

Puddle Puzzle

Use observations and evidence to frame testable work.

7.1.A “ask questions and define problems based on observations or information from text, phenomena, models, or investigations;”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline observations about the wet corner, circle possible factors that could affect drainage, and number the three details that belong in a clear problem statement.

A Rain Garden Mystery

- ① During the first week of April, students noticed that water remained in one corner of the school rain garden for two days after a storm. Other sections of the garden drained by the next morning. The wet corner held mostly clay-rich soil, while the drier sections contained more compost and sand. A nearby downspout released roof runoff near the wet corner. The students recorded the weather, soil type, and puddle location in a field notebook.
- ② A science article explains that rain gardens are designed to slow and soak up runoff. Soil spaces let water move downward, but compacted soil and clay can slow that movement. Plants can also affect how water enters soil because roots create channels. The article does not show which factor caused the puddle in this garden. The students need a question that can be investigated, such as whether one measurable condition differs between the wet corner and a drained section. They should avoid questions about causes they cannot test at school.
- ③ Before planning a test, the group can define its problem clearly. Their problem is not simply that the garden has a puddle. A useful problem statement names the unwanted condition, where it occurs, and a limit on the solution. For example, the group might need to reduce standing water in the wet corner without redirecting runoff onto a sidewalk. They can then gather measurements, compare possible solutions, and decide what evidence would show that a solution works.

2 ANSWER WITH EVIDENCE Use the passage

- 1 Write two observations from the passage that show a drainage difference in the rain garden.

- 2 Use the wet-corner observation and the soil information to write one investigable question.

- 3 Write a problem statement for the student group. Include the unwanted condition, where it occurs, and one limit on the solution.

- 4 The article says that roots can create channels in soil. Write one investigable question about whether plant roots may matter in this garden.

3 YOUR TURN Your own words

Choose an observation from school, home, or your community that could be investigated. Write the observation, one investigable question, and one problem statement that includes an unwanted condition, a location, and a limit on the solution.

PART 1 • READ AND MARK

Underline observations about the wet corner, circle possible factors that could affect drainage, and number the three details that belong in a clear problem statement. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	Write two observations from the passage that show a drainage difference in the rain garden.	Water remained in the wet corner for two days after a storm, while other sections drained by the next morning.
2	Use the wet-corner observation and the soil information to write one investigable question.	Do soil compaction measurements differ between the wet corner and a drained section?
3	Write a problem statement for the student group. Include the unwanted condition, where it occurs, and one limit on the solution.	Reduce standing water in the wet corner without redirecting runoff onto a sidewalk.
4	The article says that roots can create channels in soil. Write one investigable question about whether plant roots may matter in this garden.	Does the wet corner have a different amount of plant roots than a drained section?

PART 3 • YOUR TURN (SAMPLE ANSWER)

Observation: The art-room faucet drips after it is closed. Investigable question: How much water drips from the faucet in ten minutes? Problem statement: Reduce water waste from the art-room faucet without limiting students' access to handwashing.

Accept varied investigable questions if they use a measurable condition or comparison supported by the passage. Accept problem statements that identify an unwanted condition, a location, and a realistic constraint.