

Science Knowledge, Skills, Sequencing and Progression

	EYFS	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Working Scientifically (to be delivered through teaching of subject content and not taught separately).	Listen attentively and respond to what they hear with relevant questions, comments and actions when being read to and during whole class discussions and small group interactions. (LA+U) Make comments about what they have heard and ask questions to clarify their understanding. (LA+U)	Ask simple scientific questions and recognise that there are different ways to answer them.	Ask relevant questions and use evidence to answer these.	Plan scientific enquiries to answer questions; use scientific evidence to answer these and support findings.
		Perform simple tests.	Set up practical enquiries and fair tests using a range of scientific equipment.	Set up practical enquiries and tests including controlling variables.
		Observe closely using simple equipment and collect data.	Make careful observations and begin to make accurate measurements.	Make systematic observations and take accurate measurements using a range of scientific equipment.
	Explore the natural world around them, making observations and drawing pictures of animals and plants. (UW)	Record findings eg as drawings, diagrams, photographs or in simple prepared format such as tables and charts.	Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables.	Record and present data and results in a range of ways – eg scientific diagrams / labels, classification keys, tables, charts and graphs.
	Express their ideas and feelings about their experiences using full sentences. (S)		Report findings from investigations including oral and written explanations or presentations of results and conclusions.	Report findings from investigations: written explanations including causal relationships and conclusions.
	Offer explanations for why things might happen, making use of recently introduced vocabulary. (S)	Use observations and ideas to answer questions.	Use results to draw simple conclusions and suggest improvements and predictions for setting up further tests.	Continue to develop the ability to use test results to make predictions, set up further comparative / fair tests and draw conclusions.
		Identify and classify.		
				Identify scientific evidence that has been used to support or refute ideas or arguments.

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	<p>By the end of the EYFS children will:</p> <ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants; Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. 		
	Key Stage 1	Lower Key Stage 2	Upper Key Stage 2
Plants	<p>Y1 Identify and name common plants. Identify and describe the basic structure of a variety of a flowering plant.</p> <p>Y2 Describe how seeds and bulbs grow. Describe how plants need water, light and a suitable temperature to grow.</p>	<p>Y3 Identify and describe the functions of different parts of flowering plants. Identify requirements of plants for life and growth 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, seed formation and seed dispersal.</p>	
Living Things and their Habitats	<p>Y2 Explore and compare the differences between things that are living, dead, and things that have never been alive. Identify living things live in habitats to which they are suited and how these provide basic needs of animals and plants. Identify and name a variety of plants and animals in their habitats. Describe how animals obtain their food from plants and other animals, using a simple food chain.</p>	<p>Y4 Recognise that living things can be grouped in a variety of ways and give reasons for classifying plants and animals. Use classification keys to help group, identify and name a variety of living things. Explain using food chains / webs how feeding relationships occur in a habitat. Identify producers, predators, prey, herbivores, carnivores, omnivores. Recognise that environments can change and that this can sometimes pose dangers to living things.</p>	<p>Y5 Describe the life cycles of a mammal, an amphibian, an insect and a bird. Describe the life process of reproduction in some plants and animals.</p> <p>Y6 Describe how living things are classified into broad groups according to characteristics and based on similarities and differences. Give reasons for classifying plants and animals based on specific characteristics.</p>
Animals, including Humans	<p>Y1 Identify and name a variety of animals including fish, amphibians, reptiles, birds and mammals. Identify carnivores, herbivores and omnivores. Describe and compare the structure of a variety of common animals. Identify, name, draw and label the basic parts of the human body and relate to senses.</p> <p>Y2 Explain that animals, including humans, have offspring which grow into adults.</p>	<p>Y3 Explain 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 animals have skeletons and muscles for support, protection and movement.</p> <p>Y4 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.</p>	<p>Y5 Describe the changes as humans develop to old age.</p> <p>Y6 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 bodies function. Describe the ways in which nutrients and water are transported within animals, including humans.</p>

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	Describe the basic needs of animals, including humans, for survival. Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.		
Evolution and Inheritance			<p>Y6 Recognise that living things have changed over time and that 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 their environment in different ways and that adaptation may lead to evolution.</p>
Materials	<p>Y1 Everyday Materials Distinguish between an object and the material from which it is made. Identify and name a variety of everyday materials. Describe the simple properties of a variety of everyday materials. Compare and group together materials based on their properties.</p> <p>Y2 Uses of Materials Identify and compare the suitability of a variety of everyday materials for particular uses. Find out how the shapes of solid objects can be changed by squashing, bending, twisting and stretching.</p>	<p>Y3 Rocks Compare and group rocks on their appearance / physical properties. Describe how fossils are formed. Recognise that soils are made from rocks and organic matter.</p> <p>Y4 States of Matter Compare and group materials into solids, liquids and gases. Explain that some materials change state when they are heated or cooled, and measure the temperature in degrees Celsius (°C). Give reasons for changes to the state of water using the correct vocabulary, Identify evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Y5 Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials. 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 separated. Demonstrate reversible changes. Explain that some changes result in the formation of new materials, and that this kind of change is difficult to reverse.</p>
Light and Sound		<p>Y3 Light 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.</p>	<p>Y6 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 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.</p>

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		<p>Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change.</p> <p>Y4 Sound Identify how sounds are made, associating some of them with something vibrating. Explain how sounds are heard (vibrations travel through various materials 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 source increases.</p>	<p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Find patterns in the way that the size of shadows change (link to sunlight). Explain that light can be broken into colours.</p>
Forces and Magnetism		<p>Y3 Magnets Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Compare and group together materials based on whether they are attracted to a magnet. Investigate how magnets attract some materials and not others and identify some magnetic materials. Observe how magnets attract or repel each other and predict whether magnets will attract or repel each other, depending on which poles are facing.</p>	<p>Y5 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. Measure the size of a force. Explain that forces push / pull objects making them change shape. Explain the idea of speed.</p>
Electricity		<p>Y4 Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit (as above). Recognise some common conductors and insulators, and investigate these.</p>	<p>Y6 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 simple circuit in a diagram.</p>
Space			<p>Y5 Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p>

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			<p>Describe the movement of the Moon relative to the Earth.</p> <p>Describe the Sun, Earth and Moon as approximately spherical bodies.</p> <p>Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p> <p>Understand how the four seasons are linked to the movement of the Earth.</p>
Seasons	<p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p>		

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Key Stage 1						
Year A						
	Prior Learning	Intent (children will learn)	Unit	Sequence of Lessons WALT (children will ...)	Vocabulary	Outcome / Composite
Autumn A	<p>EYFS: Offer explanations for why things might happen.</p> <p>Y1 and Y2: Working Scientifically: make and use observations; perform simple tests Y2 children will have explored the properties of some everyday materials.</p>	<p>Children will learn to distinguish between an object and the material from which it is made.</p> <p>They will identify and name a variety of everyday materials and identify possible uses for them.</p> <p>They will describe simple physical properties of a variety of everyday materials and compare and group them by these properties. They will compare the suitability of materials for different purposes and find out how the shapes of solid objects made from some materials can be changed.</p>	Everyday Materials (Y1 and Y2)	<ol style="list-style-type: none"> Distinguish between an object and the material from which it is made. Describe the simple physical properties of a variety of everyday materials. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. Compare the suitability of a variety of materials for different purposes. Ask scientific questions and make predictions. Make observations and record findings. <p>What are materials? How are materials different? What are objects made from? How can we sort materials? Which material would be best for an umbrella? Which material would be best for curtains? How can we change materials? Investigate the properties of different materials</p>	<p>material fabric object fragile hard soft rough smooth Waterproof</p> <p>Absorbent Flexible Properties Rigid Transparent</p> <p>words to describe materials such as: hard, soft, rough, bumpy, smooth, fragile, strong, heavy, light</p> <p>name types of material such as: wood, metal, plastic, glass, rubber, rock, fabric, paper and brick.</p> <p>bend, stretch, twist</p>	

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<p>Spring A</p>	<p>EYFS - Explore the natural world around them Understand some changes in the natural world.</p> <p>Understand some important processes and changes in the natural world around them.</p>	<p>To understand seasonal change; Pupils should be taught to:</p> <ol style="list-style-type: none"> 1. observe changes across the four seasons. 2. observe and describe weather associated with the seasons and how day length varies. 	<p>Understanding the seasons Why does the weather change during the different seasons?</p>	<p>1-4. I can observe and describe changes across the 4 seasons. 5. I can observe how day length varies. 6. I can describe the weather associated with the seasons.</p> <p>What is spring? What is summer? What is Autumn? What is winter? How does the day change? How can we keep dry in the rain?</p>	<p>season spring summer autumn winter rain sun change</p>	
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<p>Summer A</p>	<p style="text-align: center;">EYFS</p> <p>Explore the natural world around them, making observations and drawing pictures of animals and plants.</p>	<p>Identify, sort and name a variety of common animals. Label the basic parts of the human body.</p>	<p>Animals including humans – How can we group animals?</p>	<ol style="list-style-type: none"> 1. identify and name a variety of common animals including fish, amphibians, reptiles, birds, and mammals 2. I can compare a variety of common animals including fish, amphibians, reptiles, birds and mammals. 3. I can identify and name a variety of common animals that are carnivores, herbivores, and omnivores. 4. identify, name, draw and label the basic parts of the human body 5. I can identify which part of the body is associated with each sense. 6. I can compare humans. <p>What is this animal? How are animals different? Do all animals eat the same thing? What are our body parts called? What are senses? Are all humans the same?</p>	<p>animal herbivore carnivore omnivore mammal bird fish reptile amphibian main body parts including head, neck, arms, elbows, legs, knees, face, ears, hair, mouth, teeth, abdomen, chest, shoulders and toes</p>	
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<p>Autumn B</p>		<p>Children will learn about the basic needs that all humans need to survive and live. They will study more closely the importance of exercise, a healthy diet and good hygiene as ways to keep us healthy. They will also look at offspring of different animals and how they develop and change into adults as they grow. Finally, children will also look at ways to keep themselves from becoming ill as well as things they can do if they do become ill.</p>	<p>Animals including humans – Why do we need to keep healthy?</p>	<ol style="list-style-type: none"> 1. I can find out about and describe the basic needs of animals, including humans, for survival. 2. I notice that animals, including humans have offspring which grow into adults. 3. I notice that animals, including humans have offspring which grow into adults. 4. I can gather and record data. 5. I can describe the importance for humans to exercise. 6. I can describe the importance for humans to eat the right amounts of different types of food. 7. I can describe the importance for humans to have good hygiene. 8. I can describe the importance for humans to look after themselves. <p>What do humans need? What are offspring? How do animals change as they grow into adults? Do we all grow the same? Do we need exercise? What is a healthy diet? Why do we need to have good hygiene? How can we feel better when we are ill?</p> <ul style="list-style-type: none"> • 	<p>basic needs diet exercise hygiene illness medicine offspring survive seven basic needs – movement, respiration, sensitivity, growth, reproduction, excretion nutrition</p>	
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<p>Spring B</p>		<p>They will identify and describe the basic structure of a flowering plant and describe how seeds and bulbs grow into mature plants.</p> <p>They will find out what plants need to survive.</p>	<p>Plants</p> <p>How can we identify different plants and trees?</p> <p>How do seeds and bulbs grow into healthy plants?</p>	<ol style="list-style-type: none"> 1. I can identify different plants. 2. I can identify and describe the basic structure of plants. 3. I understand that plants can grow. 4. I can name a variety of common wild plants. 5. I can sort a variety of plants. 6. I can name a variety of common plants that we can eat. 7. I can identify, name and describe the basic structure of deciduous and evergreen trees. 8. I can identify and classify. <p>What is a plant? What are parts of a plant called? Do plants grow? Do wild plants grow in our local area? How can we group plants? Can we eat plants? Are trees a type of plant? What is a leaf?</p> <ol style="list-style-type: none"> 1. I can identify that fruit, vegetables and herbs are a type of plant that we eat. 2. I can observe and describe how seeds grow into mature plants. 3. I know what plants need to grow and stay healthy. 4. I know what plants need to grow and stay healthy. 5. I can explain the life cycle of plants. 	<p>Plant</p> <p>tree</p> <p>Bulb Deciduous</p> <p>Evergreen</p> <p>Experiment Fair</p> <p>test</p> <p>Flower</p> <p>leaf/Leaves</p> <p>Mature</p> <p>Plant Roots</p> <p>Seed</p> <p>Stem</p> <p>Structure</p>	
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				Which plants can we eat? Are all seeds the same? What do plants need? Where will they grow? How do plants grow and change?		
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<p>Summer B</p>	<p>EYFS</p> <p>Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.</p>	<p>Pupils will explore and compare the differences between things that are living, dead, and things that have never been alive.</p> <p>They will 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</p> <p>They will identify and name a variety of plants and animals in their habitats, including micro- habitats</p> <p>Pupils will describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</p>	<p>Living things and their habitats</p> <p>How do we know if something is alive?</p>	<ol style="list-style-type: none"> 1. I can explore and compare the differences between things that are living, dead, and things that have never been alive. 2. I can identify and name a variety of plants and animals in their habitats, including microhabitats. 3. I can identify and name a variety of plants and animals in their habitats. 4. I can observe closely and use my observations to answer questions. 5. I can identify that most living things live in a habitat to which they are suited. 6. I can construct a simple food chain. <p>Is it living, dead or never been alive? What is a microhabitat? How are habitats different around the world? What conditions do woodlice prefer? How are living things adapted to their habitat? What is a food chain?</p>	<p>Alive/living Dead Living Habitat Micro-habitat Conditions Plant Animal Adapted Food Chain omnivore herbivore carnivore</p> <p>Local environment</p>	
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Lower Key Stage 2						
Year A						
	Prior Learning	Intent (children will learn)	Unit	Sequence of Lessons WALT (children will ...)	Vocabulary	Outcome / Composite
Autumn A	<p>Working Scientifically (KS1) Observe closely using simple equipment and collect data. Everyday Materials (Y1) Describe the simple properties of a variety of everyday materials. Compare and group together materials based on their properties.</p>	For pupils to recognise and identify different types of rocks.	Working scientifically Rocks (Y3)	<ol style="list-style-type: none"> 1. Compare and group rocks 2. Compare rocks based on their properties 3. Understand how some types of rocks are formed 4. Explain that the Earth is made from rocks and soils 5. Present the results of an investigation 6. Investigate how fossils are formed <p>What are rocks? Are all rocks the same? How are rocks formed? Which rocks make up the Earth? What are soils? How are fossils formed?</p>	Crust Decay Fossil Geologist Igneous Impermeable Inner core Mantle Metamorphic Microbe Permeable Sedimentary Soil	
Autumn A	<p>Working Scientifically (KS1): Ask simple scientific questions and recognise that there are different ways to answer them. Observe closely using simple equipment and collect data. Perform simple tests.</p>	Identify magnetic materials, to form an understanding of how magnets work.	Working Scientifically Forces and Magnets (Y3)	<ol style="list-style-type: none"> 1. Compare how things move on different surfaces. 2. Notice that some forces need contact between two objects. 3. Observe how magnets attract or repel each other. 4. Compare and group together everyday materials on a basis of whether that are attracted by a magnet. 5. Predict whether two magnets will attract or repel each other, depending on the poles. 6. Record findings using scientific vocabulary. <p>What is a force? Do objects move the same on different surfaces? How do magnetic forces work? Which materials are magnetic? Do magnets attract each other? Are all magnets the same strength?</p>	Attract Force Friction Magnet Magnetic force Magnetic pole Pull Push Repel	Conduct an investigation in to which everyday materials are magnetic.
Spring A	KS1 - Children do not study light as a	Children will recognise that they need light in order to	Workign Scientifically	<ol style="list-style-type: none"> 1. I can recognize there needs to be light in order to see things and darkness is the absence of light. 	light source - dark -	

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	<p>separate topic. However, as part of seasonal changes topic, children will have observed and talked about changes in the weather and the seasons and will have talked about the dangers of looking at the Sun directly.</p> <p>Year 2 - children might have observed the effect of light on plant growth.</p>	<p>see things and that dark is the absence of light. They will learn to identify light sources; explore what happens when light reflects off mirrors or other reflective materials and think of ways to protect themselves from the Sun. They will investigate which materials make the best/worst shadows and conduct an experiment to find out about the relationship between the height of a light source and the length of a shadow. Children will also experience a range of activities to discover how mirrors work.</p>	<p>Light (Y3)</p>	<ol style="list-style-type: none"> 2. I can notice that light is reflected from surfaces. 3. I can recognize that sunlight can be dangerous. 4. I can recognize that shadows are formed when light is blocked. 5. I can find patterns in the way the length of shadows change. 6. I know that light is reflected from surfaces. <p>What is a light source? What is reflected light? Is the sun dangerous? What is a shadow? Does moving the light source make the shadow longer? How do mirrors work?</p>	<p>reflect shadow - opaque - translucent - transparent - luminous -</p>	
Summer A	<p>Year 1 – Children looked at how to group animals including based on their diet.</p> <p>Year 2 – Children studied animals and their offspring and the basic needs that animals need to survive.</p>	<p>children will learn about the structure of the human skeleton and how the muscles also work alongside the skeleton to support and protect the human body. They will then look at how skeletons differ in different animals. Finally, children will look at nutrition and the importance of eating a healthy diet.</p>	<p>Animals including humans Y3</p>	<ol style="list-style-type: none"> 1. Revisit previous learning. 2. Identify that humans have bones for support, protection and movement? 3. I can set up a simple practical enquiry. 4. I can identify that humans have muscles for support, protection and movement. 5. I can identify that some other animals have bones for support, protection and movement. 6. I understand that animals, including humans, need the right type of nutrition. <p>How does our skeleton help us? Do our bones affect what we can do? What do our muscles do? Do all animals have the same skeleton? What types of nutrition do we need?</p>	<p>nutrition skeleton muscles healthy unhealthy diet bones vertebrate invertebrate</p>	
Summer b	<p>Year 1 – Children learnt about different plants and trees and described the basic structure. Year 2 – Children studied how</p>	<p>children will build upon their previous knowledge of plants and trees from Year 2 where children find out what plants need in order to stay healthy once they have</p>	<p>Plants Y3</p>	<ol style="list-style-type: none"> 1. I can explore the requirements of plants for life and growth. 2. I can identify, locate and describe the function of different parts of flowering plants. 3. I can identify, locate and describe the function of the roots in plants. 4. I can investigate the way in which water is transported within 	<p>plant tree flower roots stem leaf</p>	

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	<p>plants grow from seeds and bulbs in more detail. They will also look at what plants need to grow and stay healthy.</p>	<p>grown. Throughout this topic, children will be creating a booklet. They will identify and describe the functions of the different parts of plants. They will explore what plants need for life and growth. Children will then complete an investigation to see how water is transported through plants. Children will also look at seeds and explore the different ways that plants disperse their seeds.</p>		<p>plants.</p> <ol style="list-style-type: none"> 5. I can explore the part that flowers play in the life cycle of flowering plants, including pollination. 6. I can explore the part that flowers play in the life cycle of flowering plants, including seed formation and seed dispersal. <p>What do plants need? Do the different parts of the plant have a function? What are roots? How do plants transport water? How do plants reproduce? How are seeds dispersed?</p>	<p>seed bulb nutrients pollination formation dispersal</p>	

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<p>Autumn A</p>	<p>EYFS Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.</p> <p>Working Scientifically (KS1)</p> <p>Everyday Materials (Y2)</p>	<p>To develop an understanding of the nature, processes and methods of science through different types of enquiries.</p> <p>To gain a conceptual understanding of the specific disciplines of biology, chemistry and physics.</p>	<p>States of Matter (Y4)</p>	<ol style="list-style-type: none"> 1. Identify solids, liquids and gases. 2. Investigate viscosity. 3. Take accurate measurements using thermometers. 4. Observe that some materials change state when they are heated or cooled. 5. Identify the part played by evaporation and condensation in the water cycle. 6. Associate the rate of evaporation with temperature. <p>What are solids, liquids and gases? Do all liquids behave the same? What is a thermometer used for? How do materials change state? What is the water cycle? Do all liquids evaporate? Does temperature effect the rate of evaporation?</p>	<p>Air pressure Condensation Classify Evaporate Freeze Gas Liquid Matter Particle Precipitation Solid Solidify States of matter Temperature thermometer</p>	

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	<p>Living Things and their Habitats (Y2) Identify living things and their habitats; Use simple food chains</p>	<p>Children will learn to recognise the 7 life processes common to all living things.</p>	<p>Living Things and their Habitats (Y4)</p>	<ol style="list-style-type: none"> 1. Develop descriptions using relative scientific language and vocabulary 2. Recognise that living things can be grouped in a variety of ways 3. Recognise that living things can be grouped in a variety of ways 4. Explore and name a variety of living things in my local environment 5. Explore and use classification keys to group living things 6. I can recognize that environments can change and that this can sometimes pose dangers to living things. <p>What are the seven life processes? How can we sort and group animals? What are vertebrate animals? Which living things can be found in the local area? What is a classification key? How is our environment changing?</p>	<p>Adaptation Classify Environment Exoskeleton Vertebrate Invertebrate Key Pollution</p>	
Year B						

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	Prior Learning	Intent (children will learn)	Unit	Sequence of Lessons WALT (children will ...)	Vocabulary	Outcome / Composite
Autumn B	<p>Animals Including Humans (Y1)</p> <p>- Identify, name, draw and label the basic parts of the human body and</p> <p>relate to senses. Explain that animals, including humans, have offspring which grow into adults.</p>	<p>Understand the digestive system and function of teeth.</p> <p>Extend knowledge of food chains.</p>	<p>Working scientifically</p> <p>Animals including</p> <p>Humans (Y4)</p>	<ol style="list-style-type: none"> 1. Revisit prior learning. 2. Identify parts of the digestive system 3. Identify different teeth and describe their functions 4. Plan and conduct an investigation 5. Construct and interpret a variety of food chains. 6. Understand what producers, predators and prey are. <p>What is the digestive system? Why are teeth different shapes? Which drink causes most tooth decay? What is a food chain? How do I play the food chain game?</p>	<p>Decay</p> <p>Digestion</p> <p>Digestive System</p> <p>Function</p> <p>Organ</p> <p>Prevention</p> <p>Canines</p> <p>Carnivores</p> <p>herbivores</p> <p>incisors</p> <p>large intestine</p> <p>molars</p> <p>oesophagus</p> <p>omnivores</p> <p>peristalsis</p> <p>saliva</p> <p>small intestine</p> <p>stomach</p>	

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	<p>EYFS Make comments about what they have heard and ask questions to clarify their understanding.</p> <p>Working scientifically (Y1) Use observations and ideas to answer questions.</p>	<p>Identify how sounds are made, recognise how vibrations travel to the ear, find patterns in pitch/volume, recognise that sounds become fainter with distance.</p>	<p>Working scientifically Sound (Y4)</p>	<ol style="list-style-type: none"> 1. Understand how sounds are made. 2. Understand that vibrations travel into our ears. 3. Recognise how sounds are heard by the ear. 4. Ask relevant questions. 5. Investigate pitch. 6. Investigate volume <p>How are sounds made? What is a sound vibration? What is inside your ear? Does the size of the pinna affect the volume of the sound? What is pitch What is volume? Which material is best at muffling sound?</p>	<p>Noise Pinnae Pitch Sound Vibration Volume Eardrum Cochlea</p>	
<p>Spring B</p>	<p>Working Scientifically (KS1) Record findings eg as drawings, diagrams, photographs or in simple prepared format such as tables and charts.</p> <p>Some children may have looked at which items use electricity in other curriculum areas (e.g. Toys topic in history)</p>	<p>Children will learn to sort common electrical appliances into battery and mains powered. They will construct simple series circuits containing a variety of components and understand the difference between complete and incomplete circuits. They will be able to identify whether or not a bulb will light in a simple series circuit and put forward ideas to fix incomplete circuits. The children will plan and conduct an investigation to discover which materials make good insulators and design, construct and test their own switches.</p>	<p>Working scientifically Electricity (Y4)</p>	<ol style="list-style-type: none"> 1. Identify common appliances that use electricity. 2. Construct a simple circuit and name the parts of the circuit. 3. Identify if a bulb will light up in a circuit. 4. Recognise common conductors and insulators. 5. Investigate different switches. 6. Review our learning of electricity <p>Which appliances use electricity? How can I make a simple circuit? Why don't some circuits work? How can we test if a material is a conductor or insulator? How do switches affect a circuit?</p>	<p>Battery Circuit Components Conductor Insulator Appliance current electrical pylon switch</p>	

Science Knowledge, Skills, Sequencing and Progression

Summer B	<p>Animals including Humans (Y2): Children will have learned the basic needs of animals and humans for survival and can describe the importance of exercise and eating the right amounts of different types of food.</p>	<p>Children will learn about the importance of nutrition and will find out how different parts of the body of different functions.</p>	<p>Working Scientifically Animals including Humans (Y3)</p>	<ol style="list-style-type: none"> 1. Identify the animals including humans need the right types of nutrition. 2. Understand that humans/animals get nutrition from what they eat. 3. Identify humans and some animals have skeletons and muscles. 4. Identify the main body parts associated with skeletons and muscles. 	<p>Energy Healthy Invertebrate Nutrients Tendons Vertebrate</p>	<p>Children will demonstrate their understanding of what foods keep us healthy. (Link to DT Super Salads)</p>
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Science Knowledge, Skills, Sequencing and Progression

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Upper Key Stage 2						
Year A						
	Prior Learning	Intent (children will learn)	Unit	Sequence of Lessons WALT (children will ...)	Vocabulary	Outcome / Composite
Autumn A	<p>Scientific Enquiry Set up practical enquiries and fair tests using a range of scientific equipment. Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. Use results to draw simple conclusions and suggest improvements and predictions for setting up further tests.</p>	<p>Children will consolidate and extend their knowledge of forces by naming individual forces (e.g. gravity, friction, upthrust). They will extend their knowledge of frictional forces (air resistance and water resistance) and plan fair test investigations to discover which shoe has the greatest friction and which shapes offer the most water resistance. They will learn how forces can be helpful and unhelpful in various scenarios and identify the forces involved in each scenario. They will learn what a mechanism is and how pulleys, levers and gears are used to allow a smaller force to have a greater effect.</p>	Forces (Y5)	<ol style="list-style-type: none"> 1. I can explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and falling objects. 2. I can identify the effect of friction between moving surfaces. 3. I can plan different types of scientific enquiries to answer questions, including recognising and controlling variables. 4. I can take measurements using a range of scientific equipment. 5. Understand the effects of air resistance and plan and conduct an experiment on the effects of air resistance 6. I can explain the effects of water resistance. 7. I can recognize that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect. <p>What is gravity? What is friction? Whose shoe has the greatest friction? What is air resistance? What is water resistance? What are gears, levers and pulleys?</p>	<p>air resistance, force, friction, gravity, investigation, mass, measure, observe, prediction, pull, push, repel, drag, stermalined, upthrust or buoyancy Newton Gear, Lever, Pulley water resistance</p>	

Science Knowledge, Skills, Sequencing and Progression

	<p>KS1 – As part of the seasonal change topic, children may have observed changes across the seasons and observed/described weather changes. They may have learnt that the Sun is a light source. Earth and Space is not taught at KS1 as a discrete topic.</p> <p>Year 3 – Children may have learnt about the Sun as a light source (in the Light topic); they may have observed that shadows are formed when an opaque object blocks out light and that the Sun's position in the sky appears to change through the day.</p>	<p>Children will learn that the Earth is part of the solar system and that the Sun is at the centre of that system. They will learn the names of the other planets (based on their distance from the Sun) and be able to describe the movement of Earth (and other planets) in relation to the Sun. Children will discover why there is day and night on Earth and relate this to time. They will plan an investigation to answer the question - what happens to the Sun during the daytime?</p> <p>Children will also gain an understanding of the phases of the Moon and be able to describe the Moon's movement in relation to the Earth.</p>	<p>Earth and Space (Y5)</p>	<ol style="list-style-type: none"> 1. Describe the planets in the solar system 2. Describe the Sun, Earth and Moon as approximately spherical bodies. 3. Describe the movement of the Earth, and other planets, relative to the Sun in the solar system. 4. Describe the movement of the Moon relative to the Earth 5. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. 6. Describe the movement of the Moon relative to the Earth. 	<p>Asteroid, axis, comet, galaxy, gravity, leap year, meteorite, orbit, day, month, planet, solar system,</p>	
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Science Knowledge, Skills, Sequencing and Progression

				<p>What are the names of the planets in the solar system? How do we know that the earth is a sphere? How long does it take for Earth and other planets to orbit the sun once? What is the largest object that orbits the earth? Why is there day and night on earth? Does the moon change shape?</p>	<p>phases of the moon, planet, rotating, solar, sphere, star, time zone, universe</p>	
<p>Spring A</p>	<p>KS1 History: Mary Anning Rocks (Y3) Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p>	<p>Recognise that living things have changed over time and that 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 their environment in different ways and that adaptation may lead to evolution</p>	<p>Working Scientifically Evolution and Inheritance (Y6)</p>	<ol style="list-style-type: none"> 1. I can identify how plants are adapted to their environment. 2. I can identify how animals are adapted to their environment. 3. I can explain natural selection and how it may lead to evolution. 4. I can explain how adaptations may lead to evolution. 5. I can recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. 6. I can recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. <p>How are plants adapted to their environment? How are animals adapted to their environment? What is natural selection and how does this lead to evolution? What characteristics can you inherit from your parents? How can fossils help us explain evolution?</p>	<p>Adaptation Environment Adaptive traits Charles Darwin DNA Evolution Species Fossil Genes Habitat Inheritance Inherited traits Natural selection Variation</p>	

Science Knowledge, Skills, Sequencing and Progression

	<p>Animals including Humans Animals, including humans, have offspring which grow into adults (Y2)</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement (Y3)</p> <p>Identify the different types of teeth in humans and their simple functions (Y4)</p>	<p>Describe the changes as humans develop to old age</p>	<p>Working Scientifically Animals including humans (Y5)</p>	<ol style="list-style-type: none"> 1. Describe the human life cycle 2. Explain how babies develop. 3. Explain the changes in puberty 4. Describe the changes as humans develop to old age 5. Report findings from enquiries, including oral and written explanations of results in the context of the gestation period for animals. 6. Reporting and presenting findings from enquiries, including causal relationships by analysing data on gestation periods and life expectancies of animals. <p>How do humans change throughout life? How do we develop in the womb? How do we change through puberty? How do humans change as we become senior?</p>	<p>Adolescence Adulthood Conception Fertilisation Gestation Birth Death Life expectancy Lifecycle Menstruation Prenatal Puberty Reproduce Sexual reproduction Foetus Sperm Egg Womb</p>	
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Science Knowledge, Skills, Sequencing and Progression

<p>Summer A</p>	<p>Y3/4 Working Scientifically</p> <p>Y3 – Light unit Children will have learned to identify light sources, explore what happens when light reflects off mirrors or other reflective materials and think of ways to protect themselves from the sun.</p>	<p>Explore the way that light behaves, including light sources, reflection and shadows. They could extend their experience of light by looking a range of phenomena including rainbows, colours on soap bubbles, objects looking bent in water, and coloured filters (they do not need to explain why these phenomena occur).</p>	<p>Working Scientifically</p> <p>Light (Y6)</p>	<ol style="list-style-type: none"> 1. Understand light travels in straight lines and we can see because light travels in a straight line from an object to our eye. 2. 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. I can predict which materials make good reflectors. 3. 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. I can explain how the eye works. 4. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. I can explain how shadows change during the day. 5. Use the idea that light travels in straight lines to explain that we can see objects because they give out or reflect light into the eye. 6. 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. <p>How does light travel? Which materials make the best reflectors? How does the eye work? How do shadows change during the day? Why do objects look different in water? How do mirrors work?</p>	<p>Light Light source Prism Rainbow Reflected shadow opaque translucent transparent absorption ray Reflection Refraction</p>	
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Science Knowledge, Skills, Sequencing and Progression

	<p>Y3/4 Working Scientifically</p> <p>Y4 – Electricity</p> <p>Understand the components of an electrical circuit</p>	<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>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</p> <p>use recognised symbols when representing a simple circuit in a diagram.</p>	<p>Working Scientifically</p> <p>Electricity (Y6)</p>	<ol style="list-style-type: none"> 1. Review previous learning 2. use symbols when drawing a simple circuit diagram 3. associate the brightness of a lamp with the number and voltage of cells used in the circuit. 4. investigate variations in how components function. 5. investigate variations in how components function and write a conclusion. 6. name renewable and non-renewable sources of energy. <p>1.</p> <p>How do I draw a scientific diagram of a circuit?</p> <p>How does voltage in a circuit affect the brightness of a bulb?</p> <p>How do I plan a fair test to investigate variations in how components function?</p> <p>How do I write a conclusion for my investigation?</p> <p>What is renewable and non-renewables energy?</p>	<p>Amps</p> <p>Cell/battery</p> <p>Circuit Current</p> <p>Electrons</p> <p>Resistance</p> <p>Symbol Voltage</p> <p>components</p> <p>conductor</p> <p>electrical</p> <p>insulator</p> <p>pylon</p> <p>renewable</p> <p>energy</p> <p>non-renewable</p> <p>energy</p>	
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Year B

	Prior Learning	Intent (children will learn)	Unit	Sequence of Lessons WALT (children will ...)	Vocabulary	Outcome / Composite
Autumn B	<p>Living things and their Habitats (Y3): Identify and describe the functions of different parts of flowering plants. Identify requirements of plants for life and growth and how they vary from plant to plant.</p>	<p>To describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird and reproduction in plants and animals.</p>	<p>Working Scientifically</p> <p>Living Things and Habitats: Lifecycles) (Y5)</p>	<ol style="list-style-type: none"> 1. discuss the seven life processes. 2. explain how mammals reproduce. 3. explain how animals reproduce. 4. understand reproduction in plants. 5. describe the differences in the life cycles of mammals, amphibians, reptiles, insects and birds. 6. explain the life cycle of plants. <p>What are the seven life processes?</p> <p>How do mammals reproduce?</p> <p>Do animals reproduce in the same way?</p> <p>How do plants reproduce?</p>	<p>Asexual reproduction</p> <p>Fertilise Gestation</p> <p>Life cycle</p> <p>Metamorphosis</p> <p>Pollination</p> <p>Seed dispersal</p> <p>Stamen</p> <p>Pistil</p> <p>Mammal</p> <p>Amphibian</p> <p>Insect</p>	

Science Knowledge, Skills, Sequencing and Progression

				What is a iife cycle? What are the stages in a life cyle of a plant?		
				1.		

Science Knowledge, Skills, Sequencing and Progression

	<p>Living Things and their Habitats (Y4): Recognise that living things can be grouped in a variety of ways and give reasons for classifying plants and animals</p>	<p>Children will learn about classification of living things, including microorganisms. They will learn the names and characteristics of the main groups used to classify animals, plants and microorganisms. Children will learn to use a classification key and create their own key using yes/no questions. Children will investigate the question; Is yeast a microorganism? And conduct an experiment involving the respiration of yeast. They will produce a presentation about the life and work of Carolus Linnaeus and understand the importance of his standard classification system.</p>	<p>Living Things and Habitats (Y6):</p>	<ol style="list-style-type: none"> 1. Describe how living things can be classified into broad groups. 2. Understand how I can use classification keys to help group, identify and name a variety of living things. 3. Describe how living things can be classified into broad groups. 4. Understand that microorganisms are also living things. 5. Describe how living things can be classified into broad groups. 6. Know that scientists have developed different ways to classify living things <p>How are animals classified? What is a classification key? How can we classify plants? Is yeast a living microorganism? What are the five main groups of microorganisms? Who was Carolus Linnaeus?</p>	<p>Bacteria Classify Vertebrate Invertebrate Exoskeleton Vascular non-vascular Characteristics Key Linnean system Microscope Species Taxonomist</p>	
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Science Knowledge, Skills, Sequencing and Progression

<p>Spring B</p>	<p>Animals including Humans: Know the skeletal and muscular system (Y4)</p>	<p>To identify and name main parts of human circulatory system. Recognise the impact of diet, exercise, drugs and lifestyle. Describe the ways nutrients are transported in animals.</p>	<p>Working Scientifically Animals including Humans (Y6)</p>	<ol style="list-style-type: none"> 1. Know the main parts of the circulatory system. 2. Understand the function of the heart and name the parts. 3. Plan an investigation to find out what factors affect pulse rates. 4. Describe the way nutrients and water are transported around animals. 5. Recognise the impact of diet and exercise on the body. 6. Identify how humans can live a healthy lifestyle. <p>What is the circulatory system? How does our heart work? How does exercise affect my heart rate? What does the blood transport around the body? How can I live a healthy lifestyle? What can damage our health?</p>	<p>Alcohol Artery Blood vessel Circulatory system Deoxygenated Drug Heart Lungs Heart rate Nutrients Oxygenated Vein</p>	
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Science Knowledge, Skills, Sequencing and Progression

<p>Summer B</p>	<p>Rocks (Y3) - Compare and group rocks on their appearance / physical properties.</p> <p>Electricity and Magnetism (Y4) - construct simple circuits.</p> <p>States of Matter (Y4) - Compare and group materials into solids, liquids and gases.</p>	<p>Build on a more systematic understanding of materials by exploring and comparing the properties of a broad range of materials.</p>	<p>Working Scientifically Properties and Changes of Materials (Y5)</p>	<ol style="list-style-type: none"> 1. To compare materials according to their properties 2. Investigate thermal conductors and insulators. 3. Compare and group materials based on their response to magnets. 4. Investigate materials that will dissolve. 5. Use different processes to separate mixtures of materials. 6. Identify and explain irreversible and chemical changes. <p>What are the properties of solids, liquids and gases? How can I describe the properties of materials? Which materials make the best thermal insulators? Which materials are magnetic? Which materials are soluble and which are insoluble? How can mixed materials be separated? What is irreversible change?</p>	<p>Condensing Conductor Dissolve Evaporating Freezing Gases Insulator Liquids Materials Melting Solids Thermal Transparency</p>	<p>.</p>
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