

CGPS Curriculum - Subject Knowledge Overview

Science

KSI Cycle A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit Title	How do the seasons change over the year?	Animals Including Humans Are all animals the same?	Materials - Everyday Materials (Increased focus on Scientific Enquiry linked to real-life examples)		Animals including humans - parts of the body	Plants
<p>Essential knowledge <i>What all children must know by the end of the unit — this underpins progression and future learning.</i></p> <p>Desirable Knowledge <i>nice-to-have extras that deepen, enrich or extend understanding if time or interest allows.</i></p>	<ul style="list-style-type: none"> * Name Spring, Summer, Autumn, Winter * Know some differences between the four seasons: plants, trees, animals, clothing * Know the weather associated with the four seasons in the UK * Days are longer in Summer and shorter in winter 	<ul style="list-style-type: none"> *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. *Know that animals have different structures e.g. wings, tails, ears, fur, scales, hair, feathers etc *Know that the above features can be used to identify animals (including pets) 	<ul style="list-style-type: none"> *Distinguish between an object and the material from which it is made. *Classify in different ways, one type of objects made from a range of materials (e.g. spoons - metals, plastic, wood) *Identify and name a variety of everyday materials including wood, plastic, glass, metal, water and rock. *Describe the simple physical properties of a variety of everyday materials e.g shiny, stretchy, rough etc. *Know that the term 'materials' does not just refer to fabrics. 		<ul style="list-style-type: none"> *Name the basic parts of a human body. *Know the five senses. *Know which part is associated with each sense. * * 	<ul style="list-style-type: none"> *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. * * *
Key concept /skills	<ul style="list-style-type: none"> * Observation over time *Draw and/or label diagrams * Collect and gather data through observations * Present information in tables and charts 	<ul style="list-style-type: none"> *Draw and label basic parts of different animals. *Identify and classify * * * 	<ul style="list-style-type: none"> *Compare and group a variety of everyday materials based on their physical properties (e.g metal, plastic) *Use their observations and ideas to suggest answers to questions about materials e.g. What would be the best material to make Teddy's raincoat? *Observe closely, using simple equipment. 		<ul style="list-style-type: none"> *Draw and label basic parts of the human body. *Complete a simple sorting diagram to show what we can hear, see, smell etc * * 	<ul style="list-style-type: none"> *Observe and identify plants and trees in our school grounds. *Identify and Classify: how can we sort the leaves collected on a nature walk? *Which tree has the biggest leaves?
Key Vocabulary 6	<ul style="list-style-type: none"> * * * 	<ul style="list-style-type: none"> *scales *beak *feathers *skin *fur *claws/hooves/paws 	<ul style="list-style-type: none"> *material *rock *water 	<ul style="list-style-type: none"> *plastic/metal/glass *wood *waterproof 	<ul style="list-style-type: none"> *head *nose *body *tongue *eyes *senses 	<ul style="list-style-type: none"> * * *



KSI Cycle A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
KSI Cycle B	Animals Including Humans	Living Things and Their Habitats	Materials - Uses of Everyday Materials (Increased focus on Scientific Enquiry linked to real-life examples)		Plants	
	<p>Core knowledge</p> <ul style="list-style-type: none"> * Know that all animals (including humans) have offspring that grow into adults. * Name three animals that give birth to live young and three animals that lay eggs. * The young of some animals do not look like their parent e.g. tadpoles * Know that all living things need food, water and air to survive. * Know that humans need the right amount, and types of, food and exercise to keep healthy, along with good hygiene. 	<p>Core knowledge</p> <ul style="list-style-type: none"> *Know the differences between things that are living, dead, and things that have never been alive. *Identify that most living things live in habitats to which they are suited *Describe how different habitats provide for the basic needs of animals and plants, and how they depend on each other. *Identify and name a variety of plants and animals in their habitats, including a range of micro-habitats. *Describe how animals obtain their food from plants and other animals, and identify and name different sources of food. 	<p>Core knowledge</p> <ul style="list-style-type: none"> *Recap and review common everyday materials - their names and properties. *Identify a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard used for particular uses. *Compare the suitability of everyday materials for particular uses e.g glass is used for windows *A material can be suitable for different purposes and an object can be made from different materials. *Know how the shapes of solid objects made from the same materials can be changed by squashing, bending, twisting and stretching. 		<p>Core knowledge</p> <ul style="list-style-type: none"> *Know that plants grow from seeds or bulbs. *Know that plants need water, light and a suitable temperature to grow and stay healthy. * * * * 	
	<p>Key concept/skills</p> <ul style="list-style-type: none"> * Ask questions and use their observations and/or secondary sources (research) to answer them. * Observation: animals 	<p>Key concept/skills</p> <ul style="list-style-type: none"> *Group and Classify *Create food chains *Use secondary sources * * 	<p>Key concept/skills</p> <ul style="list-style-type: none"> *Compare and group a variety of everyday materials based on their physical properties. *Use their observations and ideas to suggest answers to questions about materials eg.compare the stretchiness of fabrics to select the most appropriate for Elastigirl's 		<p>Key concept/skills</p> <ul style="list-style-type: none"> *Comparative tests: do cress seeds grow better in the light or the dark. *Observations over time. *Do cress seeds grow better with or without water? * * 	



	<p><i>growing over time</i> * <i>Classification: eat well guide</i> * <i>Present information in diagrams, tables and simple explanations</i></p>		<p><i>costume.</i> *<i>Label a picture or diagram of an object made from different materials.</i> *<i>Perform simple tests.</i></p>	
	<p>Key vocab *diet *exercise *hygiene *nutrition *adult *offspring * life cycle * adult</p>	<p>Key vocab *living/dead *habitat *shelter * depend *habitats *micro-habitats eg under logs, bushes *food chain *survive</p>	<p>Key vocab *squashing *bending *twisting *stretching *flexible *properties *suitability *materials</p>	<p>Key vocab *sunlight *water * temperature *nutrition *shoot *germination * seed dispersal *</p>

KS2	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3	<i>Forces and Magnets</i>	Animals Including Humans - Humans/Diet	Light	Plants 1	<i>Rocks</i>	Plants 2



	<p>Core knowledge <i>* A force is a push or a pull.</i> <i>* Objects move better on some surfaces than others.</i> <i>* Some forces need contact between two objects, but magnetic forces can act at a distance.</i> <i>* Magnets attract magnetic material (not all metals are magnetic)</i> <i>* Magnets have 2 poles - like poles repel, unlike poles attract.</i></p>	<p>Core knowledge <i>*</i> <i>*</i></p>	<p>Core knowledge</p>	<p>Core knowledge</p>	<p>Core knowledge <i>*Rock is a naturally occurring material.</i> <i>*Name some different types of rocks and give physical features of each. (sandstone, slate, granite, marble, pumice and chalk)</i> <i>*Know simply how fossils are formed.</i> <i>*Know that soils are made from rocks and organic matter.</i> <i>*</i> <i>*</i></p>	<p>Core knowledge <i>*Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</i> <i>*Know that plants need air, light, water, nutrients from soil, and room to grow.</i> <i>*Know that needs vary from plant to plant.</i> <i>*Know how water is transported within plants.</i> <i>*Know the life cycle of a flowering plant including pollination, seed formation and seed dispersal.</i></p>
	<p>Key concept/skills <i>* Draw and label diagrams using arrows to show attraction and repulsion between the poles of magnets.</i> <i>* Record observations of findings in tables and draw simple conclusions</i> <i>* Group and classify magnetic/non-magnetic materials</i> <i>* Pattern Seeking - Does the size and</i></p>	<p>Key concept/skills <i>*</i></p>	<p>Key concept/skills</p>	<p>Key concept/skills <i>*Observation over time</i> <i>*Fair/comparative testing</i> <i>*Research</i> <i>*Classifying and grouping</i></p>	<p>Key concept/skills <i>*Grouping and classifying a range of rocks</i> <i>*Record observations in simple tables.</i> <i>*</i> <i>*</i> <i>*</i></p>	<p>Key concept/skills <i>*Observation over time</i> <i>*Fair/comparative testing</i> <i>*Research</i> <i>*Classifying and grouping</i></p>



	<i>shape of a magnet affect how strong it is? * Draw simple conclusions based on findings.</i>					
	Key vocabulary * *	Key vocabulary	Key vocabulary *shadow *reflect/reflective *light source *light/dark *shiny / matt *natural/artificial	Key vocabulary *pollen/pollination *seed dispersal *seed formation *flower *stem/trunk *roots *leaves	Key vocabulary * * * * * * *	Key vocabulary *pollen/pollination *seed dispersal *seed formation *flower *stem/trunk *roots *leaves
Year 4	Electricity	Sound	States of Matter		Animals Including Humans -Teeth and Digestive System	Living Things and Their Habitats - Classification Keys
	Core knowledge * Appliances run on electricity - mains or battery * An electrical circuit consists of cells, wires, bulbs, switches and buzzers. * A switch opens and	Core knowledge * Identify how sounds are made associating some of them with something vibrating. * Recognise that vibrations travel through a medium to the ear. * Find patterns between	Core knowledge * Know what solids, liquids and gases are. * Compare and group materials together according to whether they are solids, liquids or gases. * Observe that some materials change state when they are heated or cooled. * Know that the freezing point of water is 0 degrees and water boils at 100 degrees. * Identify the part played by evaporation and		Core knowledge * 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.	Core knowledge * Recognise that living things can be grouped in different ways. * Use classification keys to group, identify and name a variety of living things in their local and wider environment.



	<p><i>closes a circuit.</i> <i>* Metals are good conductors; non-metallic solids are insulators</i> <i>* Know that a bulb will only light up when the circuit is completed correctly.</i></p>	<p><i>the pitch of a sound and the features of the object that produced it.</i> <i>* Find patterns between the volume of a sound and the strength of vibrations that produced it.</i> <i>* Recognise that sound gets fainter as the distance from the sound source increases.</i></p>	<p><i>condensation in the water cycle. (Link to Spring 1 Geography)</i> <i>* Associate the rate of evaporation with temperature.</i></p>	<p><i>* Construct and interpret a variety of food chains.</i> <i>* Identify producers, predators and prey.</i> <i>*</i></p>	<p><i>* Know that environments can change naturally e.g. through flooding, fire, earthquakes etc.</i> <i>* Environments can change due to human impact both positively and negatively.</i> <i>*</i></p>
	<p>Key concept/skills <i>* Construct a simple series electrical circuit</i> <i>* Draw and label simple circuit diagrams (with and without switch - not standard symbols - Y6 ONLY)</i> <i>* Group and classify electrical devices depending on the electrical source</i> <i>* Use fair testing to investigate the conductivity of different</i></p>	<p>Key concept/skills <i>* Draw and label simple diagrams.</i> <i>* Find patterns in the sounds that are made by different objects (pitch/volume)</i> <i>* Make predictions and simple conclusions about the pitch and volume of sound.</i> <i>*</i> <i>*</i></p>	<p>Key concept/skills <i>* Observation over time - water evaporation</i> <i>* Identifying and classifying - grouping and sorting solids, liquids and gases</i> <i>* Record findings using simple scientific language, drawings, labelled diagrams and tables.</i> <i>* Take accurate measurements using standard units, using a range of equipment, including thermometers.</i> <i>* Use results to draw simple conclusions, and make predictions for new values.</i></p>	<p>Key concept/skills <i>* Sequence the main parts of the digestive system.</i> <i>* Label the key parts of the digestive system.</i> <i>* Write simple explanations of the functions of the teeth.</i> <i>*</i> <i>*</i></p>	<p>Key concept/skills <i>* Use classification keys to name unknown plants and animals.</i> <i>* Classify living things found in different habitats based on their features.</i> <i>* Create classification keys.</i> <i>*</i> <i>*</i></p>



	<p>everyday materials. * Write simple explanations and draw simple conclusions based on findings.</p>				
	<p>Key vocabulary * insulator * conductor * electrical circuit * mains * battery/cell * appliance/device * components *</p>	<p>Key vocabulary * insulation * vibrations/vibrate * pitch (high/low) * volume (faint/loud) * sound source * travel * *</p>	<p>Key vocabulary * solids * liquids * gases * melt/melting point * freeze/freezing point * evaporation * condensation * state/change of state</p>	<p>Key vocab? * digestive system * molar * premolar * incisors * canine * producer * predator * prey</p>	<p>Key vocabulary * * * * * * *</p>
Year 5	Earth and Space	Forces	Living Things and Their Habitats - Life Cycles	Materials	Animals Including Humans Human Life Cycle
	<p>Core knowledge * The Sun, Earth and Moon are approximately spherical bodies * Sun is a star (which does not move) in the centre of the solar system - 8 planets orbit the sun * Moon orbits the Earth (28 days) * Earth spins and orbits</p>	<p>Core knowledge * A force causes an object to start moving, stop moving, speed up, slow down or change direction. * Gravity is a force that acts as a distance - everything is pulled to the earth by gravity. * Air resistance, water resistance and friction</p>	<p>Core knowledge * Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. * Describe the process of reproduction in some plants e.g a flower v a vegetable * Describe the process of reproduction in some animals.</p>	<p>Core knowledge * 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. * 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, including through filtering, sieving and evaporating * Give reasons for the particular uses of everyday</p>	<p>Core knowledge * Describe the changes as humans develop to old age * Explain the changes that take place in girls and boys during puberty * * *</p>



	<p>the sun and creates day/night/year (24 / 365 ¼)</p> <p>* The Sun only appears to move across the sky.</p>	<p>are contact forces that act between moving surfaces.</p> <p>*Know how mechanisms work (levers, pulleys and gears) allow a smaller force to have a greater effect.</p> <p>*Explain how the above forces are used in real life contexts.</p>		<p>materials, including metals, wood and plastic.</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 acid on bicarbonate of soda</p>	
	<p>Key concept/skills</p> <p>* Use secondary sources to research scientists and the development of theories about the solar system (Ptolemy, Alhazen and Copernicus).</p> <p>* Pattern seeking</p> <p>* Create models, diagrams and use role play to explain understanding</p>	<p>Key concept/skills</p> <p>*Investigate the effects of friction, air and water resistance.</p> <p>*Pattern seeking - draw conclusions</p> <p>*Comparative/fair testing</p> <p>*Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate</p> <p>*Use scientific evidence to back up findings (e.g Sir Isaac Newton).</p> <p>*Plan scientific enquiries - control variables.</p>	<p>Key concept/skills</p> <p>*Research - using secondary sources to find out about life cycles.</p> <p>*Pattern seeking - compare the size of animal with lifespan or gestation period</p> <p>*Record data and results of increasing complexity using scientific diagrams and labels, tables, and bar graphs.</p> <p>*Report and present findings from enquiries, including conclusions</p> <p>*</p>	<p>Key concept/skills</p> <p>* Identifying and Classifying</p> <p>*Comparative/fair tests</p> <p>*Record data and results of increasing complexity using scientific diagrams, labels and tables</p> <p>*Report and present findings from enquiries, including conclusions.</p>	<p>Key concept/skills</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p>
	<p>Key vocabulary</p> <p>* midday/noon</p> <p>* spherical</p>	<p>Key vocabulary</p> <p>*air resistance</p> <p>*gravity</p>	<p>Key vocabulary</p> <p>*sexual reproduction</p> <p>*asexual reproduction</p>	<p>Key vocabulary</p> <p>*reversible/non-reversible</p> <p>*change of state</p>	<p>Key vocab</p> <p>*</p> <p>*</p>



	<ul style="list-style-type: none"> * solar system * rotates * orbit * star * axis * dawn/dusk 	<ul style="list-style-type: none"> *water resistance *friction *mechanisms *levers *pulleys *gears 	<ul style="list-style-type: none"> *mammal *amphibian *sperm/egg *fertilise *metamorphosis *bird/insect 	<ul style="list-style-type: none"> *mixture *dissolve *solution *soluble/insoluble *insulator/conductor *filter/sieve 	<ul style="list-style-type: none"> * * * * * *
Year 6	Living Things and Their Habitats Classification	Evolution and Inheritance	Animals Including Humans - Circulatory System etc	Light	Electricity
	<p>Core knowledge</p> <ul style="list-style-type: none"> * Animals can be divided into 2 main groups - vertebrates and invertebrates * 5 vertebrate groups (fish, amphibians, reptiles, birds and mammals) and invertebrate groups (insects spiders, snails and worms) * Plants can be divided into 2 main groups: flowering and non-flowering (give examples) * Give reasons for classifying plants and animals based on specific characteristics * Not all living things fit 	<p>Core knowledge</p> <ul style="list-style-type: none"> *Recognise that living things have changed over time. *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. *Explain how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. 	<p>Core knowledge</p> <ul style="list-style-type: none"> *Identify and name the main parts of the human circulatory system. *Describe the functions of the heart, blood vessels and blood. *Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. *Describe the ways in which nutrients and water are transported within animals including humans. 	<p>Core knowledge</p> <ul style="list-style-type: none"> * Know that light travels in straight lines. *Know that objects are seen because they give out or reflect light into our eyes. *We see things because light travels from a light source to our eyes or from light sources to objects and then to our eyes. *Explain why shadows have the same shape as the objects that cast them. * 	<ul style="list-style-type: none"> * * * *



	<p>into plants/animals groups e.g. micro-organisms such as bacteria and yeasts, toadstools and mushrooms</p>	*			
	<p>Key concept/skills * use secondary sources to research the characteristics of plants, animals/microorganisms and the work of scientists such as Carl Linnaeus * classify plants and animals, presented in a range of ways such as Venn diagrams, Carroll diagrams and Keys. * * *</p>	<p>Key concept/skills *Use models to demonstrate evolution e.g Darwin's Finches * Use secondary sources (e.g. peppered moths) * Make observations of fossils * *</p>	<p>Key concept/skills *Report and present findings in written explanations. *Draw a diagram of the circulatory system with labels and annotation, using scientific language. *Comparative tests - Which type of exercise has the greatest effect on our heart rate? *</p>	<p>Key concept/skills *Describe with diagrams or models how light travels and how we see things. *Predict or explain how the shape of shadows can be varied. * * *</p>	<p>Key concept/skills * * * * *</p>
	<p>Key vocab * classification/classify * vertebrate * invertebrate * Kingdom * characteristic * microorganism * compare * Carl Linnaeus</p>	<p>Key vocab * offspring * adapted/adaptation * vary * characteristics * inheritance * environment * species * fossils * variation</p>	<p>Key vocab * circulatory system * pulse * nutrients * blood vessels * muscles * lungs * oxygen/carbon dioxide * transported</p>	<p>Key vocab * * * * * * * *</p>	<p>Key vocab * * * * * * * *</p>





Better Never Stops...

