



Science Medium Term Plan Cycle A

Year 3/4	Autumn 1 - Rocks	Autumn 2 - Movement and feeding	Spring 1 - Magnets and forces	Spring 2 - Lights and Shadows	Summer 1 - What a plant needs	Summer 2 - Parts of a Plant
Big Concept						
Big questions	Are all rocks the same?	How do living things work?	What can magnets do?	What is the dark?	Do living things need different things to survive?	Can living things last forever?
Prior Learning	EYFS - be able to ask questions about the place they live. Talk about why things happen and how things work. Discuss the things they have observed such as natural and found objects. Manipulates materials to achieve a planned effect. In Year 2 children should: - 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. Children may: - May have some understanding of a variety of different rocks in the natural world. - Some understanding of what soil is. (how to identify soil etc) - May have some knowledge of what a fossil is	EYFS - Know the effects exercise has on their bodies, be able to identify different parts of their body, have some understanding of healthy food and the need for variety in their diet, have some understanding of growth and change. Y1 - Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. In Year 2 children should: - Know that animals, including humans, have offspring which grow into adults - Know the basic stages in a life cycle for animals, including humans. - Find out and describe the basic needs of animals, including humans, for survival (water, food and air). - Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	EYFS - be able to ask questions about the place they live. Talk about why things happen and how things work. Discuss the things they have observed such as natural and found objects. In Year 2 children: - May have an awareness of how to make things stop and start, using simple pushes and pulls. - They may know about floating and sinking.	EYFS - be able to ask questions about the place they live. Talk about why things happen and how things work. Discuss the things they have observed such as natural and found objects. In Year 1 child should have: - Observed changes across the four seasons - Observe and describe weather associated with the seasons and how day length varies. Children may: - have some knowledge of where light comes from. - have seen their shadows and may know they appear when it is sunny. - Have some understanding of a reflection. - May understand they need light to be able to see things.	EYFS - Make observations of plants, know some names of plants, trees and flowers, may be able to name and describe different plants, trees and flowers, and show some care for the world around them In Year 2 Children should: - Observe and describe how seeds and bulbs grow into mature plants. - Find out and describe how plants need water, light and warmth to grow and stay healthy.	EYFS - Make observations of plants, know some names of plants, trees and flowers, may be able to name and describe different plants, trees and flowers, and show some care for the world around them In Year 1 Children should: - Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. - Identify and describe the basic structure of a variety of common flowering plants. - Identify and name the roots, trunk, branches and leaves of trees.



Overview of knowledge	Children will recognise that below the surface of Earth is rock which they may not be able to see. They will understand that over time rocks have been broken down to form smaller rocks. recognise that there are different rocks and different soils which have different properties and appearances. Children will also describe in simple terms how fossils are formed when living things have been wrapped in rock.	Children will learn that animals including humans need the right types and amounts of nutrition to thrive and grow and that eating the wrong types and amounts can lead to health problems. They will identify that we cannot make our own food and that we need to eat a varied diet including meat and fish, beans and lentils, fats, starchy foods, fruit and vegetables.	Children will work towards answering the question, 'can you make a tool that can move something on the floor far away from you?' They will be asked to make a tool that can pick up things made of a magnetic material and consider the use of a telescopic arm or a folding arm to enable them to reach an object far away. The lessons leading up to answering the Quest will enable children to explore the properties of magnets and magnetic materials.	Children will explore the differences between light sources and light reflectors and will sort these into two groups. They will be able to describe how shadows are formed and will explore the relationship between light, objects and the formation of shadows.	Children will explore what plants need to grow well. They will compare how plants grow in different soils and explore how fertilisers can be used to improve growth. Children will investigate the amount of water needed to help a leafy pot plant grow well. They will also investigate how space affects plant growth by comparing how well grass seeds grow with more or less space.	Children will learn about the parts of flowering plants and be able to identify and name the basic parts of flowering plants and recognise and describe the functions of these parts They will research methods of seed dispersal and process of pollination. They will also investigate the way in which water is transported within plants and they will construct a terrarium to demonstrate how plants recycle water in a closed system.
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.	Some children may think: - arrows in food chains mean 'eats' - the death of one of the parts of a food chain or web has no, or limited, consequences on the rest of the chain - there is always plenty of food for wild animals - food is digested only in the stomach - when you have a meal, your food goes down one tube and your drink down another - the food you eat becomes "poo" and the drink becomes "wee".	Some children may think: - the bigger the magnet the stronger it is - all metals are magnetic	Some children may think: - we can still see even where there is an absence of any light - our eyes 'get used to' the dark - the moon and reflective surfaces are light sources - a transparent object is a light source - shadows contain details of the object, such as facial features on their own shadow - shadows result from objects giving off darkness	Some children may think: - plants eat food - flowers are merely decorative rather than a vital part of the life cycle in reproduction - plants only need sunlight to keep them warm	Some children may think: - food comes from the soil via the roots - roots suck in water which is then sucked up the stem.



Working Scientifically	Children will have the opportunity to make close observations and detailed comparisons of rocks and soils and they will investigate the appearance and some properties of rocks and soils. They will have the opportunity to set up simple comparative and fair tests. They will investigate how soils are formed, how animals make their habitat in soils and the constituents of soil.	Children will identify similarities and differences between themselves and other children, and look for patterns between physical attributes and ability to perform tasks. They will carry out pattern-seeking investigations, take results and construct scatter graphs. They will use evidence to answer questions and draw simple conclusions.	Children will make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. They will be Setting up simple practical enquiries, comparative and fair tests and Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	Children will set up simple comparative and fair tests to compare materials, and they will make systematic and careful observations of shadows. They will make careful observations and measurements of shadows and record and report on their findings. They will have the opportunity to look for patterns in the way that the sizes of shadows change.	Children will set up simple comparative tests to compare the effect of soil, water, fertilisers and space on plant growth. They will use a range of equipment to measure the amount of water, soil and seeds needed in different investigations. They will make careful observations and record how their plants change over time.	Children will observe and communicate ideas about plant parts and their function and use straightforward evidence from enquiries to answer questions about the functions of parts of plants.
Key Vocabulary	Characteristics, chalk, slate, granite, sandstone, soil, clay, sand, limestone, quartz, marble, stone, pebble, texture, absorbent, surface	Skeleton, bone, tissue, exoskeleton, ribs, spine, vertebrate, skull, contract, relax, contraction, joint, move, muscles, nutrients, muscles, vitamins, posture, endoskeleton, invertebrate, hydrostatic skeleton	Force, push, pull, open, surface, magnet, magnetic, attract, repel, magnetic poles, North, South, friction, gravity, fair test, variable	Light, dark, shadow, transparent, opaque, direction, light travels, translucent, shortest, longest, highest, object, light source, material, sun, night, day	Air, light, water, nutrients from the soil, room to grow needs vary, fertiliser, flowers pollination, seed, formation, seed dispersal, nutrition, support, reproduction, makes its own food	Flowering, plants, roots, stem/trunk, leaves, flowers, bulb, blossom, deciduous, evergreen, filament, flora, flower, foliage, germinate, petal, stigma, style, shrub, sepal.