Where Water Goes

Use geographic evidence to examine flood decisions in the Netherlands.

AWH.P.2.3 "Demonstrate a mastery of geographic concepts and the use of geographic tools to understand the impact of geography on the past and present. Actively engage in asking and answering geographic questions by acquiring, organizing..."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each map or mapping source and what it could reveal. Circle nonmap sources that could test an explanation, and number the two government approaches to flooding.

Mapping Flood Risk in the Netherlands

1 In 1953, a North Sea storm surge broke through dikes in the southwestern Netherlands. More than 1,800 people died, and low farmland and towns flooded. To investigate why some places suffered more, a geographer might compare a historical land-use map with an elevation map made from modern laser measurements. The first shows where people lived and farmed before the disaster; the second shows which areas are relatively low today. Because land levels can change, today's elevations cannot fully reconstruct 1953. Reports describing dike breaches and water levels add evidence about how the storm reached particular settlements.

2 After the disaster, the Dutch government built the Delta Works, a system of barriers, dams, and strengthened dikes. These structures reduced the risk of flooding from the sea, but they also changed tidal movement in some estuaries, affecting saltwater habitats and fishing. A geographer could compare shoreline maps from different years with satellite images to locate changes near a barrier. Yet a changed shoreline does not by itself reveal the cause. Construction records, tide measurements, and accounts from fishers help distinguish effects of engineering from other changes over time.

3 Today, Dutch planners also make room for rivers when heavy rain raises inland water levels. In selected areas, they have moved dikes farther from rivers and lowered some floodplains so water can spread before reaching crowded towns. Comparing an elevation map, a settlement map, and past flood reports helps planners ask where overflow might protect more people while taking land out of farming. That choice has costs: some farmers lose usable land or must move, even as downstream neighborhoods gain protection. Maps show patterns and possible trade-offs; decisions require local testimony and evidence about costs.

2 ANSWER WITH EVIDENCE

Use the passage

1. Why would a geographer compare the historical land-use map and the elevation map to investigate the 1953 flood? What other evidence would help trace the water?

2. A shoreline map shows a change near a Delta Works barrier. Why is the map alone not proof that the barrier caused the change? Name two sources that could help.

3. How did the Delta Works affect both people and the physical environment?

4. Why might planners compare elevation and settlement maps with past flood reports before moving a river dike? Give one possible benefit and one cost of moving it.

3 YOUR TURN

Your own words

A town plans to fill part of a coastal marsh for a new port. In 80 to 110 words, pose a geographic question, identify two different map or mapping sources and one other source you would gather, then explain a possible spatial pattern and a trade-off to investigate. Do not assume the port's effects are already known.

ANSWER KEY

Where Water Goes

PART 1 · READ AND MARK

Underline each map or mapping source and what it could reveal. Circle nonmap sources that could test an explanation, and number the two government approaches to flooding. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Why would a geographer compare the historical land-use map and the elevation map to investigate the 1953 flood? What other evidence would help trace the water?	**The maps show where people lived and farmed and which areas are relatively low today. Reports of dike breaches and water levels would help trace how the storm water reached settlements.**
2	A shoreline map shows a change near a Delta Works barrier. Why is the map alone not proof that the barrier caused the change? Name two sources that could help.	**The map shows a change but not its cause. Construction records and tide measurements could help test whether engineering contributed to it.**
3	How did the Delta Works affect both people and the physical environment?	**The structures reduced people's risk of flooding from the sea. They also changed tidal movement in some estuaries, affecting saltwater habitats.**
4	Why might planners compare elevation and settlement maps with past flood reports before moving a river dike? Give one possible benefit and one cost of moving it.	**The sources help planners identify where water might spread and which settlements it might protect. Downstream neighborhoods could gain protection, while farmers could lose usable land or need to move.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Where might filling the marsh increase flooding of nearby homes? I would compare an elevation map with a map of existing homes and drainage channels to identify low neighborhoods near the proposed port. I would also gather local flood records to check where water has reached during past storms. If low homes cluster behind the marsh, their risk might change when the marsh is filled, but the maps alone cannot show how much. Port jobs could benefit residents, while lost habitat and possible flood damage could impose costs on others.

Accept other relevant nonmap sources for question 2, including fishers' accounts. For the open task, look for a testable question, distinct sources, a conditional spatial claim, and a trade-off rather than a claim of proven effects.