K-2 Earth Science

Southern Nevada Regional Professional Development Program

Energy from the Sun

INTRODUCTION

It is important for young children to begin to explore and understand that the Sun is the most important source of energy for our planet.

WHERE'S THE SCIENCE?

The Sun is a medium-sized star of average brightness. It is a major source of energy for our planet. The light and heat energy provided by the Sun supports all life forms on Earth. The Sun loses energy by emitting light. Some of the Sun's energy is reflected by clouds back into space. A tiny fraction of that light reaches our planet and is absorbed and turned into heat. Without the Sun, there would be no life on Earth because our planet would be too cold.

MATERIALS

- Hand lens
- Paper Plates
- Crayons
- Bag of Miniature Chocolate bars
- Science notebook

PROCEDURES

Note: This lesson needs to be completed on a warm sunny day!

1. Call the students to the group area with their science notebooks. Show them a picture of the Sun and ask them to share what they know about the Sun. Then pose the following question: “Does the Sun heat the Earth?” Share out responses with the whole group and discuss.

2. Tell the students that today we are going to investigate whether or not the Sun heats the Earth by attempting to melt some items placed outside in the Sun.

3. Hold up a crayon and a miniature chocolate bar and identify them for the students. **Note:** You can tape each item on a class chart for reference later.

4. Ask the students the following questions: “What do you think will happen to the _____ when placed out in the Sun? What will happen to _____ when placed outside in the shade?” Have students record their predictions in their science notebooks, then share out whole group and add their predictions to the class chart.

5. Divide the class into small groups of 3-4 students. Demonstrate for the students how each group will set up two paper plates. They will label one paper plate “Sunny” and the other “Shady”. They will then draw a line to divide the paper plate in half and place the crayon on one side and the small chocolate bar on the other side on both paper plates.

6. Pass out materials to the students and allow them time to set up their investigation. As the students work, move from group to group checking to make sure they understand how to set up the investigation.

7. When everyone is finished setting up their paper plates, line them up with their materials and move outside. Help the students select a shady

spot to place their “Shady” plates and a sunny spot to place their “Sunny” plates.

8. Once everyone is set up, tell the students what time it is and the temperature in the shade and in the Sun and instruct the students to record this information in their science notebooks, encourage them to also include a sketch of their investigation.

9. When the students finish setting up their science notebooks, they can observe the items. After about 5 minutes tell them the time again. Have them record the time and any changes they may have observed in their science notebooks. Return to the classroom leaving the items outside. **Note:** You should secure a location ahead of time and inform the rest of the staff ensuring other classes will not interfere with the projects. If you don’t have a secure courtyard or location within the school grounds, you may want to consider setting up your investigation in front of the school office approximately one hour after school begins.

10. After about 45 minutes, call the students back to the group area with their science notebooks and tell them that they will be going outside to check their melting investigation. Before taking the students outside, instruct them to predict what they think has happened to their items left outside. Allow time for the students to record in their science notebooks. Share predictions whole group.

11. Ask the students to line up with their science notebooks and hand lenses. Move to the outside investigation area. Tell the students the time and temperature in the sun and shade and ask them to record this information in their science notebooks. Once they have recorded the time and temperature they can observe their items. Move from group to group, and check that the students have recorded both the time and the temperatures. As the students finish, ask them to line up, leaving their items in place once again and return to the classroom.

12. After 45 minutes repeat steps 10 and 11. After this observation have the students collect the materials and return them to the classroom.

13. Allow the students time to meet in their small groups to discuss their observations and record further information in their science notebooks.

14. Call the students back to the group area with their science notebooks and discuss their observations whole group. Return to the opening question: "Does the Sun heat the Earth?" Share out whole group and discuss.

15. Ask the students to draw a line in their science notebook below their observation notes and to record what they learned today. Collect the science notebooks.

Additional Resources

Our Sun, Our Weather (Big book) www.newbridgeonline.com
Energy from the Sun (Big book) ISBN # 0-7608-9711-5 Sundance

Nevada State Standards

E2A1 Students know the Sun is a source of heat and light. E/S
N2A1 Students know how to make observations and give descriptions using words, numbers and drawings. E/S
N2A2 Students know tools can be used safely to gather data and extend the senses. I/L
N2B2 Students know that, in science, it is helpful to work in a team and share findings with others. E/L
N2B1 Students know science engages men and women of all ages and backgrounds. E/S
P2A2 Students know some properties of materials can be changed by heating, freezing, mixing, cutting, or bending. E/S

Safety Reminder:

Do not heat any substance unless instructed to do so.
Do not touch hot objects with your hands.