

## Science Curriculum Overview

<b>Nursery</b>	<b>EYFS</b>					
What the child might do	<ul style="list-style-type: none"> <li>• Comments and asks questions about aspects of their familiar world such as the place where they live or the natural world</li> <li>• Talks about why things happen and how things work</li> <li>• Developing an understanding of growth, decay and changes over time</li> <li>• Shows care and concern for living things and the environment</li> <li>• Begin to understand the effect their behaviour can have on the environment</li> </ul>					
Mark making	Recording what they observe using a range of materials – chalk, collage, computers	Observational drawings of natural features in the environment	Recording observable changes in plant growth	Makes, and may record, observations of animals and plants	Recording sounds	Create their own environments using a range of different materials.
Learning opportunities	<p>Making observations about how plants and living things change over time.</p> <p>Make visits to shops or a park.</p>	Explore different habitats outdoors, e.g. scent, colour and shape of flowers attracting bees, making a wormery, planning bird feeding on the ground and higher level.	Planting seeds and observing changes. Use magnifying glasses and take pictures to encourage talk.	Use the local area for exploring both the built and the natural environment.	<p>Listen to and recognise birds</p> <p>Teach skills and knowledge in the context of practical activities, e.g. learning about the characteristics of liquids and solids by involving children in melting chocolate or cooking eggs, or observing ice outdoors.</p>	Provide play maps and small world equipment for children to create their own environments as well as represent the familiar environment.
Enrichment/Home learning	Use parents' knowledge to extend children's experiences of the world		Sending seeds home to plant.	Exploring the local area through walks.		
Vocabulary:	<p>Working scientifically -look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group</p> <p>Plants - plant, leaf, stem, branch, root, bark, flower, petal, seed, berry, fruit, vegetable, bulb, plant, hole, dig, water, weed, grow, shoot, die, dead, soil, names of plants they grow</p> <p>Living things and their habitat -natural, plant, animal, leaves, seeds, conkers, acorns, twigs, bark, shells, feathers, pebbles, stones, same, different, pattern</p> <p>Animals - egg, chick, bird, caterpillar, cocoon, chrysalis, butterfly, frog spawn, tadpole, froglet, frog, grow, change, die, names of animals and their, young, fur, feathers, scales, tail,, wings, beak, claws, paws, hooves, swim, walk, run, jump, fly, patterns, spots, stripes, grow, change,, baby, toddler, child, adult, old person, smell, taste, touch, feel, hear, see, blind, deaf</p> <p>Rocks - natural, shells, pebbles, stones</p> <p>Light -light, torch, bulb, lamp, spotlight, shiny, bright, brighter, brightest, Sun, shine, glow, mirror</p> <p>Forces – object, float, sink, water, up, down, top, bottom, push, pull, magnet, spring, squash, bend, twist, stretch, turn, spin, smooth, rough, fast, slow</p> <p>Sound - sound, noise, loud, quiet, high, low, music, bang, blow, pluck, soft, hard, fast, slow, names of instruments</p> <p>Materials – mix, stir, cook, hot, oven, microwave, change, burn, melt, hard, runny, set, freeze, freezer, cold, blended, hard, soft, bendy, stiff, wobbly, wood, plastic, paper, card, fabric</p> <p>Electricity - battery, plug, socket, electricity, wire, sound, light, move</p>					

Reception	EYFS					
What the child might do	<ul style="list-style-type: none"> <li>Looks closely at similarities, differences, patterns and change in nature</li> <li>Knows about similarities and differences in relation to places, objects, materials and living things</li> <li>Talks about the features of their own immediate environment and how environments might vary from one another</li> <li>Makes observations of animals and plants and explains why some things occur, and talks about changes</li> </ul>					
Mark making	Recording what they observe using a range of materials – chalk, collage, computers	Drawing a pictures on screen		Draw information from a simple map.	Making a plan of an area.	
Learning Opportunities	Opportunities to record and creatively represent findings by, e.g. drawing, writing, making a model or photographing, through music, dancing or dressing up	A selection of stories that help children to make sense of different environments	First-hand experiences to support children in making sense of micro-environments, the specific conditions which enable each plant or animal to live and thrive	Resources for children to create simple maps and plans, paintings, drawings and models of observations of known and imaginary landscapes	Design practical, attractive environments, for example, planting and taking care of flower and vegetable beds or organising equipment outdoors	Make connections with places and spaces locally, such as museums, galleries, open spaces, arts centres, sports centres. Encourage parents to join on regular outings, which can result in family visits to the same places.
Enrichment/Home learning	Show casing children's home learning at school	Bringing in pictures from home.	Stimulate similarities and differences in relation to places, objects, materials and living things – asking children to bring in objects and photos of interest for comparisons discussion.	Local walks	Encourage parents to join on regular outings.	Cooking programme
Vocabulary:	<p>Working scientifically - look closely, observe, watch, touch, feel, smell, listen, same, different, compare, ask questions, record, sort, group</p> <p>Plants - tree, bush, herb, names of plants they see</p> <p>Living things and their habitat - plant, tree, bush, flower, vegetable, herb, weed, animal, names of plants and animals they see, name of a contrasting environment (e.g. beach, forest)</p> <p>Animals (including humans) - names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice, hair (e.g. black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (e.g. blue, brown, green, grey), skin (e.g. black, brown, white), big/tall, small/short, bigger/smaller, baby, toddler, child, adult, old person, old, young, brother, sister, mother, father, aunt, uncle, grandmother, grandfather, cousin, friend, family, boy, girl, man, woman</p> <p>Light - Sun, sunny, light, shadow, shady, clouds, torch, see-through, not see-through, source, light source</p> <p>Forces – float, sink, up, down, top, bottom, surface, move, roll, drop, fly, turn, spin, fall, fast, slow, faster, slower, fastest, slowest, further, furthest, wind, air, water, blow, bounce</p> <p>Sound - sound, noise, listen, hear, music, voices, bird song, traffic, sirens, thunder, high, low, loud, quiet, soft, volume, crackle, thunder, hum, buzz, roar</p> <p>Materials - ice, water, frozen, icicle, snow, melt, wet, cold, slippery, smooth, big, bigger, biggest, smaller, smaller, smallest, hard, soft, bendy, rigid, wood, plastic, paper, card, metal, strong, weak, hot, apply heat, waterproof, soggy, not waterproof, best, change, change back</p> <p>Seasonal Changes - spring, summer, autumn, winter, seasons, sunny, cloudy, hot, warm, cold, shower, raining, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, windy, rainbow, animals, young, plants, flowers</p> <p>Light - Sun, sunny, light, shadow, shady, clouds, torch, see-through, not see-through, source, light source</p>					

Class 1's Science Curriculum Overview

Year 1	Autumn 1 Animals, including humans	Spring 1 Everyday Materials	Summer1 Plants
	<p>Observing seasonal change/using and applying science in the garden and on the farm ongoing throughout the year</p> <p>Key Learning: In the UK, the day length is longest at mid-summer (about 16 hours) and gets shorter each day until mid-winter (about 8 hours) before getting longer again. The weather also changes with the seasons. In the UK, it is usually colder and rainier in winter, and hotter and dryer in the summer. The change in weather causes many other changes. Some examples are: numbers of minibeasts found outside; seed and plant growth; leaves on trees; and type of clothes worn by people.</p> <p>Vocabulary: weather, sunny, rainy, raining, shower, windy, snowy, cloudy, hot, warm, cold, storm, thunder, lightning, hail, sleet, snow, icy, frost, puddles, rainbow, seasons, winter, summer, spring, autumn, Sun, sunrise, sunset, day length</p> <p>Texts: The Story Orchestra, Four Seasons in one day</p> <p>Seasons non-fiction books</p>		
Key Questions	<p>Key questions:</p> <p>How many different parts of your body can you name?</p> <p>Can you identify your 5 senses and why they are important?</p> <p>Can you explain the meaning of herbivore, carnivore and omnivore?</p> <p>What features do most mammals have?</p>	<p>Key questions:</p> <p>How would you describe different types of materials?</p> <p>Can you explain some of the properties of glass?</p> <p>Can you identify an object made from wood, plastic, glass, metal, water, and rock?</p>	<p>Key questions:</p> <p>What do plants need to grow?</p> <p>Can you identify the main parts of a plant?</p> <p>How many different plants can you name?</p>
Key vocabulary	<p>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</p>	<p>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</p>	<p>Leaf, flower, blossom, petal, fruit, berry, root, seed, trunk, branch, stem, bark, stalk, bud</p> <p>Names of trees in the local area</p> <p>Names of garden and wild flowering plants in the local area</p>
Common misconceptions	<p>Some children may think:</p> <ul style="list-style-type: none"> <li>• only four-legged mammals, such as pets, are animals</li> <li>• humans are not animals</li> <li>• insects are not animals</li> <li>• all 'bugs' or 'creepy crawlies', such as spiders, are part of the insect group</li> <li>• amphibians and reptiles are the same.</li> </ul>	<p>Some children may think:</p> <ul style="list-style-type: none"> <li>• only fabrics are materials</li> <li>• only building materials are materials</li> <li>• only writing materials are materials</li> <li>• the word 'rock' describes an object rather than a material</li> <li>• 'solid' is another word for hard.</li> </ul>	<p>Some children may think:</p> <ul style="list-style-type: none"> <li>• plants are flowering plants grown in pots with coloured petals and leaves and a stem</li> <li>• trees are not plants</li> <li>• all leaves are green</li> <li>• all stems are green</li> <li>• a trunk is not a stem</li> <li>• blossom is not a flower.</li> </ul>
Influential Figures		<p>Martin Brock</p> <p>XelfleX inventor, nanotechnology engineer</p>	

		Martin Brock works with a team to develop smart fabrics, which use bendsensitive fibre-optics that are stitched inside the clothing to provide intelligent feedback for athletes without being too bulky	
Writing across the curriculum opportunities	Lists, labels, captions Writing to inform: lists (body parts for science)	Lists, labels, captions Writing to inform: non chronological report.	Lists, labels, captions, explanatory sentence Writing to inform: non chronological report on plants.
Outdoor learning opportunities	Using chinks in the playground to draw around children's outlines and label the different body parts.	Going outside and observing different materials (comparing woods). Using magnifying glasses for a closer look. Comparing natural and manmade materials.	Looking at different types of flowers in our school grounds Identifying trees in our school ground and in Normand Park Identifying leaves.
Cultural Capital	Natural History Museum Antarctica talk – Cecilia Weiler	Cooking Programme Science week! Guest speakers, opportunities to mixed year group practical work, science workshops...	WWT

Class 2's Science Curriculum Overview

Year 2	Autumn 1 Animals, including humans	Spring 1 Uses of everyday materials	Summer 1 Plants	Summer 1 Living things and their habitats
Key Questions	Key questions:  What does an animal need to survive?  What does it mean to eat healthily?  Why is personal hygiene important in keeping you healthy?	Key questions:  Which materials can be changed by being squashed, bent, twisted and stretched?  What material would be best to make a raincoat and why?  What if door handles were made out of chocolate?	Key questions:  Can you explain the cycle of a seed to a plant?  What do plants need to grow?  What does germinate mean?	Key questions:  How do you make a bike move? What forces do you use? How do you make a scooter mover faster/slower? Can you change the shape of all objects?
Key vocabulary	offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, names of animals and their babies (e.g. chick/hen, 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)	Names of materials – wood, metal, plastic, glass, brick, rock, paper, cardboard  Properties of materials – as for Year 1 plus opaque, transparent and translucent, reflective, nonreflective, flexible, rigid  Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching	light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling	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 microhabitats studied
Common misconceptions	Some children may think: <ul style="list-style-type: none"> <li>• an animal's habitat is like its 'home'</li> <li>• all animals that live in the sea are fish</li> <li>• respiration is breathing</li> <li>• breathing is respiration.</li> </ul>	Some children may think: <ul style="list-style-type: none"> <li>• only fabrics are materials</li> <li>• only building materials are materials</li> <li>• only writing materials are materials</li> <li>• the word rock describes an object rather than a material</li> <li>• solid is another word for hard.</li> </ul>	Some children may think: <ul style="list-style-type: none"> <li>• plants are not alive as they cannot be seen to move</li> <li>• seeds are not alive</li> <li>• all plants start out as seeds</li> <li>• seeds and bulbs need sunlight to germinate.</li> </ul>	Some children may think: <ul style="list-style-type: none"> <li>• an animal's habitat is like its 'home'</li> <li>• plants and seeds are not alive as they cannot be seen to move</li> <li>• fire is living</li> <li>• arrows in a food chain mean 'eats'.</li> </ul>
Writing across the curriculum opportunities	Non-fiction report on healthy living.	Looking at the materials poem by Michael Rosen and writing one of their own	Writing to inform: explanation text on growing plants	
Outdoor learning opportunities		Identify materials outside of the classroom.	Use the outdoor area to identify plants by matching them to named images.  Observing leaves, seeds and flowers	Observing living things in their habitats.  Planting and growing seeds  Fire pit

Cultural Capital	Cooking Programme – links to healthy eating	Wandsworth Waste and Recycling Centre  Science week!  Guest speakers, opportunities to mixed year group practical work, science workshops...	Fulham Palace workshop - Is a tree a plant?	Generation Wild – London Wetland Centre
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Class 3's Science Curriculum Overview

Year 3	Autumn 1 Animals including humans	Forces and Magnets	Spring 1 Rocks	Summer 1 Plants	Light
Key Questions	<p>Key questions:</p> <p>1) Can one piece of food provide a range of nutrients? 2) Do animals all eat the same food? Why not? 3) What would happen if humans did not have a skeleton? 4) What is the function of muscles?</p>	<p>Key questions:</p> <p>What is a magnet? What does attract and repel mean? What materials are magnetic?</p>	<p>Key questions:</p> <p>What are the 3 main types of rock? How do the properties of rocks differ? How are fossils created?</p>	<p>Key questions:</p> <p>What do all plants have in common? What do plants need to grow? How do plants spread their seeds?</p>	<p>Key questions:</p> <p>What is a light source? What is a reflector? How are shadows formed? How are translucent, opaque and transparent items different?</p>
Common misconceptions	<p>Some children may think:</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>Some children may think:</p> <ul style="list-style-type: none"> <li>• the bigger the magnet the stronger it is</li> <li>• all metals are magnetic.</li> </ul>	<p>Some children may think:</p> <ul style="list-style-type: none"> <li>• rock-like, man-made substances such as concrete or brick are rocks</li> <li>• rock are all hard in nature</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>Some children may think:</p> <ul style="list-style-type: none"> <li>• plants eat food</li> <li>• food comes from the soil via the roots</li> <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>	<p>Some children may think:</p> <ul style="list-style-type: none"> <li>• we can still see even where there is an absence of any light</li> <li>• our eyes 'get used to' the dark</li> <li>• the moon and reflective surfaces are light sources</li> <li>• a transparent object is a light source</li> <li>• shadows contain details of the object, such as facial features on their own shadow</li> <li>• shadows result from objects giving off darkness.</li> </ul>
Key vocabulary	<p>nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine</p>	<p>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>rock, stone, pebble, boulder, grain, crystals, layers, hard, soft, texture, absorb water, fossil, bone, flesh, minerals, marble, chalk, granite, sandstone, slate, soil, types of soil (e.g. peaty, sandy, chalk, clay)</p>	<p>photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil, absorb, transport</p>	<p>light, light source, dark, absence of light, surface, shadow, reflect, mirror, Sun, sunlight, dangerous</p>
Writing across the curriculum opportunities	<p>Writing to inform: nutrition</p>		<p>Writing to inform: explanation text on how fossils are formed/ journey of a rock</p>	<p>A non chronological report about seed dispersal</p>	
Outdoor learning opportunities			<p>Children outside finding and describing rocks. Classifying them and explaining their findings.</p>	<p>Using the outdoor space to identify common features in plants.</p>	<p>Creating shadows using the sun. Exploring different objects, including opaque, translucent and transparent to see what</p>

				Planting and observing growth in plants from seed. Investigating a range of seed dispersal techniques.	shadows are formed – children investigating in the playground.
Cultural Capital	Cooking programme		Natural History Museum Guest speaking and workshop run by a geologist Science week! Guest speakers, opportunities to mixed year group practical work, science workshops...		



Class 4's Science Curriculum Overview

Year 4	Autumn 1 Animals including humans	Sound	Spring 1 States of Matter	Summer 1 Living Things and their habitat	Electricity
Key Questions	Key questions: What are the different types of teeth and what are their functions? Can you make a food chain, identifying producers, predators and prey? What are the simple functions of the basic parts of the digestive system in humans?	Key questions: How is sound made? 2) What happens to the sound as the distance from the sound source increases? Where does sound go when it has been made?	Key questions: What is a solid/liquid/gas? What is the water cycle? What are the roles of condensation and evaporation?	Key questions: How can we group organisms? How can we use classification to help identify animals? What dangers do changes in environment pose to living things?	Key questions: What is the difference between battery powered electricity and mains powered electricity? Name the essential equipment you need to make a complete circuit. What is a conductor and an insulator? Can you explain their role in an electrical circuit?
Common misconceptions	Some children may think: <ul style="list-style-type: none"> <li>• arrows in a food chains mean 'eats'</li> <li>• the death of one of the parts of a food chain or web has no, or limited, consequences on the rest of the chain</li> <li>• there is always plenty of food for wild animals</li> <li>• your stomach is where your belly button is</li> <li>• food is digested only in the stomach</li> <li>• when you have a meal, your food goes down one tube and your drink down another</li> <li>• the food you eat becomes "poo" and the drink becomes "wee".</li> </ul>	Pitch and volume are frequently confused, as both can be described as high or low. Some children may think: <ul style="list-style-type: none"> <li>• sound is only heard by the listener</li> <li>• sound only travels in one direction from the source</li> <li>• sound can't travel through solids and liquids</li> <li>• high sounds are loud and low sounds are quiet.</li> </ul>	Some children may think: <ul style="list-style-type: none"> <li>• 'solid' is another word for hard or opaque</li> <li>• solids are hard and cannot break or change shape easily and are often in one piece</li> <li>• substances made of very small particles like sugar or sand cannot be solids</li> <li>• particles in liquids are further apart than in solids and they take up more space</li> </ul>	Some children may think: <ul style="list-style-type: none"> <li>• the death of one of the parts of a food chain or web has no or limited consequences on the rest of the chain</li> <li>• there is always plenty of food for wild animals</li> <li>• animals are only land-living creatures</li> <li>• animals and plants can adapt to their habitats, however they change</li> <li>• all changes to habitats are negative.</li> </ul>	Some children may think: <ul style="list-style-type: none"> <li>• electricity flows to bulbs, not through them</li> <li>• electricity flows out of both ends of a battery</li> <li>• electricity works by simply coming out of one end of a battery into the component</li> </ul>
Key vocabulary	Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain	sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, quiet, loud, insulation	solid, liquid, gas, heating, cooling, state change, melting, freezing, melting point, boiling, boiling point, evaporation, condensation, temperature, water cycle	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate	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

Writing across the curriculum opportunities	Writing a fictional story about a piece of food entering the human body and the journey it takes.		The journey of a rain drop – fiction	Writing to inform: Non-Chronological report on gorillas	D & T – Making lighthouses
Outdoor learning opportunities/ investigations	Using a blue dye on their teeth to observe the enamel	Observing sound vibrations Making musical instruments	Observing steam rise and the process of condensation forming (water cycle).  Investigating whether the amount of surface area of a chocolate button affects the rate it melts.	Classifying animals according to observable features.	Investigating conductors and insulators.  Investigating different circuits to conclude how to successfully make an electrical circuit.
Cultural Capital	It takes guts – digestive system – Science museum		Science Museum WONDERLAB: THE EQUINOR  Science week!  Guest speakers, opportunities to mixed year group practical work, science workshops...		

Class 5's Science Curriculum Overview

Year 5	Autumn 1 Animals including humans	Earth and Space	Spring 1 Properties and changes of materials	Summer 1 Living things and their habitats	Forces
Key Questions	Key questions:  How have you changed since you were a baby? Can you explain the life cycle of a human? How might you change as you get older?	Key questions:  Can you explain what makes up our solar system? Can you describe the movement of the Earth, and other planets, relative to the Sun in our solar system? How and why do we experience day and night?	Key questions:  What is an insulator? What material is best for making a bag – why? What affects how materials dissolve?	Key questions:  Which part of the flower makes the pollen? Why is pollination so important to gardeners and farmers? What is metamorphosis?	Key questions:  What is gravity? What other forces act on any object? How can a smaller force have a greater effect?
Common misconceptions	Some children may think: • a baby grows in a mother's tummy • a baby is "made"	Some children may think: • the Earth is flat • the Sun is a planet • the Sun rotates around the Earth • the Sun moves across the sky during the day • the Sun rises in the morning and sets in the evening • the Moon appears only at night • night is caused by the Moon getting in the way of the Sun or the Sun moving further away from the Earth	Some children may think:  • thermal insulators keep cold in or out  • thermal insulators warm things up  • solids dissolved in liquids have vanished and so you cannot get them back  • lit candles only melt, which is a reversible change.	Some children may think: • all plants start out as seeds • all plants have flowers • plants that grow from bulbs do not have seeds • only birds lay eggs	Some children may think: • the heavier the object the faster it falls, because it has more gravity acting on it • forces always act in pairs which are equal and opposite • smooth surfaces have no friction • objects always travel better on smooth surfaces • a moving object has a force which is pushing it forwards and it stops when the pushing force wears out • a non-moving object has no forces acting on it • heavy objects sink and light objects float.
Key vocabulary	Adolescence, foetus, gestation, hormones, life cycle, reproduction	Sun, Moon, Earth, planets (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, Solar System, rotate, star, orbit	thermal insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material	life cycle, reproduce, sexual, sperm, fertilises, egg, live young, metamorphosis, asexual, plantlets, runners, cuttings	Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears
Writing across the curriculum opportunities					
Outdoor learning opportunities and investigations		Observing the different phases of the moon. Children outside using inflatable planet. Moving around to visually act out our solar system,	Investigating which material makes the best insulator.  Investigating a predicting reversible and irreversible changes.	Looking at flowers to identify the different parts – using the school's garden,	

Influential Figures		Counting on Katherine Helaine Becker & Dow Phumiruk Picturebook Katherine Johnson Maggie Aderin-Pocock Astronomer and science communicator Professor Brian Cox		Sarah Fowler OBE - Marine biologist	Emma England - Aerospace engineer  Sir Isaac Newton 1643-1727
Cultural Capital		The Science Museum	Science week!  Guest speakers, opportunities to mixed year group practical work, science workshops...	Generation Wild – London Wetland Centre	

Class 6's Science Curriculum Overview

Year 6	Autumn 1 Animals including humans	Evolution and Inheritance	Spring 1 Light	Summer 1 Living Things and their habitats	Electricity
Key Questions	<p>Key questions:</p> <p>What is the circulatory system and how does it work? What happens to your body when you exercise? What can have a negative effect on the body and what are the effects</p>	<p>Key questions:</p> <p>How do we know about living things that have lived in the past? How have animals adapted to live in their habitats? Are all siblings of living things identical?</p>	<p>Key questions:</p> <p>How does light travel? How do we see things? Why are shadows different shapes?</p>	<p>Key questions:</p> <p>Can you explain the difference between invertebrates and vertebrates? What happens when food turns mouldy? What did people do before the days of freezers to preserve their food?</p>	<p>Key questions:</p> <p>How does light travel? How do we see things? Why are shadows different shapes?</p>
Common misconceptions	<p>Some children may think:</p> <ul style="list-style-type: none"> <li>• your heart is on the left side of your chest</li> <li>• the heart makes blood</li> <li>• the blood travels in one loop from the heart to the lungs and around the body</li> <li>• when we exercise, our heart beats faster to work the muscles more</li> <li>• some blood in our bodies is blue and some blood is red</li> <li>• we just eat food for energy</li> <li>• all fat is bad for you</li> <li>• all dairy is good for you</li> </ul>	<p>Some children may think:</p> <ul style="list-style-type: none"> <li>• 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</li> <li>• offspring most resemble their parents of the same sex, so that sons look like fathers</li> <li>• all characteristics, including those that are due to actions during the parent's life such as dyed hair or footballing skills, can be inherited</li> <li>• cavemen and dinosaurs were alive at the same time.</li> </ul>	<p>Some children may think:</p> <ul style="list-style-type: none"> <li>• we see objects because light travels from our eyes to the object.</li> </ul>	<p>Some children may think:</p> <ul style="list-style-type: none"> <li>• all micro-organisms are harmful</li> <li>• mushrooms are plants</li> </ul>	<p>Some children may think:</p> <ul style="list-style-type: none"> <li>• larger-sized batteries make bulbs brighter</li> <li>• a complete circuit uses up electricity</li> <li>• components in a circuit that are closer to the battery get more electricity</li> </ul>
Key vocabulary	<p>Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle</p>	<p>offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils, evolve, evolution</p>	<p>As for Year 3 - Light, plus straight lines, light rays</p>	<p>vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, warm-blooded, cold-blooded, insects,</p> <p>spiders, snails, worms, flowering, non-flowering, mosses, ferns, conifers</p>	<p>Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage</p>

Writing across the curriculum opportunities	An information leaflet that explains the impact of exercise and diet on the body.	Report on the peppered moth and how the industrial revolution affected the two varieties.		Researching and presenting the the main characteristics of a chosen group of animals.  Duck-bill platypus report	
Outdoor learning opportunities  Investigations		Investigate how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	Investigate how light travels.		
Cultural Capital	The Science Museum – Who am I exhibition	Science Museum – observing how humans have evolved	Science week!  Guest speakers, opportunities to mixed year group practical work, science workshops...		Cooking programme