Name: _____

Date: _____

A S S E S S M E N T

The Planet Rock

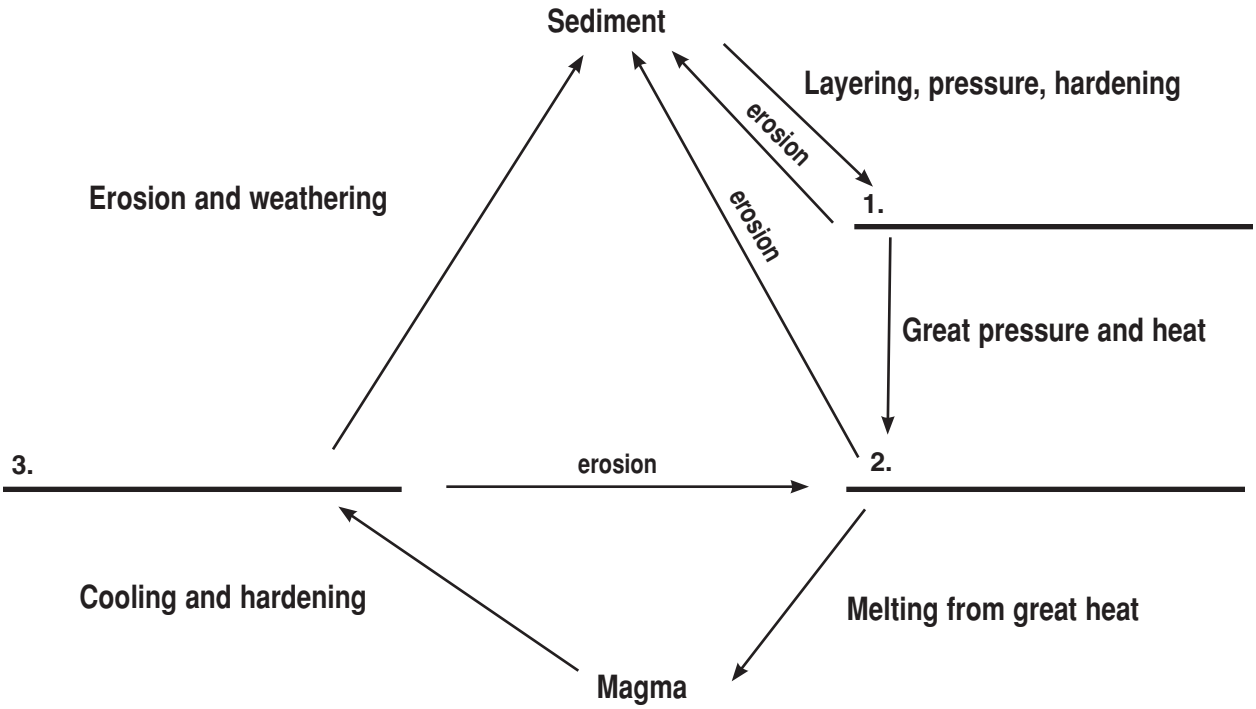
1. Sedimentary rock is formed when sediments from other rocks settle in water. The sediments form rocks when:
    a. volcanoes erupt and millions of years have passed.
    b. remains of dead plants and animals settle between the layers.
    c. the layers of sediment undergo great pressure for millions of years.
    d. cement is added to the layers of sediment through the rock cycle.

2. Metamorphic rock is formed from:
    a. minerals in the groundwater that are pressed together over millions of years.
    b. sediments under great heat and pressure over millions of years.
    c. shells or bones that have been covered by layers of sediments for millions of years.
    d. inorganic material that is pressed together under layers of the Earth.

3. Igneous rock is formed from:
    a. minerals that seep through sediment and dissolve organic material.
    b. weathering and erosion of mountains and rock formations.
    c. deposits from layers of earth materials along streams and rivers.
    d. molten rock material that cools and hardens to form a solid.

4. Rocks are formed from weathering and erosion of sediments and a combination of great heat, great pressure, and/or great periods of time. There are three basic classifications of rocks that differ due to their formation: sedimentary, metamorphic, and igneous. The difference between the formation of igneous rock and metamorphic rock is:
    a. heat and different minerals.
    b. erosion and pressure.
    c. pressure and hardening.
    d. time and pressure.

5. The rock cycle represents the continuous process of change that occurs when existing rocks become new rocks. Depending on the conditions that exist, minerals and rocks are formed in different ways, forming three types of rock. Identify the three types of rocks in the rock cycle below, based on the conditions that exist.



a. 1. Sedimentary, 2. Metamorphic, 3. Igneous

b. 1. Metamorphic, 2. Igneous, 3. Sedimentary

c. 1. Sedimentary, 2. Igneous, 3. Metamorphic

d. 1. Igneous, 2. Metamorphic, 3. Sedimentary

6. Mr. Nelson's class was investigating different earth materials. First they observed and described the properties of the different earth materials and then they investigated how much water each material would allow to drain through if 50 mls of water was poured onto the sample. They made the following chart to organize their observations and data:

Earth Materials	Color	Particle Size Comparison	Texture/Feel	Amount of water drained through	Other Observations
sand	light brown/ tan	largest	rough, gritty	49 mls of water drained	Sand particles have different colors, ranging from white to black. Water drains through very quickly.
silt	brown/gray	medium	lumpy to fine, slightly rough	5 mls of water drained	Some of the silt is in clumps that can be broken apart. Water drips through very slowly.
clay	white	smallest	powdery, smooth	0 mls of water drained	The clay is powdery and feels slippery. Water beads up on top of it.
soil	black/brown	medium, many different particle sizes	cool, coarse, and smooth particles	27 mls of water drained	The soil is dark and has many different shapes and sizes of particles. Water drips through slowly.

Choose the BEST conclusion using the data from the class chart.

a. Clay has the smallest particle size when compared to pebbles, sand, silt, and soil.

b. Soil is made up of weathered and eroded sediments and organic material.

c. Earth materials with smaller particle size allow the least amount of water to drain through.

d. The particle size of earth materials does not affect the ability for water to drain through.

7. During their soil observations, Mr. Nelson's students discovered that soil appeared to contain shiny pieces of rock, sand, pebbles, dark particles, and pieces of twigs and leaves. Based on their observations, the class concluded that the soil was a mixture. Choose the answer that gives evidence to support their conclusion.

   a. The class read that soil has a different color, size, and shape than sand, silt, and clay.

   b. The class observed that soil is made up of many different things that they could separate.

   c. In their investigation, the class observed that the soil allowed 27 mls of water to drain through it.

   d. The class discovered that a variety of plants would grow in soil with minerals.

8. Choose the BEST materials to investigate the effects of chemical weathering.

   a. water and granite

   b. baking soda and vinegar

   c. chalk and vinegar

   d. clay and silt

9. Choose the answer that describes the process that occurs when iron in a granite specimen rusts.

   a. physical weathering

   b. chemical weathering

   c. color change

   d. condensation

10. Choose the answer that describes examples of erosion.

   a. wind, moving water, lava flow, and glaciers

   b. constant changes on the surface of the Earth

   c. physical and chemical weathering

   d. lakes, rivers, ponds, streams, and oceans

11. Allan likes to visit his grandfather's home and fish in the river that runs through the valley. He climbs the mountains that stand on each side of the valley and searches for rocks. Is it possible that the area that is now mountains, rivers, valleys, and rock were once flat and covered in forest and grasses?

    a. No, because a river cannot flow across flat land.

    b. Yes, because rivers need vegetation in order to form.

    c. Yes, because the surface of the Earth is constantly changing.

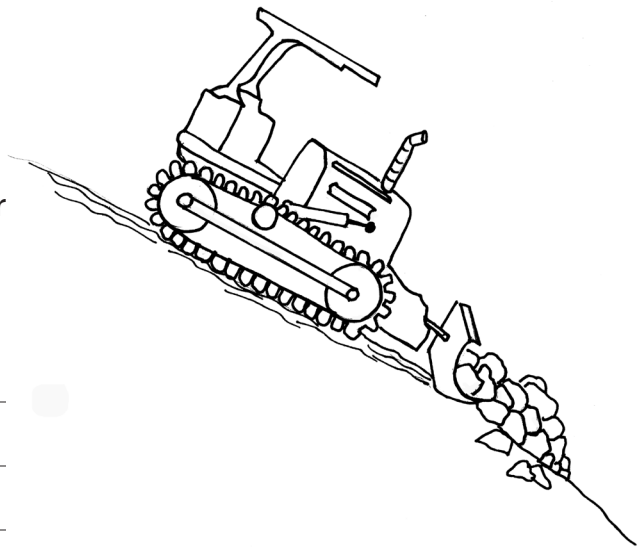
    d. No, because mountains can erode and get smaller but cannot get bigger.

12. Volcanic eruptions are commonly thought of as a destructive force that destroys plant growth, buildings, and roads. Describe how volcanic eruptions can also be constructive forces.

13. Explain how rocks are broken down into different sizes of sediment.

14. Draw and label a picture of a volcano and lava flow. Write a caption for your picture that explains how the volcano and lava flow are related to the constant changes on the surface of the Earth.

15. Look at the picture of the bulldozer as a model for glacier movement and how glaciers shape and reshape the surface of the Earth. Explain how the picture is NOT an accurate model of how glaciers cause rocks to move, grooves in rocks, and other formations on the surface of the Earth. Include the terms glacier, glacial plucking, and glacial abrasion in your response.



16. Explain how soil is related to the weathering and erosion of rocks. Include in your explanation what materials make up soil and how soil may differ from place to place.

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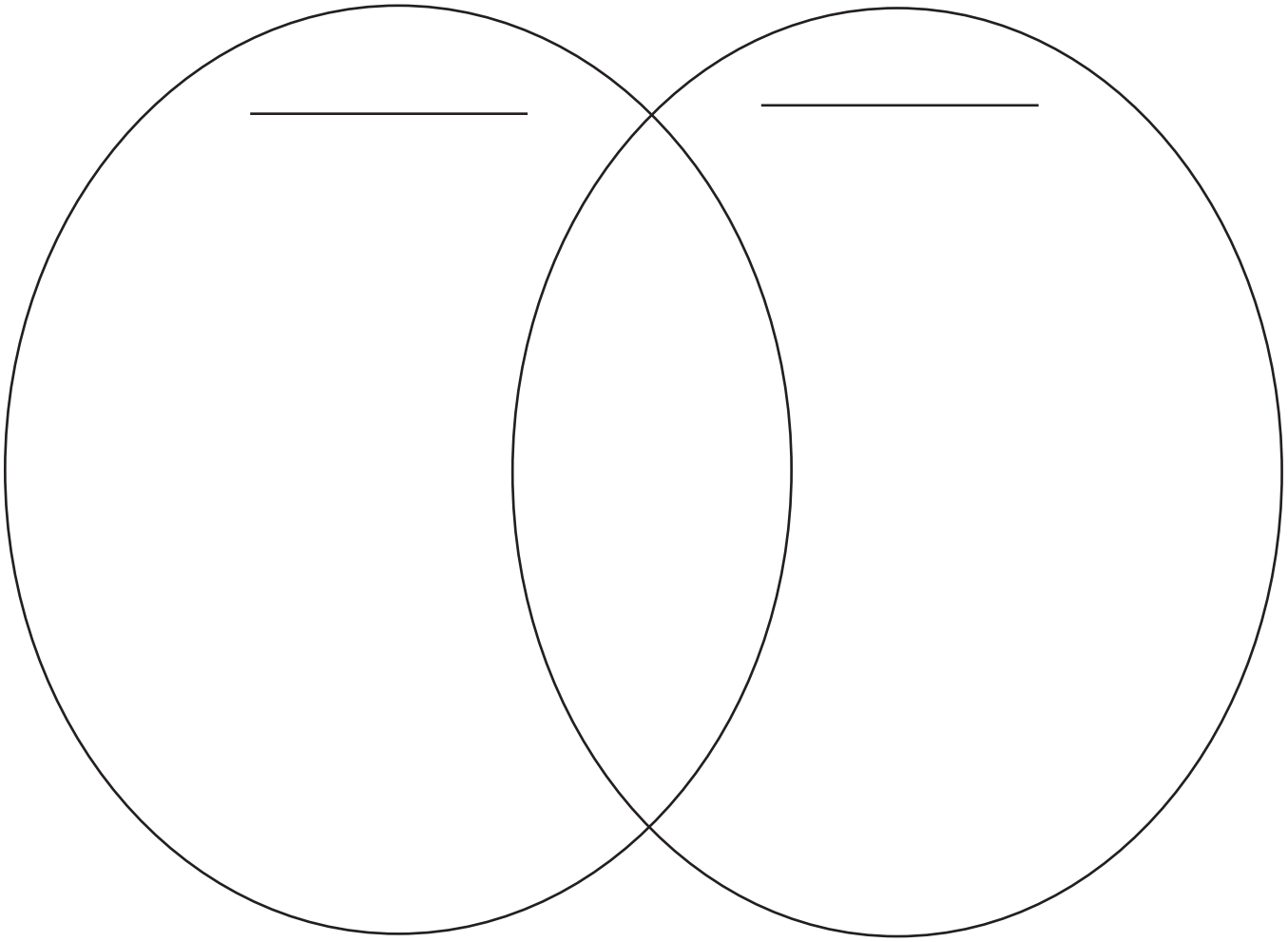
Answer Key (cont.)

17. Sediment is made of small pieces of broken rocks created by wind, water, or ice and carried to other locations. Sediments include gravel, sand, silt, and clay. Choose two sediments and use a Venn diagram to compare and contrast their properties.



18. Explain how the particle size of sediments affects how they interact with water.