

Cheadle Primary – the school at the heart of the village, free to flourish, ready to learn and succeed. **Progression of Skills and Knowledge: SCIENCE Year 3**

	Autumn 1 Stone Age	Autumn 2 Volcanoes	Spring 1 Ancient and Modern China	Spring 2 Shakespeare	Summer 1 Ancient Egypt	Summer 2 UK Study
Topic	Rocks	Bones and Muscles Animals including Humans	Light	Plants	Forces and Magnets	Scientists and Inventors
Scientific enquiry & questioning	To understand the properties and uses of rock make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	To categorise animals and understand differences and similarities. set up simple practical enquiries, comparative and fair tests	To recognise that they need light in order to see things and that dark is the absence of light. set up simple practical enquiries, comparative and fair tests make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	To understand and describe the life processes of plants set up simple practical enquiries, comparative and fair tests make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	To identify the forces acting on objects. set up simple practical enquiries, comparative and fair tests gather, record, classify and present data in a variety of ways to help in answering questions record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	To explain how Marie Curie’s work on x-rays helps us identify bones. ask relevant questions and use different types of scientific enquiries to answer them make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
Observing	Children will be able to name the three different types of rocks. Children will learn to make careful observations. They will be able to take part in and contribute towards an oral presentation of their observations.	Observe and record changes /stages over time. Explore / observe things in the local environment / real contexts and record observations.	Recognise that they need light in order to see things and that dark is the absence of light Notice that light is reflected from surfaces Recognise that shadows are formed when the light from a light source is blocked by a solid object Recognise that light from the sun can be dangerous and that there are ways to protect their eyes	Observe and record changes /stages over time. Explore / observe things in the local environment / real contexts and record observations.	Compare how things move on different surfaces. To notice that some forces need contact between two objects by identifying the different types of forces acting on objects. observe how magnets attract or repel each other and attract some materials and not others by investigating the strength of different magnets.	
identifying and classifying	They will be able to state the four different types of matter that soil is composed of To identify the properties of types of rock with things such as water	Decide ways and give reasons for sorting, grouping, classifying, identifying things/objects, living things, processes or events based on specific characteristics. Compare and contrast and begin to consider the relationships between different things (e.g. diets, skeletons of humans and other animals, changes over time, Record similarities as well as differences (e.g. what do all skeletons have? as well as the differences between skeletons.	Identify reflective surfaces. Identify some parts of the eye.	<u>Compare and contrast and begin to consider the relationships between different things</u> <i>(e.g. structures of plants, functions of plant parts, changes over time, etc.).</i>	Use a magnet to separate items that are magnetic and non-magnetic. name different types of force. notice that magnetic forces can act at a distance and attract some materials and not others by sorting materials. To compare and group materials according to whether they are magnetic by sorting materials. I can sort magnetic and non-magnetic materials.	To identify differences, similarities or changes related to simple scientific ideas and processes by finding out about the men and women who introduced new plants to our gardens. To identify changes related to scientific ideas by describing Marie Curie’s research into x-rays. To identify that humans have skeletons for support, protection and movement by identifying and explaining the bones shown in x-rays.
testing and finding	Children will handle and examine rocks to identify their properties, with support.	Explore their own ideas about ‘what if....?’ scenarios e.g. humans did not have skeletons. Ask questions such as ‘What if we tried....?’ or ‘What if we changed...?’ <u>Begin to understand that some questions can be tested in the classroom and some cannot.</u> Within a group suggest questions that can be explored, observed, tested or investigated further. <u>Within a group suggest relevant questions</u> about what they observe and about Begin to make some decisions about an idea within a group from a list of choice <i>(e.g. let’s put them all in a pile first OR I think we should try...).</i>	Find patterns in the way that the size of shadows change. Setting up simple practical enquiries, comparative and fair tests Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions		Compare how things move on different surface Design a vehicle Make a parachute Explain that magnets produce a force that attracts some materials. What are the properties of magnets? To compare how things move on different surfaces by investigating the speed of a toy car over different surfaces. Explain the force of friction. Make a prediction about which surface creates the most friction for a toy car. Take measurements and record my results in a table. Explain my results. investigate the strength of magnets.	To explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant by exploring the way that non-native plants have been discovered, transported and introduced.
Key Questions	Which is the softest rock? Which is the hardest rock? Which is the heaviest? Which is the lightest? Which is the most porous? Which rock do you think would weather the most?	How could we group these creatures? How do humans and animals get nutrition? Why do humans and animals have a skeleton / muscles?	What is darkness? How do we see? How are shadows made? How can we protect our eyes from the sun? What happens to a shadow when a light source moves?	What are the main parts of a plant? What are their function? What does a plant need to grow? How do plants get water from the ground?	What are some materials that are not magnetic? How many poles does a magnet have? When will two magnets repel each other? What are magnets/how can we use them?	What did Joseph Banks do? What do bones do? Who was Marie Curie?

Key Learning Intention	To understand the uses of rock to categorise the key features of different types of rock To use scientific words to describe rock	<ul style="list-style-type: none"> Find things out using a range of secondary sources of information (e.g. books, photographs, videos and other technology). 	To recognise that I need light to see things, and that dark is the absence of light. To investigate which surfaces reflect light. To use a mirror to reflect light and explain how mirrors work. To know that light from the sun can be dangerous and that there are ways we can protect our eyes. To find patterns when investigating how shadows change size.	Label parts of a plant To understand the roles of parts of the plant.	To notice that magnetic forces can act at a distance and attract some materials and not others by sorting materials. To compare and group materials according to whether they are magnetic by sorting materials. To sort magnetic and non-magnetic materials. To name different types of force. To say when there is a push or a pull acting on an object.	To identify plants in our local area. To describe how people brought new plants to our country To design my own new plant and explain how it lives and grows. I can describe Marie Curie's life and work. I can explain how her scientific ideas about x-rays changed health and medicines I can identify the bones shown in x-rays, and explain the bones' functions. I can describe how scientists use fossils to date rocks today. I can explain what William Smith discovered about rocks and fossils. I can use William Smith's ideas about fossils to put rocks in age order.
Key Knowledge	Compare different types of rocks Make systematic and careful observations group rocks based on their properties explain in simple terms how fossils are formed Explain Mary Anning's contribution to palaeontology Recognise how soil is formed from rock and organic material Observe carefully and systematically present my findings using scientific vocabulary Explain what William Smith discovered about rocks and fossils. Describe what Inge Lehmann discovered about the Earth's core.	to create diagrams to categorise animals identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat identify that humans and some other animals have skeletons and muscles for support, protection and movement. identify changes related to scientific ideas by describing Marie Curie's research into x-rays.	Need light in order to see things and that dark is the absence of light Notice that light is reflected from surfaces Recognise that shadows are formed when the light from a light source is blocked by a solid object Recognise light from the sun can be dangerous and that there are ways to protect their eyes Find patterns in the way that the size of shadows change.	Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Investigate the way in which water is transported within plants Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. explain how George Washington Carver helped farmers to grow crops What Did Joseph Banks Do?	Compare how things move on different surfaces Some forces need contact between two objects, but magnetic forces can act at a distance Describe magnets as having two poles Predict whether two magnets will attract or repel each other, depending on which poles are facing. Observe how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials	To find out about the way new plants arrived in our country. Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties explain how George Washington Carver helped farmers to grow crops explain how fossils can be used to find the age of rocks describe what Inge Lehmann discovered about the Earth's core. To investigate how images change in concave and convex mirrors. To explore how electromagnets attract some materials. To identify inventions and discoveries from all over the world linked to scientific ideas.
Key Vocab	permeable, impermeable, igneous, porous, chalk, marble, granite, slate	vertebrates, invertebrates, habitat, evolution, adapt,	light, source, dark, reflect, see, illuminate, visible,	evaporates, pollen, stamen, seed dispersal, germination, pollination, fertilization	Force, push, pull, magnet, magnetic, attract, magnetic field	Plant, grow, water, light, air, heat, requirements, explore, expedition, botanist, Marie Curie, radiation, element, chemistry, physics, x-ray, bones, support, protection, movement, Agriculture, crops, nutrients, soil, crop rotation.
Key Challenge	Children will make systematic observations, they will be able to explain the main processes of fossilisation, they will be able to identify the importance of Mary Anning's work to the field of palaeontology, children will use simple scientific language accurately in oral and written work.	Identify the similarities and differences between animals based on their diets. Identify the pros and cons of different types of skeletons and explain how the different parts of a skeleton work. Extend their knowledge by identifying the main bones in the skeleton of animals other than humans. Make modifications to their practical enquiry while conducting it and be able to write a conclusion that links their findings to support or refute general scientific	Explain the properties of materials that reflect light well, understand why shadows change size, set up reliable and accurate investigations, make and explain predictions, make and record accurate observations, use scientific language to explain their findings, be able to ask and answer questions based on their learning using scientific language.		Children explain what a magnet is. Write a guide to the different types of magnets in your school. Explain what they could be used for and how strong they are. Make a book about magnets- Include information about magnetic materials, types of magnets and magnetic poles.	Create a fact file for a famous plant hunter. Show which countries the different plant explorers visited by marking their voyages on a world map. Children answer the questions to explain x-rays and the function of bones. Children explain what crop rotation is and how this idea solved the problems with cotton. They explain the cotton farmers' problem with Crop rotation and how Carver solved this. They list three of Carver's inventions and explain which they think is most important and why.
Yr 3 Support						
Visit or Visitor				RHS Bridgewater		
Key text	https://www.bbc.co.uk/bitesize/topics/z9bbkqt/articles/zsgkdmn https://www.bbc.co.uk/bitesize/clips/zt3yvk7	Human body odyssey, skeleton inside you, Your Body				
Resources	Rocks and fossils sets Explorify Website Link to Geography - volcanoes	Dr Binocs - Bones , Types of vitamins , How do your muscles grow , Why do we drink water GoNoodle - Bones! , Bone Strength Explorify Website SCARF	Explorify Website	Seeds, potatoes Explorify Website	Explorify Website	Explorify Website