



## Weather

- I. **Grade Level(s):** 5th or 6th
- II. **Objective:**

The students will be able to determine if there is a temperature difference between different locations of the earth at the same time. (Shade, open field, grass surface, dirt surface, and water's edge.)
- III. **Materials & Supplies**
  - A. **Gathered by the teacher**

Handout/sheet to record students' findings
  - B. **Kit(s) to use from Env Learn Center:**

Thermometers
- IV. **Pre-Planning**
  1. Place six different thermometers at six different locations at least 30 minutes before activity so thermometer can register correct temperature.
  2. Discuss how different features of the earth affect the temperature. What are these features?
  3. Show and explain how to handle and read the thermometers.
  4. Pass out handouts (teacher-made) and explain.
- V. **Estimated Time for Activity:** 45 minutes
- VI. **Procedures:**
  1. Divide into six groups and let each group rotate between the six different stations.
  2. Ring bell every five minutes for groups to rotate.
- VII. **Follow-Up Activity**
  1. Compare their temperature findings.
  2. Discuss the reason for there being a difference even though they are in the same general location.

**Submitted by:** Linda Phifer  
**School:** Hillcrest Middle



## WEATHER The Location of the Sun

**Lesson Goal:** To allow students to investigate and develop inferences about the orientation of the Earth in relationship to the Sun.

**Grade Level:** 4th

**Prerequisite:** The earth is tilted while in orbit.

### **Exploration:**

**Objective:** The students will make inferences about the location of the Sun in the sky when seen from the Earth.

**Materials:** handouts  
pencils

### **Procedures:**

- A. Place the students in cooperative learning groups of four, assign the roles of observer, materials manager, reporter, and illustrator.
- B. Ask the material manager to get one handout for each group member and distribute them.
- C. Explain to the students that they are to answer the key questions by drawing on the handout. Key questions: Where is the Sun at noon today? Where is the Sun early in the morning and late in the evening? Draw the path of the Sun throughout the entire daytime period.
- D. Ask the reporter to share the group's results with the class. Ask each group to place their completed handout in the group's folder.
- E. Discuss the following questions: Is the amount of daylight hours the same for all people on the Earth each day?

**Evaluation:** Handouts will be checked for the placement of the Sun in three different locations.

### **Invention:**

**Objective:** The students will investigate and describe the location of the Sun over different regions of the Earth.



Materials: handouts  
globe

Procedures:

- A. Ask each group to share their responses to the exploration phase.
- B. Ask the materials manager to get handouts for each group member.
- C. With the Sun visible in the daytime sky, take the students to the open field. Ask students to make a sketch of the sky facing south and the horizon. Students are to draw in the location of the Sun and important objects visible on the horizon and their own location on the field. The activity will be repeated three times throughout the day. One in the morning, one at noon, and one in the afternoon. Each drawing of the Sun must include the time. Warn the students not to look directly at the Sun.
- D. Ask students to compare their findings with their answers to the questions in the exploration phase.
- E. Explain that the Sun is never overhead or at the zenith. The path of the Sun keeps it in the southern part of the sky all day long. During the fall and winter months, the Sun rises in the southeast, moves to a high position in the south, and sets in the southwest.
- F. The further north we go the lower the Sun's position will be in comparison to ours on December 21. For example, if we lived in Detroit, Michigan, show the location on a globe, this would be the Sun's position in the horizon. If we were in James Bay, show its' location on the globe, this would be the Sun's position. If we were at the Artic Circle, show this on the globe. This is where the Sun's position is.
- G. As we go below the line the Sun will not be seen. In Alaska, there are days that the Sun is never visible in the winter. It is totally dark. The opposite is true for the summer time. There are days in which the Sun never sets. This changes because of the Earth's position in orbit. Illustrate on the globe.
- H. In Alabama we are accustomed to having twelve hours of daytime and twelve hours of night time. The Sun is visible during each of our days. If we went to Alaska during the winter it might be dark all day



as well as during the night. If we went there during the summer it might be daytime all day and night. This is all related to the Earth's and Sun's relationship.

- I. Summary, the Sun is located at different heights on the horizon depending on the time of year. The Sun is never located completely overhead or at the zenith.

**Evaluation:** Handouts will be checked for accurately identifying the placement of the Sun as observed during the three observations.

**Expansion:**

**Objective:** The students will identify regions on the globe where the sun is setting or rising.

**Materials:** globe  
toothpick

**Procedures:**

- A. The students will remain in their cooperative learning groups.
- B. Ask the materials manager to pick up one globe and two toothpicks from the material's table in the back of the room.
- C. Ask the students to lay the globes down with Alabama facing upward and the North Pole facing the north.
- D. Ask one person from each group to put one toothpick on Alabama and observe the shadow produced.
- E. Ask the student to pull the toothpick up slowly. What is happening to the shadow? What does this mean?
- F. Ask students to find the place on the globe where there is no shadow at all. Is the Sun rising or setting at this point?
- G. Ask the students to move the toothpick around the globe to identify other places where the Sun is rising or setting. Ask the group to record their findings.

- I. The teacher will walk around to the different groups to be sure the students understand the activity and are doing it correctly.
- J. Have students share their findings.
- K. As closure, explain that just because the Sun is visible in our horizon does not mean that it is visible everywhere else. Demonstrate:

Ask for a volunteer to pretend to be the Sun and stand straight and still while I pretend to be the Earth as I stand tilted and moving slowly. As I spin on my axis what part of my body is facing the Sun? Which is not? The same is true for the earth refer to the drawing. While some places have sunlight others do not and not all places have the same amount of sunlight.

- L. Ask the materials manager to collect the group's materials (completed handouts placed in the group's folder, toothpicks and globes).

**Evaluation:** Each student must point out at least one region where the Sun is rising or setting.

**Reference:** Sunal, Dennis and Cynthia. Early childhood and elementary school science. pg. 308-309.





Title: Weather

I. Grade Level: 6th

II. Objective:

Students will predict wind speed using a wind speed chart and an anemometer.

Students will give wind direction using wind vane.

III. Material:

Weather Kit (wind vane and anemometer)

Teacher (chart for determining wind speed according to certain environmental evidence)

IV. Pre-planning and Procedures:

1. Show and explain chart for determining wind speed.
2. Explain how to read anemometer.
3. Explain how to use a wind vane.
4. Pass out sheet to fill in wind speed and direction.

V. Follow-up Activity:

1. Come back as a group and compare each groups findings.

VI. Estimated Time:

30 minutes

Submitted by: Linda Phifer

School: Hillcrest Middle School

## WIND SPEED

km/h	evidence of speed
<1	calm, smoke rises straight up
2-5	smoke moves in direction of wind
6-12	wind felt on face, leaves rustle
13-20	leaves and small twigs moving
21-29	raises dust and loose paper
30-39	small trees move
40-50	large branches move
51-60	large trees move





## Temperature Variance

- I. Grade Level(s): 1st - 12th
- II. Objectives:
  1. The students will be able to determine the differences in temperature in different locations.
  2. The students will be able to determine the differences in temperature at different times of the day.
- III. Materials & Supplies
  - A. Gathered by the teacher
    - paper and pencils
  - B. Kit(s) to use from Env Learn Center:
    - several thermometers from weather kit
- IV. Pre-Planning

Teacher should go to Environmental Learning Center before the class to mark the areas to be tested. If unable to do this, the teacher could mark different spots on the map.
- V. Estimated Time for Activity: three 30 min. intervals - morning, noon, and afternoon
- VI. Procedures:
  1. Students should measure the temperature using thermometers at various locations at the Environmental Learning Center.
  2. Students should record their findings throughout the day.
  3. Students should brainstorm about the reasons for the differences in the temperatures and come to their own conclusions.
- VII. Follow-Up Activity
  1. From the students' findings, they can create charts and graphs to show the differences in temperatures at different locations and different times of the day.
  2. In upper grades, students should research this topic to determine if their hypotheses were correct.

Submitted by: Harriette Honeycutt and Kelley Northam  
School: Huntington Place Elementary