



Name:

Date:

## Student Exploration: Rock Cycle

**Directions:** Follow the instructions to go through the simulation. Respond to the questions and prompts in the orange boxes.

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

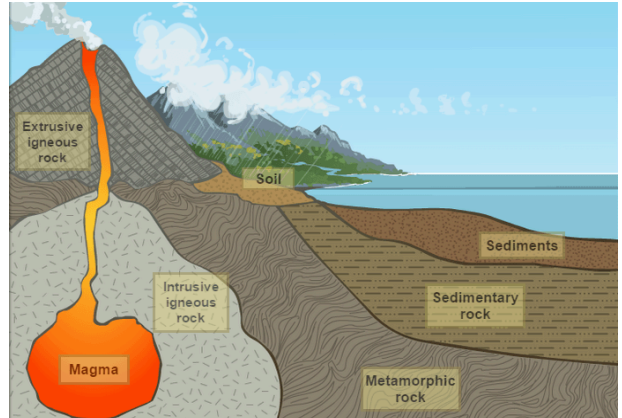
**Prior Knowledge Questions** (Do these BEFORE using the Gizmo.)

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?

<b>Activity:</b>  <b>The rock cycle</b>	<u>Get the Gizmo ready:</u> <ul style="list-style-type: none"> <li>Click <b>Start again</b>.</li> </ul>	
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**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?

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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:

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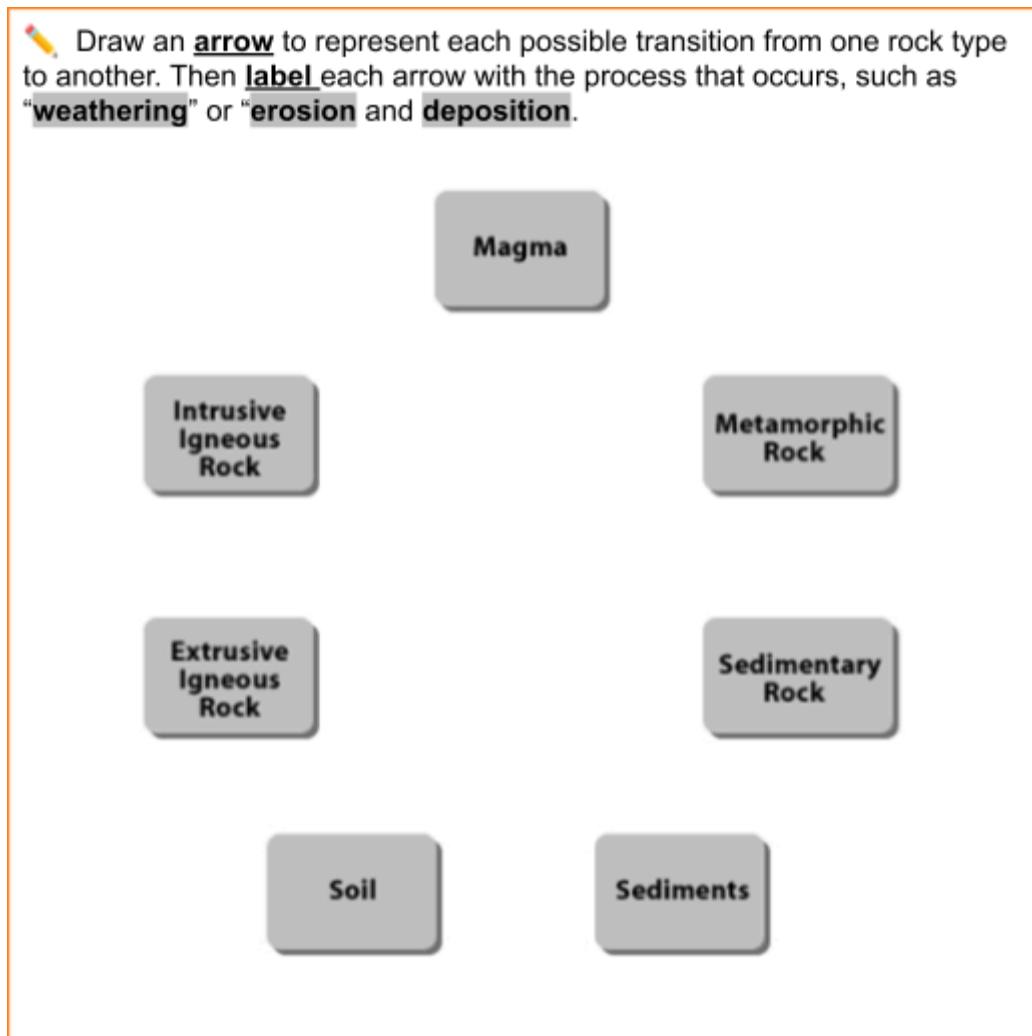
Cycle 2:

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Cycle 3:

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4. Diagram: The image below summarizes the different stations in the rock cycle.



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: