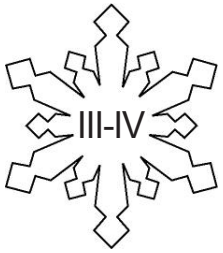
Seasons

Levels



Grades 5-8

Overview:

In this activity, students learn how Earth's tilt and its relation to the sun affect the seasons.

Objectives:

The student will:

- understand how Earth's revolution affects the seasons;
- examine changes that take place in each season; and
- discuss traditional activities that take place in the various seasons.

GLEs Addressed:

Science

- [5-8] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.
- [8] SD3.1 The student demonstrates an understanding of cycles influenced by energy from the sun and by Earth's position and motion in our solar system by recognizing the relationship between the seasons and Earth's tilt relative to the sun and describing the day/night cycle as caused by the rotation of the Earth every 24 hours.

Materials:

For demonstration:

- Globe
- Small flashlight
- Figure of a person cut from purple paper (approximately ½ inch)
- Figure of a person cut from pink paper (approximately ½ inch)
- Tape
- Circle cut from black paper (approximately 8 in. diameter)

For student activity:

- 4 Styrofoam balls
- 4 pencils
- 4 rubber bands (to fit snuggly over Styrofoam ball)
- Tape
- Figure of a person cut from purple paper (approximately ½ inch)
- Figure of a person cut from pink paper (approximately ½ inch)
- STUDENT WORKSHEET: "The Four Seasons"

Activity Preparation:

1. Invite an Elder to discuss seasons and seasonal changes with your class.
2. Tape or pin the black circle, which represents the moon, high on the wall in the classroom.
3. Prepare globes for later in the activity:
   a. Take a Styrofoam ball and insert a pencil through it so that it is as close to the center as possible. The pencil represents the North and South Poles. Put a rubber band around the middle to represent the equator.
   b. Tape the purple person midway between the equator and North Pole.
   c. The pink person should be taped midway between the equator and South Pole.

Activity Procedure:

1. Ask students to think about the seasons. How many seasons are there? What are they called? When do they begin and end?
2. Talk about change. What changes as the seasons change? Make a list of all the changes that might take place during each season. Talk about changes in plant life, weather changes, land changes (ice melting, river thawing), animal behavior, and societal functions (such as festivals, holidays, etc.).
3. Listen to an Elder speak about seasonal changes and how they define different seasons. What signals a new season?
4. Explain while many things happen during a season, what causes all weather changes is the sun.
5. Ask one student to hold the globe and another to hold the flashlight.
6. Tell students the flashlight represents the sun. Explain how Earth moves around the sun.
7. Ask the student holding Earth to move around the flashlight until the purple person is in the sun. Make sure the student with the flashlight rotates to keep the flashlight pointed at the globe. Other students in the class can help the student holding Earth to know when to stop. Ask if the sun is more direct for the purple person or the pink person. Ask if it is hotter for the purple person or the pink person.
8. Ask the student holding Earth move so the sun is directly overhead for the pink person. Ask if the sun is more direct for the purple or the pink person. Ask if it is hotter for the purple or the pink person.
9. Ask students to identify which way the North Pole of the globe is pointing in the classroom. Tape the black circle on the wall as a reference point. Ask the student to move around the sun, keeping the North Pole pointed at the black circle. Have the student stop when opposite the position they started from (half an orbit). Explain Earth is tilted one way and stays tilted the same way all the time.
10. Ask a volunteer to come up and make it daytime for the pink and purple people. Ask: “Is the sun more direct on the purple person or pink person? Is it hotter for the purple person or pink person? Is it summer or winter for the purple person? Is it summer or winter for the pink person?”
11. Explain the half of Earth that is north of the equator is called the Northern Hemisphere and the half of Earth that is south of the equator is called the Southern Hemisphere.
12. Explain seasons are opposite for people in the Northern Hemisphere (top) and in the Southern Hemisphere (bottom). Ask what season it is in the Southern Hemisphere when it is winter in the Northern Hemisphere? When it is winter in the Southern Hemisphere, what season is it in the Northern Hemisphere?”
13. Have new volunteers take the flashlight and globe. Ask them to identify when autumn would occur for the purple person. Help the class position Earth so that it is summer for the purple person, remembering to keep the North Pole pointed at the reference point. Ask the student holding the globe to rotate slowly toward the winter position. Ask the class to help them stop when it is autumn.
14. Repeat the procedure for spring.
15. Divide students into groups. Give each group a Styrofoam globe and flashlight. Ask them to practice finding the four seasons.
16. Hand out the STUDENT WORKSHEET: “The Four Seasons.” Ask students to complete the worksheet.
17. Create a thank you note or gift to send the Elder that visited your class.

Answers:

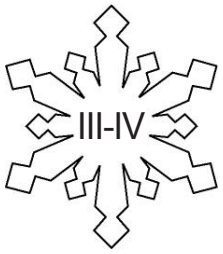
1. *a. Northern Hemisphere*
2. *b. Winter*
3. *False*
4. *N. Hemisphere = Summer/S. Hemisphere = Winter*
5. *Answers will vary.*
6. *Answers will vary.*

Name:_____

The Four Seasons

Student Worksheet (page 1 of 2)

Levels

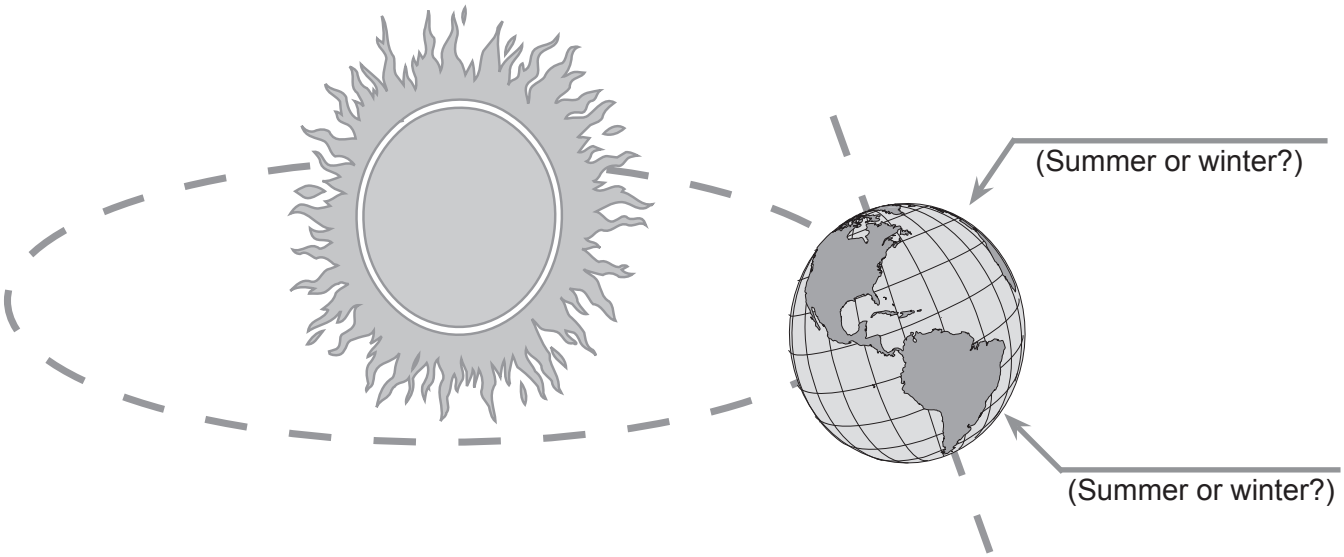


1. What hemisphere is north of the equator?
   a. Northern Hemisphere
   b. Southern Hemisphere
   c. Eastern Hemisphere
   d. Western Hemisphere

2. When it is summer in the southern hemisphere, what season is it in the northern hemisphere?
   a. Fall
   b. Winter
   c. Spring
   d. Summer

3. True or False: Earth's tilt changes as it rotates around the sun. _____

4. Label the seasons on the diagram below:



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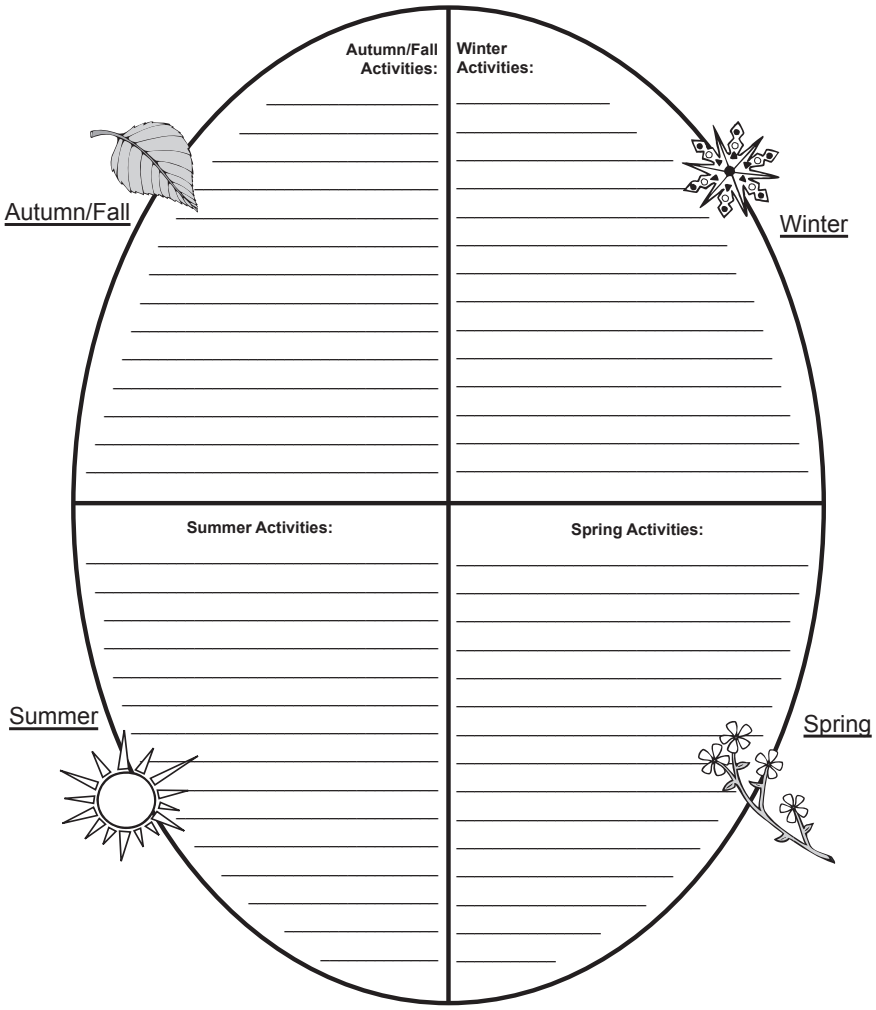
The Four Seasons

Student Worksheet (page 2 of 2)

5. In the circle below, list traditional activities that take place during the various seasons.



6. What things signal the coming of spring?

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