

## LONG TERM PLAN YEAR 3

To be taught throughout the year - **Plants (B)** - Many plants have an annual cycle. Pupils should therefore visit the same plants throughout the year gathering evidence linked to their life cycle. This evidence can then be reviewed at the end of the year.

Autumn 1/2	Spring 1	Spring 2
Domain: Rocks, soils and Fossils (chemistry)	Domain: Animals Including Humans	Domain: Forces and Magnets
Key concepts: rocks, fossil and soils.	Key concepts: organisms require a supply of energy, human body, nutrition	Key concepts: forces

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

Students can use declarative/substantive knowledge (knowing that) to work scientifically (knowing how: procedural/disciplinary knowledge)

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

Students appreciate the importance of science in our ever-changing, complex world

<p><u>Broken down knowledge covered</u>            Know that rocks differ in their appearance and properties</p> <p>Know the process of fossilisation for animals and plants</p> <p>Know that soil is made from rocks and organic matter, with these factors producing different types of soil</p>	<p><u>Broken down knowledge covered</u>            Know that animals and humans get nutrition from the food they eat (they cannot make their own food)</p> <p>Know the importance of a balanced diet for health and survival</p> <p>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)</p> <p>Know that skeletons and muscles within different animals aid support, movement and protection.</p> <p><i>Skull: protects the brain</i>  <i>Ribcage: protects lungs and heart</i>  <i>Backbone: protects the spinal cord</i></p>	<p><u>Broken down knowledge covered</u>            Know that things move differently on different surfaces</p> <p>Know examples of contact and non-contact forces (e.g, magnets can act at a distance)</p> <p>Know why magnets attract or repel materials and give examples</p> <p>Know why magnets attract and repel each other, linking it to their poles (opposite poles attract each other/same poles repel each other)</p>
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<p><u>Key vocabulary:</u> rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorbs water, fossil, bone, flesh, minerals, marble, chalk, granite, sandstone, slate, types of soil (e.g. peaty, sandy, chalky, clay)</p>	<p><u>Key vocabulary:</u> nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine</p>	<p><u>Key vocabulary:</u> 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</p>
<p><u>Common misconceptions</u></p> <ul style="list-style-type: none"> <li>rocks are all hard in nature</li> <li>rock-like, man-made substances such as concrete or brick are rocks</li> <li>materials which have been polished or shaped for use, such as a granite worktop, are not rocks as they are no longer 'natural'</li> <li>certain found artefacts, like old bits of pottery or coins, are fossils</li> <li>a fossil is an actual piece of the extinct animal or plant</li> <li>soil and compost are the same thing.</li> </ul>	<p><u>Common misconceptions</u></p> <ul style="list-style-type: none"> <li>certain whole food groups like fats are 'bad' for you</li> <li>certain specific foods, like cheese are also 'bad' for you</li> <li>diet and fruit drinks are 'good' for you</li> <li>snakes are similar to worms, so they must also be invertebrates</li> <li>invertebrates have no form of skeleton.</li> </ul>	<p><u>Common misconceptions</u></p> <ul style="list-style-type: none"> <li>the bigger the magnet the stronger it is</li> <li>all metals are magnetic there is always plenty of food for wild animal</li> </ul>
<p><u>Previous knowledge</u> Year 2: Know how everyday materials (wood, metal, plastic, glass, brick, rock, paper and cardboard) are suited to different uses</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</p>	<p><u>Previous knowledge</u> EYFS knowledge: Different objects move in different ways. Things can be pushed and pulled by different forces. They investigate lots with: water, sand, magnets, blocks, wheels.</p>

	survive / Know the importance of diet, exercise and hygiene for humans	
<p><u>Previous key vocabulary</u> Year 2: rock, hard, soft</p>	<p><u>Previous key vocabulary</u> EYFS: names of pets, farm animals, zoo animals, mini beasts, 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><u>Previous key vocabulary</u> EYFS: Up, down, fast, slow, push, pull, fall over, get up, build, roll, ramps, magnets, push, pull, metal, water, sand, wheels, faster, slower, submerge, soak, funnel, pipe, channel, rates, transfer, direction, collect, contain, material (metal, non-metal)</p>

Summer 1	Summer 2
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Domain: Plants (biology) - Functions of parts, requirements for life and growth and water transportation	Domain: Light (physics)
Key concepts: organisms require a supply of energy	Key concepts: light is needed to see
<p><u>End points:</u>            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 the functions of different parts of flowering parts: roots and stem/trunk (nutrition and support), leaves (nutrition) and flowers (reproduction), including water transportation.</p> <p>Know additional plant needs (from Y2) for growth and survival: air, nutrients from soil and room to grow</p> <p>Know the role of flowers in the life cycle of flowering plants: pollination, seed formation and seed dispersal</p> <p><i>Note: children can be introduced to the idea that plants can make their own Food, but do not need to understand how this happens</i></p>	<p><u>Broken down knowledge covered</u>            Know that light is needed in order to see things and that dark is the absence of light.</p> <p>Know that light is reflected from surfaces.</p> <p>Know that light from the sun can be dangerous and there are ways to protect the eyes.</p> <p>Know that shadows are formed when the light from a light source is blocked by a solid object.</p> <p>Know how the pattern of a shadow can change.</p>
<p><u>Key vocabulary:</u> roots, stem/trunk, leaves, flowers, air, nutrients, minerals, soil, absorb, transport photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal),</p>	<p><u>Key vocabulary:</u> Light source, dark, absence of light, transparent, translucent, shiny, surface, shadow, reflect, mirror, sunlight, dangerous, opaque.</p>
<p><u>Common misconceptions</u></p> <ul style="list-style-type: none"> <li>plants eat food</li> <li>Food comes from the soil via the roots</li> </ul>	<p><u>Common misconceptions</u></p> <ul style="list-style-type: none"> <li>Light is only found in bright areas.</li> <li>We see things because light travels from our eyes towards an object.</li> </ul>

<ul style="list-style-type: none"> <li>• Flowers are merely decorative rather than a vital part of the life cycle in reproduction</li> <li>• plants only need sunlight to keep them warm</li> <li>• roots suck in water which is then sucked up the stem</li> </ul>	<ul style="list-style-type: none"> <li>• Objects that we see, 'give out' their own light.</li> <li>• The moon is a source of light.</li> <li>• We can see objects because light shines on them (the light still needs to get to our eyes!).</li> <li>• You can see more of your image in a mirror as you move backwards from it.</li> <li>• Surfaces that are not shiny do not reflect light.</li> <li>• A mirror reverses everything (think left/right and up/down).</li> <li>• Cats and other animals that see in the dark do so because their eyes give out light.</li> <li>• Shadows are real 'things' rather than the absence of light (or less light than the surrounding area).</li> <li>• Shiny/reflective/white objects make light and can be seen in the dark.</li> </ul>
<p><u>Previous knowledge</u>          EYFS: Plants grown and change and as they do, they have specific needs.</p> <p>Year 1: Know specific types of plants and trees of the following groups: garden flower, wildflower, deciduous tree, evergreen tree (e.g., rose, dandelion, oak, conifer) / Know the difference between deciduous and evergreen plants / Know the basic parts of flowering plants and trees: roots, stem, trunk, leaves, flowers (blossom), petals, fruits and bark</p> <p>Year 2: Know that plants produce offspring that grow from seeds or bulbs into mature plants (introduce children to the terms 'germination', 'growth' and 'survival') / Know that plants need water, light and a suitable temperature to grow and stay healthy</p> <p><i>Note: seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them</i></p>	<p><u>Previous knowledge</u>          EYFS: Light comes from light sources such as the sun, stars, lightbulbs, fire and candles.          Shadows form when the light is blocked out.</p>

<p><u>Previous key vocabulary</u>          EYFS: seed, plant, water, soil, dig, harvest, caterpillars, butterflies, change, seedling, roots, leaves, water, food, grow, change, warmth, shoot, acorn, conker, disperse, names of fruits and vegetables, names of plants in our school and local environment including trees, flowers, herbs (mint, chives, rosemary, oak, hazel, willow, wild cherry, maple, silver birch, dandelion, daisy, daffodil, rose, poppy, cornflower)</p> <p>Year 1: leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud, names of trees in the local area, names of garden and wild flowering plants in the local area, deciduous, evergreen</p> <p>Year 2: light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling</p>	<p><u>Previous key vocabulary</u>          EYFS: light, dark, shadow.</p>