



## Energy Conservation

**CONTENT STANDARD:** Environmental Science

**CONTENT TOPIC:** Energy and the Environment

**CONCEPT:** Energy is often wasted in the home and community.

**CONTENT OBJECTIVE:** To understand how energy is wasted and how it can be conserved.

**INSTRUCTIONAL OBJECTIVES:** The learner will:

- define conservation.
- safe use of electrical energy
- identify examples of wasteful use of energy.
- describe the concept of insulation for saving energy.

### OUTLINE OF CONTENT:

- I. Conservation is the careful use of resources so that they will be available later.
- II. Waste is the unnecessary use of or the concept of not saving.
- III. Insulation is the process of keeping heat or cold from moving from one place to another.
- IV. There are ways to conserve energy.

**GOAL:** To enable students to demonstrate ways of thinking and practicing science; and to exhibit an awareness of the historical and cultural contributions to the enterprise of science. Imagination and creativity contribute to the processes of science through ideas and inventions.

**STANDARD(S):** The learner will understand that:

Science is based upon suppositions derived from observations of natural phenomena.

**BENCHMARK:** Unknown or unobserved variables may lead to unanticipated results.

The critical assumptions behind any line of reasoning must be made explicit so that the validity of the position taken can be judged.

**BENCHMARK:** Prior learning must be accurate and free of incorrect assumptions.

**BENCHMARK:** Higher order thinking skills, when directed toward the process of science, may produce unique solutions or results.

**BENCHMARK:** Scientific truths must be supported by data in conjunction with logical evaluations.



## CLASSROOM CONNECTORS

**TIME REQUIRED:** 30 minutes

**MATERIALS:** Flashlight, SNAP Circuits

### SET:

(Turn on lights, turn on a flashlight, turn on something else.) Something is happening do we need these things on? Something that is turned on (using energy needlessly) is called, “**Waste**”. Light a match or lighter, open shades, open a window, turn on here, boys and girls. This is what? Today we will learn how energy is wasted and ways it can be “**Conserved**”.

### INSTRUCTION:

**Kinder and 1<sup>st</sup>: Emphasis on: Energy can do work and we must conserve it (don’t waste!) at all times.**

***For older students:*** (Discuss ways to conserve energy at home and at school.) Let’s think about three points related to conservation. They are:

1. Conservation is the careful use of energy resources to maintain their quality and to avoid waste.
2. Some examples of wasted energy would be: unnecessary use of cars, televisions, motor bikes, excessive use of hot water, thermostats turned to extremes in summer and winter, leaving lights on in unused rooms, etc.
3. There are many ways to conserve energy. Conserve means “to save”. Conserving energy will determine our future supply of coal, gas, oil, etc. (Brainstorm ways you can conserve energy.) (Invite a resource person from a local utility system to discuss ways of conserving energy at home and at school.)

### Electrical Energy Safety:

Electricity is a very useful kind of energy, but it can also be very dangerous. It is safe to use only if certain rules are followed. Here are some of the rules that are necessary to obey when using electricity:

1. Never use an electric appliance when you are touching a water or gas pipe, a wet floor, a sink, or a bathtub.
2. Never touch a light switch, a radio, or TV set while taking a shower or bath.
3. Never use an appliance that has a worn out electric cord.
4. Never touch a wire that has fallen from a power line.
5. Never try to poke anything into an electric outlet.
6. Never climb a tree that is located near an electric wire.

## **ACTIVE PARTICIPATION:**

Today we are going to build some electrical circuits and figure out ways to conserve energy. One of the best ways to conserve energy is to turn off things that we are not using. We are going to build a light circuit with batteries, wires, switch and light bulb.

**Have the students form into 6 teams of 3 to 4 students in each team.**

### **Let's build some electrical circuits**

1. Give each student team one SNAP Circuits kit.
2. Show the students the correct parts to build our circuit (batteries, wires, switch and bulb).
3. Remember there must be a connection from + to -

## **CLOSURE:**

Today we have learned that there are many ways that energy can be wasted and also ways that we can conserve energy.

1. Can you name some ways you might waste electrical energy? (leave lights, computer, oven, etc. on)
2. Name some ways to conserve energy? (turn things off if you are not using them)
3. Name some ways to stay safe around electricity: See above