



ENERGY INPUTS AND OUTPUTS

Grade 1, Science and Technology

Source: Adapted from *Energy Output*, Mr. Collinson's Grade 1 class website, Halton District School Board

DESCRIPTION

This lesson introduces students to the concept of energy inputs and outputs. It invites students to begin exploring the electrical needs of devices used at home/school and the sources for that electricity. Students will compare different devices and energy outputs with a focus on the importance of energy conservation.

CURRICULUM LINKS - SCIENCE AND TECHNOLOGY, GRADE 1

Understanding Matter & Energy - Energy in Our Lives

Overall Expectations: 1, 2, 3

Specific Expectations: 1.1, 2.1, 2.2, 2.4, 3.1, 3.2, 3.4

Understanding Earth & Space Systems -

Daily & Seasonal Changes

Overall Expectations: 3

Specific Expectations: 3.1

PLANNING NOTES

Materials

- Toaster
- Fan
- *Energy Inputs and Outputs* (Appendix 1)
- *Energy at Home* (Appendix 2)

Learning Skills & Work Habits

Independent work, organization, responsibility

Prior Learning

Most of the energy on the Earth's surface comes from the sun. The sun is crucial to human survival because it warms the Earth and the sea, as well as providing energy to all living things. Electrical devices use the energy from the sun and it is important to be aware of how much energy we use. When we save energy we help create a healthier environment.

Recommended Class Time

- 1-2 periods

TEACHING/LEARNING STRATEGIES

1. Gather students to look at a fan and a toaster. Discuss the source of energy for each appliance and ask students what purpose each appliance serves.
2. Introduce the concept of "outputs" and explain that when you put energy into something you get an output (e.g., moving air from the fan, or heat from the toaster). Ask students for other examples of outputs and record their answers (TV = pictures on a screen; car = transportation; lamp = light).
3. Hand out and complete the *Energy Inputs and Outputs* (Appendix 1) and discuss the answers.
4. Hand out the *Energy at Home* (Appendix 2) and show students how to fold the piece of paper into a pamphlet. Discuss with students the information needed to complete the booklet and explain that they will be collecting the information at home over the next week. Remind students of the importance of having an adult helper when doing this work.
5. Have students share their findings from their *Energy at Home* pamphlet and create a list of ways to conserve energy at home and in the classroom.

EXTENSION

Go outside and find energy inputs and outputs. Share student their findings and discuss how plants and animals capture energy to survive.

APPENDICES

- Appendix 1 - *Energy Inputs and Outputs*
- Appendix 2 - *Energy at Home*



APPENDIX 1
ENERGY INPUTS AND OUTPUTS

Name: _____

1. Draw lines to connect the energy inputs to the picture where the energy is used.
2. Draw lines to connect the picture where the energy is used to the correct energy outputs.

ENERGY INPUTS

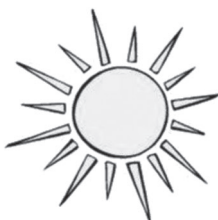
ENERGY OUTPUTS



LIGHT



HEAT



MOVEMENT



SOUND



MOVEMENT

ENERGY AT HOME

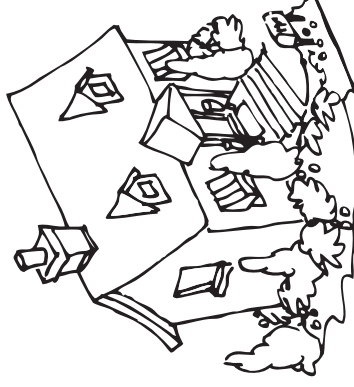
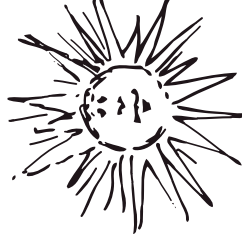
Saving Energy

After looking at all of the things that use energy in your home, the next step is to try to save energy. Saving energy helps our environment, so let's see what you can do!

What type of energy do you think your family can save?

How will you try to save energy at home?

Name: _____



Some words you may find helpful:

- | | | |
|-------------|--------------|------------|
| electricity | sun | furnace |
| solar | light switch | faucet |
| wind | wires | water tank |
| water | outlet | lights |

Draw a picture of how you can save energy at home.

Energy Sources

Ask an adult if they can show you where the following things are in your home and then complete the sentences.

My furnace is located _____

My hot water tank is located _____

Electricity comes into my home from _____

Gas comes into my home from _____

Draw a picture of one of the things mentioned.

Energy at Home

Some words you may find helpful: electricity, solar, wind, water, sun, wires, furnace, water tank, light switch, outlet, faucet, lights

Using Energy

For each of the things listed below, count how many you have in your home. If you need help, ask an adult to count with you.

<input type="checkbox"/>	Lights	<input type="checkbox"/>	Appliances	<input type="checkbox"/>	Faucets
<input type="checkbox"/>	TVs	<input type="checkbox"/>	Cars	<input type="checkbox"/>	Windows
<input type="checkbox"/>	Computers	<input type="checkbox"/>	Furnace vents		

How many things in your home use gas?

How many things in your home use electricity?
(You will probably have to guess.)

How many things in your home use sun energy?
(Hint: all energy comes from the sun.)

Do you have a fireplace?
If so, what does it use?

Draw a picture of something in your home that uses energy.