The Puddle Test

Use test evidence to judge a rain garden

3-ESS3-1 "Make an evidence-based claim about the validity of a design solution that reduces the impacts of a weather-related hazard. (SEP: 7; DCI: ESS3.B, ETS1.A; CCC: Cause/Effect) Alignment may include 3-5-ETS1-1"

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the rain hazard, circle the design meant to help, and number the two test results that help you judge whether the design works.

Can a Garden Stop a Puddle?

1. When heavy rain falls at Maple School, water runs across the hard playground toward the front door. A deep puddle forms where children walk, and the wet ground can make them slip. The school wants to dig a shallow rain garden beside the path. Its loose soil and plants could soak up some water before it reaches the door. Will this design help?

2. Students made two small schoolyard models in trays. Both had the same size yard and doorway, but one had a rain garden with loose soil and plants. The other had only hard, packed soil. Students poured one cup of water onto each yard at the same speed. They caught the water that reached each doorway in a cup. The rain garden model sent less water to its doorway.

3. In three tests, the model without a garden sent about three-quarters of a cup of water to the doorway each time. The garden model sent about one-quarter of a cup each time. That is less water near the door, so the garden may lower the chance of a puddle. Still, a real rainstorm could fill the garden with water. The school needs to check it after heavy rain.

2 ANSWER WITH EVIDENCE

Use the passage

1. Should Maple School try a rain garden to reduce water by its door? Use the test results to support your claim.

2. Why is comparing these two models good evidence about the rain garden's effect?

3. A student says the garden keeps all water away from the door. Do the test results support that claim? Explain.

4. Can these tests show that the garden will prevent puddles in every real storm? Explain.

3 YOUR TURN

Your own words

A second school tests a covered rain barrel that catches roof water: with the same amount of rain, four spoonfuls reach the door without it and one spoonful reaches the door with it in each of three tests. In three sentences, claim whether the barrel reduces water at the door, give evidence from the tests, and explain one reason it might not work as well in a real storm.

ANSWER KEY

The Puddle Test

GRADE 3 · 3-ESS3-1

PART 1 · READ AND MARK

Underline the rain hazard, circle the design meant to help, and number the two test results that help you judge whether the design works. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Should Maple School try a rain garden to reduce water by its door? Use the test results to support your claim.	**Yes. In each test, about one-quarter of a cup reached the door with the garden, compared with about three-quarters of a cup without it.**
2	Why is comparing these two models good evidence about the rain garden's effect?	**The models had the same size yard and doorway, and students poured the same amount of water at the same speed. The main difference was the rain garden.**
3	A student says the garden keeps all water away from the door. Do the test results support that claim? Explain.	**No. About one-quarter of a cup still reached the doorway in each test with the garden.**
4	Can these tests show that the garden will prevent puddles in every real storm? Explain.	**No. A real rainstorm could fill the garden with water, so the school needs to check what happens after heavy rain.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The covered rain barrel reduces water at the school door. In each of three equal-rain tests, one spoonful reached the door with the barrel, compared with four without it. During a long storm, the barrel might fill up and let water flow toward the door.

Accept claims that the rain garden reduces water near the door, not that it stops all water. For Your Turn, accept other reasonable limits, such as rain falling directly on the ground beside the door.