



What Renewable Energy Does for Me

Summary: Students analyze how the sun, wind, and water contribute to their daily lives.

Grade Level: K–4 (5–8)

Subject Areas: Art and Design Education, English Language Arts, Family and Consumer Science, Health Education, Science

Setting: Classroom or outdoor setting

Time:

Preparation: 20 minutes

Activity: One to two 50-minute periods

Vocabulary: Heat, Light, Solar energy, Sun, Water, Wind

Major Concept Areas:

Theme II

- Development of energy resources
- Development of renewable energy resources

Standards Addressed:

Wisconsin Model Academic:

ADE: E.4.1, H.4.4

ELA: B.4.3, C.4.1, C.4.3, F.4.1

FCS: A.1, C.3, E.1, E.2

HE: A.4.1, A.4.2

SC: A.4.1, A.4.2, B.4.1, C.4.3, C.4.5, E.4.7

Common Core ELA: L.K-5.4, L.3-5.3, L.4-5.6, RI.K-5.4, RI.2-4.3, RI.3.1, RI.3.5, RI.3-4.7, RI.5.1, RL.K.4, RL.3-4.1, RL.4-5.1, SL.K-2.1, SL.K-1.2, SL.K-5.3, SL.K-5.5, SL.3-5.4, W.K-1.5, W.2-5.7

NGSS: K-PS3-1, 4-ESS3-1

SEP: Obtaining, Evaluating, and Communicating, Planning and Carrying Out Investigations

DCI: ESS3.A: Natural Resources, PS3.B: Conservation of Energy and Energy Transfer

CCC: Cause and Effect, Connections to Engineering, Technology, and Applications of Science, Influence of Science, Engineering and Technology on Society and the Natural World

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Objectives

Students will be able to

- describe the various ways the sun, wind, and water contribute to their lives; and
- recognize that the sun, wind, and water are all forms of energy.

Rationale

Studying the sun, wind, and water and how they affect our lives will help students gain an appreciation for these natural resources. This lesson introduces basic concepts which are needed to learn about renewable energy.

Materials

- 2 metal objects, such as spoons
- Wind chimes
- Electric fan (optional)
- Pitcher with spout
- Plastic pinwheel
- Container to catch water (optional)
- Copies of *What Renewable Energy Does for Me*

Getting Ready

Lay one metal object in the sun to heat up and set the other in the shade. Put wind chimes in a windy spot or in front of the electric fan. Fill the pitcher with water and have the pinwheel next to it.

Background

See *Renewable Energy Fact Sheets* on the KEEP website for information on the sun, wind, and water (hydropower).

Sun, wind, and water are all sources of energy. Energy is the ability to organize or change things; it is the ability to do work. Therefore, the sun, wind, and water all do work or change things. When sunlight strikes objects, it changes them. For example, plants use the sun's energy to make sugar out of carbon dioxide and water. When objects are heated by the sun, the molecules within them move faster. Both wind and water can move objects over great distances. Humans use all three sources of energy to produce electricity. We use the sun, wind, and water to work for us!

Procedure

Orientation

Ask students what it means when their parent or an adult goes to work. Help them to understand that work involves doing something or getting something done. Have students list examples of work or jobs they are familiar with.

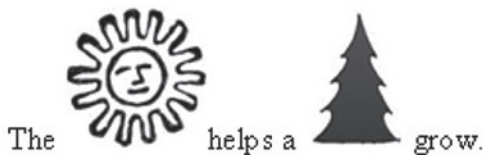
Ask students to share their thoughts on the sun, wind, and water. Do students think the sun, wind, and water work for them? NOTE: For younger students, it may be best to address each item in a separate lesson.



Help students to understand how the sun, wind, and water “do things or get things done.” They can feel the metal object warmed by the sun and listen to the wind chimes. Pour the water slowly over the pinwheel and show how the flowing water makes the pinwheel spin.

Steps

1. Hand out copies of *What Renewable Energy Does for Me* and have students generate ideas about what jobs they think the sun does. If possible, go outside and have students sit and observe how they feel in the sun or rain or wind. NOTE: Have preliterates construct pictures using art supplies.



2. Have students share their results, comparing and contrasting their observations.

Closure

Ask students again if they think the sun, wind, and water work for them. Explain that energy is the ability to do work. As a class, write a job description for the sun, for wind, and for water, including how they are sources of energy or able to do work.

Assessment

Formative

Can students explain their results, showing the various ways the sun, wind, and water contribute to their lives?

Summative

Have students take home a second copy of *What Renewable Energy Does for Me* and fill it out at home. Can they find at least one thing in their kitchen, bathroom, living room, basement, and bedroom that the sun, wind, or water does for them?

Extension

Make a sun out of construction paper and surround it with things that depend on it for life. You can also add labels that identify things the sun does for us. Have everyone in the class write short statements about why the sun is important to them and post them near the paper sun. This activity can be adapted to create a sun mobile. (Repeat this activity for the wind and water).





What Renewable Energy Does for Me

Draw/write ideas about jobs the sun does for you.

1. The



2. The



3. The



Draw/write ideas about jobs the wind does for you.

1. The



2. The



3. The



Draw/write ideas about jobs water does for you.

1. The



2. The



3. The