

Length Detective

Estimate first. Measure next. Use the data.

GRADE 2 • 2.MDR.5

2.MDR.5 "Estimate and measure the lengths of objects and distance to solve problems found in real-life using standard units of measurement, including inches, feet, and yards and analyze graphical displays of data to answer relevant questions."

NAME _____

DATE _____

Write units with numbers. Tasks 1-3 use real objects and tools. Work with a partner to hold a tool if needed.

Materials and setup

Pencil, inch ruler, measuring tape marked in feet, and a yardstick. Use your desk and a safe walkway with two spots marked by your teacher.

Choose a tool and unit

An estimate is a careful guess. Start measuring at zero. Put the tool along the object with no gaps or overlaps. Record the length and its unit.

Try it together

A student estimates a notebook is 5 inches long, then measures from zero to the far edge.

Notebook record

Record	Length
Estimate	5 inches
Measured length	6 inches

The measured length is 6 inches. The estimate was 1 inch shorter. A ruler measures this short object in inches.

1. A short object

Estimate the length of your pencil in inches. Write your estimate BEFORE measuring. Use the ruler to measure from end to end, to the nearest whole inch.

Pencil record

Record	Length
Estimate (inches)	
Measured (inches)	

2. A longer object

Estimate the length of the front edge of your desk top in feet. Record the estimate first. Use the measuring tape to measure to the nearest whole foot.

Desk record

Record	Length
Estimate (feet)	
Measured (feet)	

3. A longer distance

Estimate the distance between the two teacher-marked spots in yards. Record it first. Measure with the yardstick. Move it end to end with no gaps. Record the nearest whole yard.

Walkway record

Record	Length
Estimate (yards)	
Measured (yards)	

4. Check an estimate

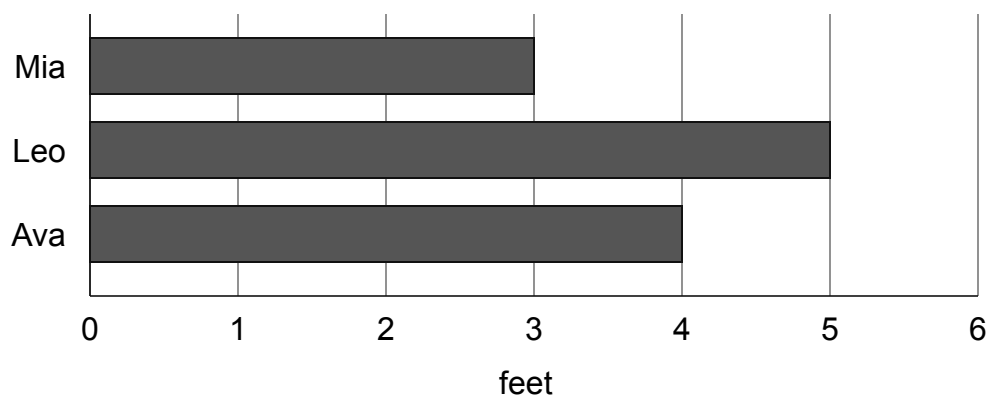
Choose one of your records. Was the estimate shorter than, longer than, or the same as the measured length? Name the object or distance and use both numbers with units.

5. Read jump data

Who jumped the farthest? How many feet farther than Mia? Use the graph.

Standing jump distances

Student

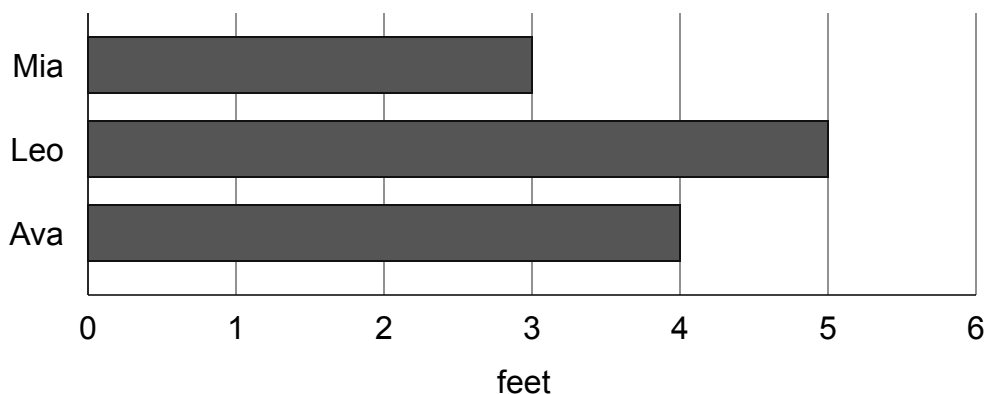


6. Plan a space

The class has a 6-foot-long jump space. Would the longest jump shown fit inside it? How much length would remain?

Standing jump distances

Student

**7. Pick a useful unit**

You will measure a new crayon and the distance across a playground. Choose inches, feet or yards for each. Explain why each unit is useful.

Teacher notes

Before work, supply the tools and mark a safe straight walkway of about 3 to 8 yards. Students estimate before measuring real objects; the printed illustrations are not rulers. Accept plausible estimates and careful measurements within ordinary tool accuracy. No inch-foot-yard conversions are required. Support reading directions if needed.

Task 1

Answers vary. Check that the estimate was recorded first, the ruler began at zero and the measured pencil length is reasonable.

Task 2

Answers vary. Check the desk edge and use of foot marks, not inch numbers. Round to the nearest whole foot.

Task 3

Answers vary with the marked distance. Check the estimate first and yardstick placement, keeping track of each whole yard.

Task 4

Answers vary. The comparison must agree with the chosen estimate and measured length, in the same unit.

Task 5

Leo; 2 feet farther than Mia. $5 - 3 = 2$ feet.

Check the reasoning and units as well as the answer.

Task 6

Yes. The longest jump is 5 feet, leaving 1 foot. $6 - 5 = 1$ foot.

Check the reasoning and units as well as the answer.

Task 7

Inches suit a short crayon. Yards (or feet with a sensible explanation) suit a longer playground distance. Small units suit short lengths; larger units are easier for long distances.