

Moisture Evidence Check

Use investigation results and source quality to support a careful conclusion.

6.1.d.ii "constructing and critiquing conclusions and explanations construct scientific explanations based on valid and reliable evidence obtained from sources (including the students' own investigations)"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each piece of evidence, circle the source detail that shows why it is reliable, and number the limits of the investigation. These marks will help you judge whether the conclusion is supported.

Leaf Mulch Investigation

- ① Sixth graders wanted to know whether a layer of leaf mulch helps soil stay moist. They filled six identical pots with the same soil and planted no seeds. Three pots received 2-centimeter layers of dry leaves, while three were left bare. Each pot got 100 milliliters of water at the same time. The group placed every pot on one bench near a window. After four days, they measured water in the soil with a moisture probe.
- ② The three mulch pots measured 38, 41, and 40 percent moisture. The bare pots measured 25, 27, and 26 percent. Because the groups had the same number of pots, the students calculated averages: 40 percent for mulch and 26 percent for bare soil. A state university extension guide, written by soil scientists and linked to research studies, also explains that mulch can slow water loss from soil by reducing evaporation. This expert source supports, but does not replace, the class measurements.
- ③ The students concluded that leaf mulch kept more water in the soil during this four-day test. Their conclusion matches both the measured difference and the scientific source. However, the investigation tested only one kind of soil, one window location, and dry leaves. It did not test rainy weather, different mulch depths, or plants growing in the pots. To make a broader explanation, the group could repeat the test in more locations and compare results. They should not claim that mulch always keeps every garden soil moist.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What conclusion did the students make, and which average moisture results support it?

2 How do the class measurements and the extension guide work together to support the conclusion?

3 What details make the state university extension guide a reliable source of evidence?

4 Name two limits of the investigation. How do these limits affect how broadly the students can state their conclusion?

3 YOUR TURN _____ Your own words

Use this evidence: After three days, four shaded pots averaged 34 percent moisture and four sunny pots averaged 20 percent moisture. A county extension article written by horticulture educators cites research showing that shade can reduce evaporation. Write exactly four sentences that state a conclusion, use both pieces of evidence, explain why the source is useful, and name one limit of the test.

PART 1 • READ AND MARK

Underline each piece of evidence, circle the source detail that shows why it is reliable, and number the limits of the investigation. These marks will help you judge whether the conclusion is supported. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What conclusion did the students make, and which average moisture results support it?	They concluded that leaf mulch kept more water in the soil during the four-day test. Mulch pots averaged 40 percent moisture, while bare pots averaged 26 percent.
2	How do the class measurements and the extension guide work together to support the conclusion?	The class measurements show that mulch pots had higher moisture than bare pots. The extension guide gives scientific support by explaining that mulch can reduce evaporation, but it does not replace the class data.
3	What details make the state university extension guide a reliable source of evidence?	It was written by soil scientists and linked to research studies.
4	Name two limits of the investigation. How do these limits affect how broadly the students can state their conclusion?	Possible limits include one kind of soil, one window location, dry leaves, no rainy weather, no different mulch depths, and no plants. The students can only make a careful claim about this test, not say mulch always keeps every garden soil moist.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Shade likely helped the pots keep more moisture during this three-day test. The shaded pots averaged 34 percent moisture, compared with 20 percent for sunny pots. The extension article is useful because horticulture educators cited research that shade can reduce evaporation. The test used only eight pots, so more trials would make the conclusion stronger.

Accept equivalent conclusions that are limited to the conditions of the investigation and cite both the measured results and the source. For the open response, accept another reasonable limitation, such as the short test time, the small number of pots, or testing only one location.