

Energy Sleuths

In this lesson students will learn that energy is what gives people, animals, objects and machines the ability to move and survive. They will also uncover different forms of energy that humans use to perform human functions.

Grade Level : 1st grade

Objectives:

- Students will be able to explain what energy is.
- Students will also be able to name 2 sources of energy.

Materials:

- Attachments (pgs. 4 –9)
- Pictures from magazines, the internet or calendars
- 5 envelopes
- 5 big charts (example on pg.3)
- Glue sticks
- Paper
- Pencils
- Crayons/Colored pencils

Time Considerations

- Preparations: 15 minutes
- Activities:
 - 1- Super Hero :10 min
 - 2- Thinking & Moving : 20 min
 - 3- Energy Everywhere: 20 min

Related Activities:

Energy Chains
Sun Rays
Transfer Me This
Solar Matters

Nevada Department of Education Standards

- **Students know plants and animals need certain resources for energy and growth (L.2.C.1)**
- **Students know the Sun is a source of heat and light (E.2.A.1)**
- **Students know we benefit from working in a team and sharing our findings (N.2B.2)**

Excellence in Environmental Education Guidelines

- **Strand 2.4 .A. Human/ environment interactions: students understand that people depend on, change and are affected by the environment.**

Background

You can't see it, touch it, smell it, or taste it, and yet it powers everything in nature as well as everything people do. What is it? Energy, of course. Energy is the ability to do work or create change.

Energy is important because nothing can happen without it. We use energy when we read, run or have fun. Energy lets us grow our food, process and package it, deliver it to our stores, cook it, eat it and digest it. We need energy for our TVs and cell phones. We also need energy for our houses, clothes, and other needs.

We get energy from many different sources. In this lesson, you will teach about the energy we get from food, wind, electricity, gasoline and the sun. Food gives humans energy and nutrients to maintain health and life, grow and develop, move,

work, play, think, and learn. Carbohydrates and fats mainly provide energy, although some fats are also needed as building materials and to help the body use certain vitamins.



Wind is created by the sun's uneven heating of the Earth's surface. The sun's energy heats the air, causing it to rise. Heavier, colder air rushes in to take the place of the lighter, warmer air and creates wind. Wind was one of the earliest forms of energy that people learned to use. Wind can be used to move sail boats through the water, and to power grain mills. Farmers have used wind energy for many years to pump water from wells. Today

wind is used to generate electricity. Large numbers of wind turbines are grouped together in “wind farms”. They are designed to catch the high-speed winds that blow throughout the year. These wind turbines look like enormous airplane propellers. When the blades spin, they turn a generator that makes electricity. Kites and sailboats are some things that are powered by the



wind.

Electricity is the flow of electrical power or charge. It is a secondary energy source which means that we get it from the conversion of other sources of energy, like coal, natural gas, and other natural sources, which are called primary sources. Electricity is a controllable and convenient form of energy used in the applications of heat, light and power.

Sun-Solar energy is created in the sun’s hot core. All the energy in fossil fuels, wood, food, wind and most waterpower originally comes from the sun. Solar panels can be used directly to heat buildings and water, and to provide light. Solar energy can be used to

Gasoline is one of the main products refined from crude oil, accounts for just about 17 percent of the energy consumed in the United States. The primary use for gasoline is in automobiles and light trucks. Gasoline also fuels boats, recreational vehicles, and various farm and other equipment. .



Preparations

- Cut out pictures from magazines, calendars of ways people, animals, plants, cars, kites, etc. use a source of energy.
- Put at least 4 examples of each source in one envelope that is labeled with group number
- Prepare energy definition poster (Example pg.9)
- Print off pages 4-8
- Make at least 5 posters (Example pg.3)

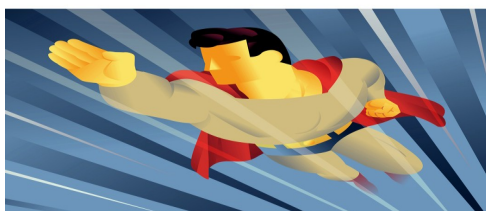
Superhero Power

1. Have the students draw a picture of a superhero, one of their own creation or one they know from TV, books, computer games or movies. Ask them to show how the superhero gets her or his power to do superhuman things.

2. Tell the students to share their pictures with a classmate and to describe the sources of power that their super hero uses.

Thinking & Moving

1. Introduce the term energy. Explain that energy is what gives people, plants, animals and objects the power to move and change. Put



laminated definition of energy on chalk board.

2. Ask class to make a list of ways that people get energy to do human things (from their food, from electricity, from gasoline, from wind, from solar power). Some prompts to get the students thinking:

- Food– what do you do when you get hungry?
- Electricity– when you plug in a toaster what do you use to get it to work?
- Gas– what do we put in the car to make it go?
- Wind– what helps our kites fly?
- Sun– Solar panels, solar ovens

3. When the students come up with the answer put corresponding picture/word on board. (pages 4-8)

After you are done putting pictures on the board ask students to point to something in the room that uses energy. Call on students to tell you what object they are pointing to and where it gets its energy. For example, a computer gets its energy from electricity and a plant gets its energy from the sun.



4. a) Have students stand up and tell them you are going to teach them some hand motions to go with the way we use energy in our daily life.

For food have students rub their stomachs, for electricity have them “plug” in something, for gas have them put their thumb up and

a finger stretched out like a gas nozzle, for wind have them wave their arms, and for sun have them shade their eyes. While doing these hand motions have the students say the energy source that these hand motions represent. Repeat this at least two times.
 4.b) Now have the students play a couple of rounds of Simon Says by having them do the hand gestures you just taught them.

Vocabulary

Energy- gives people, plants, animals and objects the power to move and change.

Nonrenewable energy- sources exist in fixed amounts; once they're used up, they're gone forever.

Renewable energy- sources can be replenished through natural process or resource management practices.

Energy Everywhere

Divide the class into five groups, each group will then get a chart and an envelope. Tell the students to take out the pictures from the envelopes and have them decide where that item gets their energy. When they are done doing that, ask some students what were some things they put under each category?
 If the students are waiting for other classmates to get done with this project tell them they can continue coloring their super hero picture.

Use Butcher Block Paper that measures 2ft by 2ft to make the chart below:

Gasoline	Electricity
Sun and Wind	Food

Evaluations—

Go around to each group and discuss some of things that they put under the categories.



Extension Activities—

Take the class for a walk to look for examples of people using each of the energy sources the students learned about.

Sources-

PLT. Energy Sleuth. Washington, DC: American Forest Foundation 2006

Google images



Wind



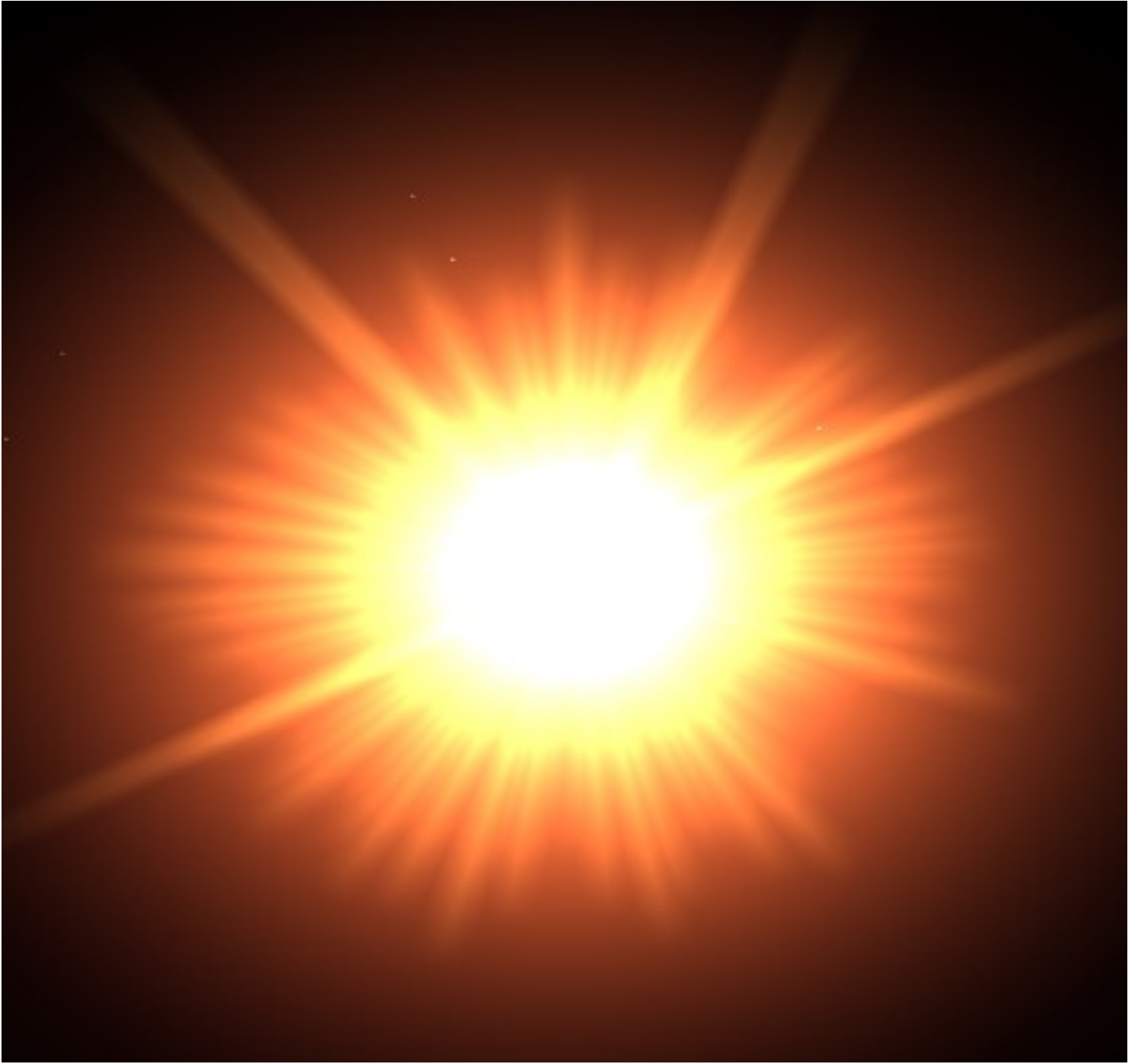
Electricity



Gasoline



Plants (food)



Sun

Energy

Gives people, plants,
animals and objects
the power to move
and change.