

# Year 3: Rocks

## What should I already know?

• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching

**Science** - Asking questions about how the world works and finding the answers.

Compare and group together different kinds of rocks based on 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.

## Powerful knowledge

### Sedimentary

Sandstone



Limestone



Chalk



Chalk is used for drawing because it is soft and crumbly.

### Igneous

Basalt



Pumice



Granite



Granite is good for worktops because it is hard and does not absorb water.

### Metamorphic

Slate



Quartzite



Marble



Marble is good for gravestones because it does not rub away.

## Significant Information

### Mary Anning

Mary Anning was an English palaeontologist and fossil collector. She became known around the world for important finds she made in Jurassic fossil beds in Dorset.

### Palaeontologist -

Study the history of ancient life.

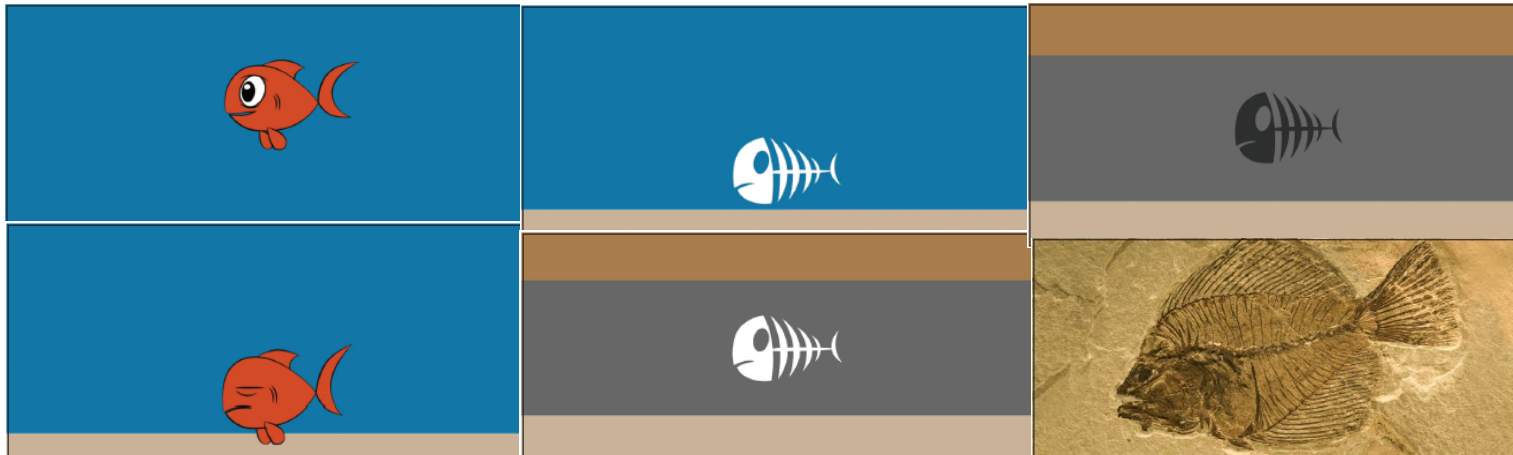
**Geologist** - study Earth's materials.



**Interesting facts** - A fossil is the remains or the impression left by a prehistoric plant or animal embedded in rock.

# Glossary/Key Questions

<b>Sedimentary</b>	These rocks form under the sea. Rocks are broken into small pieces by wind/water (erosion). They settle as mud, sand, minerals and even remains of living things. Over time, layers pile up and the pressure turns this sediment into rock
<b>Igneous</b>	Far underground, the temperature is so hot, rock melts into a liquid (molten rock). When the liquid is underground it is called 'magma' and it can cool to form an intrusive rock.
<b>Metamorphic</b>	When sedimentary or igneous rock is near magma, it heats up and chemicals change in the rock. However, it does not heat up enough to melt it. As it cools it becomes metamorphic rock.
What are the properties of sedimentary rocks?	Softest type of rock, has layers, permeable, fossils trapped in them, Small grains of tiny rock particles and dead animals and plants.
What are the properties of igneous rocks?	Hardest type of rock, no layers, impermeable, interlocking crystals that fit very tightly together.
What are the properties of metamorphic rocks?	Harder than sedimentary rocks, has thin layers, interlocking crystals arranged in layers.
What are the 3 main types of soils?	Sand, silt and clay



Fossil formation













## Science Year 3 – Rocks

**National Curriculum Objectives:**

- Compare and group together different kinds of rocks based on 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.

**Prior Objectives:**

- Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.
- Find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5	Lesson 6
 Skill - Compare  Knowledge - Name different types of rocks	 Skill - Explain  Knowledge - Rocks are formed in different ways.	 Skill - Investigate  Knowledge - Rocks that soak up water are permeable.	 Skill - Explain, Demonstrate  Knowledge - Fossils are the remains/traces of animals that lived a long time ago.	 Skill - Research  Knowledge - Mary Anning was a famous fossil hunter.	 Skill - Explain  Knowledge - The permeability of soils affects which plants will grow and how well they grow in the particular soil.
<p><u>WALT: Compare different types or rocks.</u></p> <p>WILF:                      -Ask questions                      -Describe the texture.                      -Describe what you can see.</p> <p>Children generate questions about rocks.                      Children spend the lesson looking at different types of rocks (sedimentary, metamorphic, and igneous). They use magnifying glasses to find similarities and difference.                      What do the rocks feel like? Look like?</p> <p><b>Recording:</b>                      Use the observations to write a sentence about what each rock looks &amp; feels like.</p>	<p><u>WALT: Explain how rocks are formed.</u></p> <p>WILF:                      - Explain how sedimentary rocks are formed.                      - Explain how igneous rocks are formed.                      - Explain how metamorphic rocks are made.</p> <p>Teach children how the 3 types of rocks are formed. Ask each table - How are sedimentary rocks formed? How are igneous rocks formed? How are metamorphic rocks formed?</p> <p><b>Recording:</b>                      Children are to create a diagram to show the formation of metamorphic, sedimentary and igneous rocks.</p>	<p><u>WALT: Group rocks based on their properties</u></p> <p>WILF:                      -Experiment safely                      -Record results                      -Experiment fairly.</p> <p>How many different types of rocks are there?                      Children conduct various tests to analyse the hardness, permeability and acidity of different types of rocks.</p> <p>Hardness - Scratch the rocks using various object.                      Permeability - Drop small amounts of water on the rocks to see if it soaks.                      Acidity - Drop a small amount of vinegar. Look carefully to see if the rocks fizz.</p> <p><b>Recording:</b>                      Record results in a table.</p>	<p><u>WALT: Explain how fossils are formed.</u></p> <p>WILF:                      -Experiment safely                      -Draw the steps.                      -Explain the steps.</p> <p>What is a fossil?                      Why are fossils important?                      What different kind of fossils could there be?                      Children conduct an experiment using bread, gummy worms and hard cover books to create a fossil.</p> <p><b>Recording:</b>                      Children order (or draw) pictures to show how fossils are formed. Create a mini book from A3 paper</p>	<p><u>WALT: Understand Mary Anning's contribution to palaeontology.</u></p> <p>WILF:                      -Research facts.                      -Write the key words.                      -Explain the pictures.</p> <p>What could a palaeontologist be?                      What are the different types of fossils?                      Children hunt for pictures, which represent Mary Anning.                      Teach the children how each picture is relevant.</p> <p><b>Recording:</b>                      Children create a mind map of the facts they have learnt.</p>	<p><u>WALT: Explain how soil is formed.</u></p> <p>WILF:                      -Experiment safely                      -Record results                      -Experiment fairly.</p> <p>What is soil? What is it made from? Teach children about the different layers of soil.                      Children match pictures of soil to the rock.                      Test the permeability of different soils using filter paper and measure how much water is collected.</p> <p>What are the layers of soil?</p> <p><b>Recording:</b>                      Record results in a table.</p>

**Assessment:** Use the vocabulary mat to assess the children's prior knowledge and use the mats again to assess what the children have learnt.

**Key Vocabulary:** Rocks, igneous, metamorphic, sedimentary, permeable, impermeable, Mary Anning, fossil, extinct, slate, granite, sandstone, chalk, limestone, marble, soil, sand, clay, texture, characteristics, surface



rocks



igneous

metamorphic



sedimentary



permeable



impermeable



Mar y Anning



fossil



extinct



slate



granite

sandstone



chalk



limestone



marble



soil



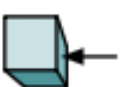
clay



texture



characteristics



surface