

Grade: 6th

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Topic: Direct and indirect sunlight and the Cause of Earth's Seasons.

Title: Melt Me Away With Light

Standards:

6.3.5 Use models or drawings to explain that the earth has different seasons and weather patterns because it turns daily on an axis that is tilted relative to the plane of Earth's yearly orbit around the sun. Know that because of this, sunlight falls more intensely on different parts of Earth during the year and the difference in heating produces seasons and weather patterns.

Goals and Objective:

Students will learn that direct light produces more heat than indirect light and will be able to apply this knowledge to understand the seasons. Students will learn observation and record keeping skills.

Materials:

Light source
Globe
Wax Paper
Chocolate Pieces
Ruler
Tape
Timer
Lab Reports

Activities:

Students should discuss what they think causes the seasons to change. Then the teacher should explain about the tilt of the Earth and its rotation around the sun. Let students know that our experiment will show how direct light is warmer than indirect light.

- Students will help set up the experiment according to the procedures

Procedures:

1. Cover the globe with wax paper to protect it from the chocolate.
2. Place the globe at a slant on a table at one side that has been covered with wax paper.
3. Measure about 3 inches away and place the light at that spot.

4. Tape a square of chocolate to the Northern Hemisphere, the Equator, and the Southern Hemisphere of the globe.
5. Plug in the light and turn it on.
6. At three minute intervals check to see if any change has occurred in the chocolate pieces – 3 minutes, 6 minutes and 9 minutes. Record your findings at each interval.

- Students will observe and record their result on the chart provided
- Class will discuss the results bringing in previous knowledge of the tilt of earth

Assessment:

Students should complete the lab sheets, including a drawing of what they observed during the presentation. Students should be able to express that direct light produces more heat.

Direct verses Indirect Light

Question: Does direct light produce more heat than indirect light?

Hypothesis: _____

Materials needed:

Light source	Globe	Wax paper	Chocolate
Ruler	Tape	Timer	

Procedures:

Cover the glove with wax paper to protect it from the chocolate. Place it at a slant on a table at one side that has also been covered by wax paper. Measure about 3 inches away and place the light. Tape a square of chocolate to the Northern Hemisphere, the Equator and the Southern Hemisphere of the globe. Plug in the light and turn it on. At three

minute intervals check to see if any of the chocolate has begun to melt. Continue to check through 3 - three minute intervals. Record your findings.

Placement of chocolate	3minutes	6 minutes	9 minutes
Northern Hemisphere			
Equator			
Southern Hemisphere			

Results: _____

Conclusion: _____

Draw a picture of the experiment below.