Soil Conservation

Media Type: DVD
Duration: 35 minutes

Goal: To understand the importance of soil conservation and the practices used to conserve soil.

Description: Understanding the importance of soil conservation is vital in reducing soil erosion and degradation. This production will discuss the importance of soil, natural and man-made causes of soil erosion, the importance of soil conservation and describe soil conservation practices.

Objectives:
1. To describe basic soil terms and properties.
2. To describe the uses and importance of soil.
3. To identify natural and man-made causes of soil erosion.
4. To identify the importance of soil conservation.
5. To describe soil conservation practices.

Common Core Standards

Agriculture, Food & Natural Resources Career Cluster (AG)

Cluster	Standard
Analyze how issues, trends, technologies and public policies impact systems in the Agriculture, Food & Natural Resources Career Cluster™.	
Evaluate the nature and scope of the Agriculture, Food & Natural Resources Career Cluster™ and the role of agriculture, food and natural resources (AFNR) in society and the economy.	
Demonstrate stewardship of natural resources in AFNR activities.	
Analyze the interaction among AFNR systems in the production, processing and management of food, fiber and fuel and the sustainable use of natural resources.	
Environmental Service Systems Career Pathway (AG-ENV)	Use analytical procedures and instruments to manage environmental service systems.
	Evaluate the impact of public policies and regulations on environmental service system operations.
	Develop proposed solutions to environmental issues, problems and applications using scientific principles of meteorology, soil science, hydrology, microbiology, chemistry and ecology.
	Demonstrate the operation of environmental service systems (e.g., pollution control, water treatment, wastewater treatment, solid waste management and energy conservation).
	Use tools, equipment, machinery and technology common to tasks in environmental service systems.
Natural Resources Systems Career Pathway (AG-NR)	Plan and conduct natural resource management activities that apply logical, reasoned and scientifically based solutions to natural resource issues and goals.
	Analyze the interrelationships between natural resources and humans.
	Develop plans to ensure sustainable production and processing of natural resources.
	Demonstrate responsible management procedures and techniques to protect or maintain natural resources.
Plant Systems Career Pathway (AG-PL)	Develop and implement a crop management plan for a given production goal that accounts for environmental factors.

Soil Conservation

Common Core Standards

College & Career Readiness Anchor Standards for Reading

Reading Standards for Literacy in Science & Technical Subjects		
Key Ideas & Details	Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.	
	Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	
	Analyze how and why individuals, events, and ideas develop and interact over the course of a text.	
	9-10.1	Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.
	11-12.1	Cite specific textual evidence to support analysis of science and technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
Craft & Structure	Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.	
	Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole.	
	9-10.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 9–10 texts and topics.
	9-10.6	Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, defining the question the author seeks to address.
	11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.
Integration of Knowledge & Ideas	Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.	
	9-10.7	Translate quantitative or technical information expressed in words in a text into visual form and translate information expressed visually or mathematically into words.
	11-12.7	Integrate and evaluate multiple sources of information presented in diverse formats and media in order to address a question or solve a problem.
	11-12.9	Synthesize information from a range of sources into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
Range of Reading & Level of Text Complexity	***9-10.10***	By the end of grade 10, read and comprehend science/technical texts in the grades 9–10 text complexity band independently and proficiently.
	11-12.10	By the end of grade 12, read and comprehend science/technical texts in the grades 11–CCR text complexity band independently and proficiently.

Soil Conservation

Common Core Standards

College & Career Readiness Anchor Standards for Writing

Writing Standards for Literacy in History/Social Studies & Technical Subjects		
Text Types & Purposes	Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.	
	Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.	
	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.	
Production & Distribution of Writing	***9-10.6***	Use technology, including the Internet, to produce, publish, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
	11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
	11-12.6	Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.
Research to Build & Present Knowledge	Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	
	Draw evidence from literary or informational texts to support analysis, reflection, and research.	
	11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
Range of Writing	Write routinely over extended time frames and shorter time frames for a range of tasks, purposes, and audiences.	

Soil Conservation

Lesson Plan

Class 1: Distribute the *Soil Conservation Vocabulary Handout* and the *Worksheet* for students to use as reference materials. Begin showing the *Soil Conservation - Soil* segment. Distribute the *Assessment* and have students complete it. Assign the *Soil Components Project* and instruct students to turn it in during Class 3. Distribute the *Importance of Soil Conservation Project* which will be presented in Class 7.

4 min.

Class 2: Allow students to work on the *Soil Components Project* and the *Importance of Soil Conservation Project.*

Class 3: Show the *Soil Conservation - Natural Effects on Soil* and the *Soil Conservation - Man-Made Effects on Soil* segments. Remind students to use the *Vocabulary Handout* and *Worksheet* as references. Distribute the *Assessments* and have students complete them. Distribute the *Rules & Regulations Project* and instruct students to turn it in during Class 5. Distribute the *Soil Erosion Control Activity* and have students complete it.

14 min.

Class 4: Allow students to work on the *Rules & Regulations Project* and the *Importance of Soil Conservation Project.*

Class 5: Show the *Soil Conservation - Importance of Soil Conservation* and the *Soil Conservation - Soil Conservation Practices* segments. Remind students to use the *Vocabulary Handout* and *Worksheet* as references. Distribute the *Assessments* and have students complete them. Distribute the *Soil Conservation Practices Activity* and the *Soil Conservation Service Activity* and have students complete them.

15 min.

Class 6: Review concepts taught throughout the *Soil Conservation* segments. Distribute the *Final Assessment* and have students complete it. Allow students time to complete any unfinished work.

2 min.

Class 7: Students will present the *Importance of Soil Conservation Project.*

Lesson Links

USDA Natural Resources Conservation Service
- http://www.nrcs.usda.gov

Soil and Water Conservation Society
- www.swcs.org

Environmental Protection Agency
- www.epa.gov

Career & Technical Student Organizations

Texas A&M Department of Soil & Crop Sciences
- Scholarship for incoming freshmen

Texas Tech Department of Plant & Soil Science
- Scholarship for incoming freshmen

Virginia Association of Soil and Water Conservation Districts
- Youth Conservation Camp at Virginia Tech

FFA
- Agronomy CDE
- Ag Issues CDE
- Environmental and Natural Resources CDE

Career Connections

- iCEV50912, Dale Bosworth, Chief, USDA Forest Service
- iCEV50036, James Harsh, Ph.D., Professor, Crop & Soil Sciences, Washington State University
- iCEV50120 , John Reganold, Ph.D., Regents Professor of Soil Science, Washington State University
- iCEV50062, Paul McDaniel, Ph.D., Professor of Soil Science, University of Idaho

Soil Conservation

Lab Activities

Soil Erosion Control

Directions:
Distribute the *Soil Erosion Control Activity*. Students will be presented with a series of questions about soil erosion and methods for controlling soil erosion. Instruct students to answer the questions and turn the *Activity*.

Soil Conservation Practices

Directions:
Distribute the *Soil Conservation Practices Activity*. Students will choose a soil conservation practice discussed in the presentation and answer questions about the practice by using knowledge gained from the segments and research gathered by the student.

Soil Conservation Service

Directions:
Distribute the *Soil Conservation Service Activity.* Students will research the Soil Conservation Service and write a short paper about the development of the SCS and why it was developed.

Projects

Soil Components

Directions:
Distribute the *Soil Components Project.* Instruct students to draw a diagram of soil composition. The diagram should be colored, labeled, include component descriptions and state the importance of each component.

Importance of Soil Conservation

Directions:
Split the class into groups of four or five. Distribute the *Importance of Soil Conservation Project.* Instruct students to create a Microsoft® PowerPoint® presentation and act as though they are presenting it to conventional farmers. The goal is to encourage the farmers to switch to sustainable agriculture practices. The audience will indicate whether or not they will adopt new farming practices based on the group's presentation.

Rules & Regulations

Directions:
Distribute the *Rules & Regulations Project*. Instruct students to write a short report over rules and regulations for soil erosion control they have discovered from research. Remind students to use credible websites ending in .gov, .edu or .org.