Willerby Carr Lane Primary School - Science

Topic: Rocks	Year: 3	Strand: Chemistry

What should I already know?
• What materials some objects are made from • How to give simple descriptions of materials • Which materials are made/ natural • The properties of common materials • How the shape of solids can be changed by squashing, bending, twisting and stretching • What John Dunlop was famous for

What will I know by the end of the unit?	
How are rocks formed?	• Igneous rocks are formed when molten magma from a volcano cools down • Sedimentary rocks are formed when small pieces of bones, shells of animals or other bits of rock are pressed into layers over many millions of years. They often contain fossils. • Metamorphic rock are formed when sedimentary rocks are changed by heat or pressure.
What are the properties of different types of rocks?	• Igneous rocks like granite are very hard, dark and heavy. They may contain crystals or holes. They do not contain fossils. • Sedimentary rocks, (like chalk limestone or sandstone), are light in weight and colour. They are crumbly with round grains and are formed in layers. • Metamorphic rocks (like marble, slate or anthracite) have light and dark bands. They may contain a few fossils. They have large grains
How are fossils formed?	• Often when an animal or plant dies in watery environment and is buried in mud. Soft tissue decomposes and bones become 'petrified' • When an animal/ plant becomes encased in tree sap/ amber/ ice. • As a mould, when animals get trapped in volcanic ash
What is soil?	• Soil is made from pieces of rock, minerals, decaying plants and water. • When rock is broken down into small grains, soil is formed. • There are layers of soil: ○ above the soil is leaf litter and recently decaying plants. ○ as the soil becomes deeper, the rock grains become larger until bedrock is reached

Vocabulary	
anthropic rocks	these rocks are made by humans, e.g. concrete.
body fossil	the remains of an animal, such as its bones or shells. there are four types of body fossils; mould fossil, cast fossil, replacement fossil and whole body fossil.
cast fossil	cast fossils form from mould fossils as the mould fossil is filled up with sediment – so it is not made up of the original matter of the animal or plant.
chalk	a white soft earthy limestone formed from skeletal remains of sea creatures.
coprolites	fossil faeces (poo).
crystals	minerals that join together to make a type of igneous rock.
density	density measures how bulky a rock is, but not how heavy, and can be measured by testing the buoyancy. high density rocks sink, low density rocks float.
durability	rocks that are durable are more resistant to weathering, meaning they do not erode as easily or as quickly, e.g. marble.
earth's crust	the outermost solid shell of the earth.
extinct	animal a species having no living members.
extinct volcano	not having erupted in recorded history.
extrusive igneous	formed by cooled down lava (over ground).
fossil	the remains or impression of a prehistoric plant or animal embedded in rock and preserved by minerals replacing decomposed matter.
granite	a very hard igneous rock with a grainy and crystalline appearance.
humus	the part of soil formed by decomposition of leaves and other plant material by soil microorganisms.
igneous rock	lava or magma that has turned from liquid to solid, forming rock.
impermeable	does not allow water to pass through
impermeable	rocks that do not allow water to pass through them.
intrusive igneous	formed my cooled down magma (underground).
lava	hot molten or semi-fluid rock above the earth's crust.

limestone	a hard sedimentary rock, made from calcium carbonate. it is used in making cement.
magma	hot fluid or semi-fluid material below or within the earth's crust.
marble	a metamorphic form of limestone, typically white and crystalline. the taj mahal is made from marble.
metamorphic rock	an igneous or sedimentary rock that has been changed by extreme heat and pressure.
microorganism	a living thing that is too small to be seen with a naked eye. examples include bacteria and microscopic animals such as dust mites.
mineral	a natural substance that makes up rock.
mould fossil	mould fossils form when all the parts (including the bones) have decayed and all that is left is the mould of the animal.
ore	a rock or mineral that contains metal.
paleontologist	a scientist who studies fossils from the greek for 'ancient' (paleo), 'being' (onto-) and 'study' (-logy).
permeable	allows water to pass through.
pumice	pumice is igneous and is a hard, low density, permeable rock.
replacement fossil	replacement fossils form when water dissolves the original hard matter of the bones and replaces them with mineral matter.
rock	made from one or more minerals
sandstone	a sedimentary rock consisting of sand cemented together by pressure. usually it is red, yellow or brown in colour.
sediment	matter (e.g. dead animals, plants or pieces of rock) that settles to the bottom of a liquid.
sedimentary rock	rock that has formed from the build-up of sediment at the bottom of rivers/oceans over many years, which has been squashed under the weight of the liquid and more sediment.
slate	a fine grained grey, green or bluish-purple metamorphic rock easily split into smooth flat plates. often used to roofs of buildings.
soil	the uppermost layer of the earth, which is a mixture of air, water, minerals and organic matter and is split into top soil, sub soil and rock soil.
trace fossils	these are fossils that record the activity of animals, including footprints, trackways or coprolites.
whole body fossil	whole body fossils form when the original body has been preserved – for example a woolly mammoth in ice.

Investigate!

- Go on a rock hunt around the school, discussing what different rocks can be found and how and why they have been used
- Investigate if rocks are low or high density by finding out which rocks sink or float
- Create mould fossils using wriggly worms (sweets) and slices of bread
- Create our own mini compost bins using:
  - Small stones for layer one
  - Compost for layer two
  - A small amount of water for layer three
  - Add some worms
  - Add some more compost
  - Add some wet shredded paper
  - Seal the bin with a thin layer of plastic
  - Attach card to the outside of the bin to make it dark for the worms

Common misconceptions

Some children may think:

- rocks are all hard in nature
- rock-like, man-made substances such as concrete or brick are rocks
- materials which have been polished or shaped for use, such as a granite worktop, are not rocks as they are no longer 'natural'
- certain found artefacts, like old bits of pottery or coins, are fossils
- a fossil is an actual piece of the extinct animal or plant
- soil and compost are the same thing.

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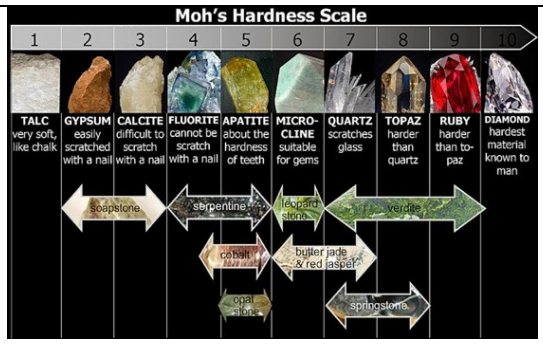
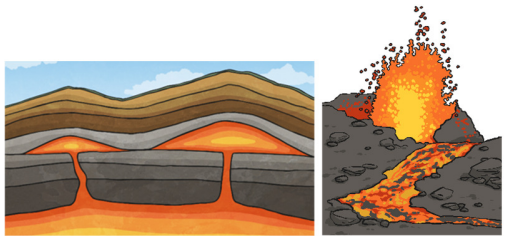


Sierra Pelona Rock Club



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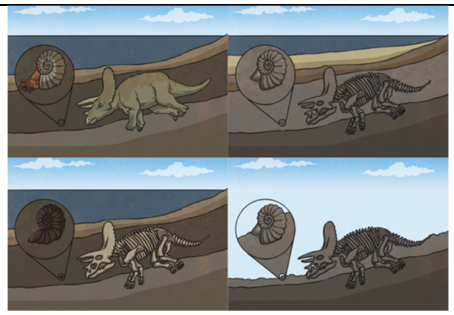

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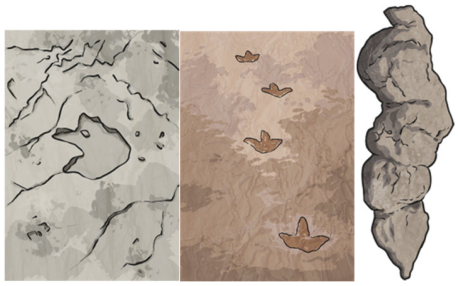

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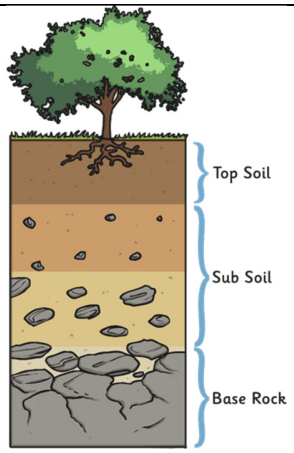

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