

Test, Measure, Explain

Use measurements to make evidence based science claims.

GRADE 5 • TEKS 5.1

5.1 "Scientific and engineering practices. The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena..."

NAME _____

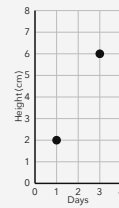
DATE _____

USE DATA AS EVIDENCE

In a fair test, change one factor and keep other conditions the same. Measure carefully, record units, then compare or subtract measurements to support a claim.

WORKED EXAMPLE

The graph shows a bean plant's height. How much did it grow from day 1 to day 3?



1. Read 2 cm on day 1.
2. Read 6 cm on day 3.
3. Subtract: $6 - 2 = 4$.

Answer: 4 cm

PRACTICE 4 problems

- 1** A plant is 11 cm tall before a test and 16 cm tall after the test. What is the change in height?

ANSWER _____

- 2** Cup A has 19 mL of water. Cup B has 14 mL. Which cup has more water, and how much more?

ANSWER _____

- 3** A toy car travels 28 cm in trial 1 and 19 cm in trial 2. What is the difference in distance?

ANSWER _____

- 4** Three temperature readings are 31 C, 36 C, and 34 C. What is the range?

ANSWER _____

APPLY IT Show your work

- 1** A robot club tests two ramp surfaces. Which surface lets the robot finish faster? Find each average time and use the data as evidence.

ROBOT RAMP TIMES

Surface	Trial 1	Trial 2	Trial 3
Cork	10 s	11 s	9 s
Felt	15 s	14 s	16 s

ANSWER _____

- 2** Mia tests two lunch bags. Both start at 9 C and sit in the same room for 30 minutes. Bag X reaches 15 C. Bag Y reaches 11 C. Which bag keeps food cooler, and by how many degrees? Name one other condition that should stay the same.

WORK SPACE

ANSWER _____

CHALLENGE One step up

Two groups of three bean plants are tested. The group with 4 hours of sunlight grows an average of 8 cm. The group with 8 hours of sunlight grows an average of 14 cm. Write a claim supported by the data, tell how much the averages differ, and name one condition to keep the same.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A plant is 11 cm tall before a test and 16 cm tall after the test. What is the change in height?	5 cm
2	Cup A has 19 mL of water. Cup B has 14 mL. Which cup has more water, and how much more?	Cup A, 5 mL more
3	A toy car travels 28 cm in trial 1 and 19 cm in trial 2. What is the difference in distance?	9 cm
4	Three temperature readings are 31 C, 36 C, and 34 C. What is the range?	5 C

PART 2 • APPLY IT

1. **Cork. Its average time is 10 seconds, and felt's average time is 15 seconds.** Add the three times for each surface and divide each total by 3. The smaller average time shows the faster surface.
2. **Bag Y, 4 C cooler. Keep the same amount of food in each bag.** Compare the final temperatures: $15 - 11 = 4$ C. A fair test also keeps a condition such as the amount of food the same.

CHALLENGE

The plants with 8 hours of sunlight grew 6 cm more on average. Keep the amount of water the same.

Accept equivalent units and correctly stated comparisons. For the control condition, accept any reasonable factor kept the same, such as soil, pot size, plant type, water amount, or location.