

Following Rain Patterns

Use repeated observations to explain erosion and plan a testable solution.

4.5.A "identify and use patterns to explain scientific phenomena or to design solutions;"

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline details that show water repeatedly traveled the same way. Circle details that show how the students used the pattern to test or improve a solution.

Rain Changes the Garden

- ① After several rainy days, Ms. Chen's class noticed a pattern beside the school garden. Small channels appeared in the bare soil after each heavy rain. The channels always began near the downspout and grew longer downhill. Water from the roof landed in the same place again and again, carrying loose soil along its path. The repeated flow changed the ground.
- ② To test an idea, students watched water from a watering can flow over two trays of soil. One tray was smooth and bare. The other had a row of small stones across the slope. On the bare tray, water made a long channel. On the stone tray, the stones slowed the water, and less soil moved downhill.
- ③ The class used this pattern to design a solution for the garden. They placed flat rocks under the downspout, then added mulch over the nearby bare soil. The rocks spread the falling water, and the mulch helped hold soil in place. After later rains, the students checked whether fewer channels formed. Repeating observations helped them decide if their solution worked.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What pattern did the class notice in the garden after heavy rains?

2 What caused the channels to begin near the downspout? Use a detail from the passage to explain.

3 How did the two soil trays help students test whether stones could reduce soil movement?

4 What was the garden solution, and how was it supposed to reduce channels?

3 YOUR TURN _____ Your own words

Think of a place where rainwater repeatedly makes a puddle or moves soil. In 3 or 4 sentences, describe the pattern, explain what may cause it, and propose one solution you could test.

PART 1 • READ AND MARK

Underline details that show water repeatedly traveled the same way. Circle details that show how the students used the pattern to test or improve a solution. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What pattern did the class notice in the garden after heavy rains?	Small channels formed after each heavy rain. They began near the downspout and grew longer downhill.
2	What caused the channels to begin near the downspout? Use a detail from the passage to explain.	Water from the roof landed in the same place again and again and carried loose soil along its path.
3	How did the two soil trays help students test whether stones could reduce soil movement?	The trays let students compare bare soil with soil that had stones. The stones slowed the water, and less soil moved downhill on the stone tray.
4	What was the garden solution, and how was it supposed to reduce channels?	The class put flat rocks under the downspout and mulch on bare soil. The rocks spread the water, and the mulch helped hold soil in place.

PART 3 • YOUR TURN (SAMPLE ANSWER)

After rain, a puddle forms at the bottom of the playground ramp. Water runs down the sloped ramp and collects in the low spot. A drain grate at the low spot could carry water away, and I would check after several rains to see whether the puddle is smaller.

Accept a reasonable repeated, observable water pattern, a cause connected to the pattern, and a solution that could be checked. The solution may differ from the sample if it could reduce the puddle or soil movement.