Science

Year 3 - Spring 2-Rocks

National Curriculum / End Point statement

Rocks

- *compare and group together different kinds of rocks on the basis of their appearance and simple physical properties*
- *describe in simple terms how fossils are formed when things that have lived are trapped within rock*
- *recognise that soils are made from rocks and organic matter*

Working Scientifically

- *asking relevant questions and using different types of scientific enquiries to answer them*
- *setting up simple practical enquiries, comparative and fair tests*
- *making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers*
- *gathering, recording, classifying and presenting data in a variety of ways to help in answering questions*
- *recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables*
- *reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions*
- *using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions*
- *identifying differences, similarities or changes related to simple scientific ideas and processes*
- *using straightforward scientific evidence to answer questions or to support their findings.*

Step 1	Step 2	Step 3 (TAPs)	Step 4	Step 5	Step 6
Reactivate learning – KS1 materials. WALT identify the use of rocks in our local environment	WALT compare different kinds of rocks	WALT report on findings from an enquiry	WALT describe the process of fossilisation	WALT explain what soil is	WALT use results to draw simple conclusions
In Focus - https://explorify.wellcome.ac.uk/en/activities/zoom-in-zoom-out/kaleidoscope-of-colour	In focus - https://explorify.wellcome.ac.uk/en/activities/zoom-in-zoom-out/kaleidoscope-of-colour	In Focus – https://explorify.wellcome.ac.uk/en/activities/the-big-question/why-don-t-all-rocks-look-the-same	In Focus - https://explorify.wellcome.ac.uk/en/activities/odd-one-out/signs-of-life	In Focus - https://explorify.wellcome.ac.uk/en/activities/zoom-in-zoom-out/tiny-bits-and-pieces	In Focus - 

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Success Criteria					
I can observe objects closely I can use scientific vocabulary to describe a rock I can group rocks according to their appearance and explain why I have sorted them that way	I can name and describe a range of rocks I can name the three different types of rock I can explain how igneous/sedimentary/metamorphic rock is formed	I can perform a simple test I can record my findings I can report back on my findings to answer a question	I can explain what a fossil is I can describe how fossils are made I can tell you what we have learned from fossils.	I can explain what soil is I can observe closely I can record my observations	I can gather data to help answer a question I can set up a simple, practical I can use results to draw simple conclusions
Suggested Outcome					
Rock hunt – find out how rock is used in our environment. Provide a range of rock samples and lay them out. Children create a word bank based on the physical appearances of the samples. Key vocab – smooth, rough, speckled, grainy, crystals, crumbly, shimmery, translucent, dull etc. Children then choose a word and group accordingly.	Children are provided with a range of rocks and use microscopes, spoons (to test hardness) and group according to properties	Children investigate which rock would be best for the roof of a Stone Age shelter and find which rock would be best to prepare meat on. (Granite, Limestone, Slate) Test hardness and absorption. Record their test findings and then write a conclusion about which rock type is best.	Children create their own fossil. Mould fossil – Press an object into homemade dough Amber fossil – Orange candle wax grated and melted. Cast fossil – Clay and plaster of paris. Children create a storyboard of the formation of a fossil based on how they made their fossil.	Children follow instructions to perform a simple test (water poured on top of a soil sample). Draw what they can see and label.	Children investigate the permeability of soil samples by performing a simple test that they plan after discussion. Which field would be best for the families to build their shelter on? Children record their results and then record a conclusion.

Vocabulary	NC links
Rock, soil, fossil, igneous, sedimentary, metamorphic, layers, natural, artefacts, preserved, erosion, organic matter	Geography – rocks and soils in the local area

Key Learning

Rock is a naturally occurring material. There are different types of rock e.g. limestone, sandstone, slate etc which have different properties. Rocks can be hard or soft and they have different sizes of grain or crystal. They may absorb water. Rocks can be different shapes and sizes (stones, pebbles, boulders). Soils are made up of pieces of ground rock which may be mixed with plant and animal materials (organic matter). The type of rock, size of rock pieces and the amount of organic matter affect the property of the soil.

Some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time, the dissolving animal and plant matter is replaced by minerals from the water (cast fossil). An amber fossil is where an animal becomes trapped in amber (a sticky tree sap) and over time, the amber sets. A mould fossil is where an organism is pressed into layers of sediment.

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Possible Evidence	Common Misconceptions
• Children can name some types of rock and give physical features of each • Can explain how a fossil is formed • Can explain that soil is made up from rocks and also contains living and dead matter. • Children can classify rocks in a range of different ways, using appropriate vocabulary. • Can devise tests to explore the properties of rocks and use data to rank the rocks • Can link rocks changing over time with their properties e.g. soft rocks get worn away more easily • Can present, in different ways, their understanding of how fossils are formed • Can identify plant/animal matter and rocks in samples of soil	Some children may think: • Rocks are all hard in nature • Rock-like, man-made substances such as brick or concrete are rocks • Materials which have been polished or shaped for use, such as granite worktops, are not rocks as they are no longer 'natural' • Certain found artefacts (like pottery) are fossils • A fossil is an actual piece of the extinct animal or plant • Soil and compost are the same thing