LESSON 8

Guess My Reason

Overview and Objectives

The activity in this lesson offers you an opportunity to assess your students' ability to apply what they have learned about solids and their ability to use information from the "Properties of Solids" chart. One member of each student pair sorts a set of solids on the basis of a property of his or her choice. The student may use a property that has been investigated in class or select a new one. The students partner is then challenged to draw on his or her knowledge of the properties of solids and sorting strategies to guess the reason his or her partner sorted the solids in that particular way. The pair then reverse roles. This activity helps students review what they have learned and prepares them for Lesson 9, an embedded assessment of Lessons 2 through 7.

- Students sort a set of solids into groups on the basis of a property of their choice.
- Students guess the reason that served as the basis for how a partner grouped the solids.
- Students describe new ways to sort solids.

Background

In this lesson, many students will group the solids on the basis of properties that they have investigated in Lessons 2 through 7 (that is, color, shape, hardness, whether the solids roll, stack, sink, or float, and whether they are attracted by a magnet). Other students may sort the solids on the basis of properties that they have not investigated in class, such as shiny or dull, heavy or light, or with or without holes. Still others may sort the solids on the basis of function; they may, for example, put hardware in one group and toys in another. Another possibility is to group the solids on the basis of the materials they are made of. You will probably find that the ways your students choose to sort the solids are endless! Many teachers have found that this activity provides ample room for creativity, as noted by one teacher who reported that one student sorted the solids on the basis of "objects I have at home," while another sorted by "solids I would use to build a robot."

The sorting activities and discussions provide you with opportunities to assess student growth. The **Assessment** section at the end of this lesson provides specific suggestions for what to look and listen for as you observe your students. After reviewing the lesson, you may want to consider modifying it so that you can do it with the entire class rather than have students work in pairs. Consider the size of your class and your own teaching style so that you select a format that provides you with the best opportunities for assessing your students' progress.

Materials

For every two students

- 1 plastic tray
- 1 set of 20 solids
- 2 large sheets of paper, approximately 60 x 40 cm (24 x 16 in)
- 2 black crayons

For the class

- 1 sheet of newsprint
- 1 marker
- 1 "Properties of Solids" chart

Preparation

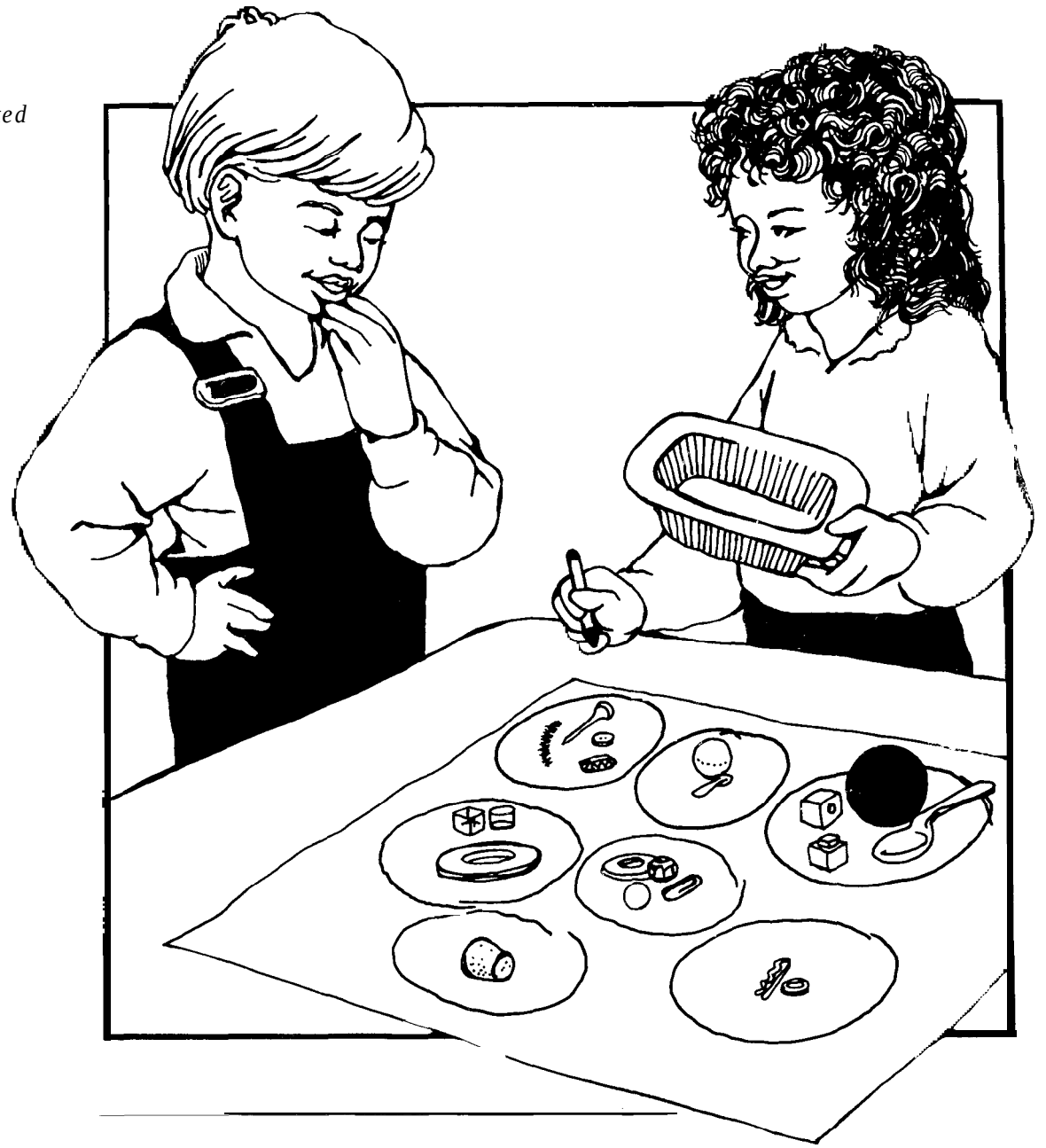
1. Make sure that each tray contains one complete set of the 20 solids. Arrange the crayons, large sheets of paper, and trays of solids in the distribution center.
2. Make sure the "Properties of Solids" chart is displayed so that all students can see it.

Procedure

1. Explain the procedure for the sorting and guessing activity.
   - The students will work in pans.
   - One student will begin the activity by sorting a set of solids into groups on the basis of a specific property, which he or she will keep secret at first. The student will arrange the groups on the large sheet of paper and use a black crayon to draw a circle around each group. Then, the student will say, "Guess my reason!"
   - The other student will examine the groups. He or she will guess why the partner grouped the solids in that way.
   - Then, the other partner will sort the solids. The other student will observe the groups and guess the reason for the arrangement.
2. Before the activity starts, remind students that they can describe and sort solids in many ways. If they propose a reason other than the one their partner chose, let them know that this reason is not necessarily right or wrong. Let students know that one response in this situation is, "That is a good reason, but it is not the one I used." This will help students feel more comfortable when they propose a reason.
3. Have students collect the materials from the distribution center.
4. Encourage students to refer to the "Properties of Solids" chart as a source of information.
5. As students work, observe how each student sorts the solids and listen to the reasons that partners propose (Figure 8-1). (Refer to the **Assessment** section for specific suggestions.)
6. If a student is having difficulty guessing the reason for a certain arrangement, suggest that the student who sorted the objects provide clues. For example, the student might reveal whether or not the reason was among those investigated in class.

Figure 8-1

Guessing how solids were sorted



7. After each student has had an opportunity to sort the solids, ask students to return their materials to the distribution center.

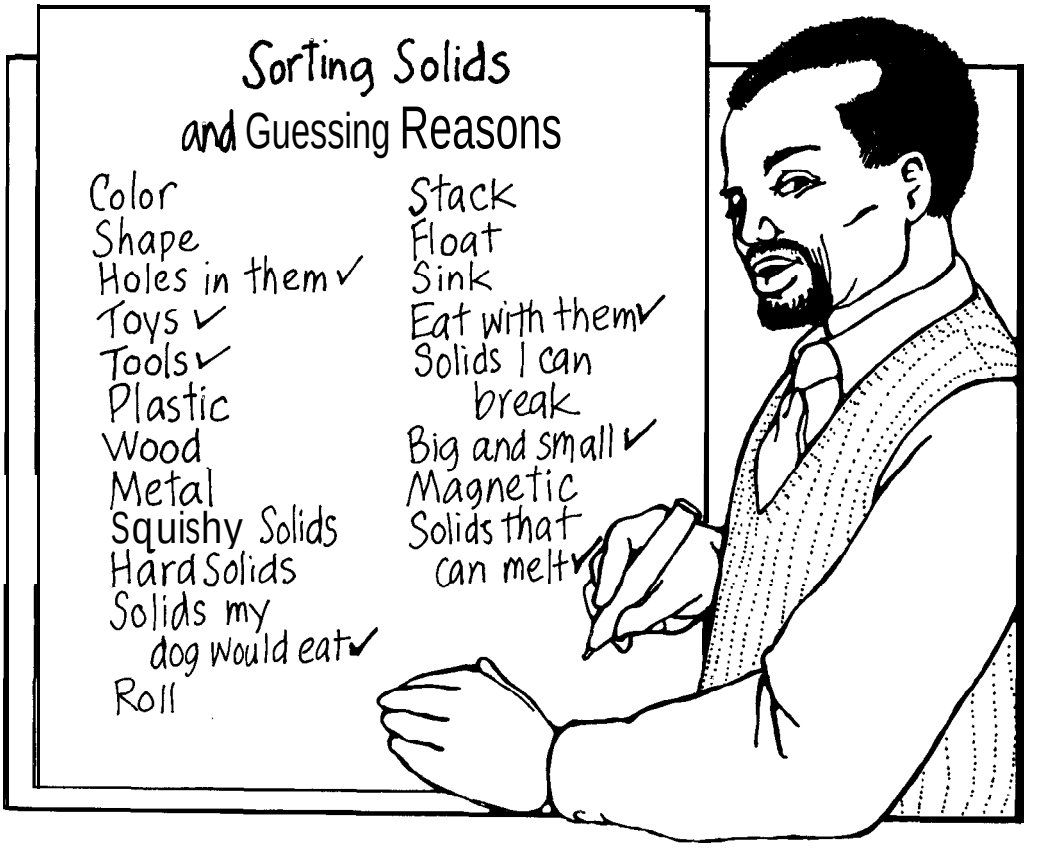
Note: Many teachers have found that their students enjoy this activity so much that they want to have more than one turn sorting the solids. You may want to provide more sheets of large paper and additional time so that students can continue the activity.

Final Activities

1. Ask students to describe the properties they used to sort the solids. Record their comments on a sheet of newsprint. Place a check next to the properties that students did not investigate in class (Figure 8-2).

Figure 8-2

Listing categories for sorting solids



2. Have students brainstorm other categories into which solids can be sorted. For example, they might suggest sorting solids into groups of toys, eating utensils, sports equipment, or types of food. Record the ideas on the sheet of newsprint.

Extensions

SCIENCE

1. Bring in pictures from magazines and place them in a learning center. Have students sort the pictures into groups on the basis of similarities that the students choose. Encourage students to use some of the ideas they brainstormed during Step 2 of the **Final Activities.**

SCIENCE

2. Conduct a class activity that involves grouping students on the basis of one or more observable similarities. For example, begin by selecting three girls who are wearing the same color of clothing and whose hair is the same color. Have students guess why you grouped the three girls. Students will probably suggest hair color, color of clothes, or the fact that all three are girls. Respond to each guess by saying "maybe." Next, add a male student whose hair and clothes are both the same color as those of the three girls. Have the students identify the reason(s) for the present grouping as a way to isolate the reason for the original grouping.

SCIENCE

3. Collect pictures of items from magazines. Have students sort the pictures on the basis of **association.** For example, students could group all the pictures that are associated with a mail carrier or a firefighter, with transportation, or with eating.

Assessment

As *you* observe your students during the lesson, note the following:

- The properties students use to sort the solids into groups.
- The properties students suggest as the reason for each grouping of the solids.
- Whether individual students consistently guess the same reason, regardless of how the solids are grouped.
- Whether the reasons are based on the properties investigated during Lessons 2 through 7 or whether they seem to be random guesses.
- Whether students refer to the "Properties of Solids" chart for information.
- Whether any students sort the solids on the basis of two properties, such as "round and red," at the same time (although sorting on the basis of more than one property was not addressed directly in this lesson).