

# Pour and Round

*Estimate and measure in five liquid units.*

**GRADE 3 • 3.MG.1.b.iii**

**3.MG.1.b.iii** "Estimate and measure: liquid volume to the nearest U.S. Customary unit (cup, pint, quart, gallon) and metric unit (liter)."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

Work with an adult. Record your estimate before measuring. In a table, use its labels; on lines, write the estimate first and measurement second. Include units. Explain aloud unless asked to write.

## Materials and setup

Adult setup: make five water stations labeled Cups, Pints, Quarts, Gallons and Liters. Each has 1 to 3 full units plus a remainder clearly below or above half a unit. Provide a matching 1-unit liquid measure with a half-unit mark, a receiving tub, and towels at each station. Gallons are U.S. gallons; liters are metric.

Estimate before pouring. An adult handles heavy containers. Pour full units into the receiving tub, counting each once. Measure the remainder against the half-unit mark. Return all water to its starting container after recording. Use water volume, not full container capacity.

### Try the idea

Use the station's unit. Count full measures, then check the leftover water. Less than half a unit rounds down; half or more rounds up. Record the nearest whole unit.

### Try it together

At a demonstration, an adult pours 3 full cups and a remainder less than half a cup. What is the nearest whole cup?

#### Observed pours

| Record    | My result            |
|-----------|----------------------|
| Full cups | 3                    |
| Remainder | Less than half a cup |

Start with 3 full cups. The remainder is nearer zero than one full cup. About 3 cups.

**1. Cup station**

Estimate the water in cups. Use the 1-cup measure to count full cups. Check the remainder. Record your estimate and the nearest whole cup.

Estimate, then measure

| Record                        | My result |
|-------------------------------|-----------|
| Estimate in cups              |           |
| Measured cups (nearest whole) |           |

**2. Pint station**

Estimate the water in pints. Use the 1-pint measure, count full pints and check the remainder. Record the nearest whole pint.

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**3. Quart station**

Estimate the water in quarts. Use the 1-quart measure, count full quarts and check the remainder. Record the nearest whole quart.

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**4. Gallon station**

Estimate the water in U.S. gallons. Help an adult count full 1-gallon measures. Check the remainder and record the nearest whole gallon.

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**5. Liter station**

Estimate the water in liters. Use the 1-liter measure, count full liters and check the remainder. Record the nearest whole liter.

Estimate, then measure

| Record                          | My result |
|---------------------------------|-----------|
| Estimate in liters              |           |
| Measured liters (nearest whole) |           |

**6. Explain one rounding**

Choose a station. Record its name, number of full pours, and whether the remainder was below or at least half a unit. Explain aloud why you rounded up or down.

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**7. Same reading, different water**

Could two different amounts of water both round to 2 cups? Ask an adult to demonstrate two amounts between  $1\frac{1}{2}$  and  $2\frac{1}{2}$  cups, excluding  $2\frac{1}{2}$ . Observe and explain aloud. Write why both round to 2.

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**Teacher notes**

Supply every listed station and its correctly marked liquid measure; establish half-unit marks with verified measures before class. No mixed-unit conversion is required. Check actual full pours and remainder observations. The worked example demonstrates a separate amount. For the challenge, use two visibly different measured amounts within the stated range; no formal interval notation is expected.

**Task 1**

Answers vary. Use cups and compare the remainder with the half-cup mark.

**Task 2**

Answers vary. Use the pint measure directly; no conversion is required.

**Task 3**

Answers vary. Round using the half-quart mark.

**Task 4**

Answers vary. Adult handles large containers; use the half-gallon mark to round.

**Task 5**

Answers vary; directly measure in liters using the half-liter mark.

Use the verified half-liter mark to judge the remainder.

**Task 6**

Check the actual full-pour count and remainder. Below half rounds down; at least half rounds up. Use the station's unit.

Require a description of the observed remainder, not only a rounded numeral.

**Task 7**

Yes. For example,  $1 \frac{3}{4}$  and  $2 \frac{1}{4}$  cups both round to 2 cups. A rounded reading describes a range of amounts.