

Tool Data Detectives

Read measurements, choose tools, and compare results.

GRADE 5 • TEKS 5.1.D

5.1.D "use tools, including calculators, microscopes, hand lenses, metric rulers, Celsius thermometers, prisms, concave and convex lenses, laser pointers, mirrors, digital scales, balances, spring scales, graduated cylinders, beakers, hot plates..."

NAME _____

DATE _____

MEASURE AND COMPARE

Choose a tool that matches what you need to measure. Record the number and unit. To find how much a measurement changed, subtract the first reading from the later reading.

WORKED EXAMPLE

A Celsius thermometer reads 18°C before a lamp is turned on and 26°C afterward. How much did the temperature increase?

1. Later reading: 26°C
2. First reading: 18°C
3. Subtract: $26 - 18 = 8$
4. The temperature increased by 8°C .

Answer: 8°C

PRACTICE 6 problems

- 1** A spring scale has a marker at A. What force does it show?



ANSWER _____

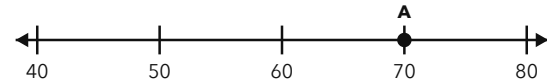
- 2** A thermometer reads 12°C at the start of an investigation and 19°C at the end. How much did the temperature increase?

ANSWER _____

- 3** Which tool is best for measuring the length of a caterpillar in millimeters: a metric ruler, a Celsius thermometer, or a spring scale?

ANSWER _____

- 4** A balance scale has a pointer at A. What mass does it show?



ANSWER _____

- 5** A graduated cylinder holds 31 mL of water. After water is added, it holds 47 mL. How much water was added?

ANSWER _____

- 6** A timer shows 1 minute 10 seconds when a test begins and 1 minute 55 seconds when it ends. How long did the test last?

ANSWER _____

APPLY IT Show your work

- 1** A class uses a tablet to record aquarium water temperatures at 9 a.m. and 1 p.m. Which day had the greatest temperature increase, and how many degrees did it increase?

AQUARIUM TEMPERATURE LOG

Day	9 a.m.	1 p.m.
Monday	16°C	21°C
Tuesday	17°C	24°C
Wednesday	15°C	21°C
Thursday	19°C	23°C

ANSWER _____

- 2** Students use a digital scale to measure four terrarium cups before and after a weekend. Which cup lost the most mass, and how much mass did it lose?

TERRARIUM CUP MASSES

Cup	Before weekend	After weekend
A	162 g	156 g
B	174 g	165 g
C	153 g	149 g
D	181 g	174 g

ANSWER _____

CHALLENGE One step up

A graduated cylinder contains 41 mL of water. A fully submerged rock is added, and the cylinder reads 58 mL. After the rock is removed, the cylinder reads 44 mL. What volume did the rock displace? Explain which readings you used.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A spring scale has a marker at A. What force does it show?	14 N
2	A thermometer reads 12°C at the start of an investigation and 19°C at the end. How much did the temperature increase?	7°C
3	Which tool is best for measuring the length of a caterpillar in millimeters: a metric ruler, a Celsius thermometer, or a spring scale?	metric ruler
4	A balance scale has a pointer at A. What mass does it show?	70 g
5	A graduated cylinder holds 31 mL of water. After water is added, it holds 47 mL. How much water was added?	16 mL
6	A timer shows 1 minute 10 seconds when a test begins and 1 minute 55 seconds when it ends. How long did the test last?	45 seconds

PART 2 • APPLY IT

1. **Tuesday, 7°C** Subtract each 9 a.m. reading from its 1 p.m. reading. Tuesday has the greatest increase because $24 - 17 = 7$.
2. **Cup B, 9 g** Subtract each after-weekend mass from its before-weekend mass. Cup B lost $174 - 165 = 9$ g, which is the greatest loss.

CHALLENGE

The rock displaced 17 mL. I subtracted 41 mL from 58 mL because the water level rose when the rock was added.

Accept correct unit abbreviations such as g, mL, N, and °C. For the challenge, accept 17 mL only if the explanation uses the readings before and while the rock is submerged.