

Clearbrook Connections

Trace how changes on land affect a watershed.

6.8.d “natural processes, human activities, and biotic and abiotic factors influence the health of a watershed system.”

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each natural process, circle each human activity, and box biotic or abiotic factors connected to watershed health. Write a + or – beside every marked detail when the passage describes its helpful or harmful effect.

Changes Along Clearbrook

- ① A watershed is the land area that drains rain and melting snow to one shared stream, lake, or river. In the Clearbrook watershed, a spring storm can carry loose soil from bare hillsides into the creek. This natural erosion makes the water cloudy and can cover gravel where fish lay eggs. Floods also move leaves and branches, which can create shelter and food for stream insects. These natural processes can change water conditions quickly, even where people have not changed the land.
- ② People also affect Clearbrook. A construction crew removed plants near a ditch, leaving soil exposed. During rain, runoff carried sediment and oil from machinery toward the creek. Farther downstream, a farm planted a strip of grasses beside its field. The roots held soil in place and slowed runoff before it reached the water. These actions show that human activities may harm a watershed, but people can also reduce damage by changing how they use land.
- ③ Living, or biotic, factors include fish, algae, insects, trees, and bacteria. Nonliving, or abiotic, factors include water temperature, sunlight, rocks, dissolved oxygen, and sediment. In Clearbrook, shade from streamside trees keeps water cooler. Cooler water can hold more dissolved oxygen, helping trout and insect larvae survive. Too much sediment can block sunlight needed by algae and can clog fish gills. Watershed health depends on connections among living things, nonliving conditions, natural events, and human choices.

2 ANSWER WITH EVIDENCE _____ Use the passage

1 What natural process carries loose soil into Clearbrook, and what are two effects it can have on the creek?

2 Describe one human activity that harms Clearbrook and one human activity that reduces harm.

3 Name one biotic factor that sediment can harm. Explain how sediment harms it.

4 Explain how streamside trees can help trout and insect larvae survive.

3 YOUR TURN _____ Your own words

Create a different watershed situation in three sentences. Include a natural process, a human activity, one biotic factor, and one abiotic factor, then explain one choice that would protect the watershed.

PART 1 • READ AND MARK

Underline each natural process, circle each human activity, and box biotic or abiotic factors connected to watershed health. Write a + or – beside every marked detail when the passage describes its helpful or harmful effect. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	What natural process carries loose soil into Clearbrook, and what are two effects it can have on the creek?	Spring-storm erosion carries loose soil into the creek. It makes the water cloudy and can cover gravel where fish lay eggs.
2	Describe one human activity that harms Clearbrook and one human activity that reduces harm.	Removing plants near a ditch leaves soil exposed, and runoff can carry sediment and oil from machinery to the creek. Planting grasses beside a field holds soil and slows runoff.
3	Name one biotic factor that sediment can harm. Explain how sediment harms it.	Algae are a biotic factor. Sediment can block the sunlight algae need. Fish are also acceptable because sediment can clog their gills.
4	Explain how streamside trees can help trout and insect larvae survive.	Tree shade keeps the water cooler. Cooler water can hold more dissolved oxygen, which helps trout and insect larvae survive.

PART 3 • YOUR TURN (SAMPLE ANSWER)

Near Pine Run, heavy snowmelt washes soil from a steep trail into the stream. The soil makes the water cloudy, so an abiotic change reduces sunlight for water plants, a biotic factor. If hikers stay on a marked path and volunteers plant shrubs along the trail, roots can hold soil and help keep the stream healthy.

Accept equivalent explanations that correctly connect a natural process, human activity, and living or nonliving factor to watershed health. For the open response, check that all four required elements appear and that the protective choice logically addresses the situation.