The Artistry of Water

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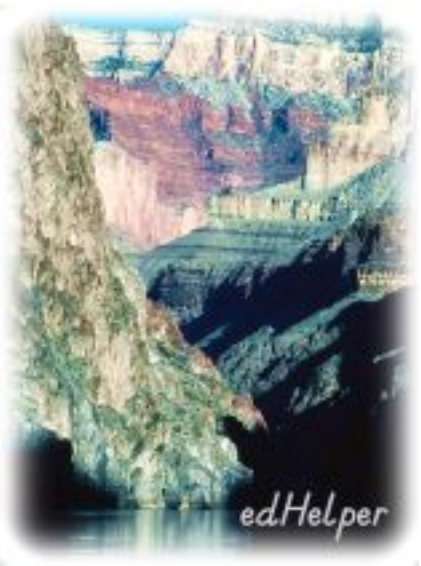

[1] Imagine you are watching television, and you hear the announcer say, "The earth's beautiful landscape has been brought to you by water!" Chances are you will not hear a commercial like that on television. The truth is the earth's beautiful landscape is due to water.

[2] Moving water on the earth's surface is like the flowing of paint on an artist's canvas. Given time and patience, both have the ability to produce masterpieces. The power of flowing water over time produces changes in the earth's surface through the process of erosion. After a rainstorm, some of the water is absorbed into earth materials like rocks and soil. The rest of the water that is not absorbed flows across the ground into streams, rivers, and oceans. As the water flows across the earth's surface, it erodes or wears away the land and rocks. Rocks, soil, and other earth materials are washed away, allowing water to "design" a new landscape.

[3] In the western part of the United States, one of our most beautiful landforms was created this way. The Grand Canyon was born after a million years of water from the Colorado River eroding the soil and rocks. This material or sediment was transported downstream and deposited at the mouth of the Gulf of California. Water continues to wash away huge amounts of rocks and soil from the banks or sides of rivers and hills each day. Eventually, these earth materials are carried into the ocean. The ocean's waves also pound the cliffs and boulders on the coast into sand. These waves also transport sand from the coastline back into the ocean. Beach erosion is an ongoing concern around the world today.

[4] So how does water have all of this power? Well, when water moves down hills, it forms puddles or gullies at the bottom of the hills. As the hill becomes steeper, the water flows faster and forms in greater amounts at the bottom of the hill. Just imagine that colossal water slide at your favorite water park. The amount of speed you will encounter will be greater than the speed you encountered when you went on the little kid water slide. The splash at the end will also be much larger. As the water moves faster down the hill, it erodes the land more quickly. Even the pounding of rainwater can change how the land looks. After a heavy storm, you may notice holes filled with water in your backyard. Over time, these holes may remain, even after the rainwater has been absorbed or evaporated.

[5] Frozen water also causes land erosion. During the Ice Age thousands of years ago, huge glaciers and sheets of ice covered one-third of the earth's surface. As the glaciers and ice sheets grew, they eroded the land underneath. These great ice structures would pick up and move the sediment. Once they melted, that sediment would be deposited in a moraine or a long line of hills. Another way frozen water erodes the land is when that water is absorbed by rocks and freezes. Once the water freezes, it expands, and as a result, bits of rocks can break off. The frozen water may also push apart cracks that already exist in the rocks.

[6] The "artistry" of water can be seen in your own backyard, at the shore, and throughout the world. With the help of millions of years, water has been able to design earth's beautiful landscape.

Name _____ Science Pd _____

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1. Thousands of years ago, glaciers and ice sheets eroded the earth's surface by _____.

   (A) Freezing and melting the rocks and soil

   (B) Transporting sediment and depositing it in moraines

   (C) Freezing and pounding the rocks and soil

   (D) None of the above

2. Erosion of the earth's surface occurs over many years.

   (A) False

   (B) True

3. How does the ocean cause beach erosion?

   _____

   _____

4. Moraines are _____.

   (A) Huge lines of trees at the edge of mountains

   (B) Lines of glaciers located at the Artic Circle

   (C) Huge gullies at the base of mountains

   (D) Long lines of hills made by sediment from glaciers

7. Explain how frozen water erodes rocks.

   _____

   _____

8. Flowing water carries _____ to rivers, streams, and oceans.

   (A) Animals and insects

   (B) Earth materials

   (C) More water

   (D) Minerals