When Water Breaks Through

Trace how a hurricane's effects depend on land, buildings, and people.

HS-ENV3-1 "Construct an explanation based on evidence for how natural Earth hazards, such as earthquakes, tornadoes, and hurricanes, affect the environment and human activity on both a short-term and long-term scale..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline two environmental effects of the storm, circle two effects on people, and number one short-term effect and one long-term effect. Use your marks to trace how the storm and the city's conditions shaped the damage.

Hurricane Katrina and New Orleans

1 On August 29, 2005, Hurricane Katrina struck the Gulf Coast. In New Orleans, strong winds damaged roofs, but the worst flooding followed breaches in levees built to hold back water. Surge from the storm also pushed salt water across coastal marshes. Floodwater covered streets and homes, shut down electric power, and carried debris and sewage into waterways. Some marsh plants died when salt water remained in the soil. These changes did not share one cause: the hurricane supplied wind and surge, while broken flood barriers allowed deep water to spread through neighborhoods.

2 A storm is a hazard, but its damage depends on what lies in its path and how well people can cope. New Orleans had dense neighborhoods built on low ground, so many people and buildings were exposed when levees failed. Residents with cars, savings, or a place to stay elsewhere often had more ways to leave. Residents without those resources faced greater difficulty evacuating and returning. Hospitals and roads were also exposed; flooded streets made rescue and medical care harder. Thus the same floodwater could create different risks for different households, even within one city.

3 The effects lasted beyond the day of the storm. Flooded buildings needed extensive repairs, and some families remained displaced for years. Salt water and storm damage altered parts of the coastal marsh, where plant cover and soil help slow waves and support wildlife. Marsh recovery varied from place to place. Rebuilding homes and flood defenses took time and money, and some residents could not return. Decisions made before a storm, such as where to build, how to maintain levees, and how to help people evacuate, shape both immediate harm and the length of recovery.

2 ANSWER WITH EVIDENCE

Use the passage

1. How did the hurricane and the levee breaches work together to flood New Orleans neighborhoods? Use evidence from the passage.

2. Why did residents without cars, savings, or another place to stay face greater risk than some other residents exposed to the same floodwater?

3. How could the storm's damage to marsh plants affect the coast after the floodwater receded? Support your explanation with a detail from the passage.

4. Explain how building on low ground contributed to both an immediate effect and a longer-term effect on people in New Orleans.

3 YOUR TURN

Your own words

A tornado crosses a town with trees beside a creek, a mobile-home park without a shelter, and a school where students can use a storm shelter. In 4 to 5 sentences, use these details to explain one immediate environmental effect, one possible lasting human effect, why the two groups face different risks, and one action that could reduce risk.

ANSWER KEY

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HIGH SCHOOL · HS-ENV3-1

PART 1 · READ AND MARK

Underline two environmental effects of the storm, circle two effects on people, and number one short-term effect and one long-term effect. Use your marks to trace how the storm and the city's conditions shaped the damage. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	How did the hurricane and the levee breaches work together to flood New Orleans neighborhoods? Use evidence from the passage.	**The hurricane brought wind and surge, while breaches in the levees let deep water spread through neighborhoods, covering streets and homes.**
2	Why did residents without cars, savings, or another place to stay face greater risk than some other residents exposed to the same floodwater?	**They had fewer ways to evacuate and more difficulty returning, even though both groups faced flooding.**
3	How could the storm's damage to marsh plants affect the coast after the floodwater receded? Support your explanation with a detail from the passage.	**Where plant cover was lost, the marsh could be less able to slow waves. The passage says some plants died and that marsh plant cover and soil help slow waves.**
4	Explain how building on low ground contributed to both an immediate effect and a longer-term effect on people in New Orleans.	**When the levees failed, many homes in low-lying neighborhoods flooded. Flooded buildings then needed extensive repairs, and some families remained displaced for years.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

The tornado could uproot trees beside the creek right away. Some families in the mobile-home park might have to live elsewhere while damaged homes are replaced. People at both the park and the school are exposed because the tornado crosses both places. The students can use a storm shelter, while the park residents have no shelter there and face greater risk of injury. Adding a storm shelter near the park could reduce that risk.

Accept other evidence-based causal explanations. For Part 3, the lasting effect should be identified as a possible outcome, not a known result of the scenario.