



Overview:

Students learn information can be gathered both directly and remotely using their five senses (sight, touch, smell, taste, and hearing) or equipment (such as a magnifier).

Objectives:

The student will:

- use their five senses to make observations; and
- distinguish between senses that are used directly and senses that are used remotely.

GLEs Addressed:

Science

- [3-4] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.
- [3] SA2.1 The student demonstrates an understanding of the attitudes and approaches to scientific inquiry by answering “how do you know?” questions with reasonable answers.
- [3-4] SD4.3 The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by recognizing and using appropriate instruments of magnification (e.g., binoculars and telescopes).

Materials:

- Magnifier (one per student)
- Pencil (one per group)
- Sheet of colored paper (one per group)
- Small food item, such as a peanut, orange slice, etc. (two per student)
- Manila folder or other item to use as a screen
- Other classroom objects, such as pens, crayons, tape, etc.
- OVERHEAD: “Senses”
- OVERHEAD: “Remote Sensing”
- STUDENT WORKSHEET: “Sensing”

Vocabulary:

remote - acting, acted on, or controlled indirectly or from a distance

sensing - to become aware of through the senses

Activity Procedure:

1. Show students an object. Ask them to describe the object (color, size, shape, weight, etc.) Ask them how they know what color it is, how much it weights, etc. As students share their ideas, relate their methods to the five senses (hearing, sight, smell, touch, and taste).
2. Explain that people learn about the world around them through use of their five senses. Using OVERHEAD: “Senses,” explain each of the five senses and ask students to provide an example of when they would use each one. (NOTE: If a student in the class has impaired vision or hearing, the class may want to discuss how that student uses their other senses.)

3. Divide students into small groups. Distribute a small food item to each student. Distribute the STUDENT WORKSHEET: "Sensing" and ask students to use their sense of sight to draw the food item. As a class, discuss words that can be used to describe the item using the other four senses. For example, "cold," "rough," or "sweet." List words on the board.
4. Ask students to write the words on their worksheet next to the appropriate symbol. For example, cold would go under touch. Assist Level I students with writing their answers as necessary.
5. Distribute a pencil, colored sheet of paper, and second food item to each group. Ask students to pick one item from the three and draw it, then describe it as they did before. However, explain to students that they should not taste the non-food items. Younger students may need to dictate their answers to an older student or adult.
6. Collect student worksheets and select several to share. Read the descriptions of the items aloud to the class and ask students to guess which object is being described. Compare and contrast the words used to describe the objects.
7. Divide students into pairs. Distribute a manila folder, or other screen, to each pair. Explain that students will play a game; one student will pick an object and describe it for the other student. The other student must guess what it is based on the description alone. The object should be hidden behind the screen at all times.
8. Instruct students to pick who will describe their object first. That student should choose a classroom object and hide it behind their manila folder. The student who will guess may have to be blindfolded or step out of the classroom so as not to see the object while it is chosen and hidden. Make sure each student has a chance to guess and describe.
9. Ask students how the game was different from what they did before; where they described an object using their five senses. Point out that in this case, the student did not look at the object directly.
10. Explain scientists often study things they cannot look at directly. They use the phrase "remote sensing" to describe things they collect using equipment.

Teacher's Note: In the broadest sense, remote sensing is the collection of information about an object or phenomenon through the use of equipment that does not come in contact with the object.

11. Distribute a magnifier to each student. Ask students to examine the object they described on their worksheet using the magnifier. After a few minutes, ask if they are using remote sensing or their five senses (*remote sensing*). Ask students what sense is being used (*sight*).
12. Ask students if there are other things they use to gather information remotely and list on the board. A camera is one example; a picture is something that was gathered remotely because a person's eyes were not the source of the information. Radios, CDs, and telephones are other examples. Sound is transferred through the mechanism of the radio or disc, not directly from the instrument or voice.
13. Point out that the magnifier was used to make something appear larger. Ask students what they might use to see something that is far away. (*telescopes and binoculars*)
14. Explain scientists use objects called satellites to see Earth remotely. Satellites are put into outer space to take photographs of Earth. Show OVERHEAD: "Remote Sensing."

Critical Thinking Question: The Fish Bowl Method. Hand out one index card to each student. Ask students to write down one question about the classroom lesson. Level I students can ask their question aloud or dictate to another student. They may ask a question that will help to clarify something they don't understand about the material, or they may ask a broad question about the subject and its real-world application. Ask students to place their questions in a fish bowl or other appropriate container and at the end of the class period or at the beginning of the next period, draw out several questions for class discussion.

Extension Idea: Ask students what life would be like if they did not have one of their senses. If there is a blind or deaf student in the classroom, or student with a blind or deaf relative, they may wish to share their experiences. Students may wish to explore by being blindfolded or use earplugs for a designated period of time.

Answers:

1. Illustration of food item.
2. A-D. Answers will vary, but should match the item drawn in 1 and the correct sense.
3. Answers will vary.
4. Illustration of item listed in 3.
5. A-D. Answers will vary, but should match the item drawn in 4.

Name: _____

Levels

Sensing

Student Worksheet (page 1 of 2)



1. Draw the food item you see on your desk.



2. Write one word to describe the food item using each of your senses.

A.



Touch.

B.



Smell.

C.



Hearing.

D.



Taste.

Name: _____

Sensing

Student Worksheet (page 2 of 2)

Levels



3. Pick an item on your desk to describe.

4. Draw one of the three items on your desk.



A large empty rectangular box for drawing.

5. Write one word to describe the food item using each of your senses.

A.



Touch.

B.



Smell.

C.



Hearing.

D.



Taste.

Remote Sensing Overhead



Photo courtesy of NASA.

Image of Satellite



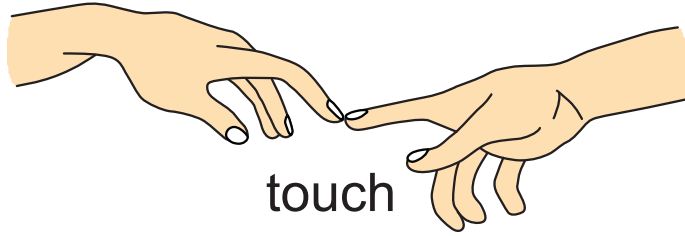
Photo courtesy of NASA's Earth Observatory.

Satellite Image of Earth's Surface

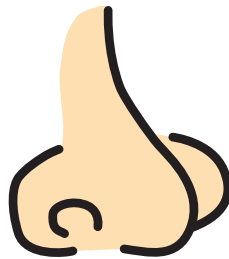
Senses Overhead



sight



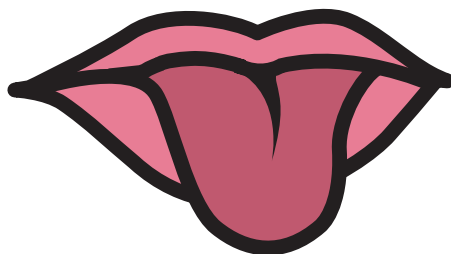
touch



smell



hearing



taste