

Clues in the Tray

Use observations to support careful scientific explanations.

4.1.d “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 observation from the investigation. Circle each detail that shows why the group should be careful about its conclusion.

Where Did the Pill Bugs Go?

- ① During a science investigation, Maya’s group wondered whether pill bugs choose a moist place or a dry place. They placed ten pill bugs in the center of a tray with two sides. One side held dry paper towels. The other held paper towels dampened with water. The group kept the tray away from bright light and waited five minutes before counting.
- ② After five minutes, seven pill bugs were on the moist side, two were on the dry side, and one remained in the center. The group returned every five minutes for fifteen more minutes. At each count, six or seven pill bugs stayed on the moist side. No pill bug was added or removed during the investigation.
- ③ Repeated counts are more useful than one count, since one count could happen by chance. The group also listed limits before writing an explanation. They tested only ten pill bugs, one tray, and one kind of damp paper towel. A second trial with new pill bugs could show whether the same pattern appears again. Their notes gave them evidence, not proof about every pill bug.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What conclusion about the pill bugs is best supported by the repeated counts?

2 Which two observations from the investigation support that conclusion?

3 Why should the group avoid claiming that every pill bug always chooses moisture?

4 How would a second trial with new pill bugs make the group's explanation stronger?

3 YOUR TURN _____ Your own words

A student tests whether bean seeds sprout better in light or darkness. Each group has 12 seeds and gets the same water and temperature. After 7 days, 9 seeds in light sprouted and 3 seeds in darkness sprouted. Write a conclusion and explanation using both measurements. Name one reason this result does not prove that every bean seed will grow this way.

PART 1 • READ AND MARK

Underline each observation from the investigation. Circle each detail that shows why the group should be careful about its conclusion. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What conclusion about the pill bugs is best supported by the repeated counts?	The pill bugs in this tray tended to choose the moist side.
2	Which two observations from the investigation support that conclusion?	At five minutes, seven pill bugs were on the moist side and two were on the dry side. At later counts, six or seven pill bugs stayed on the moist side.
3	Why should the group avoid claiming that every pill bug always chooses moisture?	They tested only ten pill bugs in one tray with one kind of damp paper towel.
4	How would a second trial with new pill bugs make the group's explanation stronger?	It could show whether the same pattern happens again and make it less likely that the first result happened by chance.

PART 3 • YOUR TURN (SAMPLE ANSWER)

In this test, bean seeds sprouted better in light than in darkness. Nine seeds sprouted in light, while only three sprouted in darkness, so the measurements support this conclusion. However, one test with twelve seeds does not prove that every bean seed needs light to sprout.

Accept conclusions that are limited to the tested pill bugs or the tested tray and supported with the repeated moist-side counts. For the open response, accept a different carefully stated limitation, such as the small number of seeds or the need for more trials.