Where Sediment Settles

Trace how rock changes, moves, and collects

6.5.c "Develop and use models to demonstrate types of weathering, effects of agents of erosion and transportation, and the formation of environments of deposition."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Read the passage. Underline two causes of weathering, circle the forces that move sediment, and number the places where sediment collects in the order it reaches them.

From Mountain Ledge to Lake

1 Above a mountain creek, rain slips into narrow cracks in a granite ledge. On cold nights, the water freezes and expands, pushing the cracks wider. After many freezes, pieces break off. This is physical weathering: the rock changes size, but not what it is made of. Nearby, slightly acidic rainwater slowly dissolves part of a limestone ledge. That is chemical weathering because the rock's minerals change. Both kinds of weathering begin in place. Broken pieces can remain there until another force moves them.

2 In spring, melting snow feeds the creek. Fast water sweeps small granite pieces from the hillside, an example of erosion. The water transports gravel by rolling it along the creek bed; it carries smaller sand grains farther downstream. As the creek enters a wide, flat valley, it slows and drops much of its gravel. During a storm, extra water can carry sand past the valley and toward a lake. A model of this trip needs arrows for moving sediment and labels for where the water gains or loses speed.

3 At the lake, the creek spreads out and slows again. Sand sinks near the creek's mouth, while tiny clay particles travel farther into still water before settling. Over time, layers of dropped sediment build a shallow, fan-shaped patch of land called a delta. Reeds take root on its edges and trap more sediment. The delta is an environment of deposition, a place where material collects after being moved. A model can show this with a thicker pile near the mouth and thinner, finer layers farther into the lake.

2 ANSWER WITH EVIDENCE

Use the passage

1. In a model of the two ledges, what changes would you show at each ledge? Explain how the changes differ.

2. Draw an arrow in words from spring snowmelt to granite pieces leaving the hillside. What force causes the pieces to move?

3. Why would a model show gravel collecting in the wide valley but sand reaching the lake during a storm?

4. How should a model show sediment near the creek's mouth and farther into the lake? Explain the difference.

3 YOUR TURN

Your own words

A creek passes a cracked rock ledge, then flows around a fallen tree, leaving calm water behind it. Draw a three-panel model showing weathering, erosion and transportation, and deposition at this new site. Label a cause and result in each panel, then write one sentence explaining where sediment collects.

ANSWER KEY

Where Sediment Settles

GRADE 6 · 6.5.c

PART 1 · READ AND MARK

Read the passage. Underline two causes of weathering, circle the forces that move sediment, and number the places where sediment collects in the order it reaches them. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	In a model of the two ledges, what changes would you show at each ledge? Explain how the changes differ.	**Show freezing water widening granite cracks until pieces break off. Show slightly acidic rainwater dissolving some limestone. The granite changes size, while the limestone's minerals change.**
2	Draw an arrow in words from spring snowmelt to granite pieces leaving the hillside. What force causes the pieces to move?	**Snowmelt feeds the creek, and its fast-moving water sweeps granite pieces from the hillside. Moving water is the force causing erosion.**
3	Why would a model show gravel collecting in the wide valley but sand reaching the lake during a storm?	**The creek slows in the wide valley and drops much of its gravel. Extra storm water can carry smaller sand grains past the valley to the lake.**
4	How should a model show sediment near the creek's mouth and farther into the lake? Explain the difference.	**Show sand collecting near the mouth and finer clay settling farther into the lake. The creek slows as it enters the lake, but tiny clay particles travel farther before settling.**

PART 3 · YOUR TURN (SAMPLE ANSWER)

Panel 1: Label water freezing in a ledge crack as the cause and small rock pieces breaking off as the result. Panel 2: Label fast creek water as the cause and the small pieces moving downstream as the result. Panel 3: Label calm water behind the fallen tree as the cause and a pile of small pieces on the creek bed as the result. Sentence: Sediment collects behind the fallen tree because the water there moves slowly.

Accept models that correctly connect a weathering process to broken or changed rock, moving water to erosion and transportation, and slower water to deposition. The deposited material should match the size of pieces the student's model shows moving.