

Estimate, Pour and Measure

Estimate first, then read real liquid measures.

GRADE 4 • 4.MG.1.b.iii

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

NAME _____

DATE _____

Use adult-prepared water stations. For each task: estimate first, measure with the named tool, and record the nearest whole unit. Do not replace measuring with a supplied number.

Materials and setup

Adult setup: safe containers of water on trays, small vial, measuring cylinder/dropper with 1 mL marks, and graduated measures or marked containers for cups, pints, quarts, gallons and liters. Assist with large pours.

Choose varied amounts; show how to read each scale or count full unit measures plus the remaining fraction. Keep actual amounts hidden until students have estimated.

Estimate before measuring

An estimate is your prediction before using a tool. Then measure the water and report the nearest whole named unit. Read the scale at eye level on a level surface. If exactly halfway, round up. Keep your estimate so you can compare it.

Try it together

Before measuring, Ava predicts 3 cups. Her tool reading is 2 $\frac{1}{4}$ cups. Record the nearest cup and compare.

Ava's record

Item	Record
Estimate before measuring	3 cups
Tool reading	2 $\frac{1}{4}$ cups

2 $\frac{1}{4}$ is closer to 2 than 3. The nearest-cup report is 2 cups. The estimate is 1 cup above the rounded measurement.

1. Station 1: cups

Estimate this station's water in cups. Then use the cup measure. Report the volume to the nearest whole cup.

Cups record

Stage	Volume in cups
My estimate	
Rounded measurement	

2. Station 2: pints

Estimate this station's water in pints. Then use the pint measure. Report the volume to the nearest whole pint.

Pints record

Stage	Volume in pints
My estimate	
Rounded measurement	

3. Station 3: quarts

Estimate this station's water in quarts. Then use the quart measure. Report the volume to the nearest whole quart.

Quarts record

Stage	Volume in quarts
My estimate	
Rounded measurement	

4. Station 4: gallons

Estimate this station's water in gallons. Then use the gallon measure. Report the volume to the nearest whole gallon.

Gallons record

Stage	Volume in gallons
My estimate	
Rounded measurement	

5. Science sample: milliliters

A science class needs a whole-milliliter record of this station's vial of water. Estimate its volume, then use the milliliter measure. Record the nearest whole milliliter.

Milliliters record

Stage	Volume in milliliters
My estimate	
Rounded measurement	

6. Garden water: liters

A garden club records how many liters of water are ready for its plants. Estimate this station's water, then use the liter measure. Record the nearest whole liter.

Liters record

Stage	Volume in liters
My estimate	
Rounded measurement	

7. Compare and improve

Choose two station records. For each, compare your estimate with the rounded measurement: high, low or equal, and by how much. Explain how the tool helped you improve one estimate.

Teacher notes

Observe real tool use at all six stations; do not accept rounding exercises as a substitute for measurement. Use U.S. customary cup/pint/quart/gallon measures. Use a small vial for mL and larger amounts for L. A jug may be reused across stations, but each estimate is made before its measurement. Record enough of the raw reading separately for the teacher to check rounding. Midpoints round up by the stated convention. Exact answers depend on the prepared water amounts.

Task 1

Answers vary. The estimate must precede tool use. Check the actual tool reading and rounding to whole cups; accept correct unit labels.

Task 2

Answers vary. The estimate must precede tool use. Check the actual tool reading and rounding to whole pints; accept correct unit labels.

Task 3

Answers vary. The estimate must precede tool use. Check the actual tool reading and rounding to whole quarts; accept correct unit labels.

Task 4

Answers vary. The estimate must precede tool use. Check the actual tool reading and rounding to whole gallons; accept correct unit labels.

Task 5

Answers vary. The estimate must precede tool use. Check the actual tool reading and rounding to whole milliliters; accept correct unit labels.

For the science record, compare the observed tool reading with its two nearest whole milliliter marks; report the closer mark.

Task 6

Answers vary. The estimate must precede tool use. Check the actual tool reading and rounding to whole liters; accept correct unit labels.

For the garden record, compare the observed tool reading with its two nearest whole liter marks; report the closer mark.

Task 7

Answers vary. Compare in the same unit, give the absolute difference (zero if equal) and the correct high/low/equal description for two stations. Name a useful benchmark or scale reading learned from measuring.