

Earth Rocks fact sheet

Rocks can be found everywhere, and they come in various different sizes, shapes and colours. They can be seen under your feet as you go for a walk, high above you as a tall mountain or they can be tiny pebbles that you can find in a river or at the beach.

What on earth is a rock?

A rock is defined as a substance that is made up of one or more minerals, and each rock has an individual story to tell about where it was made and how it formed.

How many types of rock are there?

There are three main types of rock: igneous, sedimentary and metamorphic rocks:

- Igneous rocks form when magma/lava cools and solidifies, with an example being granite.
- Sedimentary rocks form when sediment (sand or shells) becomes compacted and cemented together (e.g. sandstone) or when water evaporates and leaves behind a mineral deposit (e.g. halite which is also known as rock salt).
- Finally, metamorphic rocks form when rocks experience high temperatures and pressures meaning they change from one rock type (this can be an igneous, sedimentary or even another metamorphic rock) into another rock type, known as a metamorphic rock, e.g. marble.

TYPES OF ROCKS

<i>IGNEOUS</i>		<i>SEDIMENTARY</i>		<i>METAMORPHIC</i>	
					
Granite	Scoria	Sandstone	Limestone	Marble	Slate
					
Pumice	Obsidian	Conglomerate	Gypsum	Quartzite	Gneiss

Image sourced from selftution.com

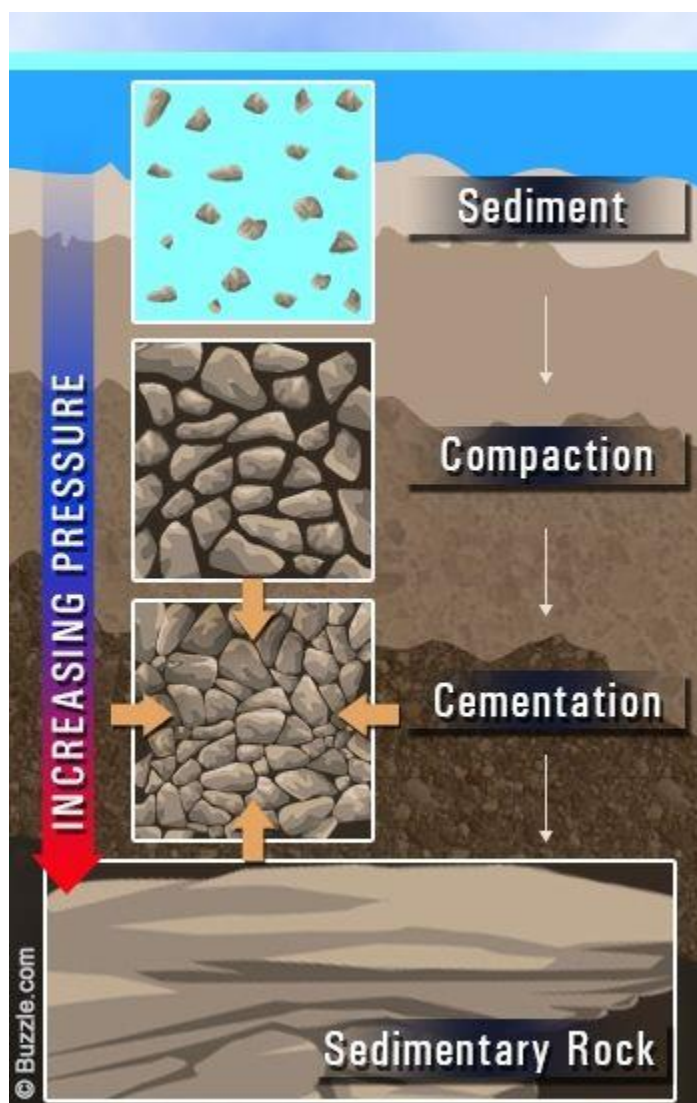
Soil is made up of organic material, rock particles and clay, meaning that the type of rock found within the soil can influence what types of flowers, trees and plants can grow in that area. This is because the minerals within the rock particles can provide the soil with nutrients (or food), and some types of plants, flowers and trees need certain types of nutrients to survive. So, the type of rock found in an area can influence what type of habitat is found there too.

Where is this near me?

There are two Durham Wildlife Trust nature reserves that show this relationship between wildlife and geology: [Bishop Middleham Quarry](#) and [Blackhall Rocks](#). The main rock type that can be found at both sites is Magnesian limestone, and this particular rock type is the reason why these areas support more unusual habitats and wildlife.

Magnesian limestone (also known as dolomite) is a type of sedimentary rock formed in marine conditions, when our land was underwater. So, to go back to when this rock was formed, we need to time travel back to 250 million years ago (around the same time that early dinosaurs started to walk the Earth) when County Durham was submerged under a shallow tropical sea called the Zechstein Sea.

Limestone is made up of calcium carbonate (which consists of calcium, carbon and oxygen ions) and forms when the shells and skeletal debris of dead marine organisms fall to the seafloor, accumulating in a layer of this skeletal and shell material. Over thousands of years, due to more sediments piling on top of this layer and causing compaction, the shells and skeletal material cement together and form a limestone. For this to then form a Magnesian limestone, over half of the calcium ions in the limestone have to switch for magnesium ions, therefore transforming it into a Magnesian limestone.





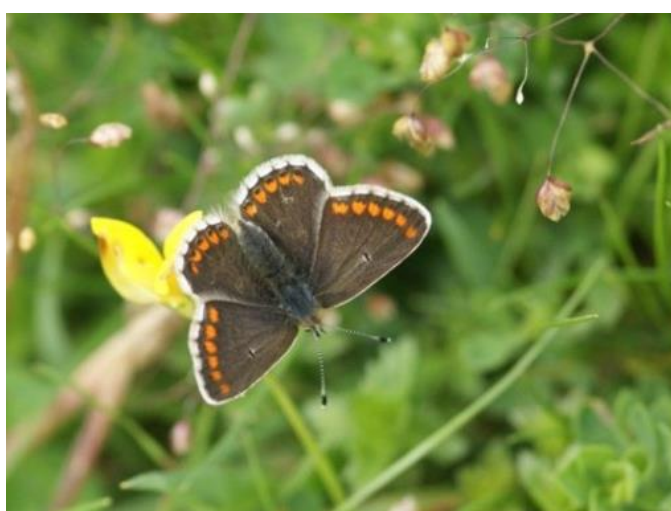
This is a photograph of the rock layers found at an outcrop at Blackhall Rocks. The rock layer in the black box is the Magnesian Limestone Plateau (or layer) described above.

This limestone weathers down to form a lime-rich soil that is perfect for allowing rare flowers and plants to grow, with blue moor grass and dark red helleborine wildflowers being found in the Bishop Middleham Quarry, and butterwort and bird's eye primrose being found in the Blackhall Rocks nature reserve. The wildflowers found at the Bishop Middleham Quarry attract many butterflies such as the rare Durham brown argus butterfly, and moths such as the six-spot burnet moth, as well as attracting both farmland and woodland birds.

The flowers and plants at the Blackhall Rocks Reserve support breeding birds and are used in the spring and autumn as a resting place for migrant birds. Therefore, these two reserves are perfect examples as to how the rocks in an area are influential in dictating what habitats and wildlife species are found in the region.



Dark Red Helleborine



Durham Brown Argus butterfly

(Credit: Philip Precey)