

Pyroclastic Rocks

Chapter 5

Pyroclastic rocks form during volcanic eruptions when the magma beneath the Earth contains significant amounts of gases. The gases expand as the magma nears the Earth's surface causing the liquid rock to break apart as it explodes from the vent of a volcano.



Iceland fissure eruption
Gudmundur Sigvaldason

Lava fountains

Pyroclastic rocks in lava fountains form during flank eruptions on large shield volcanoes. Molten lava mixed with gas shoots out of long fissures in the ground creating the lava fountains.

The molten rock falls back to the Earth where it flows away in a lava flow or falls to the ground as solid pieces of pyroclastic rocks. Curtains of Fire is another name for these long fissure eruptions.

Pyroclastic rocks

Pyroclastic rock is a general term used for rocks that form during volcanic eruptions. The term pyroclastic means fire broken or fire fragments. The term can be used to describe all rocks created during explosive eruptions.

Tephra

Tephra (TEPH-ra) are pyroclastic rocks that were **airborne** for a period during a volcanic eruption. The rocks vary in size from

FS Rock Cycle

microscopic particles of pulverized ash to pieces as large as a house.



Ash billowing out of Mount Pinatubo during the 1991 eruption.

Ash

Ash is the most common material ejected during an eruption. Volcanic ash is so fine it can be blown into the atmosphere high enough to be picked up by the jet stream. The jet stream carries the ash around the world creating beautiful red sunsets after a major eruption. The ash can sometimes cause a cooling of the Earth for several years when sunlight reflects off the ash particles in the atmosphere.



Lapilli



Lava bomb



Ash tuff

Sizes of pyroclastic rocks

Ash Very fine-grained fragments that are less than 2 mm in size. The fragments consist of shards of glass, broken pieces of crystals and rock fragments.

Lapilli Pea size to walnut size pieces of rock. Lapilli range in size between 2 mm and 64 mm. All types of lava produce

Popcorn Cinder Cone

Activity 5

Introduction

Gas dissolved in magma beneath the surface of the Earth, expands as it reaches the Earth's surface causing the lava to burst into the air. A cinder cone volcano forms when volcanic eruptions produce large quantities of pyroclastic material.



Popcorn
cinder cone

Materials

- Popcorn
- Cooking oil
- Skillet or popcorn popper

Directions

1. Complete this activity under the supervision of an adult.
2. Wear protective glasses while conducting this experiment.
3. Cover the bottom of the skillet with cooking oil.
4. Have a lid ready to cover the pan.
5. Place approximately 100 g of popcorn kernels in a skillet.
6. Heat the skillet with moderately high heat until the popcorn begins to pop.

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