Igneous rocks

These rocks are formed through the cooling and solidification of molten rock. Igneous rocks that form deep within Earth's crust at very high temperatures can take thousands of years to cool down. This causes the crystals to be much larger, such as in the case of granite. Igneous rocks formed on the surface cool down in a matter of hours. The crystals in these rocks can be microscopically small, and the rocks can look more shiny and glassy.

Column formation

Rock columns are the result of ancient remains of old volcanic cones and their lava flows. As the softer surrounding rock is eroded, large cathedral-like columns begin to emerge.

Cooling lava

The lava shrinks as heat is lost to the air from its surface, and to the ground from underneath.

Tension cracks

Tiny cracks appear as tension increases over the surface. The cracks begin to grow toward the hot centre.

Complete columns

Columns form as the cracks from the top and bottom of the lava flow join up with each other in the centre.

The Giant's Causeway

These amazing columns in Northern Ireland were formed when volcanic basalt erupted after the landmasses of Europe and North America split 60 million years ago. As the lava cooled, incredible hexagonal columns emerged, some as wide as 60cm across.

Basalt sands

This black beach, located at Dyrholaeys in Iceland, gets its black sand from the igneous basaltic lava in the surrounding area.

Australian volcanic formations

While there are no active volcanoes on the Australian mainland, there are some landscapes that were formed by volcanic activity thousands of years ago. Huge columns of dolerite line the cliffs at the southern end of Tasmania. Formed by cooling magma, these hexagonal columns rise hundreds of metres out of the sea. In far north Queensland, there are cave systems formed by lava. Beginning 190,000 years ago, Undara volcano erupted with a long gush of lava. It filled valleys, and though the surface cooled into a hard crust, liquid lava kept surging below. More than 1.6km of lava tubes, tunnels and arches were created.