

St Andrews CE VA Primary School Science Progression Map

		Knowledge End Points					
		Key Stage 1		Lower Key Stage 2		Upper Key Stage 2	
		- Has experienced and observed phenomena, having looked more closely at the natural and humanly-constructed world around them. - Shows curiosity, asking questions about what they have noticed. - Has developed understanding of scientific ideas through the use of different types of scientific enquiry to answer own questions, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple, comparative tests and finding things out using secondary sources of information. - Is beginning to use simple scientific language to talk about what they have found out and communicate their ideas to a range of audiences in a variety of ways.		- Has broadened their scientific view of the world around them through exploring, talking about, testing and developing ideas about everyday phenomena and the relationships between living and non-living things and familiar environments and by beginning to develop ideas about functions, relationships and interactions. - Asks their own questions about what they observe and is able to make some decisions about which types of scientific enquiry are likely to be the best ways of answering them, including observing changes over time, noticing patterns, grouping and classifying things, carrying out simple comparative and fair tests and finding things out using secondary sources of information. - Draws simple conclusions and uses some scientific language, to both read and write about what they have found out. - Reads and spells scientific vocabulary correctly and with confidence, using their growing word and spelling knowledge.		- Has developed a deeper understanding of a wide range of scientific ideas through exploring and talking about their ideas; asking their own questions about scientific phenomena; and analysing functions, relationships and interactions more systematically. - Has encountered more abstract ideas and is beginning to recognise how these help them to understand and predict how the world operates. - Is beginning to recognise that scientific ideas change over different periods of time, noticing patterns, grouping and classifying things, carrying out comparative fair tests and finding things out using a wide range of secondary sources of information. - Is able to draw conclusions based on their data and observations, using evidence to justify their ideas and their scientific knowledge and understanding to explain their findings.	
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1		National Curriculum Pupils should be taught to: Observe changes across the four seasons. Observe and describe weather associated with	National Curriculum Pupils should be taught to: Notice that animals, including humans, have offspring which grow into adults.	National Curriculum Pupils should be taught to: Compare and group together different kinds of rocks based on their	National Curriculum Pupils should be taught to: Recognise that living things can be grouped in a variety of ways.	National Curriculum Pupils should be taught to: Describe the movement of the Earth and other planets	National Curriculum Pupils should be taught to: Describe how living things are classified into broad groups according to

		the seasons and how the day length varies.	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.	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.	Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. Recognise that environments can change and that this can sometimes pose dangers to living things.	relative to the sun in the solar system. Describe the movement of the moon relative to the Earth. Describe the sun, Earth, and Moon as approximately spherical bodies. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.	common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. To give reasons for classifying plants and animals based on specific characteristics.
		<u>Key Knowledge: Seasons (part one)</u> To know when each of the four seasons occurs. To know what the features of autumn are and what happens to trees in this season. To know that days are longer in summer (sunshine hours) than in winter. To know changes across the four seasons. <u>Key Skills</u> To gather and record data about weather conditions in autumn, drawing on observation and using simple	<u>Key Knowledge: Animals including Humans (adults and offspring)</u> To know that animals including humans have offspring which grow into adults, using the appropriate names for the stages. To know that to survive animals need sunlight, water, air, food and a suitable habitat (including shelter for protection from predators and the environment). <u>Key Skills</u> To ask questions and use secondary sources to find out about the life cycles of some animals.	<u>Key Knowledge: Rocks</u> To know that rock is a naturally occurring material. To know that there are different types of rock, - sandstone, limestone, slate - which have different properties. To know that rocks can be hard or soft because they have different sizes of grain or crystal. To know that rocks can be different shapes and sizes (stones, pebbles, boulders) and that some absorb water. To know, in simple terms, how fossils are formed when things that	<u>Key Knowledge: Living Things and their Habitats</u> To know that living things can be grouped in a variety of ways. To know and name living things in a range of habitats. To know the key adaptational features of an organism to the known features of its habitat. To know and give examples of how an environment may change both naturally and due to human impact.	<u>Key Knowledge: Earth and Space</u> To know that the sun is a star and is at the centre of our solar system. To know that there are 8 planets that travel around the sun in fixed orbits. To know that the Earth takes 365 $\frac{1}{4}$ days to complete its orbit around the sun. To know that the Earth rotates (spins) on its axis every 24 hours. To know that as Earth rotates, half faces the sun (day) and half is	<u>Key Knowledge: Living Things and their Habitats</u> To know that plants can be divided broadly into two main groups – flowering plants and non-flowering plants. To know that living things can be formally grouped according to characteristics. To know that animals can be divided into two main groups – vertebrates and invertebrates.

		equipment (a container to measure rainfall). To use data to create a pictogram and use this to describe changes in day length over the seasons. To use their evidence to describe some other features of the weather, surroundings, themselves, animals, and plants found in autumn. To demonstrate their knowledge in different ways - creating seasonal artwork, creating a pictogram (and use this to ask and answer related questions). <u>Vocabulary</u> Summer Winter Autumn Spring Rain Snow Hail Sleet Fog Sun Hot Warm Cold Day Daytime	To observe animals growing over a period - chicks, caterpillars, a baby. To ask questions of a parent about how they look after their baby. To ask pet owners questions about how they look after their pet. <u>Vocabulary</u> Offspring Grow Adults Water Food Air Exercise Hygiene Reproduce Egg Chick Chicken Caterpillar Pupa Butterfly Spawn Tadpole Frog Lamb Sheep Baby Toddler Child Teenager Adult	have lived are trapped within rock. To know that soils are made from rocks and organic matter. <u>Key Skills</u> To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. To devise tests to explore the properties of rocks and use data to rank the rocks. To link rocks changing over time with their properties - soft rocks get worn away more easily. To present in different ways their understanding of how fossils are formed - in role play, comic strip, chronological report, stop-go animation. To identify plant/animal matter and rocks in samples of soil. To devise a test to explore the water retention of soils.	<u>Key Skills</u> To observe plants and animals in different habitats throughout the year and use recordings to compare and contrast the living things observed. To explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. To classify living things found in different habitats based on their features. To create a simple identification key based on observable features. To use research to explore human impact on the local environment - litter, tree planting. To use secondary sources to find out about human impact, both positive and negative, on environments and	facing away from the sun (night). To know that as the Earth rotates, the sun appears to move across the sky. To know that the moon orbits the Earth, taking about 28 days. To know that the sun, Earth and moon are approximately spherical. <u>Key Skills</u> To use secondary sources to help create a model - role play or using balls - to show the movement of the Earth around the sun and the moon around the Earth. To use secondary sources to create a model to show why day and night occur. To make first-hand observations of how shadows caused by the sun change through the day. To make a sundial and report on findings following observation	To know that each group has common characteristics. <u>Key Skills</u> To classify plants and animals and record conclusions from the use of classification keys. To use information about the characteristics of an unknown animal or plant to assign it to a group. To use secondary sources to learn about the formal classification system devised by Carl Linnaeus and why it is important. To research an unfamiliar animal or plant using its characteristics to establish where it belongs in the classification system. <u>Vocabulary</u> Micro-organisms Plants Animals Classification Classify animals
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				<u>Vocabulary</u> Appearance Physical Properties Hard Soft Shiny Dull Rough Smooth Absorbent Not absorbent Fossils Sedimentary Rock Soils Organic matter Buildings Gravestones Grains Crystals	write a report on this. <u>Vocabulary</u> Environment Flowering Non-flowering Plants Animals Vertebrate Dangers Fish Amphibians Reptiles Birds Mammals Invertebrates Snails Slugs Worms Spiders Insects Plants Flowering plants Mosses and ferns Nature reserves Ecologically planned parks Garden parks Population Development Litter Deforestation	of the changing place of the shadow, making conclusions as to what this demonstrates and how the sundial was used to indicate the time. To research time zones. To consider the views of scientists in the past and how evidence was used to deduce the shapes and movements of the Earth, moon and planets before space travel. <u>Vocabulary</u> Earth Sun Moon Planets Star Solar system Mercury Venus Mars Jupiter Saturn Uranus Neptune Pluto Dwarf planet Movement Rotate Orbit Axis	Insects Spiders Snails Worms Fish Amphibians Reptiles Birds Mammals Carl Linnaeus
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						Celestial body Spherical Sphere Day Night Light Heat Eclipse Satellite Universe Solar Astronomer Ptolemy Alhazen Copernicus Shadow clock Sundial	
	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 2		National Curriculum Pupils should be taught to: Distinguish between an object and the material from which it is made Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. Describe the simple physical properties of a variety of everyday materials. Compare and group together a variety of everyday materials based on their simple physical properties.	National Curriculum Pupils should be taught to: Notice that animals, including humans, have offspring which grow into adults. 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.	National Curriculum Pupils should be taught to: 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.	National Curriculum Pupils should be taught to: Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches, and buzzers. Identify whether a lamp will light in a simple series circuit, based on whether the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and	National Curriculum Pupils should be taught to: Compare and group together everyday materials based on their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution. Use knowledge of solids, liquids, and gases to decide how mixtures might be	National Curriculum Pupils should be taught to: Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Recognise the impact of diet, exercise, drugs, and lifestyle on the way their bodies function. Describe the ways in which nutrients and water are transported within animals, including humans.

					associate this with whether a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.	separated, including through filtering, sieving, and evaporating. Give reasons, based on evidence from comparative and fair tests, for the uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda.	
		<u>Key Knowledge: Materials</u> To know the difference between an object and the material from which it is made. To know a variety of everyday materials - wood, plastic, glass, metal, water, and rock. To describe the simple physical properties of a	<u>Key Knowledge: Animals including Humans (basic needs for survival)</u> To know that exercise is important to humans and to explain why. To know the different food groups and the benefits of each as part of a healthy, balanced diet.	<u>Key Knowledge: Animals including Humans</u> To know that animals, unlike plants which can make their own food, need to eat to get the nutrients they need. To know that food contains a range of different nutrients that are needed by the body to stay healthy – carbohydrates including sugars, protein, vitamins,	<u>Key Knowledge: Electricity</u> To know appliances that require electricity to function. To know the basic parts of a circuit, including cells, wires, bulbs, switches, and buzzers. To know that for an appliance to work	<u>Key Knowledge: Materials</u> To know that materials have different uses depending on their properties and state (liquid, solid, gas). To know that some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment.	<u>Key Knowledge: Animals including Humans – Circulatory System</u> To know the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. To know the impact of diet, exercise, drugs, and lifestyle

		variety of everyday materials. To know how the properties of a material can make it useful for a range of different purposes (plastic is waterproof so it can be used to coat fabric for clothing but can also be used for outdoor play equipment). To know why and how the properties of materials make them particularly useful for specific purposes (stone is a hard, heavy, and durable material so it is useful for construction of buildings). To know that different materials can share the same properties (glass and plastic can both be transparent). <u>Key Skills</u> To compare and group together a variety of everyday materials based on their simple physical properties. To classify objects made of one material in different ways - a group of objects made of metal.	To know which food groups common foods belong to. To know about general hygiene and its importance and to state examples of hygienic practice. <u>Key Skills</u> To investigate the effects of exercise on their bodies. To classify food in a range of ways, including using the Eatwell guide. To investigate washing hands, using glitter gel. To describe, using diagrams, the life cycle of some animals, including humans, and their growth to adults - by creating a life cycle book for a younger child. To measure/observe how animals, including humans, grow. To collate knowledge about looking after a baby/animal by creating a parenting/pet owners' guide.	minerals, fibre, fat, sugars, water. To know that a piece of food will often provide a range of nutrients. To know that humans and some other animals have skeletons and muscles which help them move and provide protection and support. <u>Key Skills</u> To classify food in a range of ways. To use food labels to explore the nutritional content of a range of food items. To use secondary sources to find out the types of food that contain different nutrients. To use food labels to answer enquiry questions - How much fat do different types of pizza contain? How much sugar is in soft drinks? To plan a daily diet that contains a good balance of nutrients and record and present findings.	within a circuit, it must be part of a complete loop with a battery. To know that all metals conduct electricity but some, such as aluminium and titanium, are relatively poor conductors. To know the recognised symbols used to represent components of a circuit. <u>Key Skills</u> To construct and investigate a range of circuits. To investigate which materials can be used instead of wires to make a circuit. To classify materials that conduct electricity and those that don't following an investigation, and record findings. To investigate the effect of a switch and combinations of switches in simple circuits.	To know that mixtures can be separated by filtering, sieving and evaporation. To know that some changes to materials such as dissolving, mixing and changes of state are reversible, but some changes such as burning wood, rustling, and mixing vinegar with bicarbonate of soda result in the formation of new materials, and these are not reversible. <u>Key Skills</u> To investigate the properties of different materials to recommend materials for particular functions depending on these properties - test waterproofness and thermal insulation to identify a suitable fabric for a coat. To explore adding a range of solids to water and other liquids – cooking oil. To investigate rates of dissolving by carrying out comparative and	on the way the body functions. To know and describe the way in which nutrients and water are transported within animals, including humans. <u>Key Skills</u> To plan and conduct a scientific enquiry to identify different food groups. To use labelled diagrams to support understanding of how nutrients and oxygen are delivered around the body. To use information to identify the main components of the heart. To predict what will happen to the heart during exercise. To construct and analyse the variables to make a fair test. To conduct a fair investigation on the effect of exercise on the heart.
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		To classify one type of object made from a range of materials - a collection of spoons made of different materials. To choose an appropriate method for testing an object for a particular property. To use test evidence to answer the questions about properties - Which cloth is the most absorbent? To test the properties of objects - absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters. <u>Vocabulary</u> Wood Plastic Glass Metal Water Rock Hard Soft Stretchy Stiff Shiny Dull Rough	To explain how development and health might be affected by differing conditions and needs being met/not met. <u>Vocabulary</u> Offspring Grow Adults Water Food Air Exercise Hygiene Reproduce Egg Chick Chicken Caterpillar Pupa Butterfly Spawn Tadpole Frog Lamb Sheep Baby Toddler Child Teenager Adult	To use secondary sources to research the parts and functions of the skeleton. To investigate pattern seeking questions - Can people with longer legs run faster? Can people with bigger hands catch a ball better? To compare, contrast and classify skeletons of different animals. <u>Vocabulary</u> Nutrition Vitamins Minerals Fat Protein Carbohydrates Fibre Water Skeletons Support Protection Skull Brain Ribs Heart Lungs Movement Joint Muscles Pull Contract Relax Diet	To investigate switches and consider variations for specific uses - a pressure switch for a burglar alarm. To apply knowledge of conductors and insulators to design and make different types of switches. <u>Vocabulary</u> Electricity Appliances Electrical circuit Cell Wire Bulb Buzzer Danger Electrical safety Sign Insulators Wood Rubber Plastic Glass Conductors Metal Water Switch Open Closed	fair tests and recording findings. To separate mixtures by sieving, filtering, and evaporation, choosing the most suitable method and equipment for each mixture. To explore a range of non-reversible changes - rusting, adding fizzy tablets to water, burning. To carry out comparative and fair tests involving non-reversible changes e.g. What affects the rate of rusting? What affects the amount of gas produced? To research new materials produced by chemists - Spencer Silver (glue of sticky notes) and Ruth Benerito (wrinkle free cotton). <u>Vocabulary</u> Properties Hardness Solubility Transparency Electrical conductor Thermal conductor	To use scientific equipment to track results and record data using tables and graphs. To analyse whole class data after investigation to compare and reflect on findings and draw conclusions. To use information acquired to write a scientific report on how the human circulatory system works. <u>Vocabulary</u> Human circulatory system Heart Blood vessels Blood Diet Exercise Drugs Lifestyle Nutrients Exercise Water Damage Alcohol Substances Lungs Liver Kidney Brain
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		Smooth Bendy Not bendy Waterproof Not waterproof Absorbent Not absorbent Brick Paper Fabrics Elastic Foil				Dissolve Solution Separate Separating Solids Liquids Gases Evaporating Reversible changes Dissolving Mixing Evaporation Filtering Sieving Melting Irreversible New material Burning Rusting Magnetism Electricity Chemists Spencer Silver Ruth Benerito Quantitative Measurements Conductivity Insulation Chemical	Skeletal Skeleton Muscle Muscular Digest Digestion Digestive
Spring 1	Reception	Year 1 National Curriculum Pupils should be taught to: Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Identify and name a variety of common animals that are	Year 2 National Curriculum Pupils should be taught to: Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	Year 3 National Curriculum Pupils should be taught to: Compare how things move on different surfaces. Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance.	Year 4 National Curriculum Pupils should be taught to: Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions.	Year 5 National Curriculum Pupils should be taught to: Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals.	Year 6 National Curriculum Pupils should be taught to: Recognise that light appears to travel in straight lines. Use the idea that light travels in straight lines to explain that objects are seen because they give out or

		carnivores, herbivores, and omnivores. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets). Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting, and stretching.	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. Describe magnets as having 2 poles. Predict whether 2 magnets will attract or repel each other, depending on which poles are facing.	Construct and interpret a variety of food chains, identifying producers, predators, and prey.		reflect light into the eye. Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use the ideas that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.
		<u>Key Knowledge: Animals, including humans</u> To know and identify a variety of common animals including fish, amphibians, reptiles, birds, and mammals - cat, robin, adder, frog, salmon. To know and identify a variety of common animals that are carnivores, herbivores, and omnivores. To know the basic parts of the human body and say which part of the	<u>Key Knowledge: Use of Everyday Materials</u> To know why some materials - wood, metal, plastic, glass, brick, rock, paper and cardboard - are particularly suited to specific purposes. To know how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. To know the difference between materials that are transparent, translucent, and opaque.	<u>Key Knowledge: Magnets and Forces</u> To know that friction affects the way that things move on different surfaces. To know that some forces need contact between two objects, but magnetic forces can act at a distance. To know that magnets attract or repel each other and attract some materials and not others. To know that magnets have two poles.	<u>Key Knowledge: Animals, including humans</u> To know the basic parts of the digestive system in humans. To know the different types of teeth in humans and their simple functions. To know which organisms are producers, predators and prey and apply to the construction and interpretation of food chains.	<u>Key Knowledge: Living Things and their Habitats</u> To know the differences in the life cycles of a mammal, an amphibian, an insect and a bird. To know the life processes of reproduction in some plants (including the pollination process) and animals. To know that bulbs, tubers, runners, and plantlets are examples of plant reproduction	<u>Key Knowledge: Light</u> To know that light appears to travel in straight lines. To know that objects are seen because they give out or reflect light into the eye. To know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.

		body is associated with each sense. <u>Key Skills</u> To make first hand close observations of animals from each of the groups. To compare the structure of two animals from the same or different groups - wings/feathers, vertebrates/invertebrates. To classify animals using a range of features - lay eggs/give birth to live young, herbivore/omnivore (these terms do not have to be explicitly taught). To identify animals by matching statements to named images. To take measurements of parts of the body and present results in a table to interpret. To conduct simple sense experiments - Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match? <u>Vocabulary</u>	<u>Key Skills</u> To classify and sort materials by their properties - manmade, natural. To investigate and observe what happens to different materials during testing and use this to inform explanation of their properties. To investigate which materials are fit for a purpose - What is the best material for an umbrella? To explain from their observations how materials change when a force is exerted on them by squashing, bending, twisting, and stretching. To investigate the transparency of objects, recording class data in a table and drawing simple conclusions from the findings. To ask and answer questions about everyday materials. <u>Vocabulary</u> Wood	To know whether two magnets will attract or repel each other, depending on which poles are facing. <u>Key Skills</u> To record and report on findings from investigations, involving how things move on different surfaces. To compare and group materials following magnetic testing, recording findings, and using the outcome to answer questions about which materials are magnetic. To make and investigate predictions on whether two magnets will attract or repel, depending on which poles are facing. <u>Vocabulary</u> Force Push Pull Open Surface Magnet Magnetic Attract Repel Magnetic poles	<u>Key Skills</u> To construct and interpret a variety of food chains, identifying producers, predators and prey. To create food chains based on research. To identify differences and similarities of different types of teeth according to herbivore, omnivore, and carnivore. To record the teeth in their mouth (make a dental record). To recreate the human stomach and observe representation of how food breaks down. To label the different parts of the digestive system. <u>Vocabulary</u> Human digestive system Mouth Tongue Mixes	involving only one parent. <u>Key Skills</u> To grow and observe plants that reproduce asexually - strawberries, spider plant, potatoes. To organise mammals into different groups - sea and land and marsupials, and use scientific evidence to refute/support correct/incorrect statements (such as 'dolphins are fish'). To draw and label appropriate scientific diagrams following use of secondary sources and first hand observations relating to the life cycle of a range of animals. To compare and contrast the life cycles of different living things and present findings. To identify which insects complete which type of metamorphosis and present findings.	To know and explain, with reference to how light travels, why shadow have the same shape as the objects that cast them. <u>Key Skills</u> To plan and conduct a test to investigate how light travels and explain/present the findings. To investigate the use of mirrors to reflect light and record using straight line diagrams to indicate the direction of light. To use mirrors, torches and protractors to demonstrate and record how light is reflected in a mirror and how we see ourselves in a mirror. To measure and record the angle of incidence and angle of reflection using a protractor and detailed diagram.
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		Fish Amphibians Reptiles Birds Mammals Pets Carnivores Meat Cat Dog Lion Tiger Fox Shark Killer whale	Metal Plastic Glass Brick Rock Paper Cardboard Squashing Bending Twisting Stretching Coins Cans Cars Table legs Matches Floors Telegraph poles Spoons Rubber Waterproof fabric Ceramic Water Ice Fabric Leather Wool Diamond	North South	Moistens Saliva Teeth Incisors Cutting Slicing Canines Ripping Tearing Molars Chewing Grinding Oesophagus Transports Stomach Acid Enzymes Small intestine Large intestine Compacts Carnivore Herbivore Brush Floss Food chain Sun Producers Prey Predators	To identify the key differences between some amphibians – toads and frogs - and present findings in different forms. To use data to compare and find patterns, for example to compare the gestation times for mammals and look for patterns - in relation to size of animal or length of dependency after birth. <u>Vocabulary</u> Mammal Amphibian Insect Bird Plants Animals Vegetable garden Flower border David Attenborough Jane Goodall Sexual Asexual Rainforest Oceans Desert Prehistoric Similarities Differences	<u>Vocabulary</u> Light Travels Straight Reflect Reflection Light source Object Shadows Mirrors Periscope Rainbow Filters Spectrum
Spring 2	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		National Curriculum Pupils should be taught to:	Continue Spring 1	National Curriculum Pupils should be taught to:	National Curriculum Pupils should be taught to:	Continue Spring 1	National Curriculum Pupils should be taught to:

		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, including trees.		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 light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by an opaque object. Find patterns in the way that the size of shadows change.	Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound increases.		Recognise that living things have changed over time and fossils provide information about living things that inhabited the Earth millions of years ago. Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. Identify how animals and plants are adapted to suit the environment in different ways and that adaptation may lead to evolution.
		<u>Key Knowledge: Plants</u> To know and identify a variety of common wild and garden plants, including deciduous and evergreen trees. To know the basic structure of a variety of common flowering plants, including trees. <u>Key Skills</u> To sort and group parts of plants using similarities and	Continue Spring 1	<u>Key Knowledge: Light</u> To know that light is needed to see things and that dark is the absence of light. To know that light is reflected from surfaces. To know that light from the sun can be dangerous and that there are ways to protect the eyes. To know that shadows are formed when the	<u>Key Knowledge: Sound</u> To know how sounds are made, associating some with vibrating. To know how sound travels from a source to our ears. To know the correlation between pitch and the object. To know the correlation between the volume of a	Continue Spring 1	<u>Key Knowledge: Evolution and Inheritance</u> To know that all living things have offspring of the same kind but that the offspring are not identical to their parents and vary. To know that plants and animals have characteristics that make them suited (adapted) to their environment.

		differences - the shape of leaves, the colour of the flower/blossom. To use simple charts and Venn diagrams to identify and classify plants. To use photographs and their own observations to talk about how plants change over time (seed to sapling to tree) and over the year (deciduous and fruit bearing trees). To plant seeds and observe how they grow and change by making simple observations. To point to and name the parts of a plant, recognising that they are not always the same – leaves and stems may not be green, the leaves are different shapes. <u>Vocabulary</u> Wild plants Garden plants Deciduous Evergreen Leaf Root Leaves Bud Flowers Blossom		light from a light source is blocked by an opaque object. To know some of the reasons why the size of shadows change. To know how the shadows of transparent, opaque, and translucent materials vary. <u>Key Skills</u> To observe and identify changes to the size and orientation of shadows, relative to their proximity to the light source. To observe and identify the difference in shadows of opaque, translucent, and transparent objects. To observe how shadows are formed and affected by different circumstances. To notice that light can be reflected off surfaces and replace with different materials (shiny: foil, mirrors; matt: sugar paper). To investigate the size of shadows according to	sound and the strength of the vibrations that produced it. To know that sounds get fainter as the distance from the sound source increases. <u>Key Skills</u> To experiment with at least three different instruments to observe and explore volume and pitch. To make predictions and draw conclusions about the pitch and volume of sounds. To note how vibrations make sounds of different volumes and travel to our ears. To identify and show how sound travels through particles and into the ear. To make own instruments that produce a range of pitches. <u>Vocabulary</u>		To know that if the environment changes rapidly some variations may not suit the new environment and will die. To know that if the environment changes slowly, animals and plants with variations that are best suited survive and reproduce. To know that over a long period of time these characteristics may be so different that a new species is created, and this is called evolution. To know that fossils give us evidence of what lived on the Earth millions of years ago. To know that scientists such as Darwin and Wallace observed how living things adapt to different environments. <u>Key Skills</u>
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		Petals Root Stem Trunk Branches Fruit Vegetables Bulb Seed	times of day and year, by tracing shadows outside and comparing differences. To classify materials according to opaque, transparent, and translucent. To use oral and written explanations to report on why shadows are formed and how the length and size of a shadow can be changed. To investigate questions related to an object and the shadow it will cause. <u>Vocabulary</u> Light See Dark Reflect Surface Natural Star Sun Moon Shadow Blocked Solid Artificial Torch Candle Lamp Sunlight Dangerous Protect eyes	Vibrate Vibration Vibrating Air Medium Ear Hear Sound Volume Pitch Faint Fainter Loud Louder String Percussion Woodwind Brass Insulate	To follow lines of enquiry to support explanation of the process of evolution. To demonstrate and understanding, with specific examples, of how an animal or plant has evolved over time – penguin, peppered moth. To identify characteristics that will make a plant or animal suited or not suited to a particular habitat. To compare the ideas of Charles Darwin and Alfred Wallace on evolution. To research the work of Mary Anning and understand how this provided evidence of evolution. To refer to and use examples of fossil evidence and that support the theory of evolution. <u>Vocabulary</u> Living things
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				Light sources Source Shine			Change Fossils Offspring Vary Not identical Characteristics Variation Mary Anning Charles Darwin Adapt Environment Extreme Conditions Evolution Adaptation Inherit Inheritance
Summer 1	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		National Curriculum Pupils should be taught to: Observe changes across the 4 seasons. Observe and describe weather associated with the seasons and how day length varies.	National Curriculum Pupils should be taught to: Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. Identify and name a variety of plants and animals in their habitats, including microhabitats. Describe how animals obtain their food from	National Curriculum Pupils should be taught to: Identify and describe the functions of different parts of flowing plants: roots, stem/trunk, leaves and flowers. 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. 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,	National Curriculum Pupils should be taught to: Compare and group materials together, according to whether they are solids, liquids, or gases. Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). Identify the part played by evaporation and condensation in the water cycle and associate the rate of	National Curriculum Pupils should be taught to: Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. Identify the effects of air resistance, water resistance and friction, that act between moving surfaces. Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect.	National Curriculum Pupils should be taught to: Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. Use recognised symbols when representing a

			plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.	seed formation and seed dispersal.	evaporation with temperature.		simple circuit in a diagram.
		<u>Key Knowledge: Seasons (continued)</u> To know about weather in different seasons over a year. To know the features of different seasons and how they change through the year. <u>Key Skills</u> To collect information about the weather regularly throughout the year. To present this information in tables and charts to compare the weather across the seasons. To collect information, regularly throughout the year, of features that change with the seasons – plants, animals, humans. To present this information in different ways to compare the seasons.	<u>Key Knowledge: Living Things and their Habitats</u> To know the differences between things that are living, dead, and things that have never been alive. To know that most living things live in habitats to which they are suited. To know how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. To know and name a variety of plants and animals in their habitats, including micro-habitats. To know how animals obtain their food from plants and other animals, using the ideas of a simple food chain, and identify and make the different sources of food. <u>Key Skills</u>	<u>Key Knowledge: Plants</u> To know the functions of different parts of flowing plants: roots, stem/trunk, leaves and flowers. To know 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. To know, through investigation, the ways in which water is transported within plants. To know the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. <u>Key Skills</u> To observe what happens to plants over time when the leaves or roots are removed.	<u>Key Knowledge: States of Matter</u> To know how to distinguish between a solid, liquid and gas. To know that some materials change state when they are heated or cooled. To know the temperatures at which ice, water, and water vapour change state. To know the part played by evaporation and condensation in the water cycle. <u>Key Skills</u> To observe closely and classify a range of solids and liquids. To explore making gases visible. To classify materials according to whether	<u>Key Knowledge: Forces</u> To know that unsupported objects fall to Earth because of the force of gravity acting between the Earth and the falling object. To know the effect of air resistance, water resistance and friction, that act between moving surfaces. To know that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. <u>Key Skills</u> To investigate the pull on different objects using a newton meter and record forces in Newtons (N). To report on conclusions relating to an object's mass and its weight in Newtons.	<u>Key Knowledge: Electricity</u> To know that the brightness of a bulb, or the volume of a buzzer, correlated with the voltage of cells used in the circuit. To know how components function – bulbs, buzzers, and switches. To know the effect of adding more components to a circuit with one cell and the effect of adding multiple cells. To know the recognised symbols that can be used to represent a simple circuit in a diagram. <u>Key Skills</u> To draw circuit diagrams of a range of simple series

		To gather data about day length regularly throughout the year and present this to compare the seasons. To use gathered evidence to describe the general types of weather and changes in day length over the seasons. To use evidence to describe some other features of their surroundings, themselves, animals, plants that change over the seasons. To demonstrate knowledge in different ways – creating seasonal artwork. <u>Vocabulary</u> Summer Winter Autumn Spring Rain Snow Hail Sleet Fog Sun Hot Warm Cold Day	To explore the outside environment regularly to find objects that are living, dead and have never lived. To classify objects found in the local environment. To observe animals and plants carefully, drawing and labelling diagrams. To create simple food chains for a familiar local habitat from first hand observation and research. To create simple food chains from information given – in picture books (Gruffalo). To sort into living, dead and never lived. To give key features that mean the animal or plant is suited to its micro-habitat. To use a food chain to explain what animals eat. To explain in simple terms why an animal or plant is suited to a habitat.	To observe the effect of putting cut white carnations or celery in coloured water. To investigate what happens to plants when they are put in different conditions – in darkness, in the cold, deprived of air, different types of soil, different fertilisers, varying amounts of space. To spot flowers, seeds, berries, and fruits outside throughout the year. To observe flowers carefully to identify the pollen. To observe flowers being visited by pollinators – bees and butterflies in the summer. To observe seeds being blown from the trees – sycamore seeds. To research different types of seed dispersal. To classify seeds in a range of ways including by how they are dispersed.	they are solids, liquids, and gases. To observe a range of materials melting. To investigate how to melt ice more quickly. To observe the changes that are non-reversible relating (common ingredients). To investigate melting point of different materials. To explore freezing different liquids. To observe and measure temperature of icy water, tap water, hot water. To observe water evaporating and condensing. To set up investigations to explore changing the rate of evaporation. To use secondary sources to find out about the water cycle.	To investigate the effect of friction in a range of contexts. To investigate the effects of water resistance in a range of contexts – dropping shapes through water, pulling boats along the surface of water. To investigate the effects of air resistance in a range of contexts – parachutes, spinners, sails on boats. To explore how levers, pulleys, and gears work. To research how the work of scientists Galileo Galilei and Isaac Newton helped to develop the theory of gravitation. <u>Vocabulary</u> Gravity Air resistance Friction Surface Force Effect Move Accelerate Decelerate Stop Change direction	circuits, using recognised symbols. To communicate structures of circuits using circuit diagrams with recognised symbols. To make electric circuits and demonstrate, following investigation, how variation in the working of components can be changed. To plan and select resources for a fair scientific enquiry, deciding which variables to control. To record results from an experiment using tables and graphs. To evaluate and explain their investigation, results, and conclusions. <u>Vocabulary</u> Voltage Brightness Volume Switches
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		Daytime	<u>Vocabulary</u> Living Dead Never alive Habitats Micro-habitats Food Food chain Alive Leaf litter Stony path Under bushes Shelter Seashore Woodland Ocean Rainforest Conditions Hot Warm Cold Dry Damp Wet Bright Shade Dark Desert	To create a new species of flowering plant. To explain observations made during investigations. To look at the features of seeds to decide on their method of dispersal. To draw and label a diagram of their created flowering plant to show its parts, their role and the method of pollination and seed dispersal. <u>Vocabulary</u> Flowering plants Roots Stem Trunk Leaves Flowers Nutrition Support Reproduction Makes its own food Air Light Water Nutrients from the soil Room to grow Seeds vary Fertiliser Flowers Pollination Seed formation	To use their data to explain how to speed up or slow down evaporation. To present learning about the water cycle in a range of ways – diagrams, explanation text, story of a water droplet. <u>Vocabulary</u> Solid Solidify Iron Ice Melt Freeze Liquid Evaporate Condense Gas Container Changing state Heated Heat Cooled Cool Degrees Celsius °C Thermometer Water cycle Evaporation Condensation Temperature Melting Warm Water Water vapour	Mechanism Pulley Gear Spring Galileo Galilei Isaac Newton	Danger Series circuit Electrical safety Sign Circuit diagram Bulb Buzzer Motor Recognised Symbols
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				Seed dispersal			
Summer 2	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Continue Summer 1	National Curriculum Pupils should be taught to: Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	Continue Summer 1	Continue Summer 1	Continue Summer 1	Continue Summer 1
		Continue Summer 1	<u>Key Knowledge: Plants</u> To know that plants may grow from either seeds or bulbs. To know that seeds and bulbs can germinate and then grow into seedlings and then continue to grow into mature plants. To know that mature plants may have flowers which then develop into seeds, berries and fruits. To know that seeds and bulbs need to be planted at particular times of the year and will germinate and grow at different rates. To know that some plants are better suited to growing in full sun and some grow better in partial and full shade.	Continue Summer 1	Continue Summer 1	Continue Summer 1	Continue Summer 1

To know that plants need water, light and a suitable temperature to grow and stay healthy.

Key Skills

To make close observations of seeds and bulbs.

To classify seeds and bulbs.

To research and plan when and how to plant a range of seeds and bulbs.

To look after the plants as they grow – weeding, thinning, watering.

To make close observations and measurements of plants growing from seeds and bulbs.

To make comparisons between plants as they grow.

To spot similarities and differences between bulbs and seeds.

Vocabulary

Wild plants
Garden plants

			Deciduous Evergreen Leaf Root Leaves Bud Flowers Blossom Petals Stem Grow Healthy Trunk Branches Fruit Vegetables Bulb Seed Light Suitable Temperature Germination Reproduction				
School Context	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
		Children will learn about seasonal change in the school grounds (including Forest School) and local area. Children will identify the materials that key local buildings are made from and discuss why those materials have been used. Children will discuss senses and explore them within school. What do we see, hear, touch,	Children will interview community members (parents, family members) about looking after a baby and/or pet. Children will refer to the school dinner menu; each day provides from each food group. Children will compare the uses of everyday materials in and around the school with materials found in other places.	Children will refer to the school dinner menu; what is the example from each food group on each day? Children will find classroom resources that are magnetic. Children will apply forces of push and pull around the school (including indoor and outdoor PE equipment).	Children will use the Forest School. Children will record environmental dangers in a local habitat. Children will use equipment from the music room. Children will use equipment from the school kitchen.	Children will use the playground to create a role play of the solar system. Children will use the Forest School.	Children will observe flowering plants in the school grounds (including Forest School).

		smell and taste every day? Children will visit Honeysuckle Farm. Children will plant seeds using the Forest School resources. Children will visit the same areas in the school grounds and locality in the Summer Term as they did in the Autumn Term to draw comparison.	Children will have a visitor to school bringing exotic animals. Children will observe plants and the conditions they are growing around the school grounds, including the Forest School.	Children will observe flowering plants in the Forest School. Children will visit a local park.			
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