Science – Rocks – Year 3

Year 3 NC - pupils should be taught to:	How we do this in Year 3	Year 3 Vocabulary
Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties <u>How working scientifically can be met</u> • Compare	What are rocks? Are rocks alive? How do you know? Why are there rocks everywhere? How do rocks form? Spot the Rocks: Show children pictures of different environments and ask them to spot the rocks. 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 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. 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.	Rocks, igneous, sedimentary, metamorphic, form, formation, volcano, sea, seabed, changes, compare, types, natural, human-made, strata, anthropic.
• Grouping • systematic and careful observations	What are the three types of rocks? Why causes them to be different? Children need to demonstrate they understand the difference occurs in the formation of the rocks children discuss the adjectives they would use to describe rocks. Select one of the properties such as 'hard' – Are all rocks hard? What about clay? Discuss how different rocks have different properties. Introduce children to the scientific terms they will be using to describe the properties of rocks. Carousel of Activities: Children record observations and make notes from each activity - Permeability and Durability Group: This should be a teacher led activity. Using a selection of different rocks, children to make observation in relation to their permeability and durability. To test permeability, add a few drops of water using the pipette onto the rock and ask the children to observe whether it is absorbed. Use a small square of sandpaper to test how durable the rocks are. Children record their observations. Books Group: Using a selection of age-appropriate books on rocks, children to	Igneous, sedimentary, metamorphic, rocks, group, properties, permeable, impermeable, hard, soft, durable, buoyancy, split.

	make notes about the properties of rocks. Density Group: Children test the buoyancy of different rocks using a large container full of water to decide which rocks have higher and which have lower density and take notes. Conduct a mini-plenary to check and assess the children's understanding based on the activities they have completed. Address any misconceptions. Grouping Rocks: Children use their notes to group rocks based on their properties.	
Describe in simple terms how fossils are formed when things that have lived are trapped within rock <u>How working scientifically can be met</u> • explain	Are Dinosaurs Real? Children discuss the question with their talk partners and explain how they know if dinosaurs are real. Children feedback. It would be useful to play devil's advocate in order to question children deeper about what they really know about the subject. End the discussion with the fact that we have discovered their bones or more specifically their fossils. Bones or Fossils? / Body Fossils / Trace Fossils: Explain the difference between bones and fossils. Fossilisation Process: Go through the fossilisation process step by step on the IWB. What do you think we only find fossils in sedimentary rock? Why not igneous or metamorphic rock? Then children to order the fossilisation process. Dinosaurs and Their Fossils: Match animals and their fossils. Ask a selection of children to explain how they came to their conclusion. Why do we have fossils for some animals and not others?	Fossil, sedimentary, fossilisation, animals, bones, chemical fossils, change, body fossils, trace fossils, layers, pressure, coprolite, trackways, footprints.
<u>How working scientifically can be met</u> • identifying changes related to simple scientific ideas	Palaeontology and Palaeontologists: Children learn how to pronounce the words palaeontology and palaeontologist. What could a palaeontologist be? What would a palaeontologist do? Use your previous learning in this unit to help you work it out. History of Ideas About Fossils: Read information relating to ideas about fossils in ancient times. Georges Cuvier – The Breakthrough: Explain how Cuvier proved extinction as fact and the link between Cuvier and Mary Anning. Types of Fossils: Children recap and feedback on the main types of fossils. Mary Anning: Show children the video of Mary Anning's life and her fossil find. Children focus on the types of fossils she found e.g. body fossils. https://www.youtube.com/watch?v=qNOh-85_Dmc Mary Anning and Palaeontology: Read the information relating to Mary Anning's contribution to the field of palaeontology. Children read and answer questions about modern day palaeontology.	Mary Anning, fossils, ichthyosaur, trace fossils, coprolite, dinosaurs, Jurassic, Lyme Regis, seaside, beach, poverty, scientists, William Buckland.

	Would you like to be a palaeontologist? Why? Why not?	
Recognise that soils are made from rocks and organic matter <u>How working scientifically can be met</u> • describe and explain	What is soil? What is soil made from? Take children to the school garden. Children observe and feedback about what could be in soil. Point out what's around e.g. trees as well as discussing what might be living in the soil. What Is Soil Made Of? Address errors and misconceptions arising from the lesson introduction by highlighting relevant information. Layers of Soil: Show and explain the diagram of the different layers of soil present in the ground. Soil Formation: Explain the soil formation process. Compost: Read information on the Lesson Presentation explaining what compost is and why people choose to compost. Read through the instructions for creating a mini compost bin. Check children's understanding of key concepts – for example – why are using a base of small stones? Check children understand the health and safety guidelines both for them and the 'worms' (plasticine). **Health and Safety: Ensure that children wash their hands after handling composting materials. Ensure that plastic bottles have plenty of air holes and there are drainage holes at the bottom. Make sure that the soil is not under or over watered. Add air holes prior to children creating their mini-compost bins, although children can still add a few of their own.** Caring for the Worms: How can we care for the worms properly? After children have fed back ideas, use a checklist to see if they have covered the main points. Go through any remaining points explaining why it will keep the worms healthy.	Soil, formation, formed, rock, organic matter, animals, top soil, sub soil, base rock, additions, losses, translocations, transformations.
<u>How working scientifically can be met</u> • Making systematic and careful observations • Recording findings using simple scientific language • Reporting on findings from enquiries, including presentations of results and conclusions	*Children will have learnt about different rock types in lessons 1 and 2 and how soil is formed in lesson 5.* Rocks Quiz: Children recap their knowledge and understanding of different types of rocks and their properties. Types of Soils: What part do rocks play in forming soil? How many types of soil do you think there are? Matching Rocks and Soils: In pairs, children to match soils with the rock(s) that they are formed from (using matching cards). Reveal answers and discuss. Watch the following video as an introduction to comparing different types of soil. https://www.bbc.co.uk/bitesize/clips/z7rb4wx Soil Permeability: Read the information on the importance of soil permeability. Making Careful Observations: Go through a checklist of how to make careful observations. Testing Permeability: Show children the different types of soil they will be	Soil, formation, rock, rock type, igneous, sedimentary, metamorphic, properties, permeability, permeable, impermeable, semi-permeable, rapid, moderate, slow.

	testing before children make predictions regarding the permeability of different types of soil. Using a visualiser, model how to test permeability and how to make careful observations for one soil sample. Each mixed ability group collects the necessary equipment and soil samples for their practical investigation. Children to record their observations. Are children observing and carefully? Can they record their findings in a table? Oral Presentation: Children discuss the success criteria for their oral presentation in their groups before feeding back to the whole class. Groups should be given around ten minutes to create and rehearse their group presentation. Presentation: Each group presents its findings. Can the children use simple scientific language? Ask children: Were the findings similar or different? Why do you think that might be? How can we know which results are accurate? What conclusions can you draw about the permeability of different types of soil? **Health and Safety: Ensure that children either avoid handling the soil directly or wash hands immediately after handling the soil or soil packages.**	