

Evidence Detectives

Use observations and measurements to build careful science conclusions.

4.1.d.i “constructing and critiquing conclusions and explanations use evidence (i.e., measurements, observations, patterns) to construct or support explanations and to make inferences”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each measurement or observation in the passage and table. Number 1, 2, and 3 beside the three results that show the same pattern, so you can use evidence to judge a conclusion.

Where Were the Pill Bugs?

- ① Ms. Rivera’s class investigated where pill bugs were found in a choice chamber. The chamber had two equal sides. One side was covered to make it dark, and the other stayed under room light. Both sides had damp paper towels. Students placed 10 pill bugs at the center, waited 10 minutes, and counted the bugs on each side. They repeated the test three times.

PILL BUGS FOUND AFTER 10 MINUTES

Trial	Dark Side	Light Side
1	8	2
2	7	3
3	9	1

- ② The results are shown in the table. In Trial 1, the counts added to 10, the number released. The same was true in Trials 2 and 3. In each trial, the dark-side count was larger than the light-side count. The size of the difference was not identical in all three trials.
- ③ For a fair comparison, students kept several conditions the same: chamber size, number of pill bugs, dampness, and waiting time. They changed the light condition. A careful scientist uses repeated measurements to look for a pattern. Before claiming why a pattern happened, the scientist considers what the investigation did and did not measure.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 Write a conclusion about where pill bugs were more often found after 10 minutes. Use numbers from at least two trials as evidence.

2 A student says, "Light made every pill bug leave the light side." Is this conclusion supported? Explain using the counts.

3 Which gives stronger evidence, one trial or all three trials? Explain how the repeated measurements affect the conclusion.

4 A classmate says, "The dark cover was the only reason for the results." What part of that claim goes beyond the evidence? State one thing the class did not measure.

3 YOUR TURN _____ Your own words

In a new test, 10 pill bugs started at the center. After 10 minutes, the damp-side counts were 6, 8, and 7, while the dry-side counts were 4, 2, and 3. Write three sentences: state a conclusion, give evidence from two trials, and name one limit of the conclusion.

PART 1 • READ AND MARK

Underline each measurement or observation in the passage and table. Number 1, 2, and 3 beside the three results that show the same pattern, so you can use evidence to judge a conclusion. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Write a conclusion about where pill bugs were more often found after 10 minutes. Use numbers from at least two trials as evidence.	Pill bugs were more often found on the dark side after 10 minutes. For example, 8 were on the dark side in Trial 1 and 9 were on the dark side in Trial 3.
2	A student says, "Light made every pill bug leave the light side." Is this conclusion supported? Explain using the counts.	No. Some pill bugs were found on the light side in every trial: 2, 3, and 1.
3	Which gives stronger evidence, one trial or all three trials? Explain how the repeated measurements affect the conclusion.	All three trials give stronger evidence because the dark side had more pill bugs each time. Repeated results make the pattern less likely to be from one unusual trial.
4	A classmate says, "The dark cover was the only reason for the results." What part of that claim goes beyond the evidence? State one thing the class did not measure.	The claim about the only reason goes beyond the evidence. The class counted where pill bugs were after 10 minutes, but did not measure why the pill bugs were on a side.

PART 3 • YOUR TURN (SAMPLE ANSWER)

The pill bugs were more often found on the damp side after 10 minutes. In Trial 1, 6 were on the damp side and 4 were on the dry side, and in Trial 2, 8 were on the damp side and 2 were on the dry side. These counts do not prove that dampness was the only reason for the pattern.

Accept conclusions that match the repeated counts and include accurate numerical evidence. For limits, accept statements that the investigation counted locations after 10 minutes but did not measure the pill bugs' reasons, paths, or every possible cause.