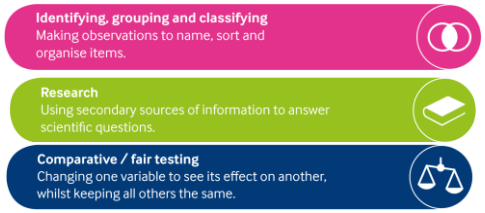
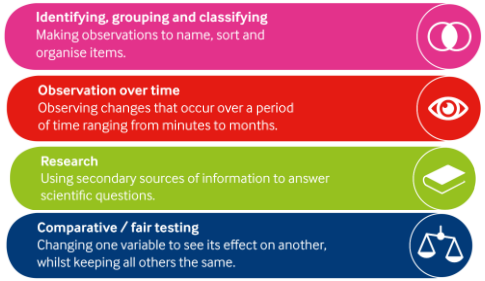
Year 3 Science progression document

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	**Forces** F1: I can compare how things move on different surfaces. F2:I can notice that some forces need contact between two objects, but magnetic forces can act at a distance.	**Forces** F3: I can observe how magnets attract or repel each other and attract some materials and not others describe magnets as having two poles. I can predict whether two magnets will attract or repel each other, depending on which poles are facing. F4: I can 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.	**Rocks** R1: I can compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. R2: I can describe in simple terms how fossils are formed when things that have lived are trapped within rock R3: I can recognise that soils are made from rocks and organic matter.	**Animals including humans** A1: I can 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. A2: I can identify that humans and some other animals have skeletons and muscles for support, protection and movement.	**Plants** P1: I can identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. P2: I can 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. P3: I can investigate the way in which water is transported within plants.	**Light** L1: I can recognise that they need light in order to see things and that dark is the absence of light. L2: I can notice that light is reflected from surfaces. L3: I can recognise that light from the sun can be dangerous and that there are ways to protect their eyes. L4: I can recognise that shadows are formed when the light from a light source is blocked by a solid object.

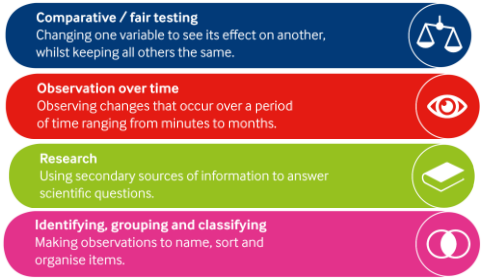
					P4: I can explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	L5: I can find patterns in the way that the size of shadows change.
	<u>Scientists to study:</u> William Gilbert John McAdam.	<u>Scientists to study:</u> Julie Brusaw	<u>Scientists to study:</u> Anjana Khatwa (A geologist who collects rocks and fossils from the beach and studies them to learn about the creatures that lived in the sea and on Earth over 150 million years ago.)	<u>Scientists to study:</u> Adelle Davis (A biochemist and nutritionist who linked health and diet) Marie Curie (A physicist who invented the first mobile X-ray machine to treat soldiers wounded on the battlefield in WW1)	<u>Scientists to study:</u> Modern: Dr. Kelsey Byers (A biologist who studies flower smells and how they attract insects.) Historical: Jan Ingenhousz (A doctor and scientist who discovered the process of photosynthesis.)	<u>Scientists to study:</u> Euclid, Ibn Sahl, Roger Bacon, Willebrord Sneillus, Isaac Newton, Christian Huygens
	<u>Working scientifically skills</u> Making observations. Asking questions. Setting up a test, making predictions, observing and measuring and recording data. Research, making observations and	<u>Working scientifically skills</u> Making observations. Asking questions. Setting up a test, making predictions, observing and measuring and recording data. Research, making observations and	<u>Working scientifically skills</u> Observing Making observations and asking simple questions Setting up simple tests and recording data. asking questions and recording information.	<u>Working scientifically skills</u> Making observations and asking questions Identifying, naming and asking questions. Using secondary sources. Making observations and comparisons to identify and sort.	<u>Working scientifically skills</u> Observing and communicating information. Setting use a simple test and communicating data. Making observations Using secondary resources to answer questions.	<u>Working scientifically skills</u> Communicating results and asking questions. Setting up a test and communicating results. Making predictions. Observing.

	interpreting and communicating.	interpreting and communicating.		Communicating information. Making predictions and recording data. Asking questions, making predictions and setting up tests. Evaluating, interpreting and communicating results.		
	Compare Surfaces Magnet Magnetic Force Push Pull Contact Attract Repel Poles (North and South) Distance Friction Resistance	Compare Surfaces Magnet Magnetic Force Push Pull Contact Attract Repel Poles (North and South) Distance Friction Resistance	Rocks Soil Sandstone Limestone Sedimentary Igneous Metamorphic Granite Marble Pumice Slate Crystals Properties Permeable Hardness Fossils Organic matter Humus	Bones Muscles Ribs Skeleton Scull Support Protection Movement Nutrients Herbivore Carnivore Omnivore Teeth Canine Incisor Molar Diet	Air Light Water Soil Nutrients Reproduction Seed formation Seed dispersal Germination Pollination Transportation Species Location (photosynthesis) Life cycle Function	Light Dark Shadows Blocking Mirror Reflect Reflective Reflection Absence of light protect

Term:	Unit:	Key end points:	Prior learning:	Future learning:	Common misconceptions:

Autumn	Forces 	**By the end of this unit children will be able to:** Explore forces in the environment e.g. playing with toys, kicking/throwing balls, opening doors, climbing. Make observations on how we use forces in everyday life. Describe forces and their effect on things. Spot and talk about simple patterns in our observations. E.g. the harder the kick, the further the ball went. Measure forces using a force meter and record data in a table. Investigate how things move on different surfaces. Observe and describe magnetic forces.	Find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 – Uses of everyday materials)	Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. (Y5 – Forces) Identify the effects of air resistance, water, resistance and friction, that act between moving surfaces. (Y5 – Forces) Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. (Y5 – Forces)	**Some children may think:** The bigger the magnet the stronger it is. All metals are magnetic.
Spring 1	Rocks 	**By the end of this unit children will be able to:** Talk about how the Earth is constantly moving and reshaping itself and how rock formation is dynamic. Name some famous rock formations, mountains and volcanoes around the world. Describe how rocks are formed in a simple way. Explore the environment and identify things made from rocks e.g. stone	Distinguish between an object and the material from which it is made (Y1 – Everyday materials) Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water and rock. (Y1 – Everyday materials) Describe the simple physical properties of a variety of everyday	Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. (Y6 – Evolution and inheritance).	**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 no longer 'natural'.

		Observe, describe and compare rocks. Group and order rocks (hardness, weight, length). Explain why rocks have been used for a specific purpose e.g. Marble for statues. Describe how fossils were formed. Observe, describe and compare soils.	materials. (Y1 – Everyday materials) Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 – Everyday materials) Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 – Uses of everyday materials)		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.
Spring 2	Animals including humans 	**By the end of this unit children will be able to:** Explain how animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Discuss how food contains a range of different nutrients that are needed by the body to stay healthy – carbohydrates including sugars, protein, vitamins, minerals, fibre, fat, sugars, water. Know that a piece of food will often provide a range of nutrients.	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 – Animals including humans) Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – Animals including humans) Describe and compare the structure of a	Describe the simple functions of the basic parts of the digestive system in humans. (Y4 – Animals including humans) Identify the different types of teeth in humans and their simple functions. (Y4 – Animals including humans) Construct and interpret a variety of food chains, identifying producers,	**Some children may think:** Certain whole food groups like fats are 'bad' for you. Certain specific foods like cheese are also 'bad' for you. Diet and fruit drinks are 'good' for you. Snakes are similar to worms, so they must also be invertebrates. Invertebrates have no form of skeleton.

		Talk about their skeleton and the job it does. Identify and name some bones in the human skeletal system. Talk about and identify the major muscles in the body e.g. quads, hamstrings, calves, glutes, triceps, biceps. Talk about how the muscles work. Compare human and animal skeletons.	variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). Find out and describe the basic needs of animals, including humans, for survival (water, food and air) (Y2 – Animals including humans) Describe the importance for humans of exercise, eating the right amount of food and hygiene. (Y2 – Animals including humans).	predators and prey. (Y4 – Animals including humans). Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 – Animals including humans).	
Summer 1	Plants 	**By the end of this unit children will be able to:** Talk about the things that plants give us. Observe, describe and compare plants. Measure plants. Describe the functions of parts of a plant. Describe how a variety of plants need different things to live. Describe the life cycle of plants and the role of the flower.	Observe and describe how seeds and bulbs grow into mature plants. (Y2 – Plants) Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2 – Plants) Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 – Plants)	Describe the life processes of reproduction in some plants and animals. (Y5 – Living things and their habitats)	**Some children may think:** Plants eat food. Food comes from the soil via the roots. Flowers are merely decorative rather than a vital part of the life cycle in reproduction. Plants only need sunlight to keep them warm. Roots suck in water which is then sucked up the stem.

			Identify and describe the basic structure of a variety of common flowering plants, including tress. (Y1 – Plants)		
Summer 2	Light  	**By the end of this unit children will be able to:** Talk about how light helps us in everyday life. Name some sources of light. Talk about materials that reflect light and how this can be useful/ not useful. Talk about how to protect our eyes from the sun and why this is important. Explain how to make a variety of shadows e.g. vary size, clarity and shape.	Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1- Animals including humans) Describe the simple physical properties of a variety of everyday materials. (Y2 – Materials)	Recognise that light appears to travel in straight lines. (Y6 – Light) Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. (Y6 - Light) Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then our eyes. (Y6 – Light) Use the idea that light travels in straight lines to explain why shadows have the same shapes as the objects that cast them. (Y6 – Light)	**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 sources. Shadows contain details of the object, such as facial features on their own shadow. Shadows result from objects giving off darkness.