

# Evidence in Action

Use observations, models, and discussion to support a solution.

**5.3** "Scientific and engineering practices. The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions..."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## 1 READ AND MARK \_\_\_\_\_ Read it twice

**YOUR JOB** Underline the data or observations that support an idea, circle the proposed solution, and number the sentence that shows the team listening to another person.

### Mulch for the Bean Bed

- ① Fifth graders noticed that one school garden bed had droopy bean plants by lunchtime. Their team wondered whether a layer of mulch could help the soil stay moist. They made a model using two equal cups of soil. One cup had dry leaves on top, like mulch, and the other cup had bare soil. Each cup received the same amount of water.
- ② After four hours in the sun, the mulched cup had 18 milliliters of water left. The bare-soil cup had 9 milliliters left. The team repeated the test three times and saw the same pattern. Their cup model did not copy every part of a garden, but it let them compare one change, mulch, while keeping soil, sunlight, and water amounts alike.
- ③ The team explained that mulch may reduce water loss from soil because the mulched cup held more water in every test. They proposed adding leaf mulch around the bean plants and measuring soil moisture for one week. During a class meeting, Amir said, "The cups were smaller than the garden bed." The team listened, wrote down his concern, and agreed to test the solution in the real garden before making a final conclusion.

**2 ANSWER WITH EVIDENCE** \_\_\_\_\_ Use the passage

**1** What data from the cup tests supports the team's explanation about mulch?

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**2** How did the cup model help the team make a fair comparison, and what could the model not fully show?

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**3** What solution did the team propose, and what would they measure to check it?

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**4** What concern did Amir share? How did the team show active listening and respectful discussion?

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**3 YOUR TURN** \_\_\_\_\_ Your own words

Choose a problem at school that could be tested, such as warm drinking water or a dusty shelf. In four sentences, describe a simple model or test, state what data would support a solution, propose the solution, and explain how you would respond respectfully to a classmate's concern.

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**PART 1 • READ AND MARK**

Underline the data or observations that support an idea, circle the proposed solution, and number the sentence that shows the team listening to another person. Accept any marking that follows this job and points at the right text.

**PART 2 • ANSWERS**

| # | QUESTION                                                                                             | ANSWER                                                                                                                                                                  |
|---|------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | What data from the cup tests supports the team's explanation about mulch?                            | <b>After four hours, the mulched cup had 18 milliliters of water left, while the bare-soil cup had 9 milliliters. The team saw the same pattern in three tests.</b>     |
| 2 | How did the cup model help the team make a fair comparison, and what could the model not fully show? | <b>The model let the team compare mulch and bare soil while keeping the soil, sunlight, and water amounts alike. It could not copy every part of a real garden bed.</b> |
| 3 | What solution did the team propose, and what would they measure to check it?                         | <b>They proposed adding leaf mulch around the bean plants. They would measure soil moisture for one week.</b>                                                           |
| 4 | What concern did Amir share? How did the team show active listening and respectful discussion?       | <b>Amir said the cups were smaller than the garden bed. The team listened, wrote down his concern, and agreed to test the solution in the real garden.</b>              |

**PART 3 • YOUR TURN (SAMPLE ANSWER)**

I would test whether shade cloth keeps playground water cooler by placing equal cups of water in sun and under shade. I would measure each cup's temperature after one hour, and cooler water in the shaded cup would support the idea. I would propose adding shade near the water fountain. If a classmate says wind could affect the test, I would record the idea and test both cups in the same wind.

Accept responses that correctly connect specific observations or measurements to an explanation or solution. For the open response, look for a fair test or model, relevant data, a proposed solution, and a respectful response to another person's idea.