



MAGMA IN A CUP

SCIENCE SAFETY

PLEASE follow these safety precautions when doing any science experiment.

- **ALWAYS** have an adult present.
- **ALWAYS** wear the correct safety gear while doing any experiment.
- **NEVER** eat or drink anything while doing any experiment.
- **REMEMBER** experiments may require marbles, small balls, balloons, and other small parts. Those objects could become a **CHOKING HAZARD**. Adults are to perform those experiments using these objects. Any child can choke or suffocate on uninflated or broken balloons. Keep uninflated or broken balloons away from children.

INGREDIENTS

- Clear Plastic cup
- Vegetable Oil
- Red Food Coloring
- Water
- Alka-Seltzer

INSTRUCTIONS

STEP 1: Fill the clear plastic cup $\frac{3}{4}$ of the way with vegetable oil.

STEP 2: Fill the rest of the clear plastic cup with water.

STEP 3: Add several drops of red food coloring.

STEP 4: Break the Alka-Seltzer into smaller pieces. Add the pieces to the bottle and observe. What happens? Describe how this can be used as a model to better understand the movement of magma to Earth's surface.

EXPLANATION

Oil and water do not mix. The oil stays above the water, since it is less dense than the water. When you add the Alka-Seltzer, it sinks to the bottom, dissolving in the water, creating a gas. The rising, gas filled, blobs of water push through the oil layer, to the top. Once at the top, the gas escapes and the blobs of water sink back to the bottom.

VOLCANO CONNECTION

A volcano is a vent in Earth's crust through which melted or molten rock flows. Molten rock below Earth's surface is called Magma. The red water represents the magma. Magma moves toward Earth's surface because it is less dense than Earth's crust. The blobs of red water are less dense, since they contain carbon dioxide gas, created from the Alka-Seltzer, dissolving in the water. The blobs of red Molten rock that erupts onto Earth's surface is called lava.

- Use information from several sources to provide evidence that a volcanic eruption can occur quickly or slowly.
- Generate and compare multiple solutions to reduce the impacts of a volcanic eruption on humans.



SCIENCE BACKGROUND

Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. Volcanic eruptions and earthquakes are examples of events, which happen very quickly. The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Earthquakes, tsunamis, volcanic eruptions, and other hazards result from natural processes. Humans cannot eliminate the hazards but can take steps to reduce their impacts.

I CAN STATEMENTS

- ✓ I can use information from several sources to provide evidence that Earth events can occur quickly or slowly.
- ✓ I can generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

NEXT GENERATION SCIENCE STANDARDS CONNECTION

2 – Earth's Systems: Processes that Shape the Earth

4 – Earth's Systems: Processes that Shape the Earth.

