

Types of Rocks



Aim

- I can compare different types of rocks.

Success Criteria

- I can name the three different types of rocks.
- I can explain the difference between natural and human-made rocks.

Watch video clip about Rocks



<https://www.bbc.co.uk/bitesize/topics/z9bbkqt/articles/zsgkdmn>

Rocks



What are rocks?

What do you already know about rocks?

Are rocks alive? How do you know?

Why are there rocks everywhere?

How do rocks form?

Look carefully at the photographs on following slides and spot the rocks.



Spot the Rocks

Countryside



Photo courtesy of Jimmy Harris (@flickr.com) - granted under creative commons licence – attribution

Spot the Rocks

Chalk Cliffs



Photo courtesy of tsbl2000 (@flickr.com) - granted under creative commons licence - attribution

Spot the Rocks

Muddy Fields



Photo courtesy of Marianne Bevis (@flickr.com) - granted under creative commons licence – attribution

Spot the Rocks

Town Centre



Photo courtesy of joncandy (@flickr.com) - granted under creative commons licence - attribution

Spot the Rocks

Granite Peak



Photo courtesy of mkecogh (@flickr.com) - granted under creative commons licence – attribution

Spot the Rocks

Volcano



Photo courtesy of coolinsights (@flickr.com) - granted under creative commons licence - attribution

Spot the Rocks

Mountain



Photo courtesy of Doug Scortegagna (@flickr.com) - granted under creative commons licence – attribution

Spot the Rocks

Pebble Beach



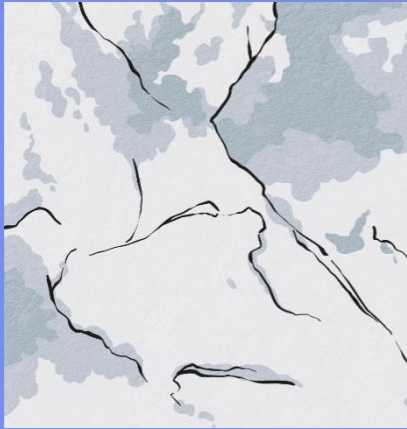
Photo courtesy of zemistor (@flickr.com) - granted under creative commons licence – attribution

Natural Rocks

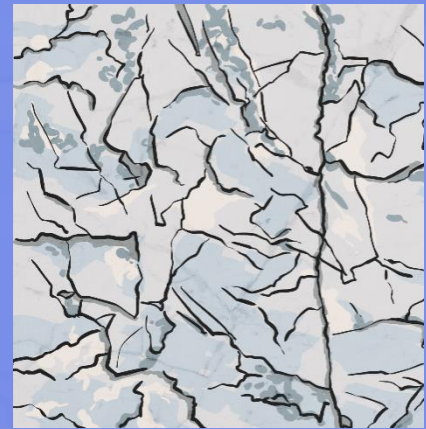
There are **three types** of naturally occurring rocks.



Igneous



Sedimentary



Metamorphic

Natural Rocks

Igneous Rock

Far under the ground, the temperature is hot enough to melt the rock into a liquid. This is called molten rock. Igneous rocks are formed from this molten rock in two ways.

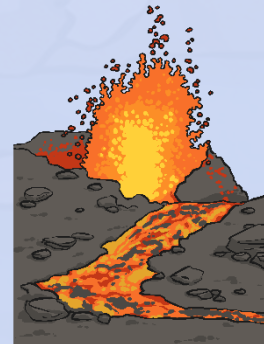
Intrusive Igneous Rocks:



Molten rock that remains underground is called magma. When magma cools and hardens it becomes a type of intrusive igneous rock.

(Intrusive = internal = inside)

Extrusive Igneous Rocks:



Molten rock that comes out of the ground is called lava. When lava cools and hardens it becomes a type of extrusive igneous rock.

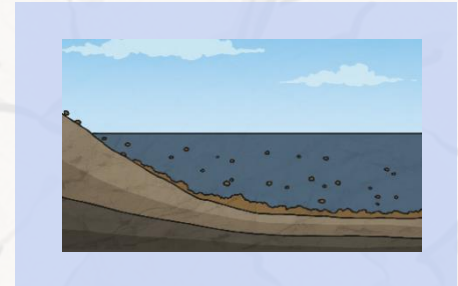
(Extrusive = external = outside)

Natural Rocks

Sedimentary Rock

Sedimentary rock forms under the sea.
The following illustrates the process:

- 1) As a result of weathering and erosion, bits of rock end up in lakes and rivers. Rivers transport bits of rock and deposit them on the bottom of the sea. This process is called **sedimentation**.
- 2) With time, more layers (strata) pile up and press down on the lower layers of rock. This process is called **compaction**.
- 3) Over time, water is pushed out from these layers and the process of **cementation** occurs. This is when salt compounds glue or cement the bits of rock together so they form a solid layer.



Natural Rocks

Metamorphic Rock

Metamorphic rocks don't just form from being near magma they can also be formed from Earth movements which can cause rocks to be deeply buried or squeezed. This means the rocks are heated and put under immense pressure which causes the minerals they contain to be changed chemically. Collision of tectonic plates can also result in the formation of metamorphic rock too.



This illustration shows how the igneous rock near magma is being heated and changed.



This illustration shows how the sedimentary rock near magma is being heated and changed.

Human-Made Rocks



The scientific name for human-made rocks is **anthropic** rocks. Anthropropic rocks are made, modified or moved by humans.



Concrete

The Romans first invented **concrete**, although the type of concrete we use today dates from 1756.

Concrete is a mixture of water, aggregate (either sand, rock or gravel) and cement (a mixture of chalk and clay).

Human-Made Rocks

Mock Rock

Victorians created rock gardens and surfaces that looked like rock from **mock rock**. Types of mock rock include **pulhamite**, which looked like gritty sandstone.

James Pulham, who invented it, took the exact recipe for it to the grave! **Coade stone** (made from grog, flint, quartz, soda lime glass and clay) is another type of mock rock.



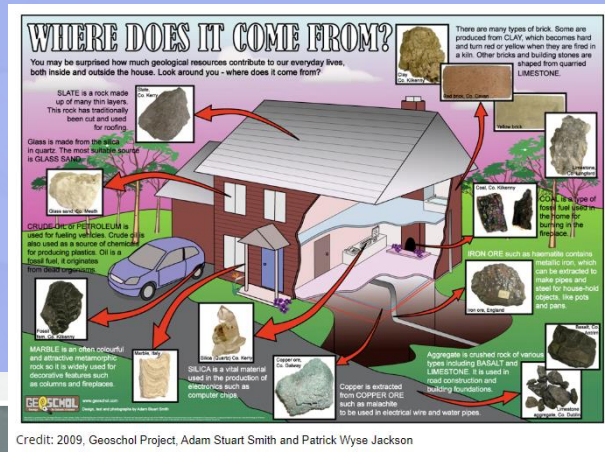
Bricks

Bricks have been around for a long time. The first bricks come from a place called Tell Aswad in modern day Syria. That was in 7500 BC! However, bricks were used to build in most of the ancient civilisations and are still used today. Bricks are usually made of clay soil, sand and lime or concrete materials. They can be air dried or fire-hardened.

What is my house made from?

Draw a picture of a house and using labels, identify the different parts it is made from.

Use the next slide to help you identify the different materials used.



Credit: 2009, Geoschool Project, Adam Stuart Smith and Patrick Wyse Jackson

WHERE DOES IT COME FROM?

You may be surprised how much geological resources contribute to our everyday lives, both inside and outside the house. Look around you - where does it come from?

SLATE is a rock made up of many thin layers. This rock has traditionally been cut and used for roofing.



Glass is made from the silica in quartz. The most suitable source is **GLASS SAND**.



CRUDE OIL or **PETROLEUM** is used for fueling vehicles. Crude oil is also used as a source of chemicals for producing plastics. Oil is a fossil fuel, it originates from dead organisms.



MARBLE is an often colourful and attractive metamorphic rock so it is widely used for decorative features such as columns and fireplaces.



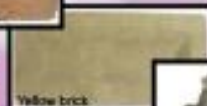
SILICA is a vital material used in the production of electronics such as computer chips.



Copper is extracted from **COPPER ORE** such as malachite to be used in electrical wire and water pipes.



There are many types of brick. Some are produced from **CLAY**, which becomes hard and turn red or yellow when they are fired in a kiln. Other bricks and building stones are shaped from quarried **LIMESTONE**.



COAL is a type of fossil fuel used in the home for burning in the fireplace.

IRON ORE such as haematite contains metallic iron, which can be extracted to make pipes and steel for house-hold objects, like pots and pans.



Aggregate is crushed rock of various types including **BASALT** and **LIMESTONE**. It is used in road construction and building foundations.



GEOSCHOL

www.geoschol.com
Design, text and photographs by Adam Stuart Smith

Credit: 2009, Geoschol Project, Adam Stuart Smith and Patrick Wyse Jackson

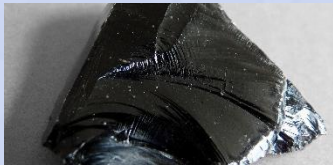
Natural or Human-Made



Natural Rocks

Human-Made Rocks

Igneous



Obsidian



Granite



Basalt

Sedimentary



Chalk



Sandstone



Limestone

Metamorphic



Marble



Quartzite



Slate



Brick



Concrete



Coade Stone

Fact or Fiction?



Igneous rock is formed by magma and lava.

Fact

Fiction

Metamorphic rock turns into liquid.

Fact

Fiction

Sedimentary rock forms on land.

Fact

Fiction

There are two types of igneous rock.

Fact

Fiction

Chalk is a type of human-made rock.

Fact

Fiction

Human-made rocks do contain natural rocks as well.

Fact

Fiction

The man who invented pulhamite took the recipe to the grave.

Fact

Fiction