

Progression of **Skills and Knowledge** for  
SUBJECT: Science

Blue: Class Topics (DO NOT CHANGE)

Grey: Subject Specific areas e.g. Art might be Drawing, Painting, and Textiles...

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>EYFS</b>						
<b>Year 1</b>	Brilliant Birmingham		Frozen Worlds		Going on Safari	
<b>Knowledge and Skills</b>	Everyday Materials Chemistry	Everyday Materials Chemistry	Plants Biology	Plants Biology	Naming animals and body parts	Humans
	<p>Ask questions Observing closely Using simple equipment to make observations Grouping and classifying Comparative tests Using scientific language to describe Labelled diagrams Table Tally charts Venn diagrams Carroll diagrams Using observations to answer questions</p> <p>All objects are made of one or more materials. Some objects can be made from different materials e.g. plastic, metal or wooden spoons.</p>		<p>Ask questions Observing closely Using simple equipment to make observations Grouping and classifying Using scientific language to describe Labelled diagrams Table Venn diagrams Carroll diagrams Using observations to answer questions</p> <p>Growing locally, there will be a vast array of plants which all have specific names. These can be identified by looking at the key characteristics of the plant. Plants have common parts, but they vary between the</p>		<p>Ask questions Observing closely Grouping and classifying Researching using secondary sources of information Using scientific language to describe Labelled diagrams Venn diagrams Carroll diagrams Using observations to answer questions</p> <p>Animals vary in many ways having different structures e.g. wings, tails, ears etc. They also have different skin coverings e.g. scales, feathers, hair. These key features can be used to identify them.</p>	<p>Ask questions Observing closely Using simple equipment to make observations Noticing patterns Comparative tests Using scientific language to describe Labelled diagrams Table Tally charts Using observations to answer questions</p> <p>Humans have key parts in common, but these vary from person to person. Humans (and other animals) find out about the world using their senses. Humans have five senses - sight, touch, taste, hearing and</p>

	Materials can be described by their properties e.g. shiny, stretchy, rough etc. Some materials e.g. plastic can be in different forms with very different properties.		different types of plants. Some trees keep their leaves all year while other trees drop their leaves during Autumn and grow them again during spring.		Animals eat certain things - some eat other animals, some eat plants, some eat both plants and animals.	smelling. These senses are linked to particular parts of the body.
<b>Vocabulary</b>	Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through		Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, plant, tree Names of trees in the local area such as oak, ash, silver birch, horse chestnut, magnolia Names of garden and wild flowering plants in the local area such as poppy, geranium, rose, daffodil, tulip		Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur, beak, paws, hooves • Names of animals experienced first-hand from each vertebrate group	Parts of the body including those linked to PSHE teaching Senses - touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue

Year 2	We live on an Island		What's going on down under?		Turrets and Tiaras	
<b>Knowledge and Skills</b>	Use of Everyday Materials Chemistry	Use of Everyday Materials Chemistry	Habitats and Simple Food Chains Biology	Plants Biology	Health and Growth Biology	
	Ask questions Observing closely Using equipment to make observations Using equipment to measure Observing changes over time Grouping and classifying Comparative tests Using scientific language to describe Labelled diagrams Table Venn diagrams Carroll diagrams Pictogram/block diagram Using observations to answer questions Developing explanations  All objects are made of one or more materials that are chosen specifically because they have suitable properties for the task. For example, a		Ask questions Observing closely Using equipment to make observations Using equipment to measure Observing changes over time Grouping and classifying Comparative tests Researching using secondary sources of information Using scientific language to describe Labelled diagrams Table Using observations to answer questions Developing explanations  All objects are either living, dead or have never been alive. Living things are plants (including seeds) and animals. Dead things include dead animals and plants and parts of plants and animals that are no longer attached e.g. leaves and twigs, shells,	Ask questions Observing closely Using equipment to make observations Using equipment to measure Observing changes over time Researching using secondary sources of information Using scientific language to describe Labelled diagrams Pictogram/block diagram Using observations to answer questions Developing explanations  Plants may grow from either seeds or bulbs. These then germinate and grow into seedlings which then continue to grow into mature plants. These mature plants may have flowers which then develop into seeds, berries, fruits etc.	Ask questions Observing closely Using equipment to make observations Using equipment to measure Observing changes over time Grouping and classifying Comparative tests Researching using secondary sources of information Using scientific language to describe Labelled diagrams Carroll diagrams Pictogram/block diagram Using observations to answer questions Developing explanations  Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens, that grow into adults. In	

	<p>water bottle is made of plastic because it is transparent allowing you to see the drink inside and waterproof so that it holds the water. When choosing what to make an object from, the properties needed are compared with the properties of the possible materials, identified through simple tests and classifying activities. A material can be suitable for different purposes and an object can be made of different materials. Objects made of some materials can be changed in shape by bending, stretching, squashing and twisting. For example, clay can be shaped by squashing, stretching, rolling, pressing etc. This can be a property of the material or depend on how the material has been processed e.g. thickness.</p>		<p>fur, hair and feathers (This is a simplification, but appropriate for Year 2 children.) An object made of wood is classed as dead. Objects made of rock, metal and plastic have never been alive (again ignoring that plastics are made of fossil fuels). Animals and plants live in a habitat to which they are suited, which means that animals have suitable features that help them move and find food and plants have suitable features that help them to grow well. The habitat provides the basic needs of the animals and plants - shelter, food and water. Within a habitat there are different micro-habitats e.g. in a woodland - in the leaf litter, on the bark of trees, on the leaves. These micro-habitats have different conditions e.g. light or dark, damp or dry. These conditions affect which plants and animals live there. The plants and animals in a habitat depend on each other for food and shelter etc. The way that animals obtain their food from plants and</p>	<p>Seeds and bulbs need to be planted outside at particular times of year and they will germinate and grow at different rates. Some plants are better suited to growing in full sun and some grow better in partial or full shade. Plants also need different amounts of water and space to grow well and stay healthy.</p>	<p>other animals, such as chickens or insects, there may be eggs laid that hatch to young or other stages which then grow to adults. The young of some animals do not look like their parents e.g. tadpoles. All animals, including humans, have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive. To grow into healthy adults, they also need the right amounts and types of food and exercise. Good hygiene is also important in preventing infections and illnesses.</p>	
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			other animals can be shown in a food chain.			
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<b>Vocabulary</b>	Names of materials - wood, metal, plastic, glass, brick, rock, paper, cardboard Properties of materials - Object, material, wood, plastic, glass, metal, water, rock, brick, paper, fabric, elastic, foil, card/cardboard, rubber, wool, clay, hard, soft, stretchy, stiff, bendy, floppy, waterproof, absorbent, breaks/tears, rough, smooth, shiny, dull, see-through, not see-through opaque, transparent and translucent, reflective, non-reflective, flexible, rigid Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching		<ul style="list-style-type: none"> <li>• Living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed</li> <li>• Names of local habitats e.g. pond, woodland etc.</li> <li>• Names of micro-habitats e.g. under logs, in bushes etc.</li> </ul>	Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, plant, tree, light, shade, sun, warm, cool, water, grow, healthy Names of trees in the local area such as oak, ash, silver birch, horse chestnut, magnolia Names of garden and wild flowering plants in the local area such as poppy, geranium, rose, daffodil, tulip	Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly), exercise, heartbeat, breathing, hygiene, germs, disease, food types (examples - meat, fish, vegetables, bread, rice, pasta)	
	<b>Year 3</b>	In the forest	Stone Age to Iron Age	Road Trip to Italy	Boudicca or Boudicea?	

	Plants Biology	Rocks Chemistry	Skeletons and Nutrition Biology	Skeletons and Nutrition Biology	Forces and Magnets Physics	Light Physics
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<p><b>Knowledge and Skills</b></p>	<p>Asking relevant questions  Setting up simple tests  Making careful observations  Making systematic and accurate measurements  Observing over time  Pattern seeking  Identifying and classifying  Comparative tests  Fair tests  Researching  Ideas over time  Labelled drawings  Tables  Venn/Carroll diagrams  Identification keys  Drawing conclusions  Using evidence to answer questions or to support findings  Relating to scientific ideas and processes  Using results to make predictions for new values  Suggesting improvements to practical enquiries  Raising further questions    Many plants, but not</p>	<p>Asking relevant questions  Setting up simple tests  Making careful observations  Making systematic and accurate measurements  Observing over time  Identifying and classifying  Comparative tests  Researching  Ideas over time  Labelled drawings  Tables  Identification keys  Bar charts  Drawing conclusions  Using evidence to answer questions or to support findings  Relating to scientific ideas and processes  Raising further questions    Rock is a naturally occurring material. There are different types of rock e.g. sandstone, limestone, slate etc. which have different properties. Rocks can be hard or soft. They have different sizes of grain or crystal. They may absorb water. Rocks can</p>	<p>Asking relevant questions  Setting up simple tests  Making careful observations  Pattern seeking  Identifying and classifying  Researching  Ideas over time  Labelled drawings  Tables  Venn/Carroll diagrams  Drawing conclusions  Using evidence to answer questions or to support findings  Relating to scientific ideas and processes  Raising further questions    Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Food contains a range of different nutrients - carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water - and fibre that are needed by the body to stay healthy. A piece of food will often provide a range of nutrients.</p>		<p>Asking relevant questions  Setting up simple tests  Making careful observations  Pattern seeking  Identifying and classifying  Researching  Ideas over time  Labelled drawings  Tables  Venn/Carroll diagrams  Drawing conclusions  Using evidence to answer questions or to support findings  Relating to scientific ideas and processes  Raising further questions  seeking    A force is a push or a pull. When an object moves on a surface, the texture of the surface and the object affect how it moves. It may help the object to move better or it may hinder its movement e.g. ice skater compared to walking on ice in normal shoes.</p>	<p>Asking relevant questions  Setting up simple tests  Making careful observations  Making systematic and accurate measurements  Observing over time  Pattern seeking  Comparative tests  Fair test  Researching  Labelled drawings  Tables  Bar charts  Drawing conclusions  Using evidence to answer questions or to support findings  Relating to scientific ideas and processes  Using results to make predictions for new values    We see objects because our eyes can sense light. Dark is the absence of light. We cannot see anything in complete darkness. Some objects, for example, the sun, light bulbs and candles are sources of light. Objects are easier to see if there is more light.</p>
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	<p>all, have roots, stems/trunks, leaves and flowers/blossom. The roots absorb water and nutrients from the soil and anchor the plant in place. The stem transports water and nutrients/minerals around the plant and holds the leaves and flowers up in the air to enhance photosynthesis, pollination and seed dispersal. The leaves use sunlight and water to produce the plant's food. Some plants produce flowers which enable the plant to reproduce. Pollen, which is produced by the male part of the flower, is transferred to the female part of other flowers (pollination). This forms seeds, sometimes contained in berries or fruits which are then dispersed in different ways. Different plants require different conditions for</p>	<p>be different shapes and sizes (stones, pebbles, boulders). Soils are made up of pieces of ground down rock which may be mixed with plant and animal material (organic matter). The type of rock, size of rock pieces and the amount of organic matter affect the property of the soil. Some rocks contain fossils. Fossils were formed millions of years ago. When plants and animals died, they fell to the seabed. They became covered and squashed by other material. Over time the dissolving animal and plant matter is replaced by minerals from the water.</p>	<p>Humans, and some other animals, have skeletons and muscles which help them move and provide protection and support.</p>		<p>A magnet attracts magnetic material. Iron and nickel and other materials containing these, e.g. stainless steel, are magnetic. The strongest parts of a magnet are the poles. Magnets have two poles - a north pole and a south pole. If two like poles, e.g. two north poles, are brought together they will push away from each other - repel. If two unlike poles, e.g. a north and south, are brought together they will pull together - attract.</p> <p>For some forces to act, there must be contact e.g. a hand opening a door, the wind pushing the trees. Some forces can act at a distance e.g. magnetism. The magnet does not need to touch the object that it attracts.</p>	<p>Some surfaces reflect light. Objects are easier to see when there is less light if they are reflective. The light from the sun can damage our eyes and therefore we should not look directly at the sun and can protect our eyes by wearing sunglasses or sunhats in bright light. Shadows are formed on a surface when an opaque or translucent object is between a light source and the surface and blocks some of the light. The size of the shadow depends on the position of the source, object and surface.</p>
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	germination and growth.					
<b>Vocabulary</b>	Photosynthesis, pollen, insect/wind pollination, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal)	Rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, soil, fossil, marble, chalk, granite, sandstone, slate, soil, peat, sandy/chalk/clay soil	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine		Force, push, pull, twist, contact force, non-contact force, magnetic force, magnet, strength, bar magnet, ring magnet, button magnet, horseshoe magnet, attract, repel, magnetic material, metal, iron, steel, poles, north pole, south pole	Light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous
<b>Year 4</b>	Along the Nile (Egypt)		Axes and Shields (Anglo Saxons)		Near and Far	

	States of Matter Chemistry	States of Matter Chemistry	Electricity Physics	Sound Physics	Living things and Habitats Biology	Teeth, Eating and Digestion Biology
<b>Knowledge and Skills</b>	Asking relevant questions Setting up simple tests Making careful observations Making systematic and accurate measurements Observing over time Identifying and classifying Comparative tests Researching Labelled drawings Tables Drawing conclusions Using evidence to answer questions or to		Asking relevant questions Setting up simple tests Making careful observations Pattern seeking Identifying and classifying Researching Ideas over time Labelled drawings Tables Drawing conclusions Using evidence to answer questions or to support findings Relating to scientific ideas and processes	Asking relevant questions Setting up simple tests Making careful observations Making systematic and accurate measurements Identifying and classifying Comparative tests Fair tests Researching Ideas over time Labelled drawings Tables Drawing conclusions Using evidence to answer questions or to support	Asking relevant questions Setting up simple tests Making careful observations Identifying and classifying Comparative tests Labelled drawings Tables Identification keys Drawing conclusions Using evidence to answer questions or to support findings Relating to scientific ideas and processes Raising further questions	Asking relevant questions Setting up simple tests Making careful observations Observing over time Pattern seeking Identifying and classifying Researching Labelled drawings Drawing conclusions Using evidence to answer questions or to support findings Relating to scientific



	<p>support findings Relating to scientific ideas and processes Using results to make predictions for new values Suggesting improvements to practical enquiries Raising further questions</p> <p>A solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain</p>		<p>Suggesting improvements to practical enquiries Raising further questions</p> <p>A solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid. Melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0°C. Boiling is a change of state from liquid to gas that happens when a liquid is heated to</p>	<p>findings Relating to scientific ideas and processes Using results to make predictions for new values Suggesting improvements to practical enquiries Raising further questions</p> <p>A solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid. Melting is a state change from solid to liquid. Freezing is a state</p>	<p>A solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid. Melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0°C. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100°C. Evaporation is the same</p>	<p>ideas and processes</p> <p>A solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid. Melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0°C. Boiling is a change of state from liquid to gas that</p>
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	<p>demonstrates the properties of a solid. Melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0°C. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100°C. Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling. Water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation. This is the water cycle.</p>		<p>a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100°C. Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling. Water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation. This is the water cycle.</p>	<p>change from liquid to solid. The freezing point of water is 0°C. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100°C. Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling. Water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the</p>	<p>state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling. Water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation. This is the water cycle.</p>	<p>happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100°C. Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling. Water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc.</p>
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	<p>evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation. This is the water cycle.</p>		<p>precipitation. This is the water cycle.</p>	<p>cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation. This is the water cycle.</p>		<p>and drain back into rivers etc. This is known as precipitation. This is the water cycle.</p>
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<b>Vocabulary</b>	<p>Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle</p>		<p>Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip, bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol</p>	<p>Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation</p>	<p>Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate</p>	<p>Living things can be classified as producers, predators and prey according to their place in the food chain.</p>
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<b>Year 5</b>	Ghost from the past (Victorians)		Ghost from the past (Victorians)		Monstrous Mayans	
	Earth and Space Physics	Earth and Space Physics	Life Cycles and Reproduction Biology	Humans As They Grow Biology	Properties and Changes Chemistry	Forces Physics

<b>Knowledge and Skills</b>	Asking relevant questions that can be			Asking relevant questions	Asking relevant questions	Asking relevant questions
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<p>answered through different types of enquiry</p> <p>Observing over time</p> <p>Pattern seeking</p> <p>Researching</p> <p>Ideas over time</p> <p>Labelled drawings</p> <p>Drawing tables to record repeat readings and mean average calculations</p> <p>Bar charts</p> <p>Line and scatter graphs</p> <p>Using data to draw conclusions</p> <p>Relating conclusions to scientific ideas and processes</p> <p>Describing the degree of trust in the results collected</p> <p>Raising further questions</p> <p>The Sun is a star. It is at the centre of our solar system. There are 8 planets (can choose to name them, but not essential). These travel around the Sun in fixed orbits. Earth takes <math>365\frac{1}{4}</math> days to complete its orbit around the Sun. The Earth rotates (spins) on its axis every 24 hours. As Earth rotates half faces the</p>		<p>Asking relevant questions that can be answered through different types of enquiry</p> <p>Observing over time</p> <p>Identifying and classifying</p> <p>Researching</p> <p>Labelled drawings</p> <p>Classification keys</p> <p>Using data to draw conclusions</p> <p>relating conclusions to scientific ideas and processes</p> <p>Raising further questions</p> <p>As part of their life cycle, plants and animals reproduce. Most animals reproduce sexually. This involves two parents where the sperm from the male fertilises the female egg. Animals, including humans, have offspring which grow into adults. In humans and some animals, these offspring will be born live, such as babies or kittens, and then grow into adults. In other animals, such as chickens or snakes, there may be eggs laid that hatch to young which then grow to adults. Some young undergo a further change before becoming adults e.g.</p>	<p>that can be answered through different types of enquiry</p> <p>taking repeat readings when appropriate</p> <p>pattern seeking</p> <p>Researching</p> <p>Reporting methods used in written form</p> <p>Drawing tables to record repeat readings and mean average calculations</p> <p>Using data to draw conclusions</p> <p>relating conclusions to scientific ideas and processes</p> <p>describing casual relationships</p> <p>identifying data that supports or refutes ideas or arguments</p> <p>using results to make predictions for new values</p> <p>suggesting improvements to practical enquiries</p> <p>Raising further questions</p> <p>When babies are young, they grow rapidly. They are very dependent on their parents. As they develop, they learn many skills. At puberty,</p>	<p>that can be answered through different types of enquiry</p> <p>using scientific equipment to take accurate and precise readings</p> <p>taking repeat readings when appropriate</p> <p>observing over time</p> <p>pattern seeking</p> <p>identifying and classifying</p> <p>comparative tests</p> <p>fair tests</p> <p>Reporting methods used in written form</p> <p>Labelled drawings</p> <p>Drawing tables to record repeat readings and mean average calculations</p> <p>Bar charts</p> <p>Line and scatter graphs</p> <p>Using data to draw conclusions</p> <p>relating conclusions to scientific ideas and processes</p> <p>describing casual relationships</p> <p>identifying data that supports or refutes ideas or arguments</p> <p>describing the degree of trust in the results collected</p>	<p>that can be answered through different types of enquiry</p> <p>using scientific equipment to take accurate and precise readings</p> <p>taking repeat readings when appropriate</p> <p>pattern seeking</p> <p>comparative tests</p> <p>fair tests</p> <p>ideas over time</p> <p>Reporting methods used in written form</p> <p>Labelled drawings</p> <p>Drawing tables to record repeat readings and mean average calculations</p> <p>Bar charts</p> <p>Line and scatter graphs</p> <p>Using data to draw conclusions</p> <p>relating conclusions to scientific ideas and processes</p> <p>describing casual relationships</p> <p>identifying data that supports or refutes ideas or arguments</p> <p>describing the degree of trust in the results collected</p> <p>using results to make predictions for new values</p>
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<p>Sun (day) and half is facing away from the Sun (night). As the Earth rotates, the Sun appears to move across the sky. The Moon orbits the Earth. It takes about 28 days to complete its orbit. The Sun, Earth and Moon are approximately spherical.</p>		<p>caterpillars to butterflies. This is called a metamorphosis. Plants reproduce both sexually and asexually. Bulbs, tubers, runners and plantlets are examples of asexual plant reproduction which involves only one parent. Gardeners may force plants to reproduce asexually by taking cuttings. Sexual reproduction occurs through pollination, usually involving wind or insects.</p>	<p>a child's body changes and develops primary and secondary sexual characteristics. This enables the adult to reproduce. This needs to be taught alongside PSHE.</p>	<p>using results to make predictions for new values suggesting improvements to practical enquiries Raising further questions</p> <p>Materials have different uses depending on their properties and state (liquid, solid, gas). Properties include hardness, transparency, electrical and thermal conductivity and attraction to magnets. Some materials will dissolve in a liquid and form a solution while others are insoluble and form sediment. Mixtures can be separated by filtering, sieving and evaporation. Some changes to materials such as dissolving, mixing and changes of state are reversible, but some changes such as burning wood, rusting and mixing vinegar with bicarbonate of soda result in the formation of new materials and these are not reversible.</p>	<p>suggesting improvements to practical enquiries Raising further questions</p> <p>A force causes an object to start moving, stop moving, speed up, slow down or change direction. Gravity is a force that acts at a distance. Everything is pulled to the Earth by gravity. This causes unsupported objects to fall. Air resistance, water resistance and friction are contact forces that act between moving surfaces. The object may be moving through the air or water, or the air and water may be moving over a stationary object. A mechanism is a device that allows a small force to be increased to a larger force. The pay back is that it requires a greater movement. The small force moves a long distance and the resulting large force</p>
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						moves a small distance, e.g. a crowbar or bottle top remover. Pulleys, levers and gears are all mechanisms, also known as simple machines.
<b>Vocabulary</b>	Earth, Sun, Moon, (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, solar system, rotates, star, orbit, planets		Life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, bulbs, cuttings	Puberty, menstruation, periods, ovary, vagina, womb, sperm, testicles, gestation, hormones, embryo, hygiene, fetus, vulva	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material	Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears
<b>Year 6</b>	Magnificent Mountains		Groovy Greeks		The World at War (WW11)	
<b>Knowledge and Skills</b>	Classifying, including Microorganisms Biology	Classifying, including Microorganisms Biology	Light Physics	Electricity physics	Heart and circulation Biology	Evolution and Inheritance Biology
	Asking relevant questions that can be answered through different types of enquiry using scientific equipment to take accurate and precise readings taking repeat readings when appropriate identifying and classifying comparative tests Drawing tables to record repeat readings and mean average calculations		Asking relevant questions that can be answered through different types of enquiry using scientific equipment to take accurate and precise readings taking repeat readings when appropriate pattern seeking fair tests researching ideas over time Reporting methods used in written form Labelled drawings	Asking relevant questions that can be answered through different types of enquiry using scientific equipment to take accurate and precise readings taking repeat readings when appropriate identifying and classifying fair tests Reporting methods used in written form Labelled drawings	Asking relevant questions that can be answered through different types of enquiry using scientific equipment to take accurate and precise readings taking repeat readings when appropriate observing over time comparative tests fair tests researching Reporting methods used in written form	Asking relevant questions that can be answered through different types of enquiry using scientific equipment to take accurate and precise readings observing over time pattern seeking identifying and classifying comparative tests researching ideas over time Labelled drawings

<p>Classification keys identifying data that supports or refutes ideas or arguments Raising further questions</p> <p>Living things can be formally grouped according to characteristics. Plants and animals are two main groups but there are other living things that do not fit into these groups e.g. micro-organisms such as bacteria and yeast, and toadstools and mushrooms. Plants can make their own food whereas animals cannot.</p> <p>Animals can be divided (vertebrates); and those that do not (invertebrates). Vertebrates can be divided into five small groups: fish; amphibians; reptiles; birds; and mammals. Each group has common characteristics. Invertebrates can be divided into a number of groups, including</p>	<p>Drawing tables to record repeat readings and mean average calculations Line and scatter graphs Using data to draw conclusions relating conclusions to scientific ideas and processes describing casual relationships identifying data that supports or refutes ideas or arguments describing the degree of trust in the results collected using results to make predictions for new values suggesting improvements to practical enquiries Raising further questions</p> <p>Light appears to travel in straight lines, and we see objects when light from them goes into our eyes. The light may come directly from light sources, but for other objects some light must be reflected from the object into our eyes for the object to be seen. Objects that block light (are not fully transparent) will cause shadows. Because light travels in straight lines the shape of the</p>	<p>Drawing tables to record repeat readings and mean average calculations Line and scatter graphs Using data to draw conclusions relating conclusions to scientific ideas and processes describing casual relationships identifying data that supports or refutes ideas or arguments describing the degree of trust in the results collected using results to make predictions for new values suggesting improvements to practical enquiries Raising further questions</p> <p>Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound. If you use a battery with a higher voltage, the same thing happens. Adding more bulbs to a circuit will make each bulb less</p>	<p>Labelled drawings Bar charts Line and scatter graphs Using data to draw conclusions relating conclusions to scientific ideas and processes describing casual relationships identifying data that supports or refutes ideas or arguments describing the degree of trust in the results collected using results to make predictions for new values suggesting improvements to practical enquiries Raising further questions</p> <p>The heart pumps blood in the blood vessels around to the lungs. Oxygen goes into the blood and carbon dioxide is removed. The blood goes back to the heart and is then pumped around the body. Nutrients, water and oxygen are transported in the blood to the muscles</p>	<p>Using data to draw conclusions relating conclusions to scientific ideas and processes identifying data that supports or refutes ideas or arguments Raising further questions</p> <p>All living things have offspring of the same kind, as features in the offspring are inherited from the parents. Due to sexual reproduction, the offspring are not identical to their parents and vary from each other. Plants and animals have characteristics that make them suited (adapted) to their environment. If the environment changes rapidly, some variations of a species may not suit the new environment and will die. If the environment changes slowly, animals and plants with variations that are best suited survive in greater numbers to reproduce and pass</p>
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	<p>insects, spiders, snails and worms. Plants can be divided broadly into two main groups: flowering plants; and non-flowering plants.</p>		<p>shadow will be the same as the outline shape of the object.</p>	<p>bright. Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter. Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well. You can use recognised circuit symbols to draw simple circuit diagrams.</p>	<p>and other parts of the body where they are needed. As they are used, they produce carbon dioxide and other waste products. Carbon dioxide is carried by the blood back to the heart and then the cycle starts again as it is transported back to the lungs to be removed from the body. This is the human circulatory system. Diet, exercise, drugs and lifestyle have an impact on the way our bodies function. They can affect how well our heart and lungs work, how likely we are to suffer from conditions such as diabetes, how clearly we think, and generally how fit and well we feel. Some conditions are caused by deficiencies in our diet e.g. lack of vitamins.</p>	<p>their characteristics on to their young. Over time, these inherited characteristics become more dominant within the population. Over a very long period of time, these characteristics may be so different to how they were originally that a new species is created. This is evolution. Fossils give us evidence of what lived on the Earth millions of year ago and provide evidence to support the theory of evolution. More recently, scientists such as Darwin and Wallace observed how living things adapt to different environments to become distinct varieties with their own characteristics.</p>
<p><b>Vocabulary</b></p>	<p>Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, insects, spiders, snails, worms, flowering, non-flowering</p>		<p>light, light source, dark, absence of light, transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror, sunlight, dangerous, straight lines, light rays</p>	<p>Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage</p>	<p>Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system,</p>	<p>Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils</p>



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