Name: _____ Date: _____

Student Exploration: Rock Cycle

Vocabulary: deposition, erosion, extrusive igneous rock, intrusive igneous rock, lava, lithification, magma, metamorphic rock, rock cycle, sediment, sedimentary rock, soil, weathering

Prior Knowledge Questions (Do these BEFORE using the Gizmo.)

1. What happens to hot **lava** after it erupts from a volcano? _____

   _____

2. How does rock turn into **soil**? _____

   _____

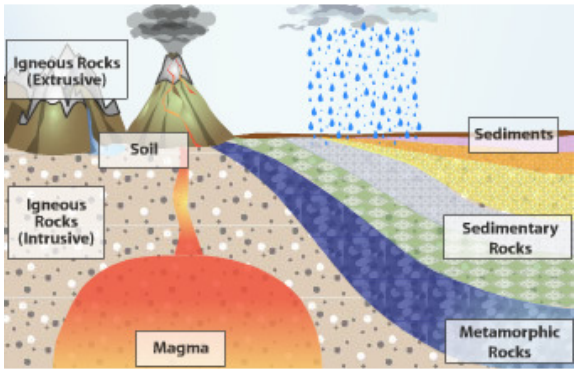
3. The Mississippi River carries tons of tiny rock fragments called **sediments** into the Gulf of Mexico. What do you think will happen to these sediments after a few million years?

   _____

   _____

Gizmo Warm-up

Over millions of years, rocks are broken down and transformed into other rocks. The *Rock Cycle* Gizmo™ illustrates the different transformations that make up the **rock cycle**. Before exploring the Gizmo, take a look at the image.



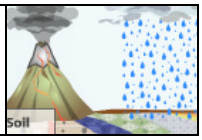
1. What types of rocks are shown? _____

   _____

   _____

2. **Magma** is molten (liquid) rock under Earth's surface. Based on the image, how do you think magma turns into **extrusive igneous rock**? _____

3. Click **Extrusive igneous rock** button to the right of the image. Were you correct? _____

Activity: **The rock cycle**	Get the Gizmo ready: • Click **Start again**.	

Question: What is the rock cycle?

1. Observe: A cycle is a path with the same start and end. Create a rock cycle with the Gizmo.
   A. Click **Magma**. How hot is magma? _____
   B. Click **Crystallization (below ground)**. What kind of rock is formed when magma cools below the surface? _____
   C. Click **Exposure and weathering**. What forms when rocks break down? _____
   D. Click **Erosion and deposition**. In what ways are sediments transported? _____
   _____
   E. Click **Lithification and compaction**. (**Lithification** is hardening into rock.) What kind of rock is formed from sediments? _____
   F. Click **Increase temp. and pressure**. What kind of rock is formed? _____
   G. Click **Melt**. What is formed when rocks melt deep underground? _____

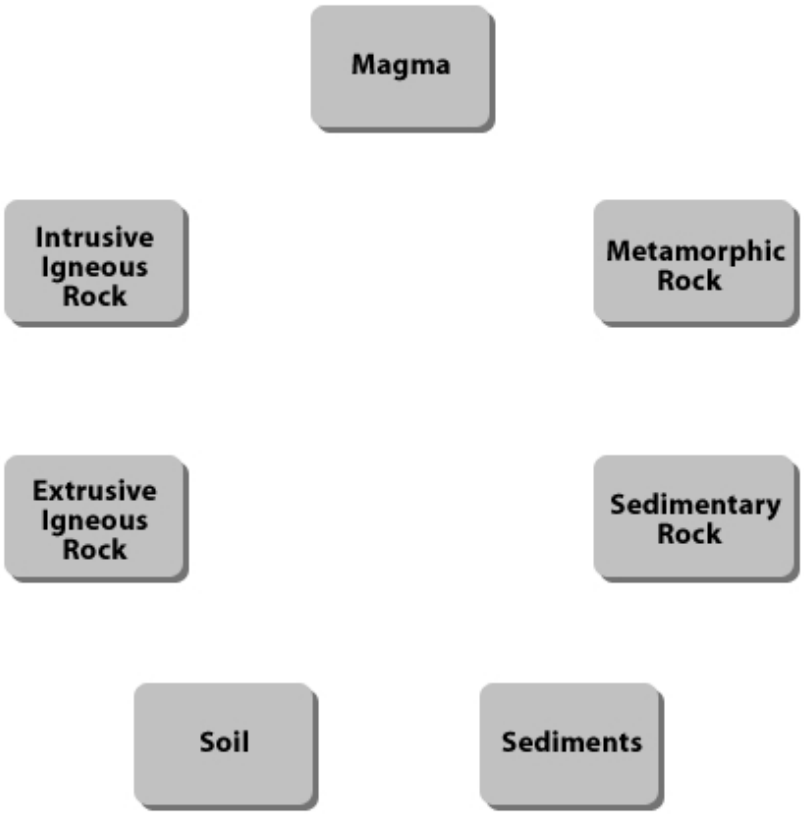
2. Describe: Select the PATH tab. What are the steps in this rock cycle? _____
   _____

3. On your own: On the SIMULATION tab, click **Start again**. In the spaces below, list three rock cycles. You can start anywhere, but each cycle must begin and end at the same point.
   Cycle 1: _____
   _____
   Cycle 2: _____
   _____
   Cycle 3: _____
   _____

(Activity continued on next page)

Activity (continued from previous page)

4. Diagram: The image below summarizes the different stations in the rock cycle. Draw an arrow to represent each possible transition from one rock type to another. Then label each arrow with the process that occurs, such as "**weathering**" or "**erosion** and **deposition**."



5. Practice: List the steps that would cause each transformation below.

   A. **Intrusive igneous rock** → **sedimentary rock**: _____

   _____

   B. **Metamorphic rock** → sediment: _____

   _____

   C. Sediment → sedimentary rock: _____

   _____

   D. Sedimentary rock → sediment: _____

   _____