

MIDDLE SCHOOL
CURRICULUM

MEET THE **MEAT**



ENVIRONMENTALLY
COW-NSCIOUS



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CONTENTS

I. Enduring Knowledge 3

II. Teacher Background 3

III. Prior Knowledge 4

IV. Viewing Guide 5

V. Discussion Points..... 5

VI. Evaluation..... 5

VII. Suggestions for Extended Learning 5

Curriculum Standardsi, ii

Note:

This topical must be accompanied with the Overview for complete understanding.

I. Enduring Knowledge:

Students will learn that stewardship (sustaining environmental practices) when operating a farm is an essential part of the business. They will understand that stewardship includes not only the animals but also the land, plants, and water.

Learning Targets:

1. Students should learn that preserving the environment is not only socially and environmentally the responsible thing to do, but also ensures the future of farming.
2. Students should learn a variety of ways the cattle themselves help the environment.
3. Students should learn farming methods that are ecologically sound.

II. Teacher Background Notes:

1. Environmental concerns include: air, water, soil, minerals, plants, land use, and biodiversity. These are interrelated and must be balanced and preserved.
2. The 3 natural cycles on earth include:
 1. Water
 2. Oxygen/Carbon Dioxide
 3. Nitrogen
3. Soil composition: 45% mineral, 25% water, 25% air, 5% organic. Soil texture can range from gravelly to claylike, and soil layers out from top soil to bedrock.
4. Fertilizer is composed of primarily nitrogen (N), phosphorus (P), and potassium (K). It can also include calcium, magnesium, and sulfur.
5. Main crops planted in Wisconsin are corn, alfalfa, soybeans, and wheat.
6. There are programs in Wisconsin to help maintain farming even as the number of small farms and agricultural land decline. Look into Farmland Preservation and Agricultural Enterprise Areas (AEA) http://datcp.wi.gov/Environment/Working_Lands_Initiative/

ENVIRONMENTALLY COW-NSCIOUS

Vocabulary:

1. **stewardship:** the careful and responsible management of our environment and natural resources
2. **sustainable:** the combination of social, economic, and environmental impacts from producing a good that measures the continued availability of that good for future generations
3. **ruminant digestive system:** a mammalian stomach that has four compartments to process or digest food and nutrients. Ruminant animals are unique in that they regurgitate partial digested food (called cud) and swallow to re-start the digestive process.
4. **nutrient:** the substances found in food that people, animals, and plants need to live and grow
5. **manure:** animal excrement that is rich in nutrients (that plants need to grow) and can be put on the soil as fertilizer
6. **cellulose:** material in plant cells that cannot be digested by humans but can be digested by the ruminant digestive system of cattle
7. **recycle:** to reuse materials or waste by using them more than once
8. **aerate:** to make small holes in the surface of soil in order to add oxygen to help plants grow
9. **rotational grazing:** moving animals from one pasture or field to another to graze, thereby protecting the land from erosion and overuse
10. **erosion:** the gradual wearing away of soil and nutrients by water, air, or overuse
11. **rotate crops:** to plant crops in rotation (for example corn one year and soybeans the next year) to help preserve the nutrients in the soil
12. **pollute:** to contaminate land, air, water, or soil

III. Prior Knowledge:

Class discussion: Who has visited a farm? Describe what you saw? If you haven't seen a farm, what do you know about them? What is an environmentalist? Why must a farmer be a good environmentalist? In what ways can he/she help the environment on the farm?

IV. Viewing Guide:

Answer the following questions on your paper while watching the video

1. Name 3 of the 6 ways cattle help keep the land in good shape.
2. Name 2 of the 3 ways farmers help the land.
3. How do farmers protect the natural water?

V. Discussion Points:

Set up teams to role play a farm family and a developer corporation. Have each side prepare arguments for keeping a given piece of land a beef farm or building a subdivision. Each team presents to the class. Class votes.

VI. Evaluation:

Students write a persuasive essay supporting his/her position on why the piece of land should be

- a) kept a cattle farm
- b) turned into a subdivision

VII. Suggestions for Extended Learning:

1. Get samples of soil from different areas. Using a magnifying lens, make a list of all the things found in the sample. Compare with other samples. Do a pH test.
2. Research the crops grown in Wisconsin. For each, find out about soil requirements, growing season, insecticides used, yields, weather needs, and cost effectiveness.
3. Take a field trip to a local beef or dairy farm. Have the owner explain the business.
4. Research land use conflict in rural Wisconsin. What are some of the difficulties in maintaining land in farming? What are some of the programs developed to help farmers stay in farming?
5. Look at India's farming issues. Compare and contrast the situation in India to the United States.

Wisconsin Teacher Standards which can be met with this curriculum, including rationale.

Standard 1: Subject matter.

This curriculum provides information not readily available in other forms. A teacher using this material will be well-informed about the subject matter.

Standard 2: Broad range of ability.

This curriculum provides instruction that supports their intellectual, social, and personal development.

Standard 3: Adapt instruction.

Adapt instruction. This curriculum provides suggestions for learners with a variety of intelligences and levels of ability.

Standard 4: Instructional strategies.

This curriculum includes the use of technology to gain information and suggestion for using research in extending learning.

Standard 5: Individual and group motivation.

Both prior knowledge and carefully designed group projects promote motivation for students to learn.

Standard 6: Verbal and nonverbal communications.

Instruction media and technology that promotes active learning are key parts of this curriculum.

Standard 7: Organizes and plans systematic instruction.

This curriculum is organized to support teacher knowledge, to draw on and motivate students to engage in active learning, and promotes active inquiry, collaboration, and supportive interaction in the classroom.

Standard 8: Formal and informal assessments.

Suggestions for a variety of assessments, both formal and informal, are offered in the curriculum.

Standard 10: Fosters relationships.

This curriculum provides information regarding ways in which to actively interact with native communities, both face-to-face events and in using distance learning or technology (e.g. email) methods.

WISCONSIN STUDENT PROFICIENCY STANDARDS which can be met teaching
Environmentally Cow-Nscious – Topic Video, Discover Mediaworks, 2012

Geography:

Students in Wisconsin will learn about geography through the study of the relationships among people, places, and environments.

History:

Students in Wisconsin will learn about the history of Wisconsin, the United States, and the world, examining change and continuity over time in order to develop historical perspective, to explain historical relationships, and analyze issues that affect the present and the future.

Political Science and Citizenship:

Students in Wisconsin will learn about political science and acquire the knowledge of political systems necessary for developing individual civic responsibility by studying the history and contemporary uses of power, authority and government.

Economics:

Students in Wisconsin will learn about production, distribution, exchange, and consumption so that they can make informed economic decisions.