

LONG TERM PLAN YEAR 6		
Autumn 1	Autumn 2	Spring 1
Domain: Electricity (physics)	Domain: Living things and their habitats (biology)	Domain: Light (physics)
Key concepts: energy	Key concepts: classification	Key concepts: energy
<p>End points: Students have an understanding of the key domains of knowledge and can use key concepts (knowing that: declarative/substantive knowledge) to make links between the domains</p> <p>Students can use declarative/substantive knowledge (knowing that) to work scientifically (knowing how: procedural/disciplinary knowledge)</p> <p>Students have an understanding of some of the major issues our planet is facing and what they can do to help, this is because our science curriculum has a focus on sustainability</p> <p>Students appreciate the importance of science in our ever-changing, complex world</p>		
<p><u>Broken down knowledge covered</u> Know how voltage affects the volume of a buzzer and/or brightness of a bulb</p> <p>Know how volume and/or brightness are affected by the use of different components</p> <p>Know how conventional symbols are used on a circuit diagram</p>	<p><u>Broken down knowledge covered</u> Know how plants, micro-organisms and animals are categorised into groups based on observable characteristics</p> <p>Know examples of groups and sub-groups (invertebrates such as spiders, snails, worms, insects/ vertebrates such as birds, mammals, fish, amphibians and reptiles)</p>	<p><u>Broken down knowledge covered</u> Know that light travels in straight lines</p> <p>Know that we see a light source, or an object that light shines upon, because light shines from the source or object into our eyes</p> <p>Know why a shadow forms the same shape as the object that casts it</p>
<p><u>Key vocabulary:</u> circuit diagram, circuit symbol, voltage</p>	<p><u>Key vocabulary:</u> vertebrates, fish, amphibians, reptiles, birds, mammals, warm-blooded, cold-blooded, invertebrates, insects, spiders, snails, worms, flowering, non-flowering, mosses, ferns, conifers</p>	<p><u>Key vocabulary:</u> straight lines, light rays</p>
<p><u>Common misconceptions</u></p> <ul style="list-style-type: none"> larger-sized batteries make bulbs brighter a complete circuit uses up electricity components in a circuit that are closer to the battery get more electricity 	<p><u>Common misconceptions</u></p> <ul style="list-style-type: none"> all micro-organisms are harmful mushrooms are plants 	<p><u>Common misconceptions</u></p> <ul style="list-style-type: none"> we see objects because light travels from our eyes to the object
<p><u>Previous knowledge</u> Year 4: Know electrical safety hazards / Know the difference between mains and battery Know common conductors (metal (not all metals), liquids)</p>	<p><u>Previous knowledge</u> EYFS: there many types of animals and they live in different places</p>	<p><u>Previous knowledge</u> Year 3: Know that light is needed to see things and that dark is the absence of light / Know that some materials reflect more light than others (opaque,</p>

<p>and insulators (wood, paper, plastic) / Know how to create a simple circuit: bulb, cell/battery, wire, buzzer, motor, switch / Know that a switch opens or closes a circuit and that links to whether the bulb will light up or not/ Know why a bulb may not light (e.g, switch, broken circuit)</p>	<p>Year 2: Know the terms 'living', 'dead' and 'never been alive' / Know the meaning of the terms 'habitat' and 'microhabitat' / Know how habitats vary and how specific animals and plants are suited to specific ones / Know an example of a simple food chain (e.g, grass - cow - human)</p> <p>Year 4: Know reasons for grouping animals (e.g, vertebrates, invertebrates) / Know how to use a classification key to group, identify and name plants (flowering including grasses and non-flowering such as ferns and mosses) and animals / Know dangers posed to animals based on environmental change (population, development, litter, deforestation) and the positive effects of nature reserves, garden ponds or ecologically planned parks</p> <p>Year 5: Know differences in the life cycle of an amphibian, bird, insect and mammal / Know differences between sexual (animals and plants) and asexual (plants) reproduction</p>	<p>transparent, translucent) / Know that the light from the sun can damage our eyes / Know that shadows form when the light from a light source is blocked by an opaque object and why shadows can vary in size and direction</p>
<p><u>Previous key vocabulary</u> Year 3: 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><u>Previous key vocabulary</u> EYFS: names of different types of animals, some names of places where animals live. <i>See EYFS Science Educational Programme document for more information.</i></p> <p>Year 2: living, dead, never been alive, suited, suitable, basic needs, food, food chain, shelter, move, feed, water, air, survive, survival, names of local habitats (e.g. pond, woodland etc.), names of micro-habitats (e.g. under logs, in bushes etc.), conditions, light, dark, shady, sunny, wet, damp, dry, hot, cold, names of living things in the habitats and micro-habitats studied</p> <p>Year 4: classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate, vertebrate, invertebrate, flowering, non-flowering</p> <p>Year 5: cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, cuttings</p>	<p><u>Previous key vocabulary</u> Year 3: light, light source, dark, absence of light, surface, shadow, reflect, mirror, Sun, sunlight, dangerous</p>

Spring 2	Summer 1/2
<p>Domain: Evolution and inheritance (biology) Revisit Fossils knowledge from the Year 4 domain 'Rocks'</p>	<p>Domain: Animals including humans (biology)</p>
<p>Key concepts: cells, evolution, genetic information</p>	<p>Key concepts: organisms require a supply of energy, human body, nutrition</p>
<p>End points: Students have an understanding of the key domains of knowledge and can use key concepts (knowing that: declarative/substantive knowledge) to make links between the domains</p> <p>Students can use declarative/substantive knowledge (knowing that) to work scientifically (knowing how: procedural/disciplinary knowledge)</p> <p>Students have an understanding of some of the major issues our planet is facing and what they can do to help; this is because our science curriculum has a focus on sustainability</p> <p>Students appreciate the importance of science in our ever-changing, complex world</p>	
<p><u>Broken down knowledge covered</u> Know that fossils provide evidence of changes to living things over time</p> <p>Know that living things produce offspring of the same kind that aren't usually identical to their parents</p> <p>Know examples of adaptation and evolution aiding survival in an environment</p>	<p><u>Broken down knowledge covered</u> Know the names and functions of the main parts of the human circulatory system (heart, blood vessels and blood)</p> <p>Know the impact of diet, exercise, drugs, and lifestyle on the healthy functions of the human body</p> <p>Know ways that nutrients and water are transported within the human body</p>
<p><u>Key vocabulary:</u> offspring, sexual reproduction, vary, characteristics, adapted, inherited, species, evolve, evolution</p>	<p><u>Key vocabulary:</u> circulatory, system, heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, cycle, circulatory system, diet, drugs, lifestyle</p>
<p><u>Common misconceptions</u></p> <ul style="list-style-type: none"> adaptation occurs during an animal's lifetime: giraffes' necks stretch during their lifetime to reach higher leaves and animals living in cold environments grow thick fur during their life 	<p><u>Common misconceptions</u></p> <ul style="list-style-type: none"> your heart is on the left side of your chest the heart makes blood the blood travels in one loop from the heart to the lungs and around the body when we exercise, our heart beats faster to work the muscles more some blood in our bodies is blue and some blood is red we just eat food for energy

<ul style="list-style-type: none"> • offspring most resemble their parents of the same sex, so that sons look like fathers • all characteristics, including those that are due to actions during the parent's life such as dyed hair or footballing skills, can be inherited • cavemen and dinosaurs were alive at the same time. 	<ul style="list-style-type: none"> • all fat is bad for you • all dairy is good for you • protein is good for you, so you can eat as much as you want • foods only contain fat if you can see it • all drugs are bad for you.
<p><u>Previous knowledge</u> No direct previous knowledge as this domain just comes up in Year 6. However, links can be made with the domains of animals, including humans, living things and their habitats, rocks and plants.</p> <p>Also, in EYFS children learn that animals (including humans) grow and change and that as they grow and change, they have specific needs.</p> <p>Previous knowledge on fossils (Year 3):</p> <p>Know the process of fossilisation for animals and plants</p>	<p><u>Previous knowledge</u> EYFS: Animals (including humans) grow and change and as things grow and change, they have specific needs. / There are many different animals and they live in different places. / Names and information about different animals.</p> <p>Year 1: Identify and name a range of common animals and know their key characteristics: fish, amphibians, reptiles, birds, mammals (incl. pets) / Know the diets of carnivores, herbivores and omnivores / Know the key parts of the human body (head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) and the sense associated to them (taste, hearing, sight, smell, touch)</p> <p>Year 2: Know that animals produce offspring that grow into adults / Know that animals need food, water and air to survive / Know the importance of diet, exercise and hygiene for humans</p> <p>Year 3: Know that animals and humans get nutrition from the food they eat (they cannot make their own food) / Know the importance of a balanced diet for health and survival / Know the five main food groups: vitamins and minerals (fruits and vegetables), carbohydrates (potatoes, bread, pasta), proteins (meat, fish, eggs, beans), dairy (cheese, milk) and fats (oils and spreads) / Know that skeletons and muscles within different animals aid support, movement and protection. <i>Skull: protects the brain Ribcage: protects lungs and heart Backbone: protects the spinal cord</i></p> <p>Year 4: Know the functions of body parts linked to the digestive system: mouth, tongue, teeth, oesophagus, stomach, small and large intestine, anus / Know different types of teeth in humans and their functions: incisors (cut), canines (tear/rip), premolars and molars (grind/chew) / Know how to construct food chain diagrams that identify producers, predators and prey</p>

	<p>Year 5: Know the stages within development and growth of humans: foetus, baby, childhood, adolescence, adulthood, old age / Know the changes that happen to humans during puberty / Know that gestation periods differ between animals including humans (e.g., humans- 9 months, dogs - around 61 days, cats - around 64 days, elephants - as long as 22 months)</p>
<p>Previous key vocabulary EYFS: baby, toddler, children, teenager, adult</p> <p>Year 3: fossil</p>	<p>Previous key vocabulary EYFS: names of pets, farm animals, zoo animals, minibeasts, names of animal young, names of animals and groups of animals from different habitats around the world. <i>See EYFS Science Educational Programme document for more information.</i></p> <p>Year 1: 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 human body including those within the school's RSE policy, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ears, tongue, carnivore, herbivore, omnivore</p> <p>Year 2: offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/chicken, kitten/cat, caterpillar/butterfly), survive, survival, water, food, air, exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g. meat, fish, vegetables, bread, rice, pasta, dairy)</p> <p>Year 3: nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine,</p> <p>Year 4: digestive system, digestion, mouth, tongue, teeth, saliva, oesophagus, stomach, small intestine, large intestine, rectum, anus, incisor, canine, molar, premolar, producer, predator, prey</p> <p>Year 5: puberty, the vocabulary to describe sexual characteristics in line with the school's RSE policy</p>