

# Viewers' Answer Sheet

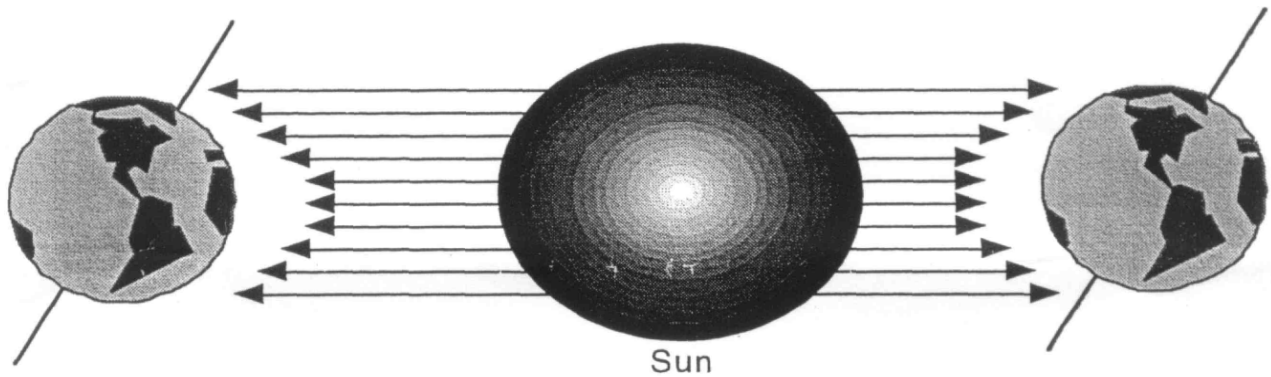
**Directions:** At the end of the video program, the following questions will be presented. Write your answers in the spaces provided or circle the correct answer.

1. What does the term axis mean?
2. What is the angle of tilt for the earth's axis?
  - A. 10 degrees
  - B. 23.5 degrees
  - C. 45 degrees
  - D. 180 degrees
3. How long does it take the earth to spin or rotate once on its axis?
4. How long does it take the earth to orbit or revolve around the sun once?
5. Many places on earth experience four different seasons. What are those seasons?
6. Why is the angle of rays of sunlight so important in determining the amount of energy collected by the earth?
7. What does the term migration mean?
8. Plants are the only organisms capable of making their own food. That food-making process is called...
  - A. chlorophyll
  - B. oxygen
  - C. photosynthesis
  - D. carbon dioxide
9. Plants produce more than food. One gas that plants release into the air is used by animals. It is called...
  - A. oxygen
  - B. carbon dioxide
  - C. chlorophyll
  - D. photosynthesis
10. What is the average distance of the earth from the sun?
  - A. 100 miles
  - B. 1,000 million miles
  - C. 93 million miles
  - D. 365 million miles

## The Reasons For The Seasons

### The Earth's Tilt

The earth spins around an imaginary axis. A planet's axis is an imaginary line that goes through the North and South poles of the planet. It takes the earth 24 hours to spin around once on its axis. We call this a day. The earth's axis is tilted at 23.5 degrees. If the axis wasn't tilted, we would only have one season. Parts of the planet would receive the same amount of sunlight every day, so weather and climate would not change very much. Because the earth's axis is tilted, we have different seasons. As the earth orbits around the sun, the axis sometimes points toward the sun and sometimes away from the sun. When this happens, there are times when the Northern Hemisphere is receiving more light than the Southern Hemisphere. The Northern Hemisphere would be having spring or summer, while the Southern Hemisphere would be having fall or winter.

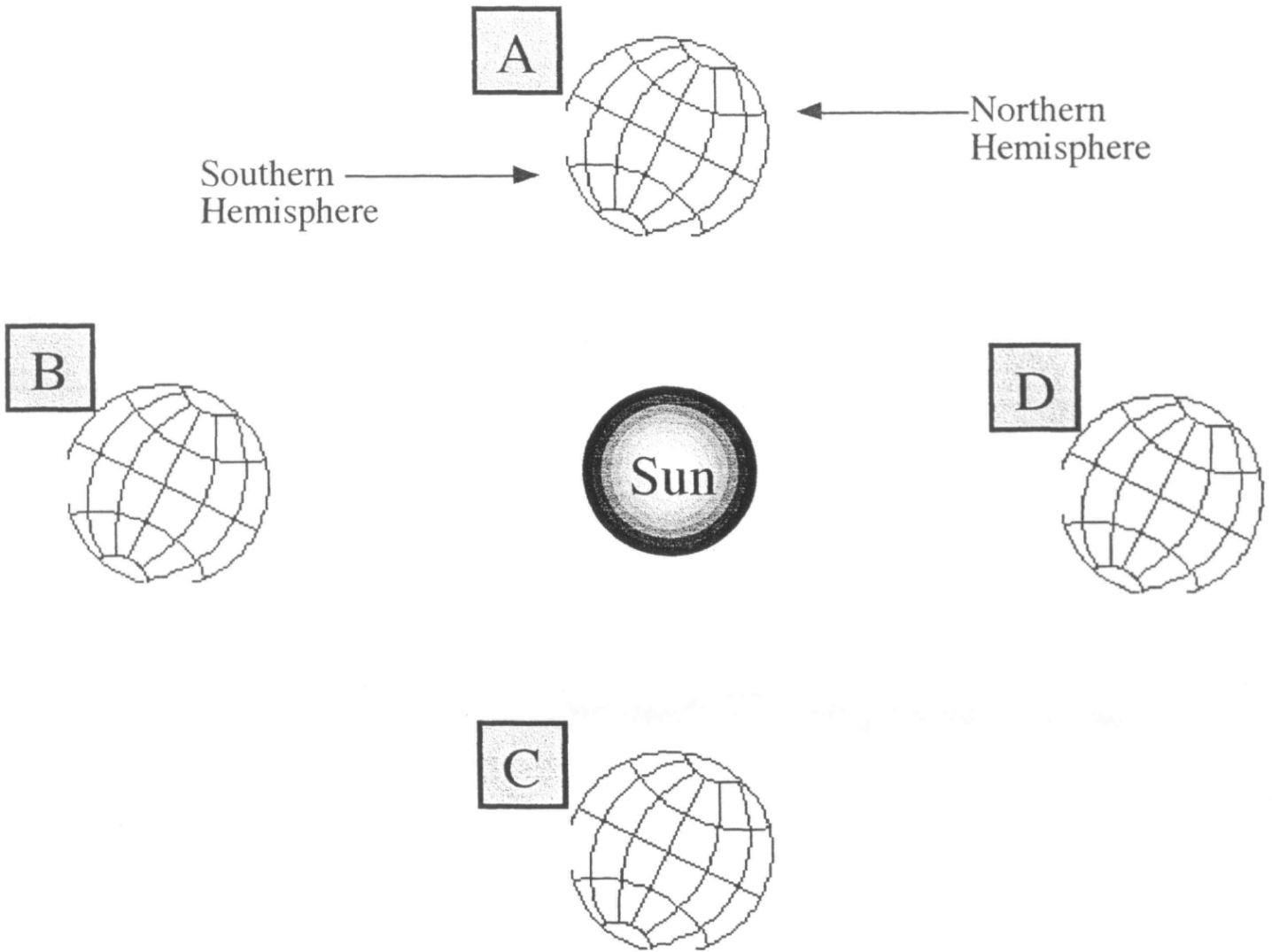


#### Questions:

1. Why is the tilt of the earth the cause for seasons on our planet?
2. The North Pole and South Pole each have long periods of complete sunlight and complete darkness. Why?

# The Reasons For The Seasons

## The Earth's Orbit Around The Sun



### Questions:

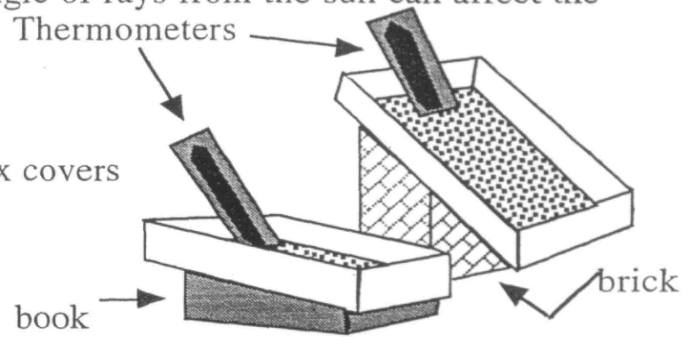
1. At which point in the earth's orbit would the Northern Hemisphere have winter and the Southern Hemisphere have summer?    A    B    C    D
2. At which point in the orbit would the Northern Hemisphere have summer and the Southern Hemisphere have winter?    A    B    C    D

## The Reasons For The Seasons The Angle of Sunlight

**I. Problem:** To demonstrate how the angle of rays from the sun can affect the temperature of the earth.

### II. Materials:

1. two small containers, such as shoe box covers
2. two thermometers
3. sand or clean soil
4. book
5. brick



### III. Procedure:

1. Put an equal amount of sand in each box cover.
2. Go outside on a sunny day and pick a spot in direct sunlight.
3. Place the book on the ground and lay one box cover filled with sand in the box.
4. The other box cover should be angled so that it is facing directly into the sunlight. Use the brick to help aim the box cover at the sun.
5. Put a thermometer into each container so that the bulb of the thermometer is buried in the sand.
6. Record the temperatures of the two thermometers and then wait 15 minutes and record the new temperature in the data bar below.

### IV. Observations:

	Starting Temp.	Ending Temp.
<b>Flat Box</b>		
<b>Angled Box</b>		

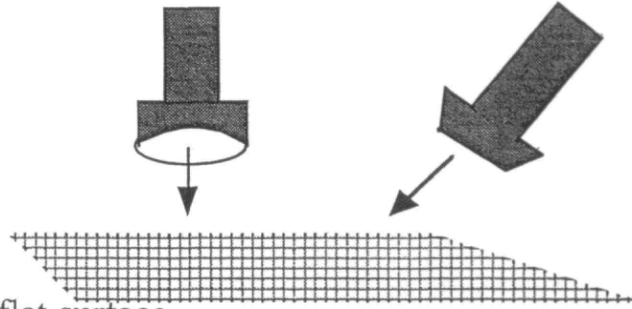
**V. Conclusion:** What did you find out?

## The Angle of Light

**I. Problem:** To compare the amount of light striking graph paper from a flashlight that is held straight above the paper and also at an angle.

### II. Materials:

1. flashlight
2. graph paper
3. pencil



### III. Procedure:

1. Place the graph paper on a flat surface.
2. Hold the flashlight thirty centimeters above the paper in such a way that it is shining straight down on the paper.
3. Observe the area lit brightly by the flashlight. Draw a circle around the squares that are in the light.
4. Repeat steps 2 and 3, but this time angle the flashlight at the paper.

### IV. Observations:

**Number of squares in the light**

<b>Flashlight straight above</b>	
<b>Flashlight at an angle</b>	

**V. Conclusion:** What did you find out?

## The Reasons for Seasons Leaf Rubbings

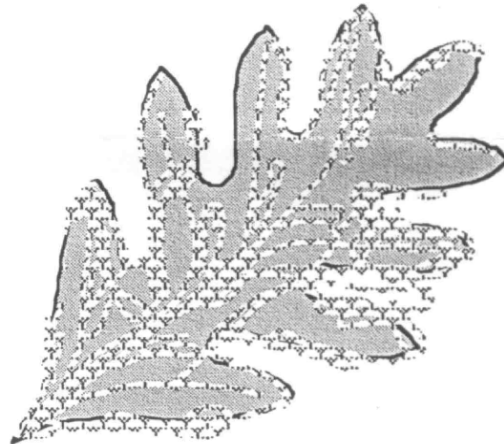
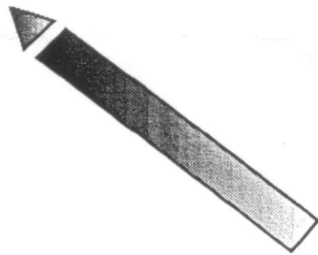
**I. Problem:** To can make pretty rubbings of leaves.

**II. Materials:**

1. crayons
2. an assortment of leaves (not dry or crumbly)
3. white paper

**III. Procedure:**

1. Collect some interesting leaves but be sure to pick only leaves that are sturdy. Don't use dry or crumbly leaves.
2. Peel the paper away from the crayons.
3. Place a leaf on a flat surface and cover it with a sheet of white paper.
4. Using the side of the crayon, rub gently over the paper to let the outlines and vein lines of the leaf show through.



Name \_\_\_\_\_

## The Reasons For The Seasons Pressing Leaves

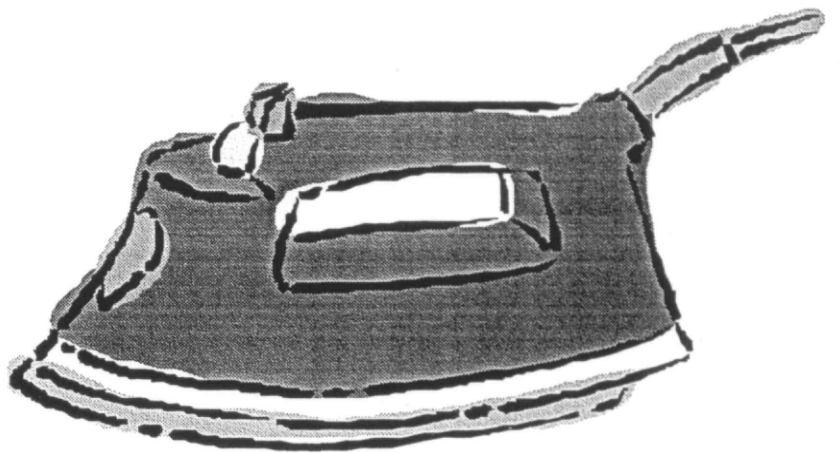
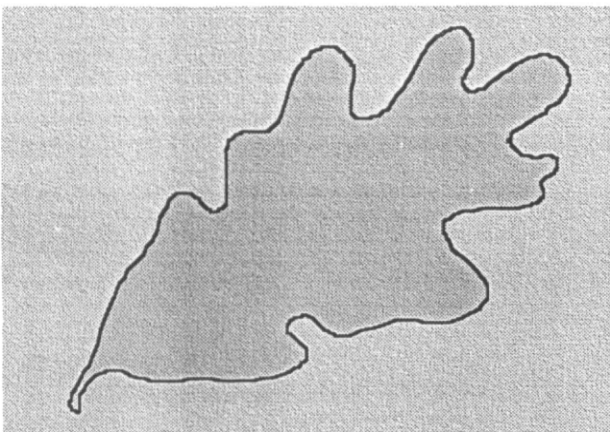
**Project:** You can keep leaves that you find by pressing them between two pieces of waxed paper with an iron.

### Materials:

1. iron
2. collected leaves
3. waxed paper
4. towel

### Procedure:

1. Place the towel on a flat surface.
2. Put a piece of waxed paper on the towel.
3. Place a colorful leaf on the waxed paper.
4. Put another piece of waxed paper on top of the leaf.
5. Preheat the iron. (ASK AN ADULT FOR HELP WHILE USING THE IRON)
6. The iron doesn't have to be real hot. Iron the waxed paper and the leaf will become sealed between the two sheets of paper.

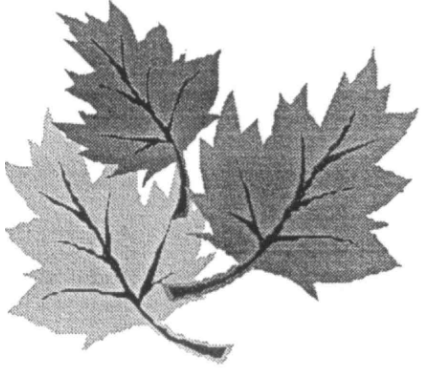


Name \_\_\_\_\_

# The Reasons For The Seasons

## The Reasons We Like The Seasons

**DIRECTIONS:** Write down some things you like to do during each of the four seasons.



### Fall

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### Winter

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### Spring

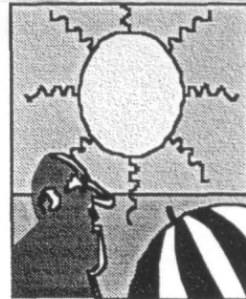
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### Summer

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**1560 Sherman Avenue, Suite 100**  
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