Science Kindergarten Unit 03 Exemplar Lesson 03: Using the Senses to Explore Heat

This lesson is one approach to teaching the State Standards associated with this unit. Districts are encouraged to customize this lesson by supplementing with district-approved resources, materials, and activities to best meet the needs of learners. The duration for this lesson is only a recommendation, and districts may modify the time frame to meet students' needs. To better understand how your district may be implementing CSCOPE lessons, please contact your child’s teacher. (For your convenience, please find linked the TEA Commissioner’s List of State Board of Education Approved Instructional Resources and Midcycle State Adopted Instructional Materials.)

Lesson Synopsis

Throughout this lesson, students will develop a basic understanding about heat energy. Students will associate their sense of touch with the heat energy they feel and observe.

TEKS

The Texas Essential Knowledge and Skills (TEKS) listed below are the standards adopted by the State Board of Education, which are required by Texas law. Any standard that has a strike-through (e.g. sample phrase) indicates that portion of the standard is taught in a previous or subsequent unit. The TEKS are available on the Texas Education Agency website at http://www.tea.state.tx.us/index2.aspx?id=6148.

K.6 Force, motion, and energy. The student knows that energy, force, and motion are related and are a part of their everyday life. The student is expected to:

K.6A Use the five senses to explore different forms of energy such as light, heat, and sound.

Scientific Process TEKS

K.2 Scientific investigation and reasoning. The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:

K.2D Record and organize data and observations using pictures, numbers, and words.

K.4 Scientific investigation and reasoning. The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:

K.4B Use senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.

GETTING READY FOR INSTRUCTION

Performance Indicators

Kindergarten Science Unit 03 PI 01

This Performance Indicator covers three concepts in three different lessons. Students will complete one fold book after each lesson as they learn the new material; one for light energy, one for heat energy, and one for sound energy. Create a picture book that identifies the senses that are used to explore various forms of energy, such as light, heat, and sound. Provide examples that represent one source of light, heat, and sound energy.

Standard(s): K.2D , K.6A

ELPS ELPS.c.1E

Key Understandings

- There are many sources of heat.
  - Where does heat come from?
- Heat feels warm.
  - What sense do we use to (detect) feel heat?
- Is it warmer in a sunny location or in a shady location?

Vocabulary of Instruction

- heat
- sense
- touch
- hand/skin
- sources of heat (such as sun, fire, heater, oven, stove, computer, toaster, iron, dryer, coffee maker, barbecue grill, incandescent light bulb
- sun
- shade
- melt

Materials

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Materials:
- index cards (or similar sized paper, 3”x5”, 1 per student)

Science Notebooks:
Record the information generated by students in the class science notebook.

Students will create the illustrations to complete the graphic organizer. (See the example below.)
then share ideas with the class. This conversation will be continued in the next lesson.

EXPLORE

Suggested Day 2

1. Ask:
   - Where do you think ice will melt faster? In the sun or in the shade? This is a “think-about-it” question and will be answered later.

2. Say:
   - You are going to explore what conditions help an ice cube melt faster. Each of you will get one ice cube, and you will place it in a location where you can observe it.

3. Safety Note: Review all safety considerations and behavioral expectations with students prior to the activity.

4. Take students outside. Distribute the Handout: Melting Ice Cubes and one ice cube to each student. (Optional) Placing the ice cube in a cup might make distribution easier, but make sure students return the cups, so they can be reused.

5. Instruct students to place the ice cube in a spot and make observations about their ice cube. They should have the Handout: Melting Ice Cubes to draw their observations.

6. When about half the student’s ice cubes have melted, gather the students in one location.

7. Ask:
   - Which ice cubes melted faster? (The ice cubes in the sun should have melted faster.)
   - Is it warmer in a sunny location or in a shady location? (Sunny location)
   - Why do you think the ice left in the sun melt faster? (The air is warmer in the sun.)

8. Instruct students stand in the sun, and then instruct students to stand in the shade. Can they feel the difference in warmth between standing in the sun and standing in the shade?

9. Encourage students to investigate two sources of heat—the sunlight hitting their skin and the heat that has been absorbed by the pavement.

10. Ask:
    - Which sense are we using to “observe” the heat? (Our sense of touch)

11. Have students feel the pavement to observe the difference between the shady pavement and sunny pavement. If there is a grassy spot available, have students also feel grass in the Sun and shade.

12. Discuss what students have observed. Record their thinking.

EXPLAIN/ELABORATE

Suggested Day 2 (continued)

1. Read a book about heat or hot/cold.

2. As the book is being read, check for understanding and listen for misconceptions.

Materials:

- ice cubes (1 per student)
- cups (small bathroom size, for holding the ice cubes, 1 per student) – Optional

Attachments:

- Handout: Melting Ice Cubes (1 per student)

Safety Note:

Review all safety considerations and behavioral expectations with students prior to the activity.

Instructional Notes:

The teacher will need to decide on the parameters of where students can place the ice cube. It is suggested that half the students place the ice cube in a sunny location and the other half in a shady (or less sunny) location.

Science Notebooks:

Record the information generated by students in the class science notebook.

Materials:

- book (about heat or hot/cold, per class)
### Check For Understanding

**EVALUATE – Performance Indicator**

**Suggested Day 3**

**Kindergarten Science Unit 03 PI 01**

This Performance Indicator covers three concepts in three different lessons. Students will complete one fold book after each lesson as they learn the new material; one for light energy, one for heat energy and one for sound energy.

Create a picture book that identifies the senses that are used to explore various forms of energy, such as light, heat, and sound. Provide examples that represent one source of light, heat, and sound energy.

**Standard(s): K.2D, K.6A, ELPS.c.1E**

1. Refer to the Teacher Resource: **Instructions for Performance Indicator** for information on administering the performance assessment.

### Materials:

- paper (drawing, 1 sheet per student)

### Attachments:

- Optional Handout: **Student Performance Indicator** (1 per student)
- Teacher Resource: **Sample Performance Indicator**
- Teacher Resource: **Instructions for Performance Indicator**
Melting Ice Cubes

My Ice Cube

My in the .

My in the .

Observations
I use my _______ to sense _______.
I use my skin to sense heat. A source of heat energy:

A source of heat energy:
Instructions for Performance Indicator

Performance Indicator

- Create a picture book that identifies the senses that are used to explore various forms of energy, such as light, heat, and sound. Provide examples that represent one source of light, heat, and sound energy. (K.2D; K.6A; E)

1. Distribute a piece of drawing paper to students and model how to fold the paper to make a booklet.

   OR

2. Have the paper pre-folded for students. The front page will have a title such as *Heat*, and the student will include his or her name on this page. The remaining pages will be used for students to draw a picture of the sense (sensory organ) used to detect heat and an example of sources of heat (energy).

   OR

3. Distribute the Optional Handout: **Student Performance Indicator**

Instructional Notes:

This Performance Indicator covers three concepts in three different lessons. Students will complete one page of their book after each lesson (heat, light, and sound) as they learn the new material. In this lesson, the focus is *heat*.

Collect the student work, so the pages can be compiled at the end of the unit to make a class book.