

theNews

This is a long set of lessons for 4 curriculum areas: Science, Economics, Social Science and Language Arts/Media Literacy. It is a total of 22 pages including several worksheets. We encourage you to select the curriculum area within your field if you do not have time to review all of this material.

Title of Segment: Cow Power

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Subject Area: Science

Lesson Plan 1: Middle School Level (Carbon cycle and the environment)

Lesson Plan 2: Upper School (Methane and chemistry of methane)

Lesson Plan 3: Upper School and Middle School (Anaerobic Respiration)

The lesson plans can be taught consecutively or individually.

Background: Global warming is a grave concern that has, over time, become an impending crisis. There has been no easy fix put forth, as most scientific solutions carry heavy economic repercussions. Lately, a concerted effort to address the problem using both economics and science has arisen. Many states, especially California, have been leading the way towards implementing legislation designed to reduce the stress on the environment. The major contributors to global warming are greenhouse gases, which include carbon dioxide, methane and ozone. Burning fossil fuels, such as gasoline, not only adds to the greenhouse gases, but also introduces more carbon into the atmosphere. Since fossil fuels were originally buried far underground, drilling for oil and then burning it causes the environment to become stressed—there is more carbon in the system than it can recycle. Cow power is an effective and ingenious solution to both the problem of greenhouse gases and the recycling imbalance in the carbon cycle. Cow manure is a major contributor of atmospheric methane. Recycling it to produce methane for industrial purposes reduces the greenhouse gas. Since the carbon in methane is coming from above the ground and is already a part of the environment, burning it does not introduce more carbon into the carbon cycle.

(Estimated Time: 30 minute sessions =3 total)

Lesson Plan 1

What is the Carbon Cycle and How Does it Affect the Environment?

McRel National Standards: Science

Standard 1: Understands atmospheric processes and the water cycle

Standard 6: Understands relationships among organisms and their physical environment

Standard 9: Understands the sources and properties of energy

Standard 12: Understand the scientific enterprise