2

BRIDGES IN MATHEMATICS

GRADE 2 SUPPLEMENT

Set D4 Measurement: Capacity

Includes

Activity 1: Predict & Fill   D4.1

Skills & Concepts

★ use non-standard units to measure to determine capacity

★ compare and order containers according to capacity

Bridges in Mathematics Grade 2 Supplement

Set D4 Measurement: Capacity

Bridges in Mathematics is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

The Math Learning Center is a nonprofit organization serving the education community. Our mission is to inspire and enable individuals to discover and develop their mathematical confidence and ability. We offer innovative and standards-based professional development, curriculum, materials, and resources to support learning and teaching. To find out more, visit us at www.mathlearningcenter.org.

Set D4 ★ Activity 1

ACTIVITY

Predict & Fill

Overview
Students predict which of 3 containers holds the most water and which holds the least. Then they check their predictions by filling each, using a 3-ounce drinking cup as measuring tool.

Skills & Concepts
★ use non-standard units to determine capacity

★ compare and order containers according to capacity

You'll need
★ Predict & Fill Record Sheet (page D4.3, run a half class set, plus extras as needed)

★ a 3-ounce paper drinking cup

★ 8–9 empty, washed plastic containers (see Advance Preparation)

★ cafeteria tray

★ a dishpan or similar plastic tub half-filled with water

★ funnel (optional)

★ pencils

★ clipboards or other hard writing surfaces

Advance Preparation Clear containers are best, but practically any plastic container that holds 12–30 liquid ounces will do. Try to find containers of different shapes and sizes (i.e., tall and narrow, short and wide, curved sides, rectangular, and so on). Use a permanent marker to label each container with an alphabet letter.
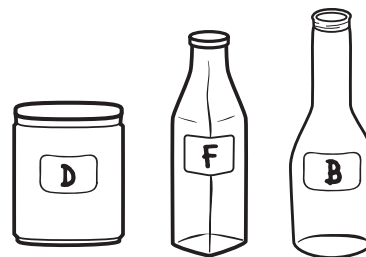
Instructions for Predict & Fill
1. Choose 3 containers from your collection that are very different in shape but reasonably close in capacity (within a few ounces of one another). Place the containers on a tray, along with the plastic tub of water, a 3-ounce paper drinking cup, and a funnel if you have one. Set the tray in the middle of your discussion circle and invite the children to join you. Ask them to bring their pencils and clipboard (or other hard writing surfaces) with them.

2. Hold up the 3-ounce cup and explain that you're going to use it measure the capacity of each container. Ask students to examine the 3 containers carefully and predict which will hold the most and which will hold the least water. Ask them to pair-share their predictions and then invite volunteers to share their thinking with the class.

> **Students** *I think F will hold the most. Even though B is taller, it curves in at the top, so I don't think it'll hold as much.*

Activity 1 Predict & Fill (cont.)

I think maybe D will hold the most. It's the shortest, but it's pretty wide going one way.
I say jar B because it's the tallest.

3. Distribute copies of the Predict & Fill Record Sheet. Review the sheet together, and then ask each student to write the letter of one of the containers in each of the three boxes at the top. Encourage the children to think for themselves, even if their predictions don't match those of the people near them.

Set D4 Measurement: Capacity Blackline Run a half class set plus extras as needed

NAME _____ DATE _____

Predict and Fill Record Sheet

1 Which container do you think will hold the most? Which will hold the least?

☐   ☐   ☐

Most   Least

2 How much does each container hold? (Use 3-ounce cups to measure.)

a Container _____ holds _____ 3-counce cups of water.

b Container _____ holds _____ 3-counce cups of water.

c Container _____ holds _____ 3-counce cups of water.

3 Which one really holds the most? the least? Show the results below.

☐   ☐   ☐

Most   Least

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4. Choose a helper to fill one of the containers using the 3-ounce cup while the rest of the students watch, count, and record the results on their sheets. Remind your helper to fill the 3-ounce drinking cup to the very top each time before pouring it into the container.

5. Repeat step 4 with the other 2 containers, choose a new helper each time.

6. Ask students to record the results at the bottom of their sheet. Which container actually held the most? Which one held the least? How do they know? Were they surprised?

7. Place the tray of materials on a table or extra desk, along with copies of the Predict & Fill Record Sheet and the other plastic containers you've collected. Ask students to work individually or in pairs during Work Places over the next couple of weeks to try this measuring experiment for themselves. Encourage them to try different combinations of containers.

Extension

• You can keep interest in this activity high by changing some of the containers in the collection every so often. Encourage families to contribute clean plastic containers with interesting shapes to your collection.

NAME _____ **DATE** _____

Predict & Fill Record Sheet

1 Which container do you think will hold the most? Which will hold the least?

Most		Least

2 How much does each container hold? (Use 3-ounce cups to measure.)

a Container _____ holds _____ 3-ounce cups of water.

b Container _____ holds _____ 3-ounce cups of water.

c Container _____ holds _____ 3-ounce cups of water.

3 Which one really holds the most? the least? Show the results below.

Most		Least