

Estimate Detectives

Test your estimates against real measurements.

GRADE 3 • 3.MG.1.c

3.MG.1.c "Compare estimates of length, weight/mass, or liquid volume with the actual measurements."

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

Per pair: centimeter ruler, inch ruler marked in halves, gram scale, a marked cup measure, pencil, ribbon, small bag of counters and a container of water. Adult prepares amounts within tool ranges and supervises pouring. Choose a ribbon with a non-whole-inch length.

Record each estimate before reading a tool. Zero the scale and start rulers at zero. Read water at eye level on a level surface; measure the water present. Compare in the same unit and to the stated precision.

Try the idea

Keep your first estimate. Compare it with the measured result in the same unit: high, low or equal. The difference is the larger amount minus the smaller.

Try it together

A book was estimated at 18 cm. A ruler measured 20 cm. Compare the estimate with the result.

A completed check

Record	My result
Estimate	18 cm
Measurement	20 cm

18 is below 20. $20 - 18 = 2$. The estimate was low by 2 cm.

1. Test a length estimate

Estimate the pencil's length in centimeters. Measure to the nearest whole centimeter. Record both.

Estimate, then measure

Record	My result
My estimate in cm	
My measured length in cm	

2. Compare your length results

Use your own results from task 1. Write high, low or equal and the difference in centimeters. Explain aloud how you know.

3. Test a mass estimate

Estimate the bag of counters' mass in grams. Zero the scale, weigh the bag and record to the nearest whole gram.

Estimate, then measure

Record	My result
My estimate in g	
My measured mass in g	

4. Compare your mass results

Use your own results from task 3. Write high, low or equal and the difference in grams. Explain aloud.

5. Estimate, pour and compare

Estimate the amount of water in the container, in cups. Measure to the nearest whole cup, then compare your estimate with the measured result. Write high, low or equal and the difference on the lines.

6. Two estimates of one ribbon

Before measuring, each partner estimates the same ribbon in inches. Measure to the nearest half inch. Record both estimates and the measurement. Decide aloud whose estimate was closer, using both differences.

Estimate, then measure

Record	My result
Partner A estimate in inches	
Partner B estimate in inches	
Measured inches (nearest half)	

7. Learn from a result

Choose a task. Write its estimate, measurement and difference with units. Explain one change you would make to improve your next estimate of a similar object.

Teacher notes

Judge comparison against each student's real data. Retain estimates even when far from the result. Require units and a direction as well as a difference. For task 6, listen for both absolute differences and allow a tie. Make the half-cup reference visible when rounding water; provide repeated pours if the amount exceeds the measuring cup.

Task 1

Answers vary. The estimate must be recorded first; the measurement uses a centimeter ruler from zero.

Task 2

Compare the actual records from task 1; difference is nonnegative and has unit cm.

Task 3

Answers vary. Count the bag as part of the stated object; use grams and zero before weighing.

Task 4

Compare task 3 records and include g. An exact match gives a difference of zero.

Task 5

Answers vary. Measure the water present. Use the half-cup mark: a remainder below half rounds down; at least half rounds up to the next whole cup. Compare in cups and record the nonnegative difference. Subtract the smaller recorded amount from the larger and retain the cup unit.

Task 6

Answers vary. Both compare to the same measured length. The smaller absolute difference wins; equal differences are a tie.

Compare each estimate with the same measurement, allowing an equal-distance tie.

Task 7

Use the student's actual results. Accept a specific benchmark strategy, such as comparing with the measured pencil or a known cup amount; do not change the original estimate.