



Curiosity Guide #208

Plate Tectonics

Accompanies Curious Crew, Season 2, Episode 8 (#208)

Pressure in a Bottle

Investigation #1

Description

Do you know what causes eruptions in the earth's surface, like earthquakes or volcanoes? Try this investigation to find out!

Materials

- Glass bottle
- Pencil
- Cardboard
- Scissors
- Freezer
- Cup of water

Procedure

- 1) Place the glass bottle upside down on the cardboard. Draw a circle slightly larger than the top of the bottle.
- 2) Cut out the cardboard circle with scissors.
- 3) Place the bottle in the freezer.
- 4) Take the bottle out of the freezer after 20 minutes.
- 5) Fill the cup with water.
- 6) Submerge the cardboard circle in the water so that it is all wet.
- 7) Immediately place the cardboard circle on the top of the bottle.
- 8) Rub your hands together quickly to get them warm. Then place both hands around the middle of the bottle.
- 9) Watch the cardboard. What do you notice?

My Results

Explanation

When you rub your hands together, your hands warm up from the friction. When you put your hands on the cold bottle, the heat from your hands begins to warm up the cold air in the bottle. The warming gases expand. The expanding gases build up pressure and force the cardboard circle to rise and fall.

As the plates on the surface of the earth rub against each other, the friction creates heat. The heated materials take up more space than when they are cool. This heat could cause solid rock to liquefy or change to a gas if hot enough. The earth's crust then expands, weakens, and releases pressurized heat, energy, and gases. These are evident in earthquakes and volcanoes.

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