

Formation of igneous rocks

How they are formed

Igneous rocks are formed by the solidification of magmas or lavas. Molten rock is called magma, when it is below the Earth's surface, and lava, when it is above the surface after a volcanic eruption. As molten rock cools, the atoms within it join to make regular crystalline shapes within the rocks.

These crystalline shapes can tell you:

- whether the igneous rocks have formed above or below the Earth's surface
- whether they formed quickly or slowly.

Where they are formed

Basalt and obsidian (volcanic glass) form when volcanic lava cools quickly on the ground or under the ocean, and large crystals have insufficient time to form. Tuff is formed from volcanic ash and pumice is formed from froth. These rocks are called volcanic igneous rocks and have small crystals.

Granite, porphyry and gabbros are formed when magma cools more gradually under the ground. These rocks are called plutonic igneous rocks and have large crystals. For example, the large crystals of quartz, feldspar and mica, of which granite is made, can easily be identified. Rocks with medium-sized crystals such as andesite and trachyte are formed from a moderate rate of cooling of the magma.

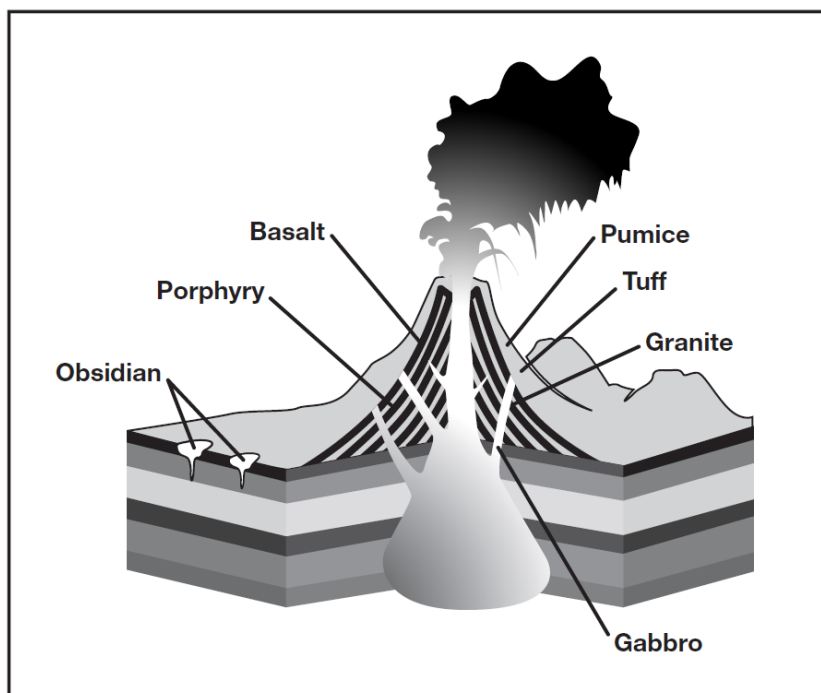


Figure 1. Location of where igneous rocks are formed

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