

Measure It Right

Choose units, compare measurements, and decide when exact matters.

GRADE 3 • 3.MG.1

3.MG.1 "The student will reason mathematically using standard units (U.S. Customary and metric) with appropriate tools to estimate and measure objects by length, weight/mass, and liquid volume to the nearest half or whole unit..."

NAME _____

DATE _____

ESTIMATE OR MEASURE?

Choose a unit that matches what you are measuring and the size of the object. Make an estimate when a close guess is enough, but use an exact measurement when accuracy matters. To compare an estimate and an actual measurement, find how far apart the two amounts are.

WORKED EXAMPLE

Mila estimates that a bulletin board is 10 feet long. A tape measure shows that it is 13 feet long. How far off is Mila's estimate?

1. Actual length: 13 feet
2. Estimate: 10 feet
3. $13 \text{ feet} - 10 \text{ feet} = 3 \text{ feet}$
4. The estimate is less than the actual length.

Answer: Mila's estimate is 3 feet low.

PRACTICE 6 problems

- 1** Choose the best unit to measure the height of a classroom door: inch, foot, yard, or centimeter.

ANSWER _____

- 2** A grocery scale shows that a bag of oranges weighs 7 pounds. Is this an estimate or an exact measurement?

ANSWER _____

- 3** Choose the best U.S. Customary unit for the amount of water in a rain barrel: cup, pint, quart, or gallon.

ANSWER _____

- 4** A ribbon is estimated to be 8 feet long. Its actual length is $7 \frac{1}{2}$ feet. Is the estimate high or low? By how much?

ANSWER _____

- 5** A plant is estimated to be 24 centimeters tall. Its actual height is 26 centimeters. Is the estimate high or low? By how much?

ANSWER _____

- 6** A backpack is estimated to have a mass of 9 kilograms. Its actual mass is 8 kilograms. Is the estimate high or low? By how much?

ANSWER _____

APPLY IT Show your work

- 1** At the school garden, Ava needs a hose that will reach from the faucet to the flower bed. Is an estimate or an exact measurement needed? A tape measure shows $14\frac{1}{2}$ feet. Ava first estimated 15 feet. How far off was her estimate, and was it high or low?

WORK SPACE

ANSWER _____

- 2** At a pet shelter, a volunteer needs to know whether a bag of dog food weighs more than 12 pounds. Is an estimate or an exact measurement needed? What unit is appropriate? A scale shows $11\frac{1}{2}$ pounds. Does the bag weigh more than 12 pounds?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

The actual length of a running path is 18 meters. Jada estimates $16\frac{1}{2}$ meters, and Ben estimates $19\frac{1}{2}$ meters. Whose estimate is closer? Explain by finding how far each estimate is from the actual length.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Choose the best unit to measure the height of a classroom door: inch, foot, yard, or centimeter.	foot
2	A grocery scale shows that a bag of oranges weighs 7 pounds. Is this an estimate or an exact measurement?	exact measurement
3	Choose the best U.S. Customary unit for the amount of water in a rain barrel: cup, pint, quart, or gallon.	gallon
4	A ribbon is estimated to be 8 feet long. Its actual length is 7 $\frac{1}{2}$ feet. Is the estimate high or low? By how much?	The estimate is $\frac{1}{2}$ foot high.
5	A plant is estimated to be 24 centimeters tall. Its actual height is 26 centimeters. Is the estimate high or low? By how much?	The estimate is 2 centimeters low.
6	A backpack is estimated to have a mass of 9 kilograms. Its actual mass is 8 kilograms. Is the estimate high or low? By how much?	The estimate is 1 kilogram high.

PART 2 • APPLY IT

- An exact measurement is needed. Ava's estimate was $\frac{1}{2}$ foot high.** A hose must reach the flower bed, so Ava needs an exact measurement. Subtract $14 \frac{1}{2}$ from 15 to find that the estimate was $\frac{1}{2}$ foot too high.
- An exact measurement is needed. Pounds are the appropriate unit. No, the bag does not weigh more than 12 pounds.** Use a scale for an exact weight in pounds. Since $11 \frac{1}{2}$ is less than 12, the bag does not weigh more than 12 pounds.

CHALLENGE

Neither estimate is closer. Jada's estimate is $1 \frac{1}{2}$ meters low, and Ben's estimate is $1 \frac{1}{2}$ meters high.

Accept equivalent wording such as "too high" or "overestimated," and "too low" or "underestimated." Students should name the unit when giving a measurement difference.