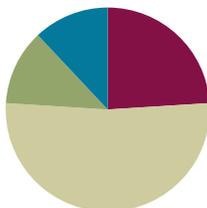


Lesson 9

Objective: Identify the attribute of volume by describing containers as big or small.

Suggested Lesson Structure

■ Fluency Practice	(6 minutes)
■ Application Problem	(3 minutes)
■ Concept Development	(13 minutes)
■ Student Debrief	(3 minutes)
Total Time	(25 minutes)



Fluency Practice (6 minutes)

- Ice Cream **PK.CC.3a** (3 minutes)
- Balance Scale **PK.MD.1** (3 minutes)

Ice Cream (3 minutes)

Materials: (T) Puppet or stuffed animal (optional)

Note: At this point in the school year, students are gaining mastery of the counting sequence. This activity challenges them to detect an error in the familiar order of number names. Work within a range that is comfortable for all students, and slowly build up to a more challenging sequence.

- T: I'm going to count, and instead of saying a number, I'll say "ice cream!" Isn't that silly? Listen closely, and see if you can tell what number I should've said. (If preferable, the puppet or stuffed animal can play this role.) 1, 2, ice cream!
- S: 3.
- T: Very good. Listen again: 1, 2, 3, 4, ice cream!
- S: 5.
- T: Excellent. This one will be a bit of a challenge. Ready? 1, 2, ice cream, 4, 5.
- S: 3.

Continue working, starting the next one with "ice cream," for example. For a real challenge a bit beyond the standards, try starting the sequence at a number other than 1: "4, 5, ice cream, 7." Scale back if students struggle or hesitate. Praise students for knowing so much about counting that they are now able to notice mistakes.

Balance Scale (3 minutes)

Materials: (S) Objects for comparing weight from previous lessons, balance scale

Note: The use of kinesthetic activities prepares students to *read* the balance scale in today's lesson.

Prior to starting the activity, be sure that students are facing the same direction, so that no one views or models the movement of the scale in reverse.

- T: Pretend you are a balance scale. (Show the scale, and model arms outstretched.)
- S: (Arms outstretched.)
- T: When I put these objects onto the scale, I want you to show me how the scale moves. (Place 2 objects of dramatically different weights onto the scale, such as a feather and a rock.)
- S: (Mimic the motion of the scale. Drop the arm that is in line with the heavier object down to the side. Raise the arm that is in line with the lighter object.)

Continue with other objects, being cognizant of making the distinction between size and weight. Include objects that are about the same weight.



NOTES ON MULTIPLE MEANS FOR ENGAGEMENT:

Challenge advanced students by asking them to make a prediction about the movement of the scale before objects are put on it. "Show me what you think the scale will look like if I put a cotton ball on this side and a rock on this side."

Application Problem (3 minutes)

Materials: (T) Large box, very small box, assortment of large and small objects, (e.g., key, ping pong or golf ball, penny, ring, bean, basketball, blanket, backpack)

Lay out the objects and the large and small boxes. Encourage a conversation about the size of the objects and the boxes. Ask why one box would be better for packing a particular object. Invite each student to *pack* an object as the discussion continues. Listen for the use of *big* and *small* to informally assess student understanding before the introduction of these terms during the Concept Development to describe volume.

Anticipate that some students will place a small object inside the large box. A discussion about their choice encourages the articulation of the idea that larger containers hold more than smaller containers and allows for exploration of smaller parts inside a larger whole in a real-world context.

Note: This activity leads into today's Concept Development as it activates students' prior knowledge about size and prepares them to learn the meaning of *big* and *small*.



Concept Development (13 minutes)**Part 1: Concept Introduction**

Materials: (T) Big grocery bag, small lunch bag, plastic food toys, basket

Note: It may be helpful to ask parents to send in food containers or boxes for this exercise.

Set up the lesson by laying the plastic food toys out. Be sure to have some empty cereal boxes or other larger items to be able to fill up the big bag.

1. Say, "Let's go grocery shopping." Put plastic food toys in a basket, dramatizing the shopping trip. "I need some eggs, some chicken for dinner, and a bottle of water." Get enough food items to fill the big bag.
2. Place the two bags so that students can see them. Say, "Look at my groceries. Which bag should I use to take my groceries home?"
3. Call on a student to choose a bag and explain why she chose that size. For example, "You need to use the big bag because all your food won't fit in the other bag." Call on students to fill up the big bag with the plastic food from the basket.
4. Repeat the shopping experience, but this time, only put three items in the basket. Repeat Steps 2 and 3 using the small bag.
5. Hold up the big bag filled with groceries. Say, "Use the word **big** to tell your neighbor about the bag."
6. Hold up the small bag filled with groceries. Say, "Use the word **small** to tell your neighbor about the bag."

Part 2: Practice

Materials: (T) Big and small grocery bags, gallon of milk, cup of yogurt. (S) Per table: big and small grocery bag (or shopping, gift bags); groceries from kitchen center or home (for example, empty cereal boxes, juice or milk containers, yogurt, fruit, vegetables)

Allow students to work in groups of three or four at the tables. Prepare each table with various grocery items in the center, some big (e.g., empty milk gallon, egg carton) and some small (e.g., plastic apple, slice of cheese). Place two bags on each table, one big and one small.

1. Show a few grocery items of varied sizes. Tell students they need to pack them all in two bags, one big and one small.
2. Holding the gallon of milk, say, "Tell your neighbor: What kind of bag do I need to fit this milk container?" Guide students to say, "You need a big bag."
3. "What items do you see that would fit in the small bag?" Guide students to say things such as, "The yogurt can fit in the small bag." (Note: If students disagree, acknowledge that the big bag would work, too, but the small bag is the better choice.)
4. Say, "Work with your group to fill a big bag and a small bag with the groceries on your table."
5. After the groups have finished putting groceries into bags, invite them to share 1–2 items in the bags, saying, "This cereal box fits in the big bag" or "This pudding fits in the small bag."

Student Debrief (3 minutes)

Lesson Objective: Identify the attribute of volume by describing containers as big or small.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience. It is also an opportunity for informal assessment. Consider taking anecdotal notes or using a simple checklist to note each child's progress toward meeting the lesson objective.

As students complete the Practice portion of the Concept Development, listen for misconceptions or misunderstandings that can be addressed in the Debrief.

Any combination of the questions below may be used to help students express ideas, make connections, and use new vocabulary (**big, small**).

- (Place an assortment of different-sized containers in the center of the circle, e.g., bucket, pitcher, glasses, bowls, measuring cups, teaspoon.) What words did we learn today to tell about the size of these containers? Which ones are big/small?
- (Hold up a gallon of milk and a juice box.) Could this gallon of milk fit inside the **small** bag? Why? Could a juice box fit inside the **big** bag? Why?
- Can you think of some animals that fit in big cages? How about small cages?
- Hold up a picture of a cage. Would a mouse think this is a big cage? Would an elephant think this is a big cage?

**CENTER CONNECTION:**

Place different-sized containers (bags, boxes, plastic food storage containers) in the kitchen or block center. Allow children to pack the containers, discovering that the big containers hold more, and the small containers hold less. *More than* and *less than* is a precursor to Lesson 10.