Upham Woods Grab and Go: D.O.T.S. Tool - Infrared Thermometer

Upham Woods Outdoor Learning Center

Concept: Learn how to use the Infrared Thermometer to make connections about relationships between living/ non-living objects to temperature.

Age level:
4th-12th

Education Standards:

MS-LS2-5 MS-PS4-3 MS-ETS1-1. MS-ETS1-2. MS-ETS1-3 MS-ETS1-4 MS-LS2-2.

Success Indicator:
Students will make connections between living/ non-living and how they are affected by temperature as well as know the difference between the terms biotic and abiotic.

Background Information:

Technology has been integrated into virtually every facet of education. Through Digital Observation Technology Skills (DOTS) youth are able to experience and identify various aspects of nature through technology. One of the tools used to make these connections with nature is the Kintrex Infrared (IR) Thermometer. This hand held tools purpose is designed to show the temperature of any object it is pointed at.

How- To:

1. Turn on the Infrared Thermometer by pressing the center button labeled '°C/°F'.
2. Aim the thermometer at an object and hold down the button on the back, underneath your index finger.
3. **NEVER** point the red light at anyone's head.
4. A red light will appear on the object you are measuring.
5. Note the temperature appears on the screen.
6. When recording findings record the object and the units it was measured.
7. When not in use the tool will automatically turn off.

Preparation

Time: 20-30 min

Space: Anywhere

Materials:
Kintrex Infrared Thermometer
1 Writing utensil per student
1 Blank piece of paper per student

Deeper Thinking Questions:

1. Which objects (LIVING or NON-LIVING) have a larger temperature difference?
2. Why do you think this is?
3. How do these ideas compare to our original thoughts and hypotheses? (same,different)
4. What is something you wonder more about and why?

Activity Instructions:

1. For this activity students will take turns using the Infrared Thermometer to determine what objects in the surrounding area are hottest and coldest while recording their findings.
2. Instruct students on how to properly and safely use the Infrared Thermometer.
3. Begin this activity by having all students make a hypothesis, collectively or individually, of what the coldest and hottest abiotic (non-living) object is and record it.
4. Students can take turns testing their hypotheses and reporting their findings to the rest of the students to be recorded by all. Test multiple objects until they find the coldest and hottest abiotic object. Then have students find the difference between the hottest and coldest objects temperature (hottest- coldest = difference).
5. Have the students make a new hypothesis of what objects in their surroundings will be the hottest and coldest biotic (living) objects. **REMINDER:** NEVER point the red light at anyone's head.
6. Repeat the testing and recording process (#4) but with **only** biotic objects. Test multiple objects until they find the coldest and hottest biotic object. Then find the difference in temperature in the biotic objects (hottest – coldest = difference)
7. Once finished, have students get into small groups of 3-4 participants to discuss what they observed.