When Rain Races

Design changes to reduce schoolyard flooding

6.9.c "Design solutions to mitigate the impact of severe weather."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline the hazards at the gym door and sidewalk, circle one design choice for each, and write the same number beside each hazard and its matching choice.

A Storm at Cedar Creek School

1 After a heavy thunderstorm, rain races off the paved yard at Cedar Creek School. Water pools beside the gym door and can seep inside, damaging the floor. At the far end of the yard, a storm drain fills with leaves. Water then crosses the sidewalk, making a slippery path for students. The school cannot stop severe rain, but it can change where rainwater goes. A good design should protect people and the building without pushing floodwater toward nearby homes.

2 One team suggests replacing a strip of pavement with a rain garden, a shallow planted area that holds runoff while it slowly soaks into the ground. This could reduce water reaching the gym door, but the garden must be set away from the building's foundation. Another team proposes a removable door barrier to block shallow water during storms. Staff would install it before a forecast storm and check that people can still use another safe exit. Neither choice solves the leaf-filled drain on its own.

3 To keep the sidewalk safer, the team plans a wider drain grate with a removable leaf basket beneath it. Staff must empty the basket often, or water could back up again. Before changing the yard, students can pour equal amounts of water over small models of the old pavement and the proposed rain garden. They can compare how much water runs toward a model gym door. After a real storm, staff can check whether water still pools at the door or crosses the sidewalk.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which design choice could reduce the water reaching the gym door? Explain how it works.

2. Staff want to block shallow water at the gym entrance during a forecast storm. What should they use, and what safety need must they check?

3. What design and upkeep could reduce the sidewalk hazard caused by leaves in the drain?

4. How could students test the rain garden design before changing the yard? What result would suggest it helps?

3 YOUR TURN

Your own words

Loose balls and folding goals on a school playground could blow into people during a severe windstorm. Design two different actions the school could take before the storm, explain how each reduces danger, and describe one safe way to check the plan before a storm.

ANSWER KEY

When Rain Races

GRADE 6 · 6.9.c

PART 1 · READ AND MARK

Underline the hazards at the gym door and sidewalk, circle one design choice for each, and write the same number beside each hazard and its matching choice. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which design choice could reduce the water reaching the gym door? Explain how it works.	**A rain garden could hold runoff and let it slowly soak into the ground, so less water reaches the door.**
2	Staff want to block shallow water at the gym entrance during a forecast storm. What should they use, and what safety need must they check?	**They should install the removable door barrier and check that people can still use another safe exit.**
3	What design and upkeep could reduce the sidewalk hazard caused by leaves in the drain?	**Use a wider drain grate with a removable leaf basket beneath it, and empty the basket often.**
4	How could students test the rain garden design before changing the yard? What result would suggest it helps?	**Pour equal amounts of water over models of the old pavement and proposed rain garden. The design helps if less water runs toward the model gym door.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Before a windstorm, staff could put balls and folding goals in a locked shed so they cannot blow into people or windows. The school could also close the playground and direct students to wait inside, away from flying objects. During a practice drill, staff could use a checklist to confirm the shed is locked and no students remain outside.

Accept either the rain garden or the door barrier as a gym-door solution in the marking task if the student matches it to the correct hazard. For the open task, accept other feasible actions that address wind hazards and include a safe check before the storm.