

Estimate Detective

Compare a prediction with a real measurement.

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 _____

CHECK THE DIFFERENCE

First, make sure both measurements use the same unit. Subtract the smaller measurement from the larger measurement to find the difference. Then decide whether the estimate was too high, too low, or exactly right.

WORKED EXAMPLE

A ribbon was estimated to be 46 cm long. Its actual length was 51 cm. Was the estimate too high or too low? How much?

1. Actual measurement: 51 cm.
2. Find the difference: $51 - 46 = 5$ cm.
3. Because 46 cm is less than 51 cm, the estimate was too low.

Answer: The estimate was 5 cm too low.

PRACTICE 6 problems

- 1** A pencil was estimated to be 18 cm long. Its actual length was 24 cm. Was the estimate too high or too low? How much?

ANSWER _____

- 2** A backpack was estimated to weigh 72 g. Its actual weight was 65 g. Was the estimate too high or too low? How much?

ANSWER _____

- 3** A bottle was estimated to hold 1 L 250 mL. It actually held 1 L 400 mL. Was the estimate too high or too low? How much?

ANSWER _____

- 4** A bag of apples was estimated to weigh 900 g. Its actual weight was 1 kg. Was the estimate too high or too low? How much?

ANSWER _____

- 5** A hallway was estimated to be 3 m long. Its actual length was 2 m 40 cm. Was the estimate too high or too low? How much?

ANSWER _____

- 6** A cup was estimated to hold 36 mL. It actually held 36 mL. Compare the estimate and the actual measurement.

ANSWER _____

APPLY IT Show your work

- 1** For a robot obstacle course, Jay estimated that a ramp was 2 m 75 cm long. When he measured it, the ramp was 3 m 10 cm long. Was Jay's estimate too high or too low? How much?

WORK SPACE

ANSWER _____

- 2** Mina estimated that a drink cooler held 4 L of lemonade. After measuring, she found it held 3 L 600 mL. Was Mina's estimate too high or too low? How much?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A pet shelter measured a bag of dog food and found that it weighed 2 kg 250 g. Three students estimated its weight: 2 kg, 2 kg 400 g, and 2 kg 300 g. Which estimate was closest to the actual weight? Explain by telling how far away it was.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A pencil was estimated to be 18 cm long. Its actual length was 24 cm. Was the estimate too high or too low? How much?	The estimate was 6 cm too low.
2	A backpack was estimated to weigh 72 g. Its actual weight was 65 g. Was the estimate too high or too low? How much?	The estimate was 7 g too high.
3	A bottle was estimated to hold 1 L 250 mL. It actually held 1 L 400 mL. Was the estimate too high or too low? How much?	The estimate was 150 mL too low.
4	A bag of apples was estimated to weigh 900 g. Its actual weight was 1 kg. Was the estimate too high or too low? How much?	The estimate was 100 g too low.
5	A hallway was estimated to be 3 m long. Its actual length was 2 m 40 cm. Was the estimate too high or too low? How much?	The estimate was 60 cm too high.
6	A cup was estimated to hold 36 mL. It actually held 36 mL. Compare the estimate and the actual measurement.	The estimate was exactly right.

PART 2 • APPLY IT

- Jay's estimate was 35 cm too low.** Change both measurements to centimeters: 275 cm and 310 cm. Subtract 275 from 310 to get 35 cm.
- Mina's estimate was 400 mL too high.** Change 4 L to 4,000 mL and 3 L 600 mL to 3,600 mL. Subtract 3,600 from 4,000 to get 400 mL.

CHALLENGE

2 kg 300 g was closest. It was 50 g too high.

Accept equivalent comparison words such as overestimate for too high and underestimate for too low. Accept correct conversions, such as 1 kg = 1,000 g and 1 L = 1,000 mL.