Temperature Hunt

Reference: Adapted from Life Lab Garden-Based Science Curriculum, *The Growing Classroom*

Overview: Students will search for the coldest and warmest locations in the garden.

Subject Area: Science

Grade Level: K-2nd

Objective: Students will be able to identify factors that cause temperature variations in the environment.

Next Generation Science Standards:

K-ESS2 Earth's Systems

- **K-ESS2-1.** Use and share observations of local weather conditions to describe patterns over time.

K-PS3 Energy

- **K-PS3-1.** Make observations to determine the effect of sunlight on Earth's surface.

Prep Time: 15 minutes

Lesson Time: 15-30 minutes, depending on how much time is allotted.

Materials Needed:

- 1 soil thermometer
- 2 air thermometers (one for outside, one for greenhouse)
- 1 compost thermometer
- Outdoor white board and markers
- Paper and pencils

Space Needed: Garden

Staff Needed: 1 teacher and 3-4 volunteers, depending on class size

Preparation Steps:

1. Place the soil thermometer in the soil, the compost thermometer in the compost, one air thermometer in the greenhouse and one on a table or post.
2. Move the white board easel into the garden gathering spot, and write *Warmest Location*, *Coldest Location*, *Temperature Difference between warmest and coldest location*, *Factors that affect the temperature,* and the question, "How do you think the temperatures will change during the day?"

Example:

- Warmest Location:
  - Temperature:
- Coldest Location:
  - Temperature:
- Temperature difference between warmest and coldest location:
- Factors that affect the temperature
- How do you think the temperatures will change during the day?

Discussion:

- In the garden, do you think you can find some places that are warmer than others?
- What conditions make the temperature different in two places?
- Do you think it will be easy to find the warmest place in the garden?
- What about the coldest place?
- What conditions will you look for in each case?
- Which places do you expect to be cold?
- Which places do you expect to be warm?

Presentation Steps:

1. Tell the students that they are going to measure the temperature in four different areas of the garden. They are going to try to find and compare the warmest versus the coldest places.
2. In small groups (each supervised by a volunteer), show students the four different locations where the thermometers are located (in the soil, in the air, in the greenhouse, in the compost bed).
3. Ask students to name factors they think may be influencing the temperature at each spot. (Remind them to consider presence of shade or direct sunlight, surface color, wind exposure.) Check the temperature on the thermometers.
4. At each location, have the volunteer supervisor help the students read the temperature on the thermometer. Have students record location, temperature, and factors affecting temperature in their journals.
5. Once students have recorded the information, move to the next temperature area. Repeat with all four areas.

Assessment:

After all the readings are taken, gather the class together at the white board easel and compare findings.

Variations:

a. If enough thermometers are available, have students hunt to find the hottest and coldest spots in the garden. Remind them to be creative, as the most extreme temperatures may not necessarily be in the most obvious places. Ask each group to test the temperature at four places—two places they think will be hot and two places they think will be cold.

b. If time, based on the information gathered during the temperature hunt, have students brainstorm where they could record the hottest and coldest temperatures in the entire school grounds. What time during the day would be the best time to measure? What time of year? Visit these areas together to test the students' predictions.