

What Are Properties?

BROWARD COUNTY ELEMENTARY SCIENCE BENCHMARK PLAN

Grade 1—Quarter 1

Activity 1

SC.A.1.1.1

The student knows that objects can be described, classified, and compared by their composition (e.g., wood or metal) and their physical properties (e.g., color, size, and shape).

SC.H.1.1.1

The student knows that in order to learn, it is important to observe the same things often and compare them.

SC.H.1.1.3

The student knows that in doing science, it is often helpful to work with a team and to share findings with others.

SC.H.1.1.5

The student uses the senses, tools, and instruments to obtain information from his or her surroundings.

ACTIVITY ASSESSMENT OPPORTUNITIES

The following suggestions are intended to help identify major concepts covered in the activity that may need extra reinforcement. The goal is to provide opportunities to assess student progress without creating the need for a separate, formal assessment session (or activity) for each of the 40 hands-on activities at this grade level.

1. Ask students to think of two objects in the classroom. Call on volunteers, one at a time, to give you one property of both items that is the same and then one that is different. Write the descriptive terms students use on the board. Have classmates use each volunteer's comparisons to figure out which items the volunteer is thinking about.
2. Use the Activity Sheet(s) to assess student understanding of the major concepts in the activity.

In addition to the above assessment suggestions, the questions in bold and tasks that students perform throughout the activity provide opportunities to identify areas that may require additional review before proceeding further with the activity.

What Are Properties?

OBJECTIVES

Students learn about the properties of matter by examining and comparing a variety of objects.

The students

- ▶ describe similar objects according to properties they have in common
- ▶ operationally define *property*
- ▶ identify common properties, including color, size, texture, weight, shape, and material

SCHEDULE

About 40 minutes

VOCABULARY

property

MATERIALS

For each student

- 1 Activity Sheet 1
- 1 crayon, red*

For each team of two

- 1 balloon, any color
- 1 block, any shape/color
- 1 button, any shape/color
- 1 feather
- 1 marble
- 1 piece sandpaper, coarse
- 1 shell

- 1 spoon, plastic
- 1 tray, sorting

For the class

- 1 chart, What Am I?
 - 1 marker, felt-tip*
- Delta Science Reader, *Properties*

*provided by the teacher

PREPARATION

- 1 Make a copy of Activity Sheet 1 for each student.
- 2 Hang the What Am I? chart at the front of the room.
- 3 Put the following objects on a sorting tray for each team of two: a balloon, a block, a button, a feather, a marble, a piece of sandpaper, a shell, and a plastic spoon.
- 4 Each team of two will need their sorting tray of items. Each student will need a red crayon.

BACKGROUND INFORMATION

Everything that exists in the universe is made of matter. Matter comes in an incredible variety of forms, from the tiniest speck of dust to our giant Sun. Indeed, matter is anything, animate or inanimate, that occupies space and has mass.

A **property** is a quality or trait that is characteristic of a person or object. A property can also be an effect that a material or substance has on another object (such as magnetism, which will be studied in Activity 5) or on one or more of the senses of the observer (sight, taste, hearing, smell, and touch).

In this activity, students are operationally introduced to the term *property*. They examine a variety of objects, describing each and then attempting to identify it based solely on a verbal description of its properties. Students learn that they can differentiate objects from one another based solely on descriptions of the objects' properties.

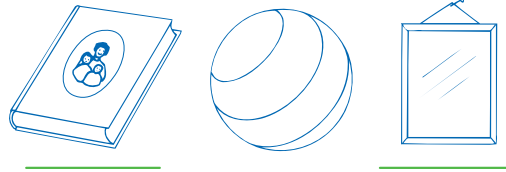
Property words students use will typically describe their objects' size, color, texture, weight, shape, and material. These are common properties. For example, one student might describe a button as large, blue, smooth, light, round, and made of plastic.

As a class, students discuss some of the common properties of the objects on their trays. In later activities, they will use descriptions of these properties to classify and sort various objects.

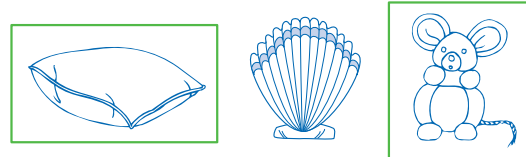
▼ Activity Sheet 1

What Are Properties?

1. Draw a line under the objects with straight sides.



2. Draw a box around the soft objects.



3. Circle the objects that are usually red. Color them in.



Stop sign and fire truck should be colored in red.

Guiding the Activity

- 1 Hold up a marble from one of the sorting trays. Ask, **What words would you use to describe this marble to someone who could not see it?**

Write the students' description of the marble on the What Am I? chart in the box labeled *Object 1*.

- 2 Distribute a sorting tray of items to each team. Give the students some time to examine and manipulate the objects on their trays (see Figure 1-1).

Additional Information

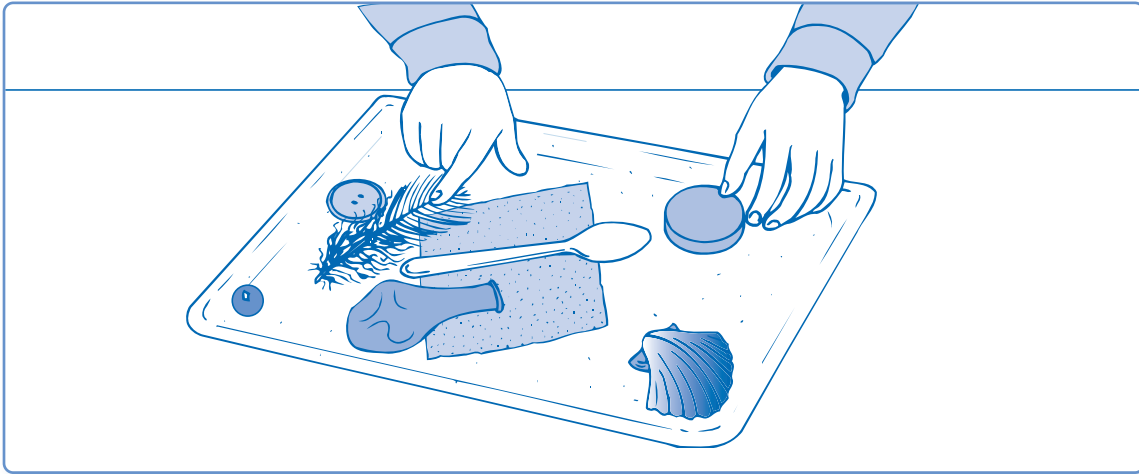
Student responses will vary. Students might say that the marble is round, hard, smooth, shiny, or small. They will probably mention the color of the marble.

Do not allow students to use the name of the object, in this case marble, in their description. Return the marble to the correct sorting tray.

Handling objects allows students to learn about the characteristics of each object. Allowing students to handle and manipulate the objects before the start of each activity also provides an opportunity for students to select and use their own words to describe the objects' different properties.

Guiding the Activity

Additional Information



▲ *Figure 1-1. A student examining the objects on a tray.*

Hold up a marble from one of the teams' trays and tell students to look for a similar object on their trays. Ask, **What does your object look like? How is it like the one I am holding? How is it different?**

Record any new descriptions on the chart in the box labeled *Object 1*.

3 Choose another object from a different team's tray and hold it up. Ask, **How would you describe this object to someone who could not see it?**

Record their responses on the chart in the box marked *Object 2*.

Tell students to look at their trays and find an object that looks similar to the one you are holding up. Ask, **What does your object look like? How is it like the one I am holding? How is it different?**

Encourage students to describe the size, color, texture, shape, and weight of their marbles, without using the word marble in their descriptions. Later, students will have to identify Object 1 based solely on a description of its properties.

Record Object 1's identity on a separate sheet of paper. You will want to keep track of all objects on this sheet of paper so that you can refer to this record later when students try to identify objects based solely on a description of their properties.

Encourage students to describe the size, color, length, texture, shape, and weight of the object, again without using the object's name in their description.

Remember to keep track of Object 2's identity on the separate sheet of paper.

Have students talk about the color, size, weight, shape, and texture of their objects.

Guiding the Activity

Record any new descriptions on the chart in the box labeled *Object 2*.

Continue holding up objects from the teams' trays and having students first describe them and then compare them with similar objects on their trays.

Record the descriptions of each of the objects on the chart, keeping track of the identity of each object on the separate sheet of paper.

- 4 Write the word *property* on the board. Tell students that a **property** is a trait or characteristic of an object. Pronounce the word for students and explain that the words they have been using to describe the objects on their trays are words that tell about the properties of the objects.

Ask, **What are some common properties?**

Additional Information

Students should name words describing color, shape, smell, size, texture, and weight.

- 5 Challenge students to play the following game. Point to one of the descriptions on the chart and read it aloud. Ask, **Which object has these properties?**

Check your separate sheet of paper to see if students guessed the correct identity of the object.

Continue reading descriptions of objects and having students guess which object has the described properties.

The students should find the object on their tray that most closely matches the description.

At the end of this activity, students should feel comfortable both describing the common properties of objects and identifying objects based on a description of their properties.

- 6 Distribute a copy of **Activity Sheet 1** and a red crayon to each student. Help students read and answer the questions on the sheet as needed. Go over student responses once they have finished.

- 7 As appropriate, read or review pages 3 and 7 of the Delta Science Reader *Properties*.

REINFORCEMENT

If students are having trouble identifying objects by a description of their properties, play a game of *I Spy* using words that describe common properties, such as shape, weight, texture, and color. For example, say “I spy something that is red, heavy, and bumpy,” or “I spy something that is hard, round, and smooth.”

SCIENCE JOURNALS

Have students place their completed activity sheets in their science journals.

CLEANUP

Have students return the sorting trays, balloons, blocks, buttons, feathers, marbles, pieces of sandpaper, shells, and plastic spoons to the kit.

SCIENCE AT HOME

Have students look at home for two small objects: one that is soft and one that is hard. Have them ask their parents’ permission to bring the two items to school for a day. As a class, sort the items into groups of soft and hard objects.

Connections

Science Challenge

If students can name the properties of objects with ease, play *I Spy* as described in the Reinforcement activity, but let students initiate the property descriptions of objects. At the easiest level, students can describe objects that are visible inside the classroom and from a window. Older or more capable students could play the more difficult game of “I’m thinking of . . .,” in which they identify properties of common objects that are not in view, such as a cat, a household appliance, or a tool.

Science Extension

Young children are often very interested in foods of different types. Use this interest as a motivator by having students identify and compare the properties of common foods. As the stimulus for the discussion, try to provide a wide variety of real foods—canned and fresh fruits and vegetables; bread and other baked goods; single-serving boxes of cereal, crackers, and cookies; small bottles, cans, or boxes of juices; and empty, well-washed milk and yogurt containers. As a less-desirable alternative, or simply to augment your collection of real foods, you could use plastic “play” replicas. Begin by having students name the foods and discuss them in general—likes and dislikes, and so forth. Then concentrate on the foods’ properties, including color, shape, texture, and taste. Elicit descriptive words for texture and taste, such as *sweet*, *crunchy*, and *crumbly*. If you are using real foods, let students sample different ones so their descriptions are based on immediate experience. Also have them compare the properties of different foods by asking questions such as, “How are the apple and the orange alike?” and “How are they different?” (Also see the Science and Social Studies connection.)

Safety Note: For any activity involving food, check school records for students’ allergies. Remind students never to taste or touch food without asking the teacher.

Science and Language Arts

- ▶ Work with a small group of students seated in a circle. Give a color statement such as, “A carrot is blue,” “A banana is yellow,” or “Snow is purple.” The student seated to your right must answer “Yes” or “No” to indicate whether the statement is correct or incorrect. If the student said “No,” he or she must correct the error: “A carrot is orange,” or “Snow is white.” That student then gives a color statement for the next student to verify or correct, and so on around the circle. To provide practice with forming contractions, have students use them in their responses: “No, a carrot isn’t blue, it’s orange.” This procedure can also be used for the properties of shape and texture.
- ▶ Use a similar procedure for size, with each statement describing the comparative sizes of two objects—for example, “A dog is bigger than an elephant.” The next student must correct the statement in one of three ways: by transposing the names of the objects (“An elephant is bigger than a dog”), by changing the descriptive word (“A dog is smaller than an elephant”), or by changing the name of one object (“A house is bigger than an elephant,” or “A dog is bigger than a gerbil”). You can also use this procedure for comparisons of weight and texture.

Science and Social Studies

As a follow-up to the Science Extension connection, hold a “Foods from Around the World” day, giving students an opportunity to sample foods of various cultures and to share their own cultural heritage with the rest of the class. Send notes home asking families to prepare a favorite traditional dish. As students sample the foods, encourage them to describe the different tastes and textures. You could combine this experience with activities focusing on other aspects of culture, such as clothing, music, and dance.