Geological Activity from Plate Tectonics Processes

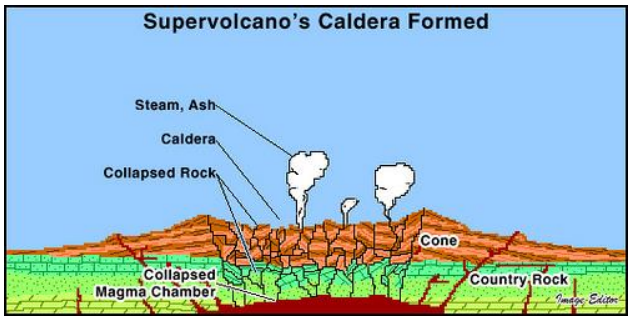
Magma Composition, Volcanic Landforms, Hot Springs, and Geysers

Study Tip

Apply your knowledge of magma composition in volcanoes to explain the mechanism behind the eruption of Mount St. Helens in Washington in 1980.

Magma Composition

Each volcanic **eruption** is unique due to the different kinds of magma that feed into volcanoes. **Mafic** magmas are low in silica and contain darker, mafic minerals; **felsic** magmas are high in silica and contain lighter colored minerals. The higher the amount of silica in magma, the higher its viscosity. Viscous magma doesn't flow easily to the surface and will usually form igneous intrusive rocks instead. Magma collects in **magma chambers** in the crust at 160 km below the surface.



Volcanic Landforms

Here are some landforms that form from eruptions:

- Volcanoes and vents
- Lava domes (form from viscous magma, not from an eruption)
- Lava plateaus (form from fluid lava flowing over an extensive area)
- Land

Lava dome

Lava plateau

Hot springs

Geysers

Hot Springs and Geysers

Hot springs are formed when water heated below ground rises through cracks in the ground. **Geysers** are also formed when water heated below ground comes up to the surface, but they are created through eruptions rather than bubbling. Only a few places on Earth have the right conditions for geyser formation.

Concept Check

- Describe the various compositions of magmas.
- What volcanic landforms are there? Describe them.
- What is a hot spring? How is it different from a geyser?