













Rocks: Types of Rocks

Aim: Compare different kinds of rocks based on their appearance in the context of understanding the difference between natural and human-made rocks. 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. I can use the appearance of rocks to group and compare them.	Resources: Lesson Pack A selection of igneous, sedimentary and metamorphic rocks You may wish to source video clips to show the formation of igneous, sedimentary and metamorphic rocks.
	Key/New Words: Rocks, igneous, sedimentary, metamorphic, form, formation, volcano, sea, seabed, changes, compare, types, natural, human-made, strata, anthropic.	Preparation: Natural or Human-made Rocks Activity Sheet - 1 per child Natural or Human-made Rocks Picture Sheet - as required

Prior Learning: It will be helpful if children are learning this unit alongside a geography unit which includes volcano formation.

Learning Sequence

	Rocks: Ask the children the following questions: <i>What are rocks? Are rocks alive? How do you know? Why are there rocks everywhere? How do rocks form?</i> Spot the Rocks: Show children pictures of different environments on the Lesson Presentation and ask them to spot the rocks. Children feedback to the whole class.	
	Natural Rocks: Introduce or recap the three different types of rock. You may wish to show video clips of the formation of igneous, sedimentary and metamorphic rocks. Read through the information about how the following rocks forms: Igneous, Sedimentary and Metamorphic . Human-made Rocks: Introduce children to human-made rocks like concrete and bricks.	
	Natural or Human-made? Place children in small ability groups. Groups will have a small selection of rocks with name labels and will group these before deciding whether the rock is natural or human-made. Alternatively, children can use Natural or Human-made Rocks Picture Sheet if physical rocks are unavailable. Children will record their answers on the differentiated Natural or Human-made Rocks Activity Sheet .  Children decide whether rocks are natural or human-made.  Children will group rocks further by the type of natural rock they are.	
	Natural or Human-made: (If using a set of rocks then go through these with the children. If using the Natural or Human-made Rocks Picture Sheet then use the slide on the Lesson Presentation .) Children mark and correct their own answers on the Natural or Human-made Rocks Activity Sheet .	
	Fact or Fiction? Check children's knowledge of the different types of rocks by reading out a statement. Children discuss with their talk partner and then vote for if it is fact or fiction. <i>Check children have understood the three different types of rocks and the difference between human-made and natural rocks.</i>	

Taskit

Drawit: Children to make close drawings of the rocks and label them.



Science

Rocks



Types of Rocks





Aim

- I can compare different types of rocks.

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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





Spot the Rocks

Chalk Cliffs





Spot the Rocks

Muddy Fields





Spot the Rocks

Town Centre





Spot the Rocks

Granite Peak





Spot the Rocks

Volcano





Spot the Rocks

Mountain





Spot the Rocks

Pebble Beach



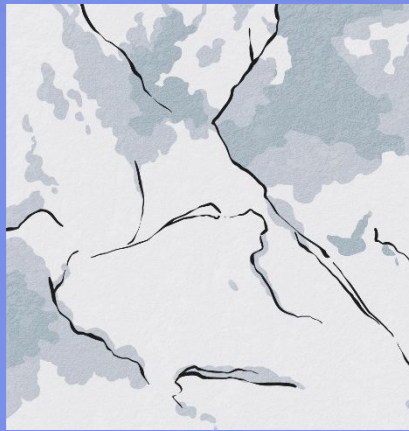


Natural Rocks

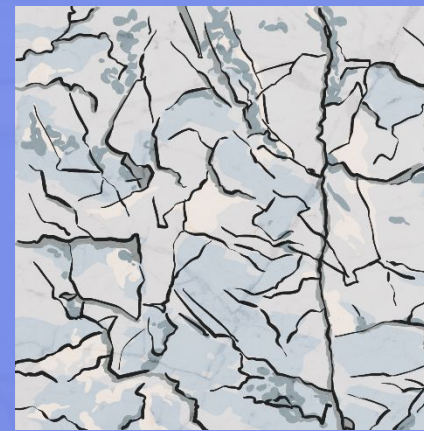
There are three types of naturally occurring rocks.



Igneous



Sedimentary



Metamorphic

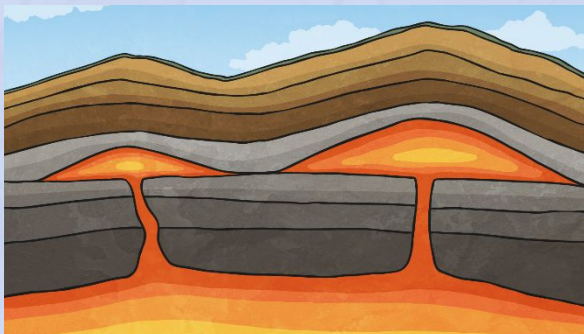


Natural Rocks

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.

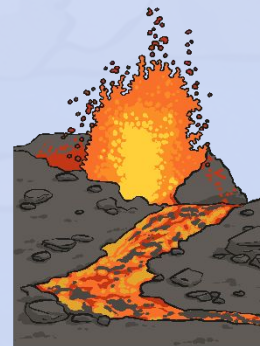
Intrusive Igneous Rocks:



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.

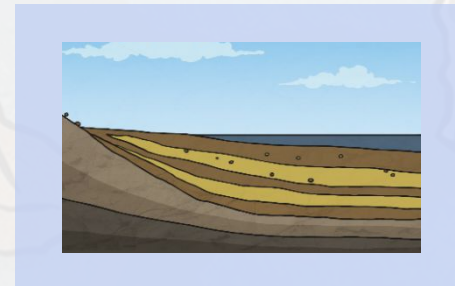
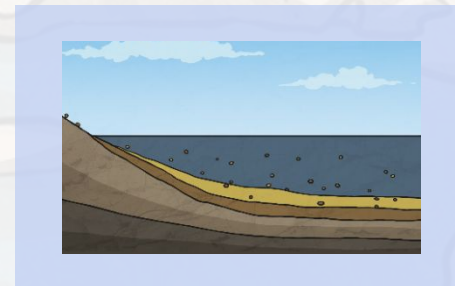
The following illustrates the process:

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.

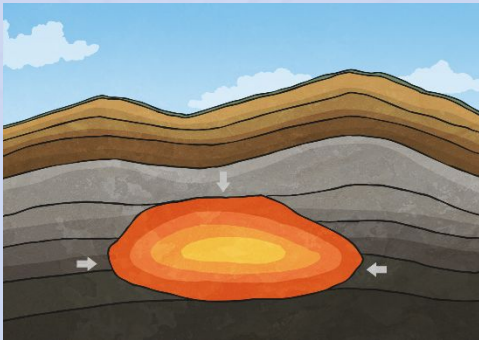




Natural Rocks

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. Anthropic 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.

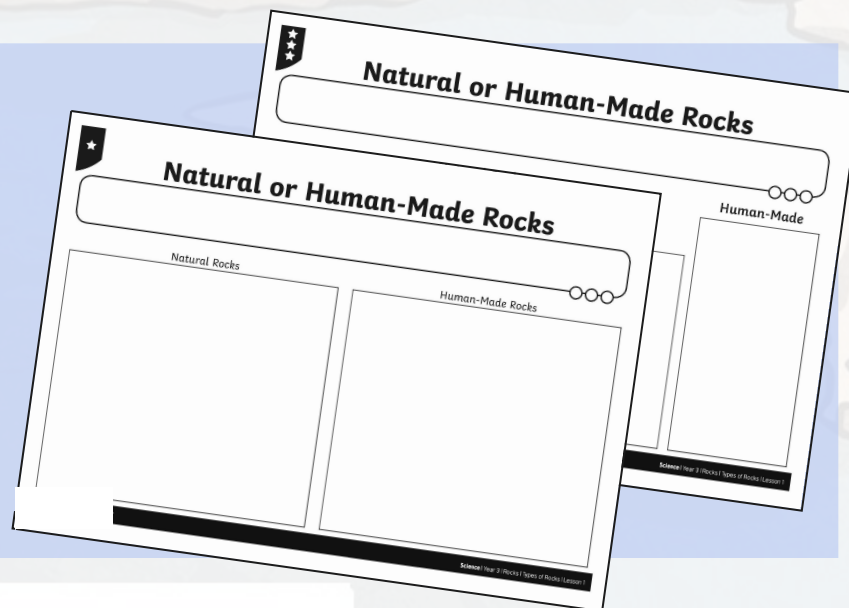
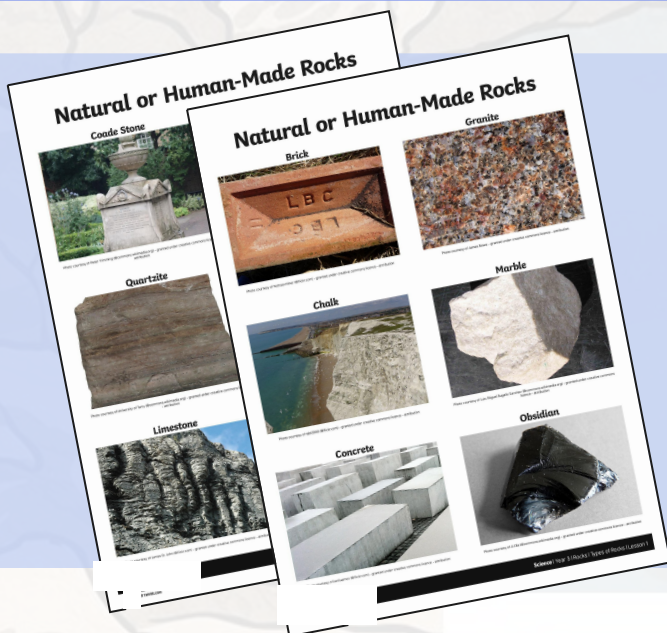


Natural or Human-Made?



You will be looking at a selection of rocks in groups and will need to decide if these rocks are natural or human-made.

Some of you will also have to further group the rocks that you think are natural into the three rock types.





Natural or Human-Made



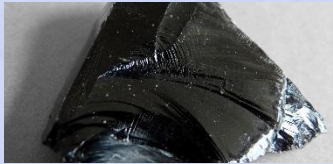
Natural Rocks

Human-Made Rocks

Igneous

Sedimentary

Metamorphic



Obsidian



Chalk



Marble



Brick



Granite



Sandstone



Quartzite



Concrete



Basalt



Limestone



Slate



Coade Stone



Fact or Fiction?



Igneous rock is formed by magma and lava.	Fact	Fiction
Metamorphic rock changes when cooled.	Fact	Fiction
Sedimentary rock forms near water sources.	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



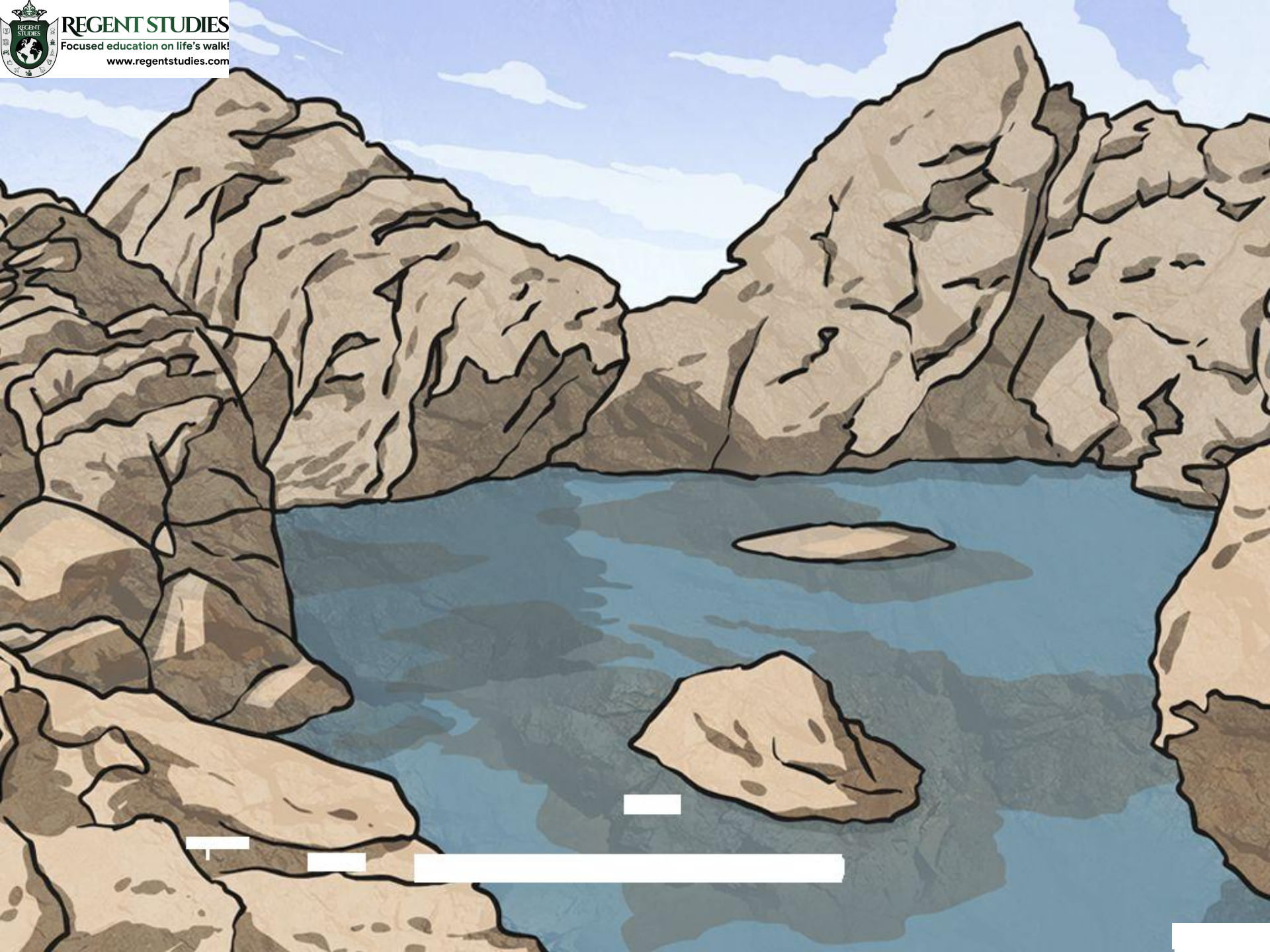
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