

Estimate Detective

How close was the estimate?

GRADE 4 • 4.MG.1.c

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

NAME _____

DATE _____

Use the recorded measurements. Show subtraction and units, then write too high, too low, or exactly right. No measuring tools are required.

Look Closely, Then Explain

Compare an estimate with the actual measurement in the same unit. Subtract the smaller amount from the larger to find the difference. Say whether the estimate was too high, too low, or exactly right. Use $100\text{ cm} = 1\text{ m}$, $1,000\text{ g} = 1\text{ kg}$, and $1,000\text{ mL} = 1\text{ L}$.

Try it together

A ribbon was measured after an estimate. Compare the two amounts.

Ribbon record

Record	Measurement
Estimate	46 cm
Actual	51 cm

Both measurements are already in centimeters. $51 - 46 = 5\text{ cm}$. The estimate is smaller. The estimate was 5 cm too low.

1. Pencil length

Compare the estimate with the actual length. Show the difference and describe the estimate.

Pencil record

Record	Measurement
Estimate	18 cm
Actual	24 cm

2. Packed backpack

A packed backpack was weighed on a scale. Compare the estimate with the actual mass.

Backpack record

Record	Measurement
Estimate	3 kg
Actual	2,600 g

3. Water in a bottle

The estimate was 1 L 250 mL. A measuring jug showed 1 L 400 mL. Compare them in milliliters.

4. Apples on a scale

The estimated mass was 900 g; the actual mass was 1 kg. Compare the two amounts.

5. Two estimates for one hallway

The actual length is 2 m 40 cm. Jo estimated 3 m; Sam estimated 2 m. Compare each estimate with the actual length. Whose estimate is closer?

6. Liquid checks

A cooler estimate was 4 L; its actual liquid volume was 3 L 600 mL. A small cup estimate was 36 mL; its actual liquid volume was 36 mL. Compare each estimate with its actual measurement.

7. Closest dog-food estimate

Actual mass: 2 kg 250 g. Estimates: Ana 2 kg; Ben 2 kg 400 g; Cal 2 kg 300 g. Find all three differences. Who is closest, and is that estimate high or low?

Teacher notes

Judge closeness by the size of the difference, regardless of whether an estimate is high or low. Accept equivalent units. Require comparisons with the actual measurement, not just comparisons between guesses.

Task 1

$24 - 18 = 6$ cm; the estimate was 6 cm too low.

Task 2

3 kg = 3,000 g; $3,000 - 2,600 = 400$ g. The estimate was 400 g too high.

Task 3

1,250 mL and 1,400 mL; $1,400 - 1,250 = 150$ mL. The estimate was 150 mL too low.

Task 4

1 kg = 1,000 g; $1,000 - 900 = 100$ g. The estimate was 100 g too low.

Task 5

Actual 240 cm. Jo: $300 - 240 = 60$ cm too high. Sam: $240 - 200 = 40$ cm too low. Sam is closer because $40 < 60$.

Accept equivalent correct reasoning supported by the stated measurements or geometric properties.

Task 6

Cooler: $4,000 - 3,600 = 400$ mL too high. Cup: $36 - 36 = 0$ mL; exactly right.

Accept equivalent correct reasoning supported by the stated measurements or geometric properties.

Task 7

Actual 2,250 g. Ana is 250 g too low; Ben is 150 g too high; Cal is 50 g too high. Cal is closest because 50 g is the smallest difference.