Creekside Choices

Weigh habitat, erosion, and flood risk

MS-LS2-5 "Evaluate competing design solutions for maintaining biodiversity and ecosystem preservation practices and services. (SEP: 7; DCI: LS2.C, LS4.D, ETS1.B; CCC: Stability/Change) Alignment may include MS-ETS1-2"

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline one benefit and circle one drawback for each plan. Number the three goals the town must weigh so you can compare the plans.

Two Plans for Willow Creek

1. After hard rain, Willow Creek rises beside a neighborhood footpath. Mud washes from its banks into the water, and some yards flood. The town wants to protect the banks while keeping the creek useful to people and wildlife. Fish and aquatic insects need places to feed and hide. People depend on the creek's floodplain to hold some stormwater and on plants to trap soil before it enters the water. The town can afford only one of two plans this year. Each plan must be judged by habitat, erosion control, and flood risk.

2. Plan A plants native grasses, shrubs, and trees along both banks and sets aside a strip where floodwater can spread. Roots can hold soil, leaves and stems slow runoff, and varied plants give insects and birds food and shelter. However, young plants take time to grow. During the first storms, the banks could still lose soil, and the floodplain strip would take space now used as lawn. Workers would need to water young plants and remove invasive weeds while the plants become established.

3. Plan B lines both banks with stone and keeps the lawn. Stone can protect the banks right away, but it offers fewer hiding places than varied plants. Its hard edges also leave little room for water to spread, so fast water may raise flood risk farther downstream. The town will compare the plans after storms by measuring soil lost from the banks, recording where water reaches, and counting kinds of insects and birds. The best choice must meet more than one goal, not just stop muddy water near the path.

2 ANSWER WITH EVIDENCE

Use the passage

1. Which plan better supports different kinds of wildlife? Give two details from the passage that support your choice.

2. If the next storm is the town's biggest concern, which plan has the stronger case for stopping bank erosion? What is its drawback for wildlife?

3. Which plan is more likely to lower flood risk downstream? Explain how a feature of that plan affects the water.

4. Besides measuring soil lost from the banks, what two kinds of evidence should the town collect after storms? Explain what each would help the town judge.

3 YOUR TURN

Your own words

The town must keep the footpath open, and there is room to plant along only one bank. In four sentences, propose a revised plan, compare it with both plans for habitat and erosion control, name a drawback, and explain how the town could check whether it works.

ANSWER KEY

Creekside Choices

GRADES 6-8 · MS-LS2-5

PART 1 · READ AND MARK

Underline one benefit and circle one drawback for each plan. Number the three goals the town must weigh so you can compare the plans. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Which plan better supports different kinds of wildlife? Give two details from the passage that support your choice.	**Plan A. Its varied native plants provide food and shelter, while Plan B offers fewer hiding places.**
2	If the next storm is the town's biggest concern, which plan has the stronger case for stopping bank erosion? What is its drawback for wildlife?	**Plan B protects the banks right away, but its stone edges offer fewer hiding places.**
3	Which plan is more likely to lower flood risk downstream? Explain how a feature of that plan affects the water.	**Plan A sets aside a strip where floodwater can spread. Plan B leaves little room for water to spread, so fast water may raise downstream flood risk.**
4	Besides measuring soil lost from the banks, what two kinds of evidence should the town collect after storms? Explain what each would help the town judge.	**Record where water reaches to judge flood risk. Count kinds of insects and birds to judge how well each plan supports biodiversity.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Plant native shrubs and grasses on the wider bank, and place stone only beside the footpath. Compared with Plan B, the plants would provide more habitat while the stone protects part of the bank right away. Compared with Plan A, less of the creek would have plants holding its soil and sheltering wildlife. The planted bank might erode while roots grow, so the town could measure soil loss there after storms.

Accept other evidence-based comparisons that distinguish short-term bank protection from habitat and flood-risk goals. For Part 3, look for a workable revised plan, comparisons with both plans, a plausible drawback, and a way to check its results.