

SECTION 5: IGNEOUS ROCKS

LAB

INTRODUCTION

Igneous Rocks: Rocks that harden from molten state, cooling at different rates. Large crystals, such as those in granite, form during slow cooling. Small crystals, such as basalt, form when fast cooling occurs. When molten material is thrown from a volcano very rapid cooling occurs, resulting in no crystal formation. (e.g., obsidian and pumice)

Basalt: Formed when molten rock (lava) reaches the Earth's surface and cools rapidly. It is a very dense, hard rock. It cooled rapidly, thus it has very small crystals that can be seen with a magnifier.

Scoria: The upper layer of basalt that cools rapidly and is full of gases that escape during cooling, leaving holes. The basalt below it is crushed under the weight of the scoria and thus basalt is denser. The red color is iron. Scoria is heavier (denser) than pumice.

Pumice: Formed during volcanic eruptions when molten rock is thrown into the air and cools before it reaches the ground. Gases escape during this very rapid cooling, leaving numerous air holes and bubbles of trapped gas inside. It is usually lighter (less dense) than water and floats.

Obsidian: a natural glass that forms from volcanic eruptions, resulting in very rapid cooling. It is black and glassy. It breaks along curved surfaces, making sharp edges. It was used for cutting tools and arrowheads.

ASSESSMENT ANCHORS ADDRESSED

S4.C.1.1 Describe observable physical properties of matter.

S4.A.3.3 Identify and make observations about patterns that regularly occur and reoccur in nature.

S4.D.1.2 Identify the types and uses of Earth's resources.

PURPOSE

Students will know how to differentiate among igneous, sedimentary, and metamorphic rocks by referring to their properties and methods of formation.

MATERIALS

For each pair:

1 basalt rock 1 pumice rock

1 obsidian rock 1 scoria rock

1 granite rock Magnifier

1 tray Plastic cups

Water*

*Teacher provides items marked with **