

When Does the Sun Shine?

Integration: Science; Geography; Language Arts; Art

Grade Levels: K-3

Time: 1-2 class periods

Materials:

- Globe
- Flashlight
- Paper
- Drawing materials

Objectives:

Students will:

1. State the behavior of the sun with regard to Antarctica.
2. Explain why Antarctica experiences the sunlight/darkness cycle.
3. Evaluate the consequences of living in a sunlight/darkness cycle such as Antarctica's.
4. Compose a picture or story.

Lesson:

Full group:

1. Ask students to describe how the sun moves each day. (It rises and it sets.)
2. Ask students how many hours the sun shines everyday.
 - a. Answers will depend on the location and time of year.
 - b. Assist students by asking for approximate times of sunrise and sunset or by showing students where the information is found in the newspaper.
3. Ask the following questions
 - a. Does the sun move the same way everyday? (yes)
 - b. Would you be surprised if the sun set tonight and did not rise tomorrow?
 - c. Would you be surprised if the sun did not set?
4. Tell students that because of the location of Antarctica, the sun doesn't rise and set each day.

5. Demonstrate the sun shining on Antarctica for the students by shining a flashlight on the globe while turning it slowly. The flashlight should be aimed at the equator. Turning off the lights may make it easier to see.
 - a. Point out the difference between the light hitting where they live and the light hitting Antarctica (When the globe turns, the students' location will move from sunlight to darkness.)

OPTIONAL: Allow students to investigate with the flashlight on their own.

6. Tell students that the sun rises around September 22 and does not set until around March 22. The sun shines constantly on Antarctica until the earth starts to tilt with Antarctica tilting away. When this occurs, the seasons change around the world.
 - a. When the part of the earth where the students live tilts away from the sun, they experience winter.
 - b. When the part of the earth where the students live tilts toward the sun, they experience summer.
 - c. Antarctica only has a winter (darkness) and a summer (constant light).
7. Tell students that Antarctica has six months of continuous sunlight when the sun shines all day and all night. Antarctica also has six months when the sun does not shine. The continent is in total darkness.
 - a. Elicit student reaction.
 - b. Remind students that there are no streetlights or other outdoor lighting.

EXTENSION: Draw the shades and turn off the lights. Have students perform some of their classroom tasks in the dark to demonstrate the darkness in Antarctica.

8. Instruct students to draw a picture with accompanying sentences or write a short story about what it would be like to live without the sun for six months or with constant sunlight for six months.

Assessment:

Teachers will assess:

1. Student's ability to explain the cycle of sunlight and darkness in Antarctica.
2. Student's evaluation of the consequences of such a cycle.
3. Student's synthesis of the information into a picture or story.