

FUN IN THE SUN



Teaches how our sun is an important energy source.

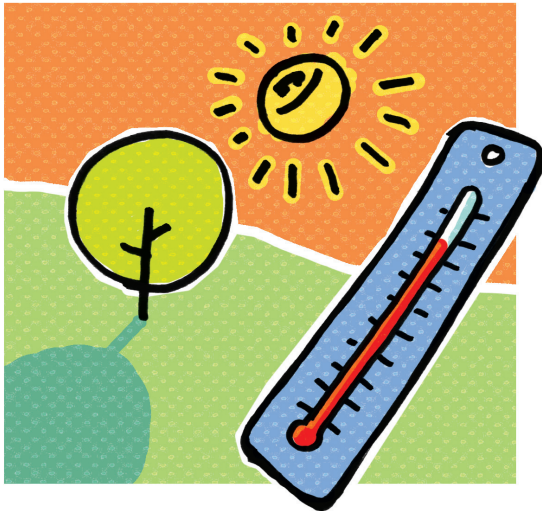
Grade Levels: K-1

Time: 2 activities 25-30 minutes each

INTRODUCTION:

Energy is the ability to do work. Everything in the world happens because of some type of energy exchange. There are seven different forms of energy: thermal (heat), mechanical, sound, electrical, radiant (light), chemical and nuclear.

Solar energy is all the energy from the sun. The sun is made up of hydrogen and helium. Two hydrogen atoms fuse to create a helium atom due to the extreme pressure and heat of the sun in a process called fusion. During this process, nuclear energy is converted to thermal and radiant energy. The radiant energy then travels in all directions and some of it reaches the earth. Radiant energy includes visible light, infrared light, microwaves and gamma rays.



Solar energy provides most of the energy on the earth. Plants convert radiant energy into chemical energy through a process called photosynthesis. This provides energy for plant growth. Radiant energy also powers the water cycle and weather. Solar or photovoltaic cells convert radiant energy into electricity.

INSTRUCTIONS:

1. Draw a picture of the sun on the board or show a picture of the sun and ask students what it is. Ask them what they already know about the sun and make a list.

Activity 1:

2. Ask the students which is hotter: being out in the sun or being in the shade of a tree? Solicit students to come up with ideas on how that conclusion could be tested.

LESSON STANDARDS:

- Ask questions and investigate the natural world and record observations. K-1 INQA
- Report on observations using drawings and words. K-1 INQD
- Record observations honestly and accurately. K-1 INQF
- Use simple tools and materials to solve a problem. K-1 APPA
- Develop two possible solutions to solve a problem. K-1 APPC

MATERIALS:

- Three thermometers for each group
- Masking tape for labeling
- Paper
- Sun paper
- Items to place on sun paper: leaf, pennies, etc.

3. Show the students one of the thermometers and teach them how to read it. On the student worksheet, practice filling in the correct temperatures.
4. Hand each group 3 thermometers. Have them label them 1, 2 and 3 using the masking tape.
5. Have the groups leave thermometer #1 inside.
6. Walk the students outside and put thermometer #2 in the shade and thermometer #3 in direct sunlight.
7. Wait 5 minutes before you have the groups check and record their temperatures. While waiting, gather the students in a group and ask them to hypothesize/predict what will happen.
8. Ask the students to explain their results. Explain that the sun creates an energy called light energy. Light energy can convert into heat when it strikes a surface.

Activity 2:

9. Remind the students that the sun is used for many things. Plants use the energy to make food in a process called photosynthesis. We are going to use the sun's energy to create pictures.
10. Show the students the sun paper. Have the students select three things to put on their paper. Walk outside and put the paper in the sun with their chosen items on top. Wait two minutes and take your pictures inside.
11. Ask your students to explain what happened. Explain that a chemical reaction happened between the light energy and the paper to change the color where it was exposed to sunlight.

THINK ABOUT IT:

- What would happen if the amount of sunlight on the earth was decreased? Increased?

FUN IN THE SUN

Did you know?

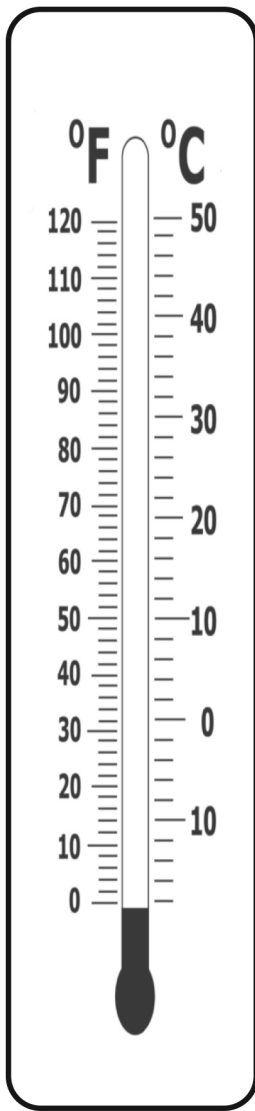
- In the 7th century B.C. humans used magnifying glasses to start fires.
- Romans used the sun to warm the water in their bathhouses in the 1st to 4th centuries A.D.
- In the 1860's August Mouchet came up with the idea of the first solar-powered engine and in the next few decades actually built it.
- In 1954 Bell Technologies developed the first PV cells capable of converting light energy for electric energy that could be used by everyday electrical items.



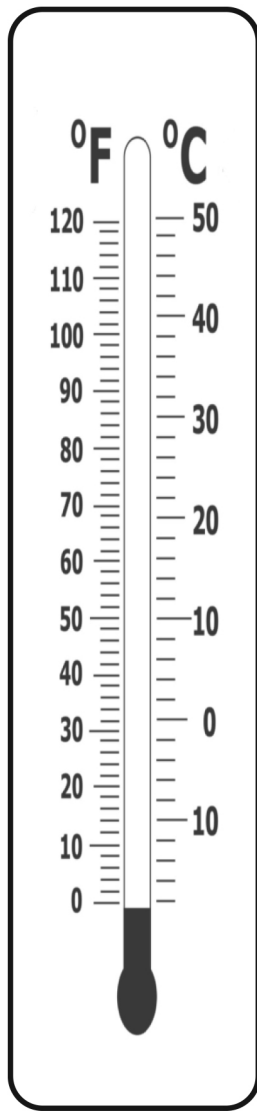
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STUDENT WORKSHEET:

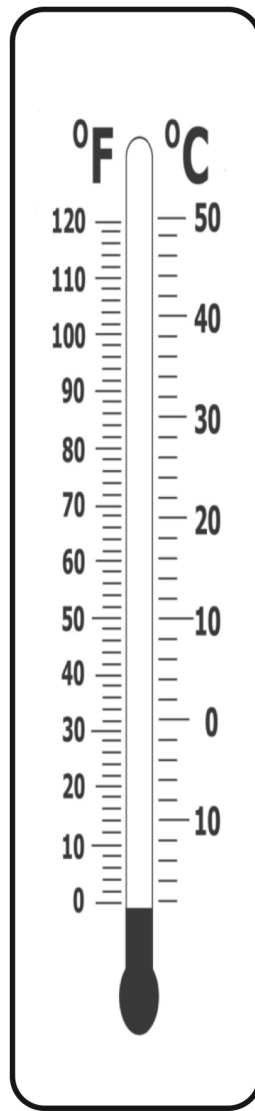
FREEZING
WATER
32°



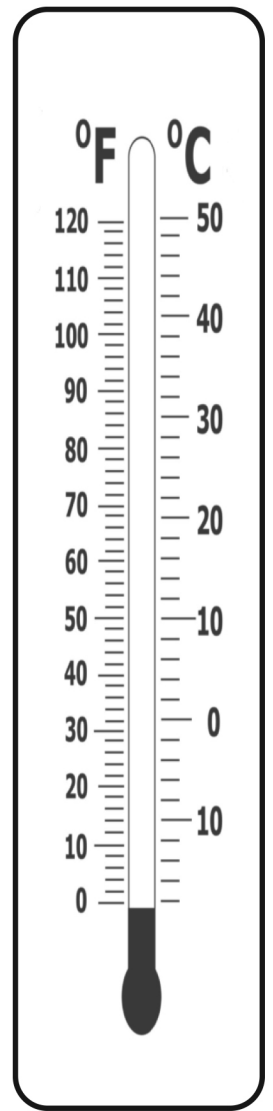
HUMAN BODY
TEMPERATURE
98°



WARM
SUMMER DAY
80°



COLD
WINTER DAY
15°

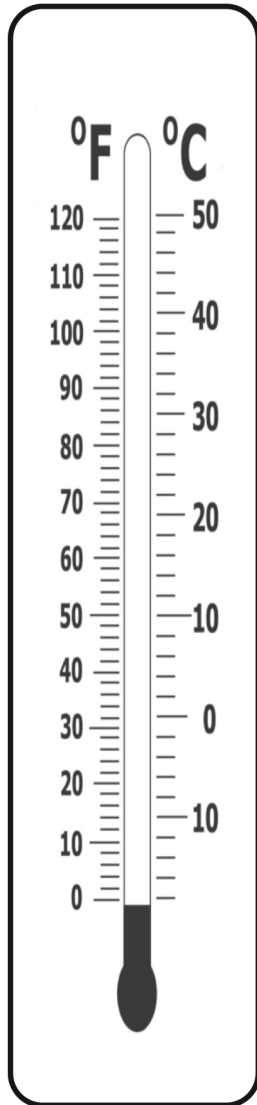




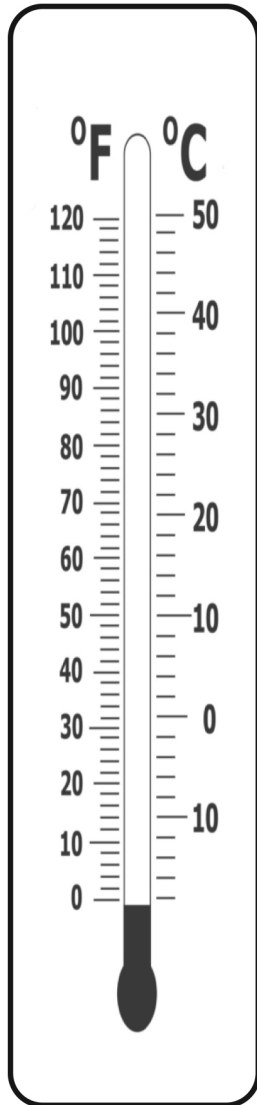
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STUDENT WORKSHEET: Page 2

1. INSIDE TEMPERATURE



2. SHADE TEMPERATURE



3. DIRECT SUN TEMPERATURE

