to study in order to further explore the arguments made in each of the text articles?

Words, images and music are all part of the power of video production. **Which words, images and soundtrack choices were most compelling for you in these videos and why?**

Who were the target audiences for each of these productions?

Who might benefit and who might be harmed by each of these messages?

Self Reflection

What is your primary mode of transport and how does that choice relate to the ethanol debate?

Who are the energy, transportation and food production stakeholders in your area who are most concerned with these issues?

What does your family think about the ethanol question? Has it been a source of discussion in your household? Why or why not?

Which medium, text or video, is your favored way to receive information on complex questions and why?

Underlying Values and Motives

What values are explicit or implied in the videos you have just seen?

What values should guide the development of technological innovations like flex fuel vehicles and alternative fuel production?

In what ways does the social expectation that we should be able to travel far and fast cause us to take dangerous risks in the search to sustain personal transportation demands?

Who does and who should decide what crops are planted on the fertile lands that make up our national soil resource?

Who does and who should decide what energy sources will be the primary ones for research and development in our country?

EXTENDED ACTIVITIES

Study media reporting on how different communities, states and countries have dealt with the question of whether to produce biofuels as a commodity. Make sure to include a diverse range of representatives in your study. For example, you might look at ethanol from the perspective of the largest corn producers (states like Iowa and Illinois) and countries, like China and Brazil. Do not forget to study smaller corn-producing communities like the Amish and the Hopi.

Do an EIEO (Energy In, Energy Out) analysis comparing the amount of energy required to produce a variety of fuels: gasoline, ethanol, diesel, etc. Decide on which form of media would be best to present your analysis (video, web page, schematic diagram, etc.), then produce a document that is the best vehicle to convey your conclusion.

Conduct an informal poll among family and community members. Ask them to rank the most pressing global issues of the day – climate change, hunger, transportation infrastructure, employment, water security, etc. Then ask how they rate various energy sources as a means to deal with these problems – biofuels, solar, oil, natural gas, wind, etc. Report your results to the class and lead a discussion on how best to reach consensus on such contentious issues at the community, national and global levels.

In his book, *Consulting the Genius of the Place: An Ecological Approach to a New Agriculture*, botanist and geneticist Wes Jackson says, “It is worth being reminded again and again that it is not climate change that has destroyed so much of the ecosphere, it is energy” (2011, p. 90). Stage a classroom debate using this sentence as the debate topic. Ask students to include ethanol and biofuels in their presentations.

Make a chart showing the intended and unintended consequences of ethanol production making clear the sources for each declared consequence. For example, use the websites of Renewable Fuels Association and the National Corn Growers Association for quotes on intended consequences and websites from National Petrochemical and Refiners Association and the Environmental Working Group for quotes on unintended consequences.

Check to see if ethanol or other biofuels are available for purchase in your community and how and why gas stations publicize or conceal the composition of the fuel they sell.

CONNECTIONS

L 6, 9, 10, 15, 16, 18, 19
 (seeds & crops)

L 6, 7, 9, 10, 14, 15, 16, 17, 18, 19
 (food security)

L8, 9, 11, 12, 13, 15, 16, 18, 19
 (global trade)

L3, 6, 8, 9, 14, 16, 17, 18, 19
 (fossil fuel)

L3, 6, 9, 11, 16, 17, 18, 19
 (climate change)

L2, 6, 14, 15, 16, 18, 19
 (unintended consequences)

L2, 6, 7, 9, 10, 12, 13, 14, 15, 18
 (film & video)

L6, 7, 13, 14, 17, 18, 19
 (advertising)

L14, 16, 18
 (news reporting)

"The Clean Energy Scam"

Michael Grunwald, *Time*

March 27, 2008

(excerpt)

"From his Cessna a mile above the southern Amazon, John Carter looks down on the destruction of the world's greatest ecological jewel. He watches men converting rain forest into cattle pastures and soybean fields with bulldozers and chains. He sees fires wiping out such gigantic swaths of jungle that scientists now debate the "savannization" of the Amazon. Brazil just announced that deforestation is on track to double this year; Carter, a Texas cowboy with all the subtlety of a chainsaw, says it's going to get worse fast. "It gives me goose bumps," says Carter, who founded a nonprofit to promote sustainable ranching on the Amazon frontier. "It's like witnessing a rape."

The Amazon was the chic eco-cause of the 1990s, revered as an incomparable storehouse of biodiversity. It's been overshadowed lately by global warming, but the Amazon rain forest happens also to be an incomparable storehouse of carbon, the very carbon that heats up the planet when it's released into the atmosphere. Brazil now ranks fourth in the world in carbon emissions, and most of its emissions come from deforestation. Carter is not a man who gets easily spooked—he led a reconnaissance unit in Desert Storm, and I watched him grab a small anaconda with his bare hands in Brazil—but he can sound downright panicky about the future of the forest. "You can't protect it. There's too much money to be made tearing it down," he says. "Out here on the frontier, you really see the market at work."

This land rush is being accelerated by an unlikely source: biofuels. An explosion in demand for farm-grown fuels has raised global crop prices to record highs, which is spurring a dramatic expansion of Brazilian agriculture, which is invading the Amazon at an increasingly alarming rate. Propelled by mounting anxieties over soaring oil costs and climate change, biofuels have become the vanguard of the green-tech revolution, the trendy way for politicians and corporations to show they're serious about finding alternative sources of energy and in the process

slowing global warming. The U.S. quintupled its production of ethanol—ethyl alcohol, a fuel distilled from plant matter—in the past decade, and Washington has just mandated another fivefold increase in renewable fuels over the next decade. Europe has similarly aggressive biofuel mandates and subsidies, and Brazil's filling stations no longer even offer plain gasoline. Worldwide investment in biofuels rose from \$5 billion in 1995 to \$38 billion in 2005 and is expected to top \$100 billion by 2010, thanks to investors like Richard Branson and George Soros, GE and BP, Ford and Shell, Cargill and the Carlyle Group. Renewable fuels has become one of those motherhood-and-apple-pie catchphrases, as unobjectionable as the troops or the middle class.

But several new studies show the biofuel boom is doing exactly the opposite of what its proponents intended: it's dramatically accelerating global warming, imperiling the planet in the name of saving it. Corn ethanol, always environmentally suspect, turns out to be environmentally disastrous. Even cellulosic ethanol made from switchgrass, which has been promoted by eco-activists and eco-investors as well as by President Bush as the fuel of the future, looks less green than oil-derived gasoline.

Meanwhile, by diverting grain and oilseed crops from dinner plates to fuel tanks, biofuels are jacking up world food prices and endangering the hungry. The grain it takes to fill an SUV tank with ethanol could feed a person for a year. Harvests are being plucked to fuel our cars instead of ourselves. The U.N.'s World Food Program says it needs \$500 million in additional funding and supplies, calling the rising costs for food nothing less than a global emergency. Soaring corn prices have sparked tortilla riots in Mexico City, and skyrocketing flour prices have destabilized Pakistan, which wasn't exactly tranquil when flour was affordable.

Biofuels do slightly reduce dependence on imported oil, and the ethanol boom has created rural jobs while enriching some farmers and agribusinesses. But the basic problem with most biofuels is amazingly simple, given that researchers have ignored it until now: using land to grow fuel leads to the destruction of forests, wetlands and grasslands that store enormous amounts of carbon..."

**"Ethanol Promotion Information Council
Responds to Time Article Entitled
"The Clean Energy Scam"**

**Toni Nuernberg, *Biofuels Journal*
April 1, 2008**

The following is a letter to the editor of *Time* Magazine by Toni Nuernberg, executive director of the Ethanol Promotion and Information Council (EPIC), in response to the March 27, article "The Clean Energy Scam."

In Michael Grunwald's March 27 article "The Clean Energy Scam," corn-based ethanol is the scapegoat of the week.

Though Grunwald draws attention to the vitally important need for evaluation of global land-use changes, the environmental finger pointing at corn-based ethanol by his sources has come to the point of ridiculous.

The fuel behind this latest fiery round of environmental blame game is two studies posted mid-February in *Science Express*.

The papers, authored by Timothy Searchinger and Joseph Fargione, reach conclusions regarding the greenhouse gas emissions associated with potential global land-use changes caused by increasing biofuels demand -- specifically for corn-based ethanol.

Their conclusions are considered debatable by others in the scientific community.

Unfortunately, the topic of global climate change and the impact of possible sources of carbon emissions are complicated and multi-factorial issues which require continued and thorough research.

Information from the United States EPA found at <http://epa.gov/climatechange/index.html> illustrates the complexity of the issue.

The existence of life on Earth, and certainly human life, has been impacting Earth's environment for million's of years.

On the EPA site, you will read, consumption of fossil fuels is the greatest contributor of carbon emissions.

In fact, the amount of carbon dioxide dumped into the atmosphere annually by burning fossil fuels is projected to rise worldwide from about 24 billion metric tons in 2002 to 33 billion metric tons in 2015.

Grunwald fails to report this.

He also fails to consult experts in the field of biofuels lifecycle analysis, such as Dr. Bruce Dale of Michigan State and Dr. Michael Wang of the U.S. Department of Energy's (DOE) Argonne National Laboratory.

Both experts agree that the studies by Searchinger and Fargione raise important issues. However, they question many of the assumptions made by Searchinger and Fargione, and term them "highly speculative and uncertain scenarios for what might happen as a result of increased demand for corn grain."

Most notably, they point out the assumptions by Searchinger double the level of corn ethanol (as gasoline additive) that is actually required under the new Renewable Fuels Standards by 2015, an assumption that's not realistic to U.S. corn ethanol production in the next seven years. Congress established a production cap of 15 billion gallons of corn ethanol by 2015 to help guard against dramatic land use changes.

But Searchinger bases his projections on a model in which U.S. corn ethanol production increased from 15 billion gallons a year to 30 billion gallons a year by 2015. Thus, the findings are irrelevant.

Ultimately, environmentally sustainable solutions to our dependence on fossil-based fuels must be found and research must be conducted to identify possible unintentional consequences of these solutions.

We believe corn-based ethanol, while not a biofuels silver bullet, is a viable foundation upon which the next generation of "advanced biofuels" can be built.

The ethanol industry is fueling research into technologies that will improve production of cellulosic ethanol from feedstocks such as switchgrass, crop waste and other renewable biomass.

These offer additional environmental benefits because they not only absorb CO₂ as the feedstuffs are grown (corn and switchgrass are high users of CO₂), the fuel produced is cleaner burning than fossil-based fuels.

In addition, today's grain-based ethanol industry is providing the auto industry with incentive to manufacture flex-fuel and alternative-fuel vehicles and creating an infrastructure to distribute ethanol produced from any feedstock.

Unlike other alternatives that are years from reaching availability, state-of-the-art technology, ethanol-enriched fuel is available now, and can be used in our current infrastructure. Perhaps the biofuels detractors should put a halt to the creation of studies to support the "agenda du jour" and more effort put into finding solutions.

**"Drive 1,000 Miles or Feed a Person for a Year?
The Biofuels Dilemma: Can the pumping of
ethanol into American fuel tanks really make it
harder for parents to feed their families?"**

Stan Cox, *AlterNet*

May 9, 2008

(excerpt)

"In corn fields and rice paddies across the global south, farmers pace back and forth with panfuls of commercial fertilizer, metering out the precious granules by the handful. Meanwhile in America's Corn Belt, big farm implements stuff more nitrogen into the soil than the soil can hold or crops can absorb. As natural gas (the chief input for making nitrogen fertilizer) becomes even more expensive and the world market decides who gets access to costly nitrogen, it will be ethanol cropping -- whether it's with corn, switchgrass or other nitrogen-hungry species -- that goes straight to the head of the line.

The Worldwatch Institute's Lester Brown has been talking for months now about "competition for grain between the world's 800 million motorists and its 2 billion poorest people who are simply trying to survive." The competition for nitrogen is forecast to be just as sharp, with the wealthier motorists favored to win.

Undercutting future harvests?

More than a century of research, on top of millennia of experience, show that cropping of annual plants like wheat, rice, corn and soybeans inevitably degrades soil. It is estimated that almost 5 billion acres -- 15 percent of the planet's entire land surface -- is now subject to human-caused soil degradation, mostly from agriculture.

On this continent, two developments have helped reduce soil loss by one-third over the past two decades: adoption of so-called "no-till" methods for reducing soil erosion and congressional passage of the Conservation Reserve Program (CRP), which pays farmers to take the most erodible land out of production altogether and sow it to mixtures of native grasses and other plants. The CRP accounts for a much bigger reduction in soil loss than does no-till, but both have helped.

Biofuels now threaten to undermine future food production by reversing hard-won progress against soil degradation. First, the high price of biofuel

crops is leading farmers to withdraw millions of acres from the CRP and put them back into cultivation. That will reduce the useful lifetime of those soils, which need permanent perennial vegetation. Second, as soon as methods for producing ethanol from cellulose have been employed on a large scale, crop "residues" -- the dry stems and leaves left on the ground after harvest -- will be collected and hauled off to biofuel plants.

A U.S. Department of Energy/Department of Agriculture blueprint for supplanting just 30 percent of U.S. petroleum consumption with biofuels would not only consume vast quantities of intensively cropped grain but would also strip 75 percent of crop residues from the soil after harvest. That will further deplete the organic-matter content of farm soils. Concern is also rising that stepped-up depletion and pollution of water resources by corn destined for ethanol plants will undercut America's capacity to produce food in the future.

Future food supplies elsewhere in the world also depend on intact, healthy ecosystems, and those appear to be under threat. In a recent Time cover story, Michael Grunwald described the "chain reaction" that has accelerated deforestation in the Amazon basin: "U.S. farmers are selling one-fifth of their corn to ethanol production, so U.S. soybean farmers are switching to corn, so Brazilian soybean farmers are expanding into cattle pastures, so Brazilian cattlemen are displaced to the Amazon. It's the remorseless economics of commodities markets." Indonesia and Malaysia face a similar crisis, with oil palm plantations displacing rainforests in order to supply biofuels for Europe.

The bottom line on the food crisis was summed up in a May 6 commentary by Barry Coates, executive director of Oxfam New Zealand, in which he reminded the world that "even without the current food crisis, over 850 million people do not have enough to eat. Now many more face a similar fate."

Meanwhile India's Finance Minister P. Chidambaram has articulated an ethical bottom line: "As citizens of the world, we ought to be concerned about growing food and converting it into fuel [to meet] lopsided priorities of certain countries. It is the most foolish thing that humanity can do." The ethanol and biodiesel industries have struggled for decades to overcome technological, biological and political obstacles. Now, just as the biofuel express gathers some real momentum, the prospect of worldwide hunger could derail it for good..."



Student Worksheet – Text Excerpts

NAME _____

DATE _____

“The Clean Energy Scam”

1) What arguments in favor of biofuels are mentioned?

2) What arguments opposing biofuels are mentioned?

“Ethanol Promotion Information Council Responds to Time Article Entitled ‘The Clean Energy Scam’”

1) What arguments in favor of biofuels are mentioned?

2) What arguments opposing biofuels are mentioned?

“Drive 1,000 Miles or Feed a Person for a Year?”

1) What arguments in favor of biofuels are mentioned?

2) What arguments opposing biofuels are mentioned?



Student Worksheet – Video Clips

NAME _____ DATE _____
For each video clip:

- Circle whether the video is pro- or anti-ethanol production and list one or more messages about biofuel/ethanol
- List one or more techniques used by the producer to convey the message
- Circle your guess for the source that made this video.

Circle which source you think produced each video. Use these brief descriptions of the six sources to help you with your guesses:

Biodiversivist – blog combining diversivist, one who strives to preserve diversity, with bio meaning life

CBAN – Canadian Biotechnolgoey Action Network, promoting food sovereignty and democratic decision-making on science and technology issues (2011)

GM – General Motors is one of the world's largest automakers

Growing Productions (GP) – producer of Public Service Announcements in rural communities (Gates, 2011)

Jonny Energy, LLC - distributor of flex fuel conversion kits to allow cars to use ethanol as fuel

NCGA – National Corn Growers Association, with mission to create opportunities for corn growers

Video 1 – Pro-ethanol or Anti-ethanol (circle one)

Message:

Techniques:

Circle your guess for source: Biodiversivist CBAN GM Jonny Energy GP NCGA

Video 2 Pro-ethanol or Anti-ethanol (circle one)

Message:

Techniques:

Circle your guess for source: Biodiversivist CBAN GM Jonny Energy GP NCGA

Video 3 – Pro-ethanol or Anti-ethanol (circle one)
Message:

Techniques:

Circle your guess for source: Biodiversivist CBAN GM Jonny Energy GP NCGA

Video 4 – Pro-ethanol or Anti-ethanol (circle one)
Message:

Techniques:

Circle your guess for source: Biodiversivist CBAN GM Jonny Energy GP NCGA

Video 5 – Pro-ethanol or Anti-ethanol (circle one)
Message:

Techniques:

Circle your guess for source: Biodiversivist CBAN GM Jonny Energy GP NCGA

Video 6 – Pro-ethanol or Anti-ethanol (circle one)
Message:

Techniques:

Circle your guess for source: Biodiversivist CBAN GM Jonny Energy GP NCGA

Lesson 19:

Transitioning to a Sustainable Future

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LESSON PLAN



Printed
Document



PowerPoint
Slide Show

Transitioning to a Sustainable Future

[NOTE: Teachers may want to use this activity as a culminating activity for the entire kit.]

[NOTE: Lesson 1 contains content information from Lessons 6-19 in a series of PowerPoint slides. The PowerPoint is divided lesson-by-lesson, so teachers can select the appropriate slides to either introduce a lesson or review any Lesson from 6-19.]

Lesson Objectives:

- Students will define and articulate their views on transitioning to a sustainable future.
- Students will analyze and evaluate models of sustainability through the themes of social justice, climate change, fossil fuel depletion and economic systems.
- Students will demonstrate their abilities to critically analyze and critique media constructions of sustainability.

Vocabulary:

ecovillage, vegan, biotechnology, GMO crops, biofuels, fair trade, vermiculture, composting, food justice, post-carbon community, water footprint, community supported agriculture (CSA), dryland farming, Habitat for Humanity, vertical farm, locavore, in vitro meat, no-till farming, food security

Media: web page, blog post, poster, book cover

Time: two – four hours, depending on the number of topics and optional concluding debate, additional time may be required for reading, writing, and independent research

Materials Needed:

- Four-page *Teacher Guide*
- Two-page *Student Handout - Media Document Pairings*
- 48 slide PowerPoint show (Access online or via Lesson 19 digital media folder)
- Two-page *Student Worksheet*
- One-page *Student Assessment*

Lesson Procedures

- Present the *Lesson Introduction* to the class.
- Lead students in a brief writing activity reflecting on their views of what is required to guarantee a sustainable supply of food and water for all people.
- Divide the class into a maximum of 24 teams (or individuals), one for each topic and distribute the Student Worksheet to each group or student.
- Have each team independently view and analyze the document pairs and identify how the documents address the themes of social justice, global warming, fossil fuel depletion, economic systems and what media literacy questions might best apply to these documents.
- Using the PowerPoint presentation, review each media document pair with the class. Have each team present their analysis to the class using the guidelines from their worksheet.
- Have the students write a culminating “Take a Stand” paper discussing one of the central themes to the sustainability of food, water and agriculture.
- (Optional) Have students discuss each of the four themes in small groups or in a round table in front of the class, identifying the importance of that theme and advocating models for a sustainable future.

TEACHER GUIDE

Transitioning to a Sustainable Future

1. Organize and make copies for the class activities.
2. Introduce the lesson:

Lesson Introduction

Transition movements in the 21st century are based on the understanding that human beings must move away from 20th century models rooted in a mindset of endless growth, an infinite supply of natural resources and a stable planetary ecosystem. Transition movements realize that the ongoing depletion of fossil fuels and climate change will require new solutions in order to provide for an equitable and sustainable distribution of food and water resources. Some transition models suggest that these changes can happen within the structures of an extractive economy, while others believe that new economic forms will be required to make the shift to a society less dependent on fossil fuels as the earth grows hotter.

This assessment will evaluate your ability to synthesize your knowledge about the sustainability of food, water and agriculture by asking you to evaluate pairs of media documents. You will be required to present to the class your analysis of how well each document responds to key themes: social justice, fossil fuel depletion, climate change and economic systems. You will complete the assessment by writing a paper in which you take a stand on a transition pathway that takes into account all four themes.

PREPARATION

3. Have students take 10 minutes to write down their thoughts about what values and strategies might lead to a sustainable supply of food and water for all people for the foreseeable future. You may elect to have students share these observations or to keep them for subsequent reflection at the end of the lesson.
4. Divide the class into a maximum of 24 teams (or individuals), one for each topic.
[NOTE: Depending on the size and particular focus of the class, you may elect to use fewer topics and eliminate certain media document pairs from consideration. Review the two page handout of Media Document Pairings to see the diverse range of transition topics organized into sections related to overarching concerns, organizing process and techniques.]
5. Distribute two media documents and the Student Worksheets to each team or individual.
[NOTE: You may elect to have students preview the media document topics (see Student Handout -Media Document Pairings) or the images in the PowerPoint in order to have students select topics that mesh with their interests. Students can also view their media document pairings outside of class. Explain how students can access the Student Materials section from the Project Look Sharp home page.]

6. Instruct teams to view, analyze and prepare to present each document using the criteria on the worksheets.
 - How well does the transition solution integrate the key themes? Does it take into account issues of social justice by addressing leadership, equity and accessibility as they relate to race, culture, gender and class? Does it address the issue of a dwindling supply of natural resources? Does it speak to the reality of climate change? Does it address the capacity of economic systems to enact the proposed solution?
 - How practical do the transition solutions appear to be? Do they appeal to a wide audience? Can they be achieved with our current or foreseeable technological capacity?
 - Which media literacy question best serves to deepen understanding of their document pair and how do they respond to this question?

[NOTE: Students may prepare for their class presentations as a homework assignment.]

DOCUMENT ANALYSIS PRESENTATION

7. Introduce the presentations by explaining how many minutes each team will have to offer an analysis of how well each transition solution integrates the key themes and how practical the transition solutions might be. They will also select and answer a media literacy question that they think best serves to deepen an understanding of their document pair. Remind students to take notes on each presentation and document pairing because they will be required to reference at least three transition models in their final paper.

CULMINATING PAPER AND DEBATE

8. Have the students write a culminating “Take a Stand” paper discussing the importance of one of the central themes to the sustainability of food, water and agriculture.
(See *Student Worksheet*)
NOTE: This exercise assumes that students will have completed a majority of lessons in this kit for background knowledge required to make these judgments.
9. (Optional) Have students discuss each of the four themes in small groups or in a roundtable in front of the class, identifying the importance of that theme and advocating models for a sustainable future.

FURTHER QUESTIONS

Analyzing Media Messages

Which media documents were most persuasive or most credible and why?

Which of the media literacy questions did you find particularly compelling and why?

Self Reflection

Which of these transition strategies were familiar to you and which were not? Why?

Who are the elders or mentors in your life who speak to you about issues of transition?

Which transitional models do you want to apply to your life and why?

Underlying Values and Motives

Which transition strategy is most concerned with the health of the soil, the health of the water, the health of the children?

Which transition efforts assume the greatest impact of global warming in their design?

Each transition movement is based on certain assumptions about the energy sources. Some models are based on the assumption of the ongoing availability of fossil fuels, some on untested alternative technologies and some on dramatically reduced energy needs. **How do assumptions about the amount and type of energy require influence the transition strategy one chooses to embrace?**

How do transition movements deal with the limits of certainty and the inevitability of unforeseen consequences of current actions?

Are our current economic, social or political systems sustainable? Which transition strategy makes the most compelling case that our current systems are sustainable with modest reform measures? Which calls for entirely new structures to replace our current systems?

Which transition strategy best represents the interests of: working people, people of color immigrants, wealthy people, corporations?

Which of these strategies are specific to the United States and which are truly international?

Are people who are living in poverty concerned about the issues of transitioning to a sustainable life? Why or why not?

EXTENDED ACTIVITIES

Research and advocate for additional transition strategies and find two media constructions for each one.

Host a school forum - *Transition Strategies for a Sustainable Future*. Look for transition models in your area and invite representatives to your forum.

Use your "Take a Stand" paper as the basis for a letter to the editor, blog posting or Internet video.

Interview your family and friends about their opinions on transition movements and strategies. Ask them about how global warming, social justice and peak oil fit into their judgments about transition.

Investigate media coverage of the topics presented in this lesson within your community. What media forms have covered each issue? Have these particular media forms taken editorial positions on one side or another of the issue? Consider a variety of media sources, including local daily and weekly newspapers, student newspapers, cable TV, local news, websites, Internet videos, and blog postings.

CONNECTIONS

L 6, 9, 10, 15, 16, 18, 19
(seeds & crops)

L6, 7, 9, 10, 16, 17, 19
(local food)

L6, 7, 10, 15, 16, 17, 19
(organic & conventional farming)

L6, 7, 9, 19
(urban agriculture)

L 6, 7, 9, 10, 14, 15, 16, 17, 18, 19
(food security)

L 6, 11, 12, 13, 19
(water rights)

L8, 9, 11, 12, 13, 15, 16, 18, 19
(global trade)

L3, 6, 8, 9, 14, 16, 17, 18, 19
(fossil fuel)

L3, 6, 9, 11, 16, 17, 18, 19
(climate change)

L2, 6, 14, 15, 16, 18, 19
(unintended consequences)

L2, 7, 11, 13, 17, 19
(creative arts)

L6, 7, 13, 14, 17, 18, 19
(advertising)

Media Document Pairings

OVERARCHING CONCERNS

Technology Scale - 1 & 2

Ahimsa ecovillage – blog poster of small-scale grassroots organic vegan homestead

Saving the planet with pesticides and plastic – web page promoting biotechnology

Economic Models - 3 & 4

Community economies – web page by researchers exploring community-based alternatives

Agriculture 2.0: Is green ag the next investor playground? – web page from change.org

Corporate Responsibility - 5 & 6

Walmart – web page on corporate sustainability practices

Business Alliance for Local Living Economies – web page on mission, values and principles

Metrics: Measuring Sustainability - 7 & 8

Sustainability indicators – web page of Manitoba Round Table for Sustainable Development

Global footprint network – web page from group “advancing the science of sustainability” (2010)

Urban Sustainability - 9 & 10

The rise of urban farming – web page on city agriculture

Making cities sustainable – web page on “green the ghetto” initiative

Adaptations to Terrestrial Collapse - 11 & 12

How to Survive the Collapse of Civilization – book cover and content sketch

Nomadic floating cities – web page from futuretimeline.net

Water Privatization - 13 & 14

Beyond corporate greed – web page opposing privatization of public water supplies

Water privatization can help Detroit avoid drowning in debt – web article of public policy center

Food Security - 15 & 16

Food justice – web page for food security sustainability conference

Detroit Black Community Food Security Network – web page for local food security effort

Farmer to Consumer Relationships - 17 & 18

Saffire Farms CSA – poster for community supported agriculture group

Mo’ Better Food – web page on African American farmers market

Housing and Food - 19 & 20

Habitat houses now come with organic gardens – blog page on Habitat for Humanity home

Terreform 1 – architectural web page rendering of “living nutrient” prefab home

Land Access - 21 & 22

Vertical farms of the future – web page drawing of high tech indoor farm

EcoFarm conference – web page on “Access to land and capital” workshop

Local Food - 23 & 24

Where imagination meets farming – web page on winter greenhouse for lettuce in Vermont

The rise of the lazy locavore – web news article on “urban sharecropping”

ORGANIZING PROCESS

Community Education - 25 & 26

Center for native peoples and the environment – web page on traditional ecological knowledge
Earth House – web page and book cover on breakthrough communities for sustainable justice

Youth Education - 27 & 28

The food project – web page for group advocating social change through sustainable farming
Farm camp – web page for camp teaching environmental literacy through “hands in the dirt”

Conference Organizing - 29 & 30

Food justice unconference - hand drawn poster for student-organized conference
In transition – university poster on conference for resilient post-carbon communities

Festival Gatherings - 31 & 32

Sukkot harvest festival – web page on Jewish values as expressed in farm to table dinner
D-Town harvest festival – web page of Detroit Black Community Food Security Network

TECHNIQUES

Composting Techniques - 33 & 34

Worms eat my garbage - book cover & web page on vermiculture techniques
Coway food waste treatment system – web page on high tech composting

Dryland Farming - 35 & 36

Scientist researching drought resistant wheat – web page of Council for Biotechnology Info
Nexus – web page on perennial grain crops for food security in drought conditions

No-Till Farming - 37 & 38

No-till farming reduces greenhouse gas – web report on university study
No-till revolution – web page from organic institute promoting non-chemical no-till practices

Crop Adaptation to Climate Change - 39 & 40

GM food special report: Crops that survive climate change - web page on GMO crops
Climate friendly farming - web page on reducing CO₂ with biofuels

Water Conservation - 41 & 42

H₂O Conserve – web page on “What is your water footprint”
Bawell alkaline home filtration system – web ad comparing cost of filtered & bottled water

Water Purification - 43 & 44

Living machines: clean, green waste-water recycling – web page on ecological water treatment
Lifestraw: personal portable water purifier – web page on device to combat waterborne disease

InVitro Meat - 45 & 46

Scientists turn stem cells into pork – blog post critical of lab-grown animal tissue for meat
New harvest : advancing meat solutions – company web page promoting “cultured meat”

Coffee and Coffee Substitutes - 47 & 48

Coffee exchange – web page on organic and fair trade coffee growing
Using dandelion roots as a coffee substitute – web page on wild edible foraging



Student Worksheet

NAME _____

DATE _____

To access media documents, go to the *Student Materials* section from the Project Look Sharp homepage - www.projectlooksharp.org

Analyze each of the documents based on these criteria:

1. How well does the proposed transition solution integrate the key themes?
Social Justice – Does it address leadership, equity and accessibility as they relate to race, culture, gender and class?
Fossil fuel depletion - Does it address the issue of a dwindling supply of natural resources?
Climate change - Does it speak to the reality of global warming?
Economic systems - Does it address the capacity of economic systems to enact the proposed solution?
2. How practical do the transition solutions appear to be? Do they appeal to a wide audience? Can they be achieved with our current or foreseeable technological capacity?
3. Which media literacy question among those on the following page best serves to deepen an understanding of this document pair? How would you respond to this question?

Title and # of media document: _____

Title and # of media document: _____



KEY QUESTIONS TO ASK WHEN ANALYZING MEDIA MESSAGES

NAMLE

www.projectlooksharp.org
www.namle.net

AUDIENCE & AUTHORSHIP

AUTHORSHIP

Who made this message?

PURPOSE

Why was this made?

Who is the target audience (and how do you know)?

ECONOMICS

Who paid for this?

IMPACT

Who might benefit from this message?

Who might be harmed by it?

Why might this message matter to me?

RESPONSE

What kinds of actions might I take in response to this message?

MESSAGES & MEANINGS

CONTENT

What is this about (and what makes you think that)?

What ideas, values, information, and/or points of view are overt?
Implied?

What is left out of this message that might be important to know?

TECHNIQUES

What techniques are used?

Why were those techniques used?
How do they communicate the message?

INTERPRETATIONS

How might different people understand this message differently?

What is my interpretation of this and what do I learn about myself
from my reaction or interpretation?

REPRESENTATIONS & REALITY

CONTEXT

When was this made?

Where or how was it shared with the public?

CREDIBILITY

Is this fact, opinion, or something else?

How credible is this (and what makes you think that)?

What are the sources of the information, ideas, or assertions?



"Take a Stand" Paper

NAME _____

DATE _____

Choose one of the main themes on which to focus your paper:

- social justice
- fossil fuel depletion
- climate change
- the capacities of capitalism

Write a position paper in which you discuss the importance of your selected theme to the sustainability of food, water and agriculture.

Advocate for sustainability models that illustrate your position and critique models that you believe are not sustainable.

Use at least **three examples** of transition models from the media document pairings featured in the in-class presentations.

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