



Kippax Greenfield Primary School
Science Knowledge and Skills Progression

EYFS

	Knowledge	Skills	Vocabulary
Dinosaur detectives	Similarities and differences between dinosaurs.	Research skills – finding information from internet/books/photos Prediction skills – making predictions about what may happen, finding out if we are right.	comparison (same, different, similar) time (then, now, before, after, next)
Food, glorious food	Our food comes from plants and animals. Food keeps us healthy and helps us grow.		
Changes in our world	The four seasons are Autumn, Winter, Spring and Summer How our environment changes with different seasons and weathers. How a human changes over time, how butterfly changes over time and how a plant grows and changes. Different states such as melting/freezing ice, turning jelly from liquid to solid, cooking, sand (wet/dry).		
<p>The World ELG: <i>Children know about similarities and differences in relation to objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes.</i> Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another.</p> <p>Science is entwined across the Early Years curriculum, with specific links being made across the IPC units: Dinosaur detectives, Food, Glorious Food and Changes in our World</p> <p>Provision Provision is focussed around the curriculum unit being taught. Literacy focus texts link to this where possible too which also forms an essential part of the provision. Children have access to research equipment such as information books, magnifying glasses, iPads, and photos within their play. Use of these are modelled and discussed during 'Plan, Do, Review' sessions and use of these skills is celebrated. Children are encouraged to ask questions about their environments – teachers think aloud and model investigating to find the answer.</p>			

Children explore the outdoor environment in all weathers and resources are provided resources for children to explore the different weathers and how the environment is different (e.g. paints/chalks in the rain, exploring ice, making kites and bubbles in the wind, shadow drawing in the sun, planting and growing).

Children have access to a playdough area where they can make their own playdough and investigate the relationships of cause and effect. They experiment with making playdough and think critically about how they can make it less/more sticky/dry.

Year 1

Theme	Unit	Key Science Knowledge	Scientific enquiry	Vocabulary
A.How humans work B.The Magic Toymaker C.Super Humans	Animals, including humans	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 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.	Pattern seeking Where is my ...? Observing over time How does my height change over the year? Identifying, Classifying and Grouping How can we organise all the zoo animals? What are the names for all the parts of our bodies? Fair and Comparative Testing Just because I am older am I taller? Is our sense of smell better when we can't see? Research using secondary sources Do all animals have the same senses as humans?	Hair Head Face, Ears, Eyebrows, Eyes, Nose, Mouth, Chin Neck, Shoulder Chest Elbow, Arm, Wrist, Hand Stomach Knee, Leg, Ankle, Foot
A.Let's Plant It B. From A to B C.Green Fingers	Plants / Seasons	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. Observe changes across the 4 seasons. Observe and describe weather associated with the seasons and how day length varies.	Pattern seeking Do trees with bigger leaves lose their leaves first in autumn? Observing over time How does a daffodil bulb change over the year? How does my sunflower change each week? Identifying, Classifying and Grouping How can we sort the leaves that we collected on our walk? How would you group these things based on which season you are most likely to see them in? Fair and comparative testing Which type of compost grows the tallest sunflower? Which tree has the biggest leaves? In which season does it rain the most? Research using secondary sources	Deciduous Evergreen Leaves Flowers (blossom) Petal Fruit Roots Bulb Seed Trunk Branches Stem Grow

			<p>What are the most common British plants and where can we find them?</p> <p>Are there plants that are in flower in every season? What are they?</p>	
<p>A.Let's Plant It</p> <p>B.Live and Let Live</p> <p>C.The Earth Our Home</p>	<p>Living things and their habitats</p>	<p>Explore and compare the differences between things that are living, dead, and things that have never been alive</p> <p>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>Pattern seeking</p> <p>Is there a pattern in where we find moss growing in the school grounds?</p> <p>Observing over time</p> <p>Who or what lives in our local habitats?</p> <p>Identifying, classifying and grouping</p> <p>How would you group things to show which are living, dead, or have never been alive?</p> <p>Research using secondary sources</p> <p>How are the animals in Australia different to the ones that we find in Britain?</p>	<p>Living / non-living / Dead</p> <p>Non-living</p> <p>Habitat</p> <p>Field</p> <p>Hedgerow</p> <p>Pond</p> <p>Woodland</p> <p>Seashore</p> <p>Ocean</p> <p>Rainforest</p> <p>Arctic</p> <p>Desert</p>
<p>A.Shake It</p> <p>B.Buildings</p> <p>C.What's it made of</p>	<p>Materials</p>	<p>Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p>	<p>Pattern seeking</p> <p>Is there a pattern in the types of materials that are used to make objects in a school?</p> <p>Observing over time</p> <p>What happens to materials over time if we bury them in the ground?</p> <p>What happens to shaving foam over time?</p> <p>Identifying, Classifying and Grouping</p> <p>We need to choose a material to make an umbrella. Which materials are waterproof?</p> <p>Which materials will float and which will sink?</p> <p>Fair and comparative testing</p> <p>Which materials are the most flexible?</p> <p>Which materials are the most absorbent?</p> <p>Research using secondary sources</p> <p>How are bricks made?</p> <p>Which materials can be recycled?</p>	<p>Wood</p> <p>Plastic</p> <p>Glass</p> <p>Paper</p> <p>Water</p> <p>Metal</p> <p>Rock</p> <p>Hard</p> <p>Soft</p> <p>Bendy</p> <p>Rough</p> <p>Smooth</p>
<p>Scientific skills:</p>				

<p>With help and encouragement, ask simple questions that begin with why, what if, how or when.</p> <p>Make suggestions about how to do things when planning a simple test. With help, use simple equipment and non-standard units to find things out.</p> <p>Observe using senses.</p> <p>With help, I gather and record data to help answer questions.</p> <p>Talk about what happened and/or what they saw.</p> <p>Talk about what they did.</p>	<p>Identify</p> <p>Name</p> <p>Questions</p> <p>Suggestions</p> <p>Test</p> <p>Equipment</p> <p>Observe</p> <p>Compare</p>
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Year 2

Year A: How humans work (Animals, including humans); Shake it (Materials); Let's Plant it (Plants and Living Things and their Habitats)

Year B: Buildings (Materials); Live and Let Live (Living Things and Their Habitats); From A to B (Plants); The Magic Toymaker (Animals, including humans)

Year C: Super Humans (Animals, including humans); What's it made of (Materials); The Earth Our Home (Living Things and their Habitats); Green Fingers (Plants)

Theme	Unit	Key Science Knowledge	Scientific enquiry	Vocabulary
<p>A.How humans work</p> <p>B.The Magic Toymaker</p> <p>C.Super Humans</p>	<p>Animals, including humans</p>	<p>Notice that animals, including humans, have offspring which grow into adults.</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p>	<p>Pattern seeking</p> <p>Which age group of children wash their hands the most in a day?</p> <p>Observing over time</p> <p>How does a tadpole change over time?</p> <p>How much food and drink do I have over a week?</p> <p>Identify, Classify and Group</p> <p>Which offspring belongs to which animal?</p> <p>Fair and Comparative Testing</p> <p>Which drinks are unhealthy for our teeth?</p> <p>Do amphibians have more in common with reptiles or fish?</p> <p>Do bananas make us run faster?</p> <p>Research using secondary sources</p> <p>What do you need to do to look after a pet dog/cat/lizard and keep it healthy?</p> <p>What food do you need in a healthy diet and why?</p>	<p>Reproduce, offspring, grow, adults (fish, amphibian, reptile, bird, mammal, humans)</p> <p>Survival, water, food, air, shelter</p> <p>Exercise, fit, healthy, Common names of fish, amphibians, reptiles, birds, mammals including pets and those found in the local environment</p> <p>Common structure of animals and humans including: teeth, cheek, body, fingers, paws, fins, wings, toes, tail, skin, scales, fur, feathers Herbivore, carnivore, omnivore</p>
<p>A.Let's Plant It</p> <p>B. From A to B</p>	<p>Plants</p>	<p>Observe and describe how seeds and bulbs grow into mature plants.</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p>Pattern seeking</p> <p>Do bigger seeds grow into bigger plants?</p> <p>Observing over time</p> <p>How long does it take for a seed to grow to grow?</p> <p>What happens to my bean after I have planted it?</p> <p>Identifying, classifying and grouping</p>	<p>Healthy</p> <p>Water</p> <p>Light</p> <p>Temperature</p> <p>Soil</p> <p>nutrients</p>

C, Green Fingers			<p>How can we identify the trees that we observed on our tree hunt?</p> <p>Fair and Comparative Testing Do cress seeds grow quicker inside or outside?</p> <p>Research using secondary sources How does a cactus survive in a desert with no water?</p>	Names of plants in the local environment
A. Let's Plant It B. Live and Let Live C. The Earth Our Home	Living things and their habitats	<p>Identify and name a variety of plants and animals in their habitats, including microhabitats.</p> <p>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>Pattern seeking What conditions do woodlice prefer to live in? Which habitat do worms prefer – where can we find the most worms?</p> <p>Observing over time How does the school pond change over the year?</p> <p>Identifying, classifying and grouping How would you group these plants and animals based on what habitat you would find them in?</p> <p>Fair and comparative testing Is there the same level of light in the evergreen wood compared with the deciduous wood?</p> <p>Research using secondary sources How does the habitat of the Arctic compare with the habitat of the rainforest?</p>	<p>Micro habitat</p> <p>Food chain</p> <p>Air</p> <p>Food</p> <p>Water</p> <p>Shelter</p> <p>Heat</p> <p>Warmth</p> <p>Sun</p>
A. Shake It B. Buildings C. What's it made of	Materials	<p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</p> <p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p>	<p>Pattern seeking How can you change the shape of these materials? What materials can you bend and twist?</p> <p>Observing over time How long do bubble bath bubbles last for? What will happen to our snowman? Would a paper boat float forever?</p> <p>Identifying, classifying and grouping Which materials are shiny and which are dull?</p> <p>Fair and comparative testing Which material would be best for the roof of the little pig's house?</p> <p>Research using secondary sources How have the materials we use changed over time? How are plastics made?</p>	<p>Rock, brick, paper, card, rubber, fur, fleece, cotton, wool, polyester, cotton wool stretchy, stiff, shiny, dull, flexible, waterproof, absorbent, opaque, transparent, translucent Squash, bend, twist, stretch</p>

Scientific skills:	
<p>Ask simple questions and recognise these questions can be answered in different ways.</p> <p>Decide with help, what to find out, observe or measure.</p> <p>Observe closely, using simple equipment and non-standard units.</p> <p>Identify and classify.</p> <p>Perform a simple test.</p> <p>Gather data and record data to help me answer my questions.</p> <p>Record what I have found out using e.g. words or pictures, tables or simple prepared formats.</p> <p>Use observations and own ideas to suggest answers to questions.</p> <p>Talk about how they found out what they found out.</p>	<p>Observe</p> <p>Describe</p> <p>Group</p> <p>Record</p> <p>Data</p> <p>Contrast</p> <p>Diagram</p> <p>Chart</p> <p>Map</p>

Year 3

Theme	Unit	Key Science Knowledge	Scientific enquiry	Vocabulary
<p>A.How humans work</p> <p>B.The Magic Toymaker</p> <p>C.Super Humans</p>	Animals, including humans	<p>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.</p> <p>Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p>Describe the simple functions of the basic parts of the digestive system in humans.</p> <p>Identify the different types of teeth in humans and their simple functions.</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p>	<p>Pattern seeking</p> <p>Do male humans have larger skulls than female humans?</p> <p>Observing over time</p> <p>How does an egg shell change when it is left in cola?</p> <p>Identifying, classifying and grouping</p> <p>How do the skeletons of different animals compare?</p> <p>What are the names for all the organs involved in the digestive system?</p> <p>How can we organise teeth into groups?</p> <p>Fair and comparative testing</p> <p>How does the skull circumference of a girl compare with that of a boy?</p> <p>In our class, are omnivores taller than vegetarians?</p> <p>Research using secondary sources</p> <p>Why do different types of vitamins keep us healthy and which foods can we find them in?</p> <p>How do dentists fix broken teeth?</p>	<p>Skeleton</p> <p>Muscles</p> <p>Tissue</p> <p>Organs</p> <p>Digest</p> <p>Drug</p> <p>Canine</p> <p>Premolar</p> <p>Molar</p> <p>Incisor</p> <p>Movement</p> <p>Bones</p> <p>Skull</p> <p>Nutrition</p>
<p>A.Let's Plant It</p> <p>B. From A to B</p>	Plants	<p>Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p> <p>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.</p> <p>Investigate the way in which water is transported within plants.</p>	<p>Pattern seeking</p> <p>What colour flowers do pollinating insects prefer?</p> <p>Observing over time</p> <p>What happens to celery when it is left in a glass of coloured water?</p> <p>How do flowers in a vase change over time?</p>	<p>Air</p> <p>Light</p> <p>Water</p> <p>Nutrients</p> <p>Soil</p> <p>Reproduction</p>

C,Green Fingers		Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	<p>Identifying, classifying and grouping How many different ways can you group our seed collection?</p> <p>Fair and comparative testing Which conditions help seeds germinate faster?</p> <p>Research using secondary sources What are all the different ways that seeds disperse?</p>	Transportation Dispersal Pollination
A.Let's Plant It B.Live and Let Live C.The Earth Our Home	Living things and their habitats	Recognise that living things can be grouped in a variety of ways. Identify and name a variety of living things in their local and wider environment.	<p>Pattern seeking How has the use of insecticides affected the bee population?</p> <p>Observing over time How does the variety of invertebrates on the school field change over the year?</p> <p>Identifying, classifying and grouping Can we use the classification keys to identify all the animals that we caught pond dipping?</p> <p>Research using secondary sources Why are people cutting down the rainforests and what effect does that have?</p>	Snails Slugs Worms Spiders Insects Environment Habitat Herbivore Omnivore Carnivore
A.Shake It B.Buildings C.What's it made of	Materials / States of Matter	Compare and group materials together, according to whether they are solids, liquids or gases Know that temperature is a measure of heat 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 evaporation with temperature.	<p>Pattern seeking Is there a pattern in how long it takes different sized ice lollies to melt?</p> <p>Observing over time Which material is best for keeping our hot chocolate warm? How does the level of water in a glass change when left on the windowsill? How does the mass of an ice cube change over time?</p> <p>Identifying, classifying and grouping Can you group these materials and objects into solids, liquids, and gases?</p> <p>Fair and comparative testing Does seawater evaporate quicker than fresh water?</p>	State Solid Liquid Gas Evaporate Dissolve Condense Water cycle
Scientific skills included with each topic:				

<p>Ask relevant questions & use different types of scientific enquiries to answer them.</p> <p>Set up simple practical enquiries, comparative & fair tests.</p> <p>Make systematic and careful observations &, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers & data loggers.</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions.</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, & tables</p> <p>Report on findings from enquiries, including oral & written explanations, displays or presentations of results & conclusions.</p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements & raise further questions.</p> <p>Identify differences, similarities or changes related to simple scientific ideas and processes.</p> <p>Use straightforward scientific evidence to answer questions or to support their findings.</p>	<p>Research Enquiry Measurement Systematic Data – gather, record, present, Results Table</p>
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Year 4

Theme	Unit	Key Science Knowledge	Scientific enquiry	Vocabulary
Turn it up	Sound	<p>Recognise that vibrations from sounds travel through a medium to the ear.</p> <p>Find patterns between the pitch of a sound and features of the object that produced it.</p> <p>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>Recognise that sounds get fainter as the distance from the sound source increases.</p>	<p>Identifying, classifying and grouping Can you make a guitar that plays 4 different pitch sounds?</p> <p>Pattern seeking Is there a link between how loud it is in school and the time of day? If there is a pattern, is it the same in every area of the school?</p> <p>Fair and comparative testing Which material is best to use for muffling sound in ear defenders? Are two ears better than one?</p> <p>Research using secondary sources Do all animals have the same hearing range?</p>	<p>Volume Vibration Wave Pitch Tone Speaker</p>
	Light	<p>Recognise that they need light in order to see things and that dark is the absence of light.</p> <p>Notice that light is reflected from surfaces.</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes.</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object.</p> <p>Find patterns in the way that the size of shadows change.</p>	<p>Observing over time When is our classroom darkest? Is the Sun the same brightness all day?</p> <p>Identifying, classifying and grouping How would you organise these light sources into natural and artificial sources?</p> <p>Fair and comparative testing Which pair of sunglasses will be best at protecting our eyes?</p> <p>Research using secondary sources How does the Sun make light?</p>	<p>Light Shadow Mirror Reflective Reflection Dark</p>

Land, Sky and water	Living things and their habitats	<p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p>Know the differences between living and non-living things.</p> <p>Know about processes and conditions that have an effect on living things.</p> <p>Know about the living things that are supported by different environments.</p> <p>Know about ways in which animals and plants are suited to different environments.</p> <p>Be able to classify animals according to their features.</p>	<p>Pattern seeking</p> <p>How has the number of otters in rivers changed over time?</p> <p>Identifying, classifying and grouping</p> <p>Can we use the classification keys to identify the animals found in a river?</p> <p>Fair and comparative testing</p> <p>How does the average temperature of the pond water change in each season?</p> <p>Research using secondary sources</p> <p>What effect does pollution have on the animals and plants in a river?</p>	<p>Vertebrates</p> <p>Fish</p> <p>Amphibian</p> <p>Reptile</p> <p>Bird</p> <p>Mammal</p> <p>Invertebrate</p>
	Rocks	<p>Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties</p> <p>Describe in simple terms how fossils are formed when things that have lived are trapped within rock</p> <p>Recognise that soils are made from rocks and organic matter</p>	<p>Observing over time</p> <p>How does tumbling change a rock over time?</p> <p>What happens when water keeps dripping on a sandcastle?</p> <p>Identifying, classifying and grouping</p> <p>Can you use the identification key to find out the name of each of the rocks in your collection?</p> <p>Fair and comparative testing</p> <p>Which soil absorbs the most water?</p> <p>Research using secondary sources</p> <p>Who was Mary Anning and what did she discover?</p>	<p>Rock</p> <p>Stone</p> <p>Pebble, boulder</p> <p>Absorb</p> <p>Soil</p> <p>Fossil</p> <p>Grains, crystals, layers, texture</p> <p>Molten magma</p> <p>marble, chalk, clay, sandy</p>
Bright Sparks	Electricity	<p>Identify common appliances that run on electricity.</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</p> <p>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.</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</p> <p>Know that some materials conduct electricity.</p>	<p>Observing over time</p> <p>How long does a battery light a torch for?</p> <p>Pattern seeking</p> <p>Which room has the most electrical sockets in a house?</p> <p>Identifying, classifying and grouping</p> <p>How would you group these electrical devices based on where the electricity comes from?</p> <p>Fair and comparative testing</p> <p>Which metal is the best conductor of electricity?</p> <p>Research using secondary sources</p> <p>How has electricity changed the way we live?</p> <p>How does a light bulb work?</p>	<p>Cells</p> <p>Wires</p> <p>Bulbs</p> <p>Switches</p> <p>Buzzers</p> <p>Battery</p> <p>Circuit</p> <p>Series</p> <p>Conductors</p> <p>Insulators</p>
Feel the Force	Forces	<p>Compare how things move on different surfaces</p> <p>Notice that some forces need contact between two objects, but magnetic forces can act at a distance.</p> <p>Observe how magnets attract or repel each other and attract some materials and not others.</p>	<p>Observing over time</p> <p>If we magnetise a pin, how long does it stay magnetised for?</p> <p>Pattern seeking</p>	<p>Magnetic Force</p> <p>Contact</p> <p>Attract</p> <p>Repel</p> <p>Friction</p>

	<p>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.</p> <p>Describe magnets as having two poles</p> <p>Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p> <p>Understand that different materials are suited for different purposes.</p> <p>Know that forces can have direction.</p> <p>Know that forces differ in size.</p> <p>Know about the effects of friction.</p>	<p>Does the size and shape of a magnet affect how strong it is?</p> <p>Identifying, classifying and grouping</p> <p>Which materials are magnetic?</p> <p>Fair and comparative testing</p> <p>Which magnet is strongest?</p> <p>Which surface is best to stop you slipping?</p> <p>Research using secondary sources</p> <p>How have our ideas about forces changed over time?</p> <p>How does a compass work?</p>	<p>Poles</p> <p>Push</p> <p>Pull</p>
Scientific skills included with each topic:			
<p>Ask relevant questions and use different types of scientific enquiries to answer them</p> <p>Set up simple practical enquiries, comparative and fair tests</p> <p>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables</p> <p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions</p> <p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>Use straightforward scientific evidence to answer questions or to support their findings.</p>			<p>Predictions, Evidence</p> <p>Improve, Conclusion</p> <p>Comparative, Venn diagram</p> <p>Bar chart, Scatter graph</p> <p>Interpret, Differences</p> <p>Similarities, Changes</p> <p>Thermometers, Systematic</p> <p>Standard units</p>

Year 5

Theme	Unit	Key Science Knowledge	Scientific enquiry	Vocabulary
Bake It	Materials	<p>Know the distinctive properties of different materials (hardness, solubility, transparency, conductivity (electrical and thermal).</p> <p>Know about the principles of condensation and evaporation.</p> <p>Know about the different arrangements of particles in solids, liquids and gases.</p> <p>Know that heat can move from one object to another by conduction.</p> <p>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</p>	<p>Observing over time</p> <p>How can you get the salt back from the water?</p> <p>How does a sugar cube change as it is put in a glass of water?</p> <p>How does a nail in salt water change over time?</p> <p>Pattern seeking</p> <p>How much salt can be dissolved in a cup of water?</p> <p>Identifying, classifying and grouping</p> <p>Which solids can we get back from the water?</p> <p>Can you group these materials based on whether they are transparent or not?</p> <p>Fair and comparative testing</p> <p>What material is best for making a cooking utensil?</p>	<p>Hardness</p> <p>Solubility</p> <p>Transparency Conductivity</p> <p>Filter Evaporation</p> <p>Condensation</p> <p>Dissolving Mixing</p>

		<p>decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>Demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>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 warm water on yeast.</p>	<p>Which type of sugar dissolves the fastest?</p>	
<p>Space Scientists</p>	<p>Earth and Space</p>	<p>Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <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>Observing over time</p> <p>How does a shadow change during the day?</p> <p>Pattern seeking</p> <p>Is there a pattern between the size of a planet and the time it takes to travel around the Sun?</p> <p>Identifying, classifying and grouping</p> <p>How could you organise all the objects in the solar system into groups?</p> <p>Can you observe and identify all the phases in the cycle of the Moon?</p> <p>Research using secondary sources</p> <p>How have our ideas about the solar system changed over time?</p> <p>What unusual objects did Jocelyn Bell Burnell discover?</p>	<p>Earth</p> <p>Sun</p> <p>Moon</p> <p>Axis</p> <p>Rotation</p> <p>Day</p> <p>Night</p> <p>Phases of the Moon</p> <p>Star</p> <p>Constellation</p>
<p>Existing, Endangered, Extinct</p>	<p>Living things and their habitats</p>	<p>Know about the nature, functions and effects of micro-organisms.</p> <p>Know about similarities and differences between humans and other creatures.</p> <p>Know about the major classifications of living things.</p> <p>Know about the effects of food chains in a variety of environments.</p> <p>Know that changes in the environment have effects on living things.</p>	<p>Observing over time</p> <p>How does our compost heap change over time?</p> <p>What happens to a piece of bread if you leave it on the windowsill for two weeks?</p> <p>Pattern seeking</p> <p>How does a change to one part of a food chain affect the rest of the food chain?</p> <p>Identifying, grouping and classifying</p> <p>How would you make a classification key for vertebrates / invertebrates or microorganisms?</p> <p>Fair and comparative testing</p> <p>Which conditions help micro-organisms grow best?</p> <p>Which is the most common invertebrate on our school playing field?</p> <p>Research using secondary sources</p> <p>What do different types of microorganisms do?</p> <p>Are they always harmful?</p> <p>How have our ideas about disease and medicine changed over time?</p>	<p>Plants</p> <p>Animals</p> <p>Protists</p> <p>Fungi</p> <p>Bacteria</p>

Fascinating Forces	Forces	<p>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p>	<p>Observing over time How long does a pendulum swing for before it stops?</p> <p>Pattern seeking Do all objects fall through water in the same way?</p> <p>Identifying, grouping and classifying Can you label and name all the forces acting on the objects in each of these situations?</p> <p>Fair and comparative testing Which shoe is the most slippy? What size wings makes the best paper sycamore helicopter? What is the best material to make a parachute out of? Does the length of a lever affect the size of the force produced?</p> <p>Research using secondary sources Where do you find gears in the real world? How do submarines sink if they are full of air?</p>	<p>fall gravity force air resistance water resistance friction moving surfaces mechanisms levers pulleys gears</p>
Scientific skills included with each topic:				
<p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>Use test results to make predictions to set up further comparative and fair tests</p> <p>Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations</p> <p>Identify scientific evidence that has been used to support or refute ideas or arguments.</p>				<p>Plan, Variables, Repeat readings, report, Scientific diagrams, Labels, Classification keys, Line graphs, Report and present – conclusions, improvements Risks</p>

Year 6

Theme	Unit	Key Science Knowledge	Scientific enquiry	Vocabulary
Being Human	Animals, including humans	<p>Know about the structure of the human body.</p> <p>Know the functions of the major internal and external parts of the human body.</p> <p>Understand the importance of an appropriate diet for the health of humans and other animals.</p> <p>Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</p>	<p>Observing over time How does my heart rate change over the day? How much exercise do I do in a week?</p> <p>Pattern seeking Is there a pattern between what we eat for breakfast and how fast we can run?</p> <p>Identifying, classifying and grouping Which organs of the body make up the circulation system, and where are they found?</p> <p>Fair and comparative testing</p>	<p>circulatory system heart blood blood vessels pumps oxygen carbon dioxide lungs nutrients water diet exercise drugs lifestyle</p>

		Describe the ways in which nutrients and water are transported within animals, including humans.	Which type of exercise has the greatest effect on our heart rate?	
Full Power	Electricity	<p>Know a conductor is a material that allows charges to flow easily throughout the material; and an insulator is a material that does not allow charges to flow easily throughout the material.</p> <p>Electricity can be supplied from the mains or from batteries.</p> <p>In order for electricity to flow in a circuit it needs a source of electricity; no gaps in the circuit; conductors</p> <p>Use recognised symbols when representing a simple circuit in a diagram.</p>	<p>Observing over time Does the temperature of a light bulb go up the longer it is on?</p> <p>Fair and comparative testing How does a parallel circuit affect the brightness of the bulbs compared to a series circuit? Which make of battery lasts the longest?</p> <p>Identifying, classifying and grouping How would you group electrical components and appliances based on what electricity makes them do?</p> <p>Research using secondary sources Why is electricity dangerous? How has our understanding of electricity changed over time?</p>	Cell, battery, switch, bulb motor, buzzer, crocodile clips, wire series / parallel circuit, complete circuit symbol, circuit diagram fuse wire, bright, dim filament, conductor, insulator, plug, mains electricity
Look hear	Light and sound	<p>Know that light travels in a straight line until it strikes an object.</p> <p>Know that light travels through some materials and not through others</p> <p>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> <p>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> <p>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p> <p>Know how sounds are changed by altering the nature and frequency of the vibrations</p> <p>Know that vibrations from sound sources travel through a medium to reach the ear.</p>	<p>Pattern seeking Is there a pattern to how bright it is in school over the day? And, if there is a pattern, is it the same in every classroom?</p> <p>Identifying, classifying and grouping Can you identify all the colours of light that make white light when mixed together? What colours do you get if you mix different colours of light together?</p> <p>Fair and comparative testing What is the best position for a car rear view mirror? How does the position of a light source affect the size of a shadow? Which material is most reflective?</p> <p>Research using secondary sources How can a submarine see where it is going? Why do we see the moon?</p>	opaque translucent transparent shadow pupil iris lens eyelid reflection refraction source
Out of Africa	Evolution and Inheritance	<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</p> <p>Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p>	<p>Pattern seeking Is there a pattern between the size and shape of a bird's beak and the food it will eat?</p> <p>Identifying, classifying and grouping Compare the skeletons of apes, humans, and Neanderthals – how are they similar, and how are they different?</p>	Inhabited Produce Offspring Reproduction Adapted Adaptation Evolution

		<p>Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>	<p>Can you classify these observations into evidence for the idea of evolution, and evidence against?</p> <p>Fair and comparative testing What is the most common eye colour in our class?</p> <p>Research using secondary sources What happened when Charles Darwin visited the Galapagos islands?</p>	<p>Characteristics Inherited Suited Species Breeds Variation</p>
Scientific skills included with each topic:				
<p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Use test results to make predictions to set up further comparative and fair tests Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations Identify scientific evidence that has been used to support or refute ideas or arguments.</p>				<p>Causal relationship, Explanations, Degree of trust, Evidence - support, refute ideas or arguments, Accuracy, Precision, Complex, Systematic, Quantitative</p>