

The Odd Measurement

Find patterns, notice unusual data, and check for measurement errors.

4.2.B “analyze data by identifying any significant features, patterns, or sources of error;”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline the measurements that show the main pattern. Circle the surprising measurement, then number the sentence that explains what caused the error.

Bean Seedling Check

- ① Ms. Chen’s class investigated whether light changes bean seedling growth. They put four similar seedlings in sunny places and four in shaded places. Each group received the same soil and water. After seven days, partners measured every seedling from the soil to its tallest leaf in centimeters.

FINAL SEEDLING HEIGHTS AFTER SEVEN DAYS

Light Place	Seedling A	Seedling B	Seedling C	Seedling D
Sunny	9 cm	10 cm	10 cm	11 cm
Shaded	4 cm	5 cm	5 cm	15 cm

- ② The measurements have a useful pattern and a surprising value. Sunny seedlings measured from 9 to 11 centimeters. Three shaded seedlings measured 4 to 5 centimeters. One shaded measurement, 15 centimeters, is far from the other shaded results. A value that does not fit nearby results deserves a careful check.
- ③ Before making a conclusion, the class reviewed its measuring notes. They found that one partner had measured shaded seedling D from the tabletop instead of from the soil. The pot was 10 centimeters tall. This made the recorded height too large. The class planned to measure it again from the soil.

2 ANSWER WITH EVIDENCE Use the passage

- 1 What pattern do the seedling measurements show when you compare the sunny and shaded places?

- 2 Which measurement is unusual, and why does it need to be checked?

- 3 What measuring error did the class find?

- 4 How did the 10-centimeter pot affect the recorded height of shaded seedling D?

3 YOUR TURN Your own words

A team tests four similar ice cubes under the same lamp. They melt in 12, 11, 3, and 12 minutes, but the notes say the third ice cube was much smaller. Write two sentences. Identify the pattern and unusual value, then explain the source of error and give a careful conclusion.

PART 1 • READ AND MARK

Underline the measurements that show the main pattern. Circle the surprising measurement, then number the sentence that explains what caused the error. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What pattern do the seedling measurements show when you compare the sunny and shaded places?	The sunny seedlings measured 9 to 11 cm, while three shaded seedlings measured 4 to 5 cm. The sunny seedlings were generally taller.
2	Which measurement is unusual, and why does it need to be checked?	The 15 cm measurement for shaded seedling D is unusual because it is much higher than the other shaded measurements of 4 to 5 cm.
3	What measuring error did the class find?	A partner measured shaded seedling D from the tabletop instead of from the soil.
4	How did the 10-centimeter pot affect the recorded height of shaded seedling D?	It made the recorded height 10 cm too large.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Three ice cubes melted in 11 to 12 minutes, but the 3-minute result is unusual. The third cube was smaller, so it was not a fair test, and the usual melting time was about 11 to 12 minutes under the lamp.

Accept responses that identify the 11 to 12 minute pattern and the 3-minute outlier. The response should explain that the smaller ice cube was a source of error because the cubes were not similar, and it should make a cautious conclusion based on the other three results.