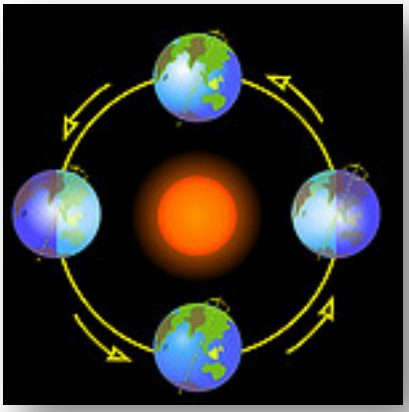
The Seasonal Tilt and Whirl

Activity

The axis is the center of rotation of Earth. Earth has a measurable tilt of 23.5° on its axis, orienting it in space so the North Pole always points toward the North Star as it moves along its orbital path around the Sun. As a result of the fixed tilt of Earth's axis, the areas of Earth's surface exposed to rays from the Sun change seasonally as Earth moves through its orbital path. The tilt of Earth on its axis directly results in the changing number of daylight hours received.

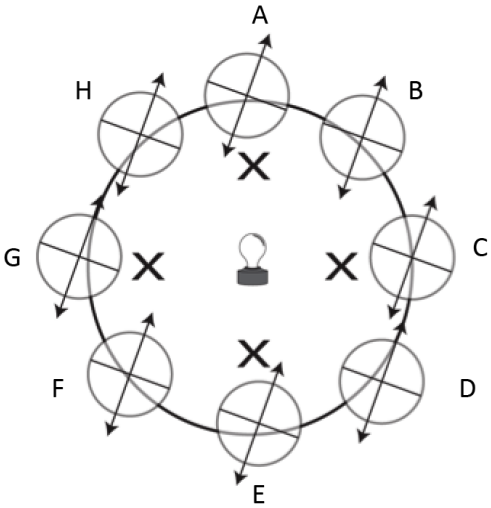


Procedure

1. Use the table to record your data.

Position	Description of Light on Globe	Season in Northern Hemisphere
A		
B		
C		
D		
E		
F		
G		
H		

2. Use the model to answer the questions on the following page.



The Seasonal Tilt and Whirl

Activity, continued

3. Write your prediction of what the positions marked with large Xs represent. Then go to your first Earth position with your group and begin.

4. You have 4 minutes at each position to make and record observations in the space below.

5. When your teacher gives the signal, move counter clockwise (left) around the lamp, stopping at each of the eight locations on the path of Earth's revolution.
6. Make observations of how the model of the Sun (lamp) and Earth (globe) show a relationship based on how the light strikes Earth in each of the eight designated positions in Earth's revolution around the Sun.
7. Complete the following questions after observing Earth in all eight positions.
   a. At position C, how was the amount of light different in the two hemispheres?

   b. Position C shows Earth in the month of December. What season would it be in December in the Southern Hemisphere?

   c. At Position G, how was the amount of light different in the two hemispheres?

The Seasonal Tilt and Whirl

Activity, continued

d. What month is Earth in at Position G? How do you know?

e. Position A and Position E have Earth receiving equal amounts of sunlight in the Northern and Southern Hemispheres. What seasons occur at these points? Why?

f. At which location does the South Pole receive 24 hours of daylight?

g. At which location does the North Pole receive 24 hours of darkness?

h. Is Earth at any point closer to the Sun than at other points?

i. What two things cause seasons on Earth?