

# BASALT

IGNEOUS



Basalt is an igneous rock. It forms when lava, erupted from a volcano, cools down and turns into solid rock.

It tends to form above really hot regions of the Earth's mantle called hotspots, or at mid ocean ridges - places where two tectonic plates are moving away from each other.

Basalt contains minerals like pyroxene, feldspar and olivine. These mineral crystals are very small because basalt cools down so quickly.

When it's molten, basalt lava can be very runny and can flow easily. It can form smooth lava flows called Pahoehoe or more rubbly flows called 'A'a.



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# GRANITE

IGNEOUS



Granite is an igneous rock. It forms when molten rock, deep underground, cools down and turns into solid rock.

Granite often forms in magma chambers below volcanoes or deep beneath mountain belts like the Himalayas.

Granite contains minerals like quartz, mica and feldspar. Because granite cools down slowly over thousands of years, the crystals have lots of time to grow. Therefore the mineral crystals in granite are usually large enough to see with your eyes.

Because of its colourful minerals, granite it often used as a building stone and for kitchen worktops.



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# OBSIDIAN

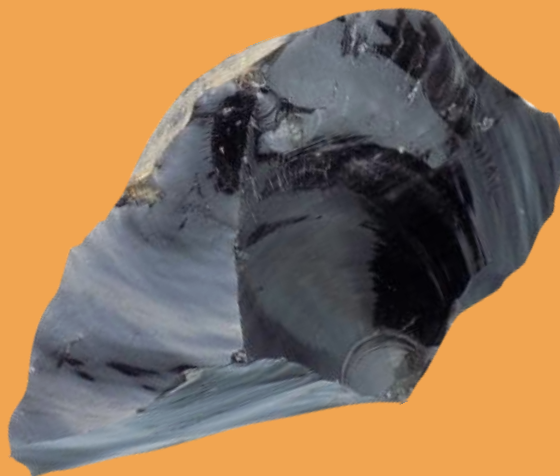
IGNEOUS



Obsidian is an igneous rock that is usually dark in colour and looks a bit like glass.

When obsidian is erupted from a volcano it cools down so quickly there's no time for it to form any mineral crystals. It is sometimes known as volcanic glass.

When it breaks, obsidian has very sharp, curved edge. Because of this property, people used to use obsidian to make arrowheads and spears.



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# PUMICE

IGNEOUS



Pumice is a pale coloured igneous rock that looks a bit like a sponge. It forms from frothy lava that contains lots of dissolved gases.

Pumice cools down and turns into rock very quickly. As it cools down it traps dissolved gases as bubbles.

Pumice contains so many bubbles it's really light and is the only type of rock that can float on water!



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# SANDSTONE

## SEDIMENTARY



Sandstone is a sedimentary rock formed from grains of sand.

When rocks are at the Earth's surface they can be exposed to rain, wind, ice, waves, burrowing animals and plant roots. All of these things gradually wear down the rocks and break them into smaller pieces called sediment. Sand, pebbles, gravel and mud are all different types of sediment.

Rivers, glaciers and winds can then carry these smaller pieces of sediment away. When a river reaches the sea, or a glacier starts to melt, it drops the sediment it's carrying.

Sandstones form when huge amounts of sand are dumped in one place and then turned into rock. This can happen in desert sand dunes, on river banks or on sandy beaches.



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# LIMESTONE & CHALK

## SEDIMENTARY



Limestone is a sedimentary rock. It forms in warm shallow seas from the skeletons of tiny marine creatures called plankton, as well as larger things like corals and shells. Chalk is a type of limestone made entirely from marine plankton called coccolithophores.

Water is very slightly acidic and reacts with limestone causing it to dissolve. Over thousands of years, continued dissolving of limestone creates landforms such as caves, stalactites, stalagmites, sinkholes and gorges.

Much of the Jurassic Coast in the south of England is made from limestone. Here's lots of fossils have been found in the limestone rocks including ammonites, dinosaurs, marine reptiles and pterosaurs!



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# CONGLOMERATE

**SEDIMENTARY**



Conglomerates are sedimentary rocks formed from large rounded pebbles.

Conglomerates form in environments such as river beds and pebbly beaches. The roundedness of the pebbles shows that they must have been eroded for a long time or travelled a long distance down the course of a river.

Sedimentary rocks with sharp angular grains are called breccias. These can form in landslides and earthquakes as rocks get crushed together.



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# MUDSTONE & SHALE

**SEDIMENTARY**



Mudstone and shale are sedimentary rocks made from tiny grains of mud and clay. They are similar rocks but shale breaks into fine layers whereas mudstone does not.

Rocks on the surface of the Earth are constantly worn down ('weathered') by things like water, ice, chemical reactions, burrowing animals and plant roots. This breaks the rocks down into smaller pieces called sediment. Mud is made up from billions of microscopic grains of sediment.

Mudstone and shale form in very low energy environments like at the bottom of calm lakes or on the deep sea floor.

Mudstone and shale can sometimes contain fossils!



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# SCHIST

## METAMORPHIC



Schist is a medium grade metamorphic rock. It forms when rocks such as mudstone and clay are put under medium temperatures and pressures within the Earth's crust.

Schist is made up from thin layers of different minerals which form a wiggly or 'foliated' texture. Schist often contains the mineral mica which is very shiny.

Sometimes schists can contain precious gemstones like garnets and emeralds!



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# MARBLE

## METAMORPHIC



Marble is a metamorphic rock. It forms when the sedimentary rock limestone is put under high pressure and heat deep within the Earth's crust. This can happen in mountain belts like the Himalayas.

When limestone is metamorphosed into marble its mineral grains recrystallize into large interlocking crystals. Marble is usually white or pink in colour. It often has black, green or red coloured veins.

Because marble is made from calcium carbonate it will fizz when it comes into contact with acid.

Marble is often used as a decorative building stone.



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# GNEISS

Gneiss (pronounced 'nice') is a metamorphic rock. Gneiss forms when granite or sedimentary rocks are put under extreme pressures and temperatures deep within the Earth's crust. Gneiss is a high grade metamorphic rock.

Gneiss usually has bands of different colours. Pink bands are made from the mineral feldspar, white bands can be made from feldspar and quartz and black bands are made from minerals like pyroxene and biotite.

The oldest rocks in the UK are a type of gneiss called the Lewisian Gneiss. This gneiss is 3 billion years old and can be found in the North West of Scotland.

## METAMORPHIC



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# SLATE

Slate is a metamorphic rock formed when mudstone is put under pressure. It is usually dark in colour but can have a green or purple tint.

Slate is made up from lots of very thin layers and breaks to form smooth flat surfaces. It has been used for roof tiles and blackboards for hundreds of years.

Slate is a low grade metamorphic rock which means it only needs a little bit of heat and pressure to form (unlike gneiss!).

## METAMORPHIC



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