



Teacher's Guide

Breeding Cattle: Domestication & Genetics **NATURE Science Education Series**

Grade Levels:

5-12

Subject Areas:

Sciences

Life Sciences

Biology

Ecology

World Geography & Cultures

Synopsis:

Investigates the reasons why cattle and humans have been linked together for over 30,000 years. Analyzes the anatomy of the cow's stomach, detailing the purpose of each chamber. Visits the Masai with their cattle herds, the sacred cows of India; cows who are beasts of burden and mothers of the universe; cows who express the values of their culture. Introduces the main cattle breeds of the 800 developed in England, explaining how artificial selection is used to produce desirable characteristics. Also introduces British dairy cows detailing the working of the udder and teats and the use of genetic engineering to increase milk production. Interviews Eric Schlosser, the author of *Fast Food Nation* about the development of slaughterhouse methods in America. Visits a feedlot in Colorado to film the industrialization of the cattle industry and the use of antibiotics to maintain this system. To provide perspective, also visits a family ranch where cattle are being raised in natural conditions under a grass management system.

Learning Objectives: Students will:

- Provide cross-cultural examples of the unique relationships between humans and cattle.
- Describe the characteristics that make cattle an ideal domesticated animal.
- Describe the abuses of feedlot production of meat products.
- Describe the anatomy of a cow's stomach and milk cows' udders.
- Discuss the implications of our dependence on animals.

Vocabulary:

Shaman, Bos Primigenius, savannah, bovine, domesticated, criteria, agriculture, recreate, aggressive, herd behavior, imprinted, flight response, caldera, Masai, dominion, rumen, abomasums, fermentation, microbes, rumination, bolus, regurgitated, chewing the cud, protozoa, ferment, indigestible, cellulose, contradictions, revered, lowly, selection, lactation, udder, assembly line, slaughter houses, intensification, bison, insatiable, utopia, analogous, condolence

Pre-Viewing Discussion:

Where can the earliest indications of the relationship between humans and cattle be found? What do cave paintings tell about this relationship? How did this relationship change as a hunter/gatherer society developed?

Who are the Masai? What is the basis of the Masai economy?

In what country are cows considered to be sacred? Are cows still used as beasts of burden in this country? How do you explain this contradiction?

What other cultures depend on cattle for food and clothing? Are Americans dependent on cattle for their survival?

Post-Viewing Discussion:

Why were cattle rather than antelope domesticated 8,000 years ago?

How has the anatomy of the cow's stomach been an asset to the cattle industry? How do dairy cattle differ from beef cattle?

What is the significance of the root word for cattle? After 9/11, why did the Masai give the gift of a cow to the citizens of New York? Do you think most Americans would recognize the significance of this gift? Why or why not?

Why are cattle being raised in feedlots? What counter-movement is dedicated to more ecologically sound methods of raising cattle? Who do you think will win and why?

Further Activities:

Investigate the origins of the diseases that are commonly found in feedlots.

Further investigate British cattle breeds and the reasons why they were developed.

Further investigate the reasons why private citizens are concerned about methods of beef production in the United States and Canada.

Compare and contrast the reverence of the Masai for their cattle and Hindu reverence for the sacred cow.

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Biological Classification series