

Answers

1. Running water, wind, glaciers, temperature changes, gravity.
2. Rocks and stones carried in the moving water hit rock on the sides and bottom of the stream or river and carve and deepens the channel over time.
3. Ruth's grab on to soil particles and help it from being blown away or washed away.
4. Spring and early summer especially after heavy rain storms.
5. a) from melting snow.
b) from rain or snow.
6. Some rock is harder and therefore weathers more slowly. Wind carries sand which sandblasts the surface of the rock and causes it to be worn away.
7. Wind carries small particles of sand which "sandblasts" the existing rock.

The Physical Geography Series

Weathering & Erosion

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TEACHER'S GUIDE

Glossary

Breccia - A general term for a rock of any origin containing angular particles.

Buttes - Column of rock created by erosional forces often found in the canyonlands of the American Southwest.

Conglomerate - A clastic sedimentary rock containing numerous rounded pebbles or larger particles.

Crevasse - A deep crack in the upper surface of a glacier.

Erosion - A term that describes the physical breaking down, chemical solution and movement of broken-down and dissolved rock materials from place to place on the earth's surface.

Exfoliation - The separation during weathering of successive shells from massive rocks. The resulting sheets of rock resemble the skins of an onion.

Glacial Milk - Ground up clay or "rock flour" produced from a glacier grinding the bedrock below it as it moves. Rivers run milky white from the clay suspended in the moving water.

Gradient - When applied to a stream, it is the slope measured along the stream on the water surface or on the bottom.

Potholes - A cylindrical hole drilled in the bedrock by a turbulent stream.

Talus Slopes - An apron of rock waste sloping outward from the cliff that supplies it.

Weathering - The chemical alteration and mechanical breakdown of rock materials during exposure to air, moisture and organic matter.

Suggested Teaching Activities

1. Using a topographic map of your area, find a stream or river and determine what the gradient is. Find the elevation of one point (A) and then find it at another (B). Find the difference and divide by the distance from point A to point B.
2. Fill a large trough or stream table with soil to a depth of two inches. Plant grass seed in one half and leave the other half empty. After the grass has grown take the table outdoors and raise up one end. Spray water evenly over the soil. Does the planted side help to hold in the soil? Which side erodes first?
3. Collect a sample of water from a nearby fast running stream or river. Allow the suspended material to settle out or pour the water through filter paper. Examine what you find.
4. Find a sample of breccia conglomerate. Note how the individual pieces of rock are angular - not rounded. Can you explain how this may have occurred? Compare this to a conglomerate taken from a river bed or beach area.

5. In an atlas find the Colorado River. How many states does it flow through? How many square miles does it drain? What is the origin of the Colorado River?

Quiz

1. Name the three most important elements of erosion?
2. How can running water erode even hard rock?
3. How do plants help hold soil?
4. At what season would you expect rivers and streams to carry the biggest loads?
5. Where does most of the water come from in mountain streams? In streams running through the Midwest?
6. Explain how buttes are formed?
7. Describe the process of wind eroding rock.