

Energy For Life



Audubon Center
of the North Woods

Purpose: Energy for Life is designed to teach students the difference between renewable and nonrenewable resources and to introduce them to alternative energies. Students will learn ways to be more energy efficient and will be prepared for making sustainable choices in their use of resources.

Concepts:

- Understanding the differences between renewable and non-renewable resources is critical to understand our ecological footprint on the planet.
- In order for students to make sustainable choices, they need to experience how alternative energy sources work.
- Energy conservation can greatly reduce green house gases, released into the atmosphere, contributing to climate change.

Learning Outcomes: *Students will be able to*

- Define renewable and non-renewable resources, and identify two examples of each.
- Describe three alternative energy sources and will describe benefits of each.
- Demonstrate their understanding of one alternative energy source.
- Identify one change that they can make in their lives to conserve energy

Minnesota Academic Standards:

Science:

- 4.1.2.1.1 Describe the positive and negative impacts that the designed world has on the natural world as more and more engineered products and services are created and used.
- 4.1.2.2.1 Identify and investigate a design solution and describe how it was used to solve an everyday problem.
- 5.3.4.1.1 Identify renewable and non-renewable energy and material resources that are found in Minnesota and describe how they are used.
- 5.3.4.1.2 Give examples of how mineral and energy resources are obtained and processed and how that processing modifies their properties to make them more useful.
- 6.1.2.1.1 Identify a common engineered system and evaluate its impact on the daily life of humans
- 8.1.3.3.3 Provide examples of how advances in technology have impacted the ways in which people live, work and interact.

REVISOR: JAIME SOUZA

CLASS LENGTH: 3 HR

AGES: GRADES 4-6

SEASON: F, SP, SU

GROUP SIZE: 20 MAX

SAFETY: Energy tag has the potential to be competitive, so monitor the students while they are playing the game. Clean the table before class, and have students use hand sanitizer before they eat the skittles and granola bars.

MATERIALS: Resource cards, CD player, granola bars, cups, mining and milling tools, orange vests, clothespins, skittles, E4Life green binder, watt meter, stamp pad, index cards, writing utensils

PRE-CLASS PREP: Gather all materials in classroom, and have them organized for each activity. Make sure you have all of the materials you need for each activity. Write outline on white board. Hang the renewable and nonrenewable orange signs at either end of the classroom before class. Set up laptop and projector and test. Decide where you want to do each activity. Make sure kitchen gate is open if you want to show students the geothermal compressors.

CLASS OUTLINE:

I. Ten Minutes to Teaching

II. Introduction: 15 min

What is energy?

III. Renewable/Nonrenewable Energy

- A. Life without Energy (5 min)
- B. A Purer Past or Present? (10 min)
- C. Resources for Life: (5 min)
- D. Down By the Banks Energy Shuffle: (20 min)
- E. Chip Mining: (10 min)
- F. Energy Tag: (20 min)
- G. Milling and Mining: (20 min)

IV. Alternative Energy Resources: 20 min

V. Authentic Assessment: Energy in the Round (15 min)

VI. Reflection (25 min)

- A. Sips & gulps
- B. My personal footprint

VII. The Sending

- A. Watt Meter
- B. "This Bulb"
- C. Answer questions and give positive feedback about session
- D. Transitions