ROCKS AND RESOURCES

STUDENT WORKBOOK



SHAKING THE SOIL

Soil can be found around Earth's surface, under the grass, and even under the ocean. Have you ever thought about what's underneath your feet?

WHAT'S IN THE TUBE?

WHAT YOU NEED:

FROM THE KIT:

UNITY V

- 2 plastic bottles with caps
- 2 foam trays
- Black permanent marker
- Clay powder
- Funnel
- Magnifying lens
- Pebbles
- Ruler, 15 cm
- Sand

OTHER:

- Scissors
- Soil from local area
- Spoon
- Water

WARNING! Contains chemicals that may be harmful if misused. Do not eat or drink. Wash your hands after use.

WARNING! Inhalation Hazard – Do not inhale or eat any of the kit contents.

WARNING! CHOKING HAZARD - Small parts. Not for children under 3 years.

WHAT TO DO:



STEP I

Use the ruler and marker to label both bottles with markings every 2 centimeters (cm) up the side of the bottle, starting from the bottom.

REFLECT

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1. Think about the local soil sample you collected. Where do you think most of the material came from to make that soil?

2. What processes created the bits of sand, clay, and living material (from plants) in your soil? Explain how these processes were different for each material you found.

Packed in Tight

In this activity, you have explored how small bits of rock move around in a cycle. The **rock cycle** is the process on Earth that changes rocks over time. Weathering and erosion are common processes that affect rocks on Earth's surface. The sediment from weathering and erosion can transform into sedimentary rocks through the rock cycle.

Sedimentary rocks are formed from other rocks that have broken down and eroded. The most notable examples of sedimentary rocks are highlighted by the layers of sediment that are pressed together to form the rocks. Sediment can move long distances, but to turn it into rocks, it must sit for long periods of time.



Go With the Flow

In the chocolate experiment, you added air and water to change the liquid chocolate as it cooled. Blowing bubbles in the chocolate modeled the movement of magma as it comes to the surface of Earth's crust. When you added water to

the melted chocolate, this was a model of how magma can change the type of rocks that are formed by adding different minerals.

This experiment was a model of how igneous rocks are formed. **Igneous rock** is formed when magma reaches Earth's surface and cools into a hardened form. This part of the rock cycle is made from hot, melted rock deep in Earth's mantle. The magma finds its way to the surface through cracks in Earth's crust.



VOLCANOES!

Magma can escape Earth's crust through long cracks or smaller holes called volcanoes. Volcanoes are smaller openings in the crust that causes magma to move more quickly, like an explosion. When magma reaches Earth's surface, this is when it is called lava.

There are two common types of volcanoes: stratovolcanoes and shield volcanoes. Stratovolcanoes are the most explosive, spreading lava and clouds of ash over long distances. In 1980, Mt. St. Helens erupted in Washington state. The cloud of ash moved east through the United States and Canada, falling like snow as far away as North Dakota.

Shield volcanoes have very thin lava flowing smoothly over shorter distances. The lava covers large areas and is known for creating volcanic islands, like Hawaii. Mauna Kea is the largest volcano in Hawaii, and while it is 13,800 feet above sea level, the mountain extends 19,700 feet deep in the ocean.

Shield and stratovolcanoes both create igneous rocks. The volcanic islands of Hawaii are covered in layers of igneous rock. Stratovolcanoes can spread smaller rocks over longer distances.

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Kit	SU-ROCKRE
Instructions	IN-ROCKRES
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