Science Subject Overview

LAURANCE HAINES SCHOOL

Reception			
	Autumn 1	**Autumn 2**	**Spring 1**
Topic	**Animals, excluding humans**	**Humans**	**Seasonal Changes**
Prior learning/ Links	• Understand the key features of the life cycle of a plant and an animal. (Nursery) • Begin to understand the need to respect and care for the natural environment and all living things. (Nursery)	• Use all their senses in hands-on exploration of natural materials. (Nursery) • Begin to make sense of their own life-story and family's history. (Nursery)	• Use their evidence to describe some other features of their surroundings, e.g. themselves, animals, plants that change over the seasons • Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants & Animals, excluding humans)
Vocabulary	• Names of animals, live, on land, in water, jungle, desert, North Pole, South Pole, sea, hot, cold, wet, dry, snow, ice **Expose children to supplementary vocabulary such as:** • environment, polar regions, ocean, camouflage	• hair (black, brown, dark, light, blonde, ginger, grey, white, long, short, straight, curly), eyes (blue, brown, green, grey), skin (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 **Expose children to supplementary vocabulary such as:** • bald, elderly, wrinkles, male, female, freckles	• 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 **Expose children to supplementary vocabulary such as:** • hibernate, migrate, snowflake

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End points	• Recognise some environments that are different to the one in which they live.	• Talk about members of their immediate family and community. • Name and describe people who are familiar to them.	• Explore the natural world around them. • Describe what they see, hear and feel whilst outside. • Understand the effect of changing seasons on the natural world around them.
Enrichment ideas, suggestions (EDI) & cross-curricular links	**Opportunities to learn about animals from a different habitat** • Sharing books about animals in the local area and animals in other countries e.g. jungle, polar regions, desert, ocean • Looking at pictures of animals in different habitats • Watching videos of animals in different habitats • Playing games involving matching animals to their habitats • Playing with small world animals in different habitats • Visiting the zoo, focusing on animals that live in different habitats • Caring for pets from a different habitat e.g. tropical fish • Creating pictures of animals in their habitats • Pretending to be animals • Naming and describing animals they see in books, pictures, videos or while on a trip	**Opportunities to describe people who are familiar to them** • Talking about themselves, friends, family and community using photographs • Using mirrors to look at their faces • Creating pictures or collages of themselves, friends, family and community • Making hand and footprints using paint • Making fingerprints using ink pads • Using a 'magic' mirror which shows everything about them and getting children to describe themselves and how they are special • Sharing books about different types of families **Opportunities to learn about how to take care of themselves** • Demonstrating and talking about how they look after themselves	**Opportunities to play and explore outside in all seasons and in different weather** • Playing in the rain and snow • Drawing around puddles • Catching rain and hail in buckets • Catching snowflakes on frozen black paper and looking at them with magnifying glasses or an app on a tablet • Making icicles • Using scarves or pinwheels to explore the strength and direction of the wind • Looking at photographs of different seasons and types of weather • Sharing books about different seasons and types of weather **Opportunities to observe living things throughout the year** • Sharing books about the seasons • Going on seasonal walks to observe key features of the seasons • Making artwork with seasonal found objects

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	• Describing different habitats	• Talking about other people that look after them • Talking to a dentist, nurse, meal supervisor/school cook, road crossing supervisor etc. • Sharing videos of people who care for us and how we look after ourselves □	• Visiting a canal or pond to look for birds and their young • Finding minibeasts in the school grounds at different times in the year • Taking photographs of the minibeasts they find in the school grounds at different times in the year • Looking for birds and other animals throughout the year using binoculars • Sharing books and videos about animals that migrate or hibernate over winter, gather food in autumn, build nests and lay eggs in spring etc. • Taking photographs of the plants they find in the school grounds at different times in the year • Observing closely and drawing the plants in the school grounds at different times in the year • Matching animals and plants they find to pictures that identify them
Questions for assessment	*Classification* • Can you sort animals according to where they live? *Researching using secondary sources* • How are animals from a different habitat are cared for? • What do you know about animals in a different habitat?	*Classification* • Can you sort images of people according to their characteristics? *Researching using secondary sources* • Can you find out information from visitors (dentist, nurse etc.)? *Pattern seeking*	*Classification* • Which clothes are suitable for each season? • *Observing over time* • How does a puddle change over time? • How does a snowman change as it melts? • How does the natural world change with the seasons?

		• Are taller children faster? • Are taller children stronger?	*Researching using secondary sources* • Find out about how animals behave in different seasons. • Find out about the weather and seasons.

Reception

	Spring 2	Summer 1	Summer 2
Topic	**Materials including changing materials**	**Forces**	**Earth and Space**
Prior learning/ Links	• Explore the natural world around them. • Describe what they see, hear and feel whilst outside.	• Explore how things work. (Nursery) • Explore and talk about different forces they can feel. (Nursery) • Talk about the differences between materials and changes they notice. (Nursery)	• Explore and respond to different natural phenomena in their setting and on trips. (Birth to three)
Vocabulary	• 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	• loat, 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 **Expose children to supplementary vocabulary such as:**	• Sun, Moon, Earth, star, planet, sky, day, night, space, round, bounce, float **Expose children to supplementary vocabulary such as:**

	waterproof, best, change, change back **Expose children to supplementary vocabulary such as:** • solid, liquid, gas, most suited	• force, rotate, solid, liquid, gravity	• sunrise, sunset, astronaut, astronomer, constellation, orbit, nocturnal, slow-motion, magnify
End points	• Explore the natural world around them. • Describe what they see, hear and feel whilst outside.	• Explore the natural world around them. • Describe what they see, hear and feel whilst outside.	• Explore the natural world around them. • Describe what they see, hear and feel whilst outside.
Enrichment ideas, suggestions (EDI) & cross-curricular links	**Opportunities to explore a range of materials in a sensory way, including natural materials** • Looking for dew, ice, icicles and frost in the playground • Using their senses to explore natural materials in the environment, such as stones, twigs, leaves, feathers, seeds, flowers etc. • Gathering natural materials to make collections **Opportunities to make objects from different materials, including natural materials** • Making pictures using natural materials they have gathered from the environment • Making dens, nests, bug hotels etc. using natural materials	**Opportunities to explore how to change how things work** • Adapting objects to see if they can be made to float or sink e.g. cutting and peeling fruit and vegetables, reshaping plasticene etc. • Testing how many small objects different foil containers can hold before sinking • Testing how toy cars move down ramps and gutters • Testing how wheels turn when sand or water is poured through them • Testing how objects fall with and without a parachute attached	**Opportunities to learn about the Earth, Sun, Moon, planets and stars** • Observing that the Sun appears to move across the sky • Observing that it is warmer and brighter when the Sun is shining than when it is behind the clouds • Observing that they can see the Moon at night and sometimes in the day • Observing that they can only see the stars at night • Making model planets e.g. with papier-mâché or Modroc and balloons • Modelling a cratered moon landscape with papier-mâché or Modroc • Observing distant objects, including the Moon, with binoculars or a small telescope • Sharing books and video clips about the Earth, Sun, Moon, planets and stars

	• Making ice pictures by putting water in a shallow tray and adding natural objects gathered from the environment and then leaving them outside to freeze or putting them in the freezer • Making junk models with a range of materials, including natural materials they have gathered from the environment **Opportunities to compare how materials change** • Making popcorn in a microwave and on a fire • Making pizza dough with different flours • Baking bread in different tins or for different times to compare the outcome • Baking cupcakes and removing one after every five minutes • Choosing where to put ice cubes in the playground and observing how quickly they melt • Observing how a large block of ice changes over time, using string to measure around it • Putting wax crayons in different areas of the playground and observing how they change	• Testing how different balls bounce • Making and testing paper aeroplanes • Designing different marble runs or routes for water/sand to travel down gutters or pipes **Opportunities to explore how objects move in air** • Identifying objects being blown around outdoors • Observing how different objects fall e.g. scarves, feathers • Observing how toys/objects move in the wind e.g. streamers, balloons, pinwheels, bubbles etc. • Comparing the movements of a ball and a balloon when bouncing or throwing and catching **Opportunities to explore how objects move in water** • Exploring how a marble moves through different liquids in sealed bottles • Observing how sailing boats move through water	• Talking about what happens and what they can see and hear in the daytime and at night • Sorting small world animals into those that are active in the daytime and those that are active at night **Opportunities to learn about space travel** • Joining materials to make model rockets, Moon buggies/Mars rovers and space stations • Making and testing simple air-propelled card or plastic bottle rockets • Sharing books and video clips about space exploration including video clips of astronauts walking on the Moon and floating in the space station

	• Making a snowman and observing how it changes over time • Making snowballs and putting them in different parts of the playground and observing how they change over time		
Questions for assessment	*Comparative testing* • How does popcorn made in a microwave compare to popcorn made on a fire? • How quickly do ice cubes melt in different areas of the playground? • How are pizza bases different when made with different flours? • How does a loaf cook differently in different tins? • How do cupcakes cook if they have different amounts of mixture? *Observing over time* • How does the block of ice change over time? • How does a snowman change over time? • How does cake mixture/bread dough change as it is cooked?	*Comparative testing* • How many cubes/small plastic animals can fit in different 'boats'? • Can you compare how cars move down ramps/gutters? • Compare how wheels turn when sand or water is poured through. • Compare how objects fall. • Compare how objects fall with and without parachutes. • Compare how different balls bounce. • Compare how things move when blown. • Compare how a marble moves through different liquids. • Compare how different paper aeroplanes fly.	*Comparative testing* • Make and testing air-propelled rockets to find out which is the 'best'. *Pattern seeking* • Find simple patterns in how light levels and temperature change with the movement, or obscuring of, the Sun. *Research using secondary sources* • Find out about the Solar System, stars and space travel. • Find out about nocturnal animals.

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LAURANCE HAINES SCHOOL

Year 1			
	Autumn 1	**Autumn 2**	**Spring 1**
Topic	**Senses**	**Seasonal Changes part 1**	**Animals including humans**
Prior learning/ Links	• To know the names of the different body parts (Reception) • To be able to describe our differences and similarities across families (Reception)	• Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants & Animals, excluding humans) • Explore the natural world around them. (Reception – Seasonal changes) • Describe what they see, hear and feel whilst outside. (Reception – Seasonal changes) • Understand the effect of changing seasons on the natural world around them. (Reception – Seasonal changes)	• Use all their senses in hands-on exploration of natural materials. (Nursery - Humans) • Name and describe people who are familiar to them. (Reception - Humans)
Vocabulary	Senses, taste, touch, sight, smell, hearing, face, arm, legs, fingers, toes, nose, eyes, ears, mouth	Summer, winter, autumn, spring, seasons, similarities and differences, day length	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 within the school's RSE policy, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ear, tongue

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End points	• To identify and name parts of the body. • To name the five senses and the body parts associated with them.	• Know when each of the four seasons occurs • Know what the features of autumn are and what happens to trees in this season • Know that days are longer in summer (sunshine hours) than in winter • Observe changes across the four seasons	• 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. • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.
Enrichment ideas, suggestions (EDI) & cross-curricular links	• Take children on a sensory walk around the school environment. They can record what they see, hear, feel and smell through drawing or writing. • Discover how much the sense of smell influences the sense of taste by having a blindfold taste test with and without holding the nose. • To play the guess game - blindfolded - use senses to work out the different resources • To carry out investigations using the senses: walk around class with eyes covered and buddy guiding them using touch or sound	• Go for an observational walk - what do you notice? Autumnal observations • Collect conkers • Measure how long the day is • Leaf rubbings • Jump in puddles • Collect and measure rainfall	• Visit a farm and see new-born animals • Have hatching chicks in school/classrooms • Play with toy animals • Walk to Harwoods Rec to find insects • Pupils to do show and tell about their pets or animals at home • Visit London Sea Life Aquarium

Questions for assessment	• Why are our senses important? • Which sense is the most important? Why? • Can we taste without our noses?	• How is Autumn different to the other seasons? • Why does our clothing change between the seasons? • How can we tell the season in changing?	• Can you name a range of animals which includes animals from each of the vertebrate groups? • Can you describe the key features of these named animals? • Can you label key features on a picture/diagram? • Can you write a What am I? riddle about an animal • Can you describe what a range of animals eat?

Year 1

	Spring 2	Summer 1	Summer 2
Topic	**Everyday material**	**Plants**	**Seasonal Changes part 2**
Prior learning/ Links	• Use all their senses in hands-on exploration of natural materials. (Nursery - Materials, including changing materials) • Explore collections of materials with similar and/or different properties. (Nursery - Materials, including changing materials) • Talk about the differences between materials and changes they notice.	• Plant seeds and care for growing plants. (Nursery – Plants) • Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants) • Begin to understand the need to respect and care for the natural environment and all living things. (Nursery – Plants)	• Understand the key features of the life cycle of a plant and an animal. (Nursery – Plants & Animals, excluding humans) • Explore the natural world around them. (Reception – Seasonal changes) • Describe what they see, hear and feel whilst outside. (Reception – Seasonal changes)

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	(Nursery - Materials, including changing materials)	• Explore the natural world around them. (Reception – Living things and their habitats) • Recognise some environments that are different to the one in which they live. (Reception – Living things and their habitats)	• Understand the effect of changing seasons on the natural world around them. (Reception – Seasonal changes)
Vocabulary	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 Names of trees in the local area Names of garden and wild flowering plants in the local area	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
End points	• Distinguish between an object and the material from which it is made. • 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. • Compare and group together a variety of everyday materials on the basis of their simple physical properties.	• 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.	• Observe changes across the four seasons. • Observe and describe weather associated with the seasons and how day length varies.

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Enrichment ideas, suggestions (EDI) & cross-curricular links	• To carry out investigations i.e make a boat any investigate whether it floats/sinks, make a teddy's umbrella and whether it is waterproof or not, make a teddy's jacket for the rain and the sun, explore cornflour, slime, moon sand	• Planting seeds using the outdoor classroom resources. • Tour and discussion of the edible garden at school. • Complete a scavenger hunt of trees and flowers • To dissect a flower and label its simple parts • To carry out investigations; to plant flowering plants and measure growth as a class, cut a flower off the top of the plant and see what happens if replanted, complete seed investigations, plant non-flowering plants	• 'Stay safe in the sun' poster competition • Put sun cream and hat on when out in the sun • See and talk to people who have been sunburnt • Pupils to bring in sunhats and sun cream to school • Have ice lollies in class for pupils to eat • Place ice out in the sun and see what happens to it
Questions for assessment	• Which materials could you make a boat from? Why? • Which materials are suitable for X? Why? • How is winter different to the other seasons? • Why does our clothing change between the seasons?	• What are the basic parts of a plant? • Name the names of different trees and plants you know • Why are plants useful? Explain your answer • What is different/similar between flowering and non-flowering plants?	• How is Summer different to the other seasons? • Why does our clothing change between the seasons? • What happens in the summer? Why? • What happens if you get too hot? What can you do to cool down? • Would ice lollies be yummy in the winter? Why not?

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Year 2			
	Autumn 1	**Autumn 2**	**Spring 1**
Topic	**Animals including humans**	**Animals basic needs for survival**	**Everyday materials**
Prior learning/ Links	• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)	• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)	• Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) • Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) • Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials)
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)	Basic needs, food, food chain, shelter, move, feed, water, air, 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, non-reflective, flexible, rigid Shape, push/pushing, pull/pulling, twist/twisting, squash/squashing, bend/bending, stretch/stretching

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End points	• Notice that animals, including humans, have offspring which grow into adults. • Can name foods in each section of the Eatwell Guide • Can describe, including using diagrams, the life cycle of some animals, including humans, and their growth to adults e.g. by creating a life cycle book for a younger child • Can measure/observe how animals, including humans, grow. how what they know about looking after a baby/animal by creating a parenting/pet owners' guide • Can describe how animals, including humans, have offspring which grow into adults, using the appropriate names for the stages • Can state the basic needs of animals, including humans, for survival	• Knows that exercise is important to humans and can explain why. • Knows the different food groups and the benefits of each as part of a healthy, balanced diet • Knows which food groups common foods belong to. • Knows about general hygiene and its importance and can state examples of hygienic practice. • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food • Can state the importance for humans of exercise, eating the right amounts of different types of food, and hygiene • Explain how development and health might be affected by differing conditions and needs being met/not met • Explain how development and health might be affected by differing conditions and needs being met/not met	• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
Enrichment ideas, suggestions (EDI) & cross-curricular links	• Have some class caterpillars and observe how they change and grow into butterflies	• Do a fitness test and observe how their bodies change and respond • Cook some healthy and inhealthy food together	• Find different materials around the school/home • Bring in different materials and discus suitability

	• Have a visiting parent and baby - discuss what they can do now compared to the baby		• Create a shelter outdoor for your favourite toy • Children to compare the uses of everyday materials in and around the school with materials found in other places.
Questions for assessment	• How do humans change over time? Explain • How do different animals change over time - frogs, butterflies, dragonflies?	• Investigate the effect of exercise on their bodies - How does exercise impact my body? • Classify food in a range of ways, including using the Eatwell guide • Investigate washing hands, using glitter gel - what do you notice? • Collate what they know about looking after a baby/animal by creating a parenting/pet owners' guide • Explain how development and health might be affected by differing conditions and needs being met/not met	• Why is x the best material for x? • What is not a good material to use? Why? • How can you change a material? Explain • Test the properties of materials for particular uses e.g. compare the stretchiness of fabrics to select the most appropriate for Elastigirl's costume, test materials for waterproofness to select the most appropriate for a rain hat

Year 2

	Spring 2	Summer 1	Summer 2
Topic	**Living things and their habitats**	**Plants**	**Animals and conservation**
Prior learning/ Links	• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants)	• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants)	• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans)

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	• Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants) • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans) • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals including humans) • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans) • Observe changes across the four seasons. (Y1 - Seasonal changes)	• Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants)	• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals including humans)
Vocabulary	Living, dead, never been alive, suited, suitable,, 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	light, shade, Sun, warm, cool, water, space, grow, healthy, bulb, germinate, shoot, seedling	Endangered, extinct, conservation, habitat, survival
End points	• Explore and compare 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 and describe how different habitats	• Observe and describe how seeds and bulbs grow into mature plants. • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.	• Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other

	provide for the basic needs of different kinds of animals and plants, and how they depend on each other • Identify and name a variety of plants and animals in their habitats, including micro-habitats • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food		• Identify and name a variety of plants and animals in their habitats, including micro-habitats • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food
Enrichment ideas, suggestions (EDI) & cross-curricular links	• Explore the outside environment regularly to find objects that are living, dead and have never lived. • Classify objects found in the local environment. • Observe animals and plants from offspring into adults carefully, drawing and labelling diagrams. • Create simple food chains for a familiar local habitat from first-hand observation and research. • Create simple food chains from information given e.g. in picture books (Gruffalo etc.).	• Play with and dissect sycamore seeds • Plant seeds/bulbs around school/classroom and watch grow • Go on walk around Cassiobury Park to see a range of plants/flowers/trees • Complete a plant scavenger hunt • Collect conkers (both the seed and the outside covering) • Grow a bean in a glass jar and observe what happens	• Research and endangered species • Visit Whipsnade Zoo to learn about endangered species and what is being done to protect them
Questions for assessment	• What's a habitat? • What are the different habitats you know?	• How do seeds/bulbs grow best? • What do seeds/bulbs need to grow?	• Why are some animals in danger? • What can we do to help some animals survive?

	• Can x (animal) live in x (habitat)? Why/why not? • Why are there different habitats? • Explain a food chain • Where does food come from?	• How do seeds/bulbs change?	• How does habitat and food help an animal survive?

Year 3			
	Autumn 1	**Autumn 2**	**Spring 1**
Topic	**Animals including humans**	**Rocks**	**Forces and magnets**
Prior learning/ Links	• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals, including humans) • Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans) • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 - Animals, including humans) • Find out about and describe the basic needs of animals, including humans,	• Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) • Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) • Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials) • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass,	• Explore how things work. (Nursery – Forces) • Explore and talk about different forces they can feel. (Nursery – Forces) • Talk about the differences between materials and changes they notice. (Nursery – Forces) • Explore the natural world around them. (Reception – Forces) • Describe what they see, hear and feel whilst outside. (Reception – Forces) • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)

	for survival (water, food and air). (Y2 - Animals, including humans) • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans)	brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials)	
Vocabulary	Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine	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)	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
End points	• Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food – they get nutrition from what they eat. • Identify that humans and some other animals have skeletons and muscles for support, protection and movement.	• Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. • Describe in simple terms how fossils are formed when things that have lived are trapped within rock. • Recognise that soils are made from rocks and organic matter.	• Compare how things move on different surfaces. • Notice that some forces need contact between two objects, but magnetic forces can act at a distance. • Observe how magnets attract or repel each other and attract some materials and not others. • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. • Describe magnets as having two poles. • Predict whether two magnets will attract or repel each other, depending on which poles are facing.

Science Subject Overview

LAURANCE HAINES SCHOOL

Enrichment ideas, suggestions (EDI) & cross-curricular links	• Classify food in a range of ways • Use food labels to explore the nutritional content of a range of food items • Use secondary sources to find out the types of food that contain different nutrients • Plan a daily diet contain a good balance of nutrients and record and present findings • Explore the nutrients contained in fast food • Use secondary sources to research the parts and functions of the skeleton* • Compare, contrast and classify skeletons of different animals	• Visit a quarry • Find and classify different rocks within the school and local area • Study different fossils and create an animation of how they are formed	• Carry out investigations to explore how objects move on different surfaces e.g. spinning tops/coins, rolling balls/cars, clockwork toys, soles of shoes etc. • Explore what materials are attracted to a magnet. • Classify materials according to whether they are magnetic. • Explore the way that magnets behave in relation to each other. • Use a marked magnet to find the unmarked poles on other types of magnets. • Explore how magnets work at a distance e.g. through the table, in water, jumping paper clips up off the table. • Devise an investigation to test the strength of magnets.
Questions for assessment	• Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks? • Investigate pattern seeking questions such as ; Can people with longer legs run faster?; Can people with bigger hands catch a ball better? • What's the difference between an endo and exo skeleton? • What types of food do humans need? Give examples of them (I.e carbohydrates, protein, sugars, etc) • What do muscles do? Why are they important?	• How are fossils made? • Why was Mary Anning important? • Give examples of different types of rocks • How are rocks similar or different? • Are all rocks the same? Explain your answer	• Why are magnets useful? • Give examples of magnetic and non-magnetic materials • What happens when two magnets meet? • What happens when opposite/the same poles meet?

	• How do humans stay healthy?		

Science Subject Overview

LAURANCE HAINES SCHOOL

Year 3

	Spring 2	Summer 1	Summer 2
Topic	**Light**	**Plants**	**Sustainability and caring for the environment**
Prior learning/ Links	• Explore how things work. (Nursery – Light) • Talk about the differences in materials and changes they notice. (Nursery – Light) • Describe what they see, hear and feel whilst outside. (Reception – Light) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans) • Describe the simple physical properties of a variety of everyday materials. (Y1 - Materials)	• Observe and describe how seeds and bulbs grow into mature plants. (Y2 - Plants) • Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. (Y2 - Plants)	• Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other (Y2 – Living things and their habitats) • Identify and name a variety of plants and animals in their habitats, including micro-habitats (Y2 – Living things and their habitats) • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food (Y2 – Living things and their habitats)
Vocabulary	light, light source, Sun, sunlight, dangerous	Photosynthesis, pollen, insect/wind pollination, male, female, seed formation, seed dispersal (wind dispersal, animal dispersal, water dispersal), air, nutrients, minerals, soil, absorb, transport	Sustainability, environment, habitat, conservation, responsibility
End points	• Recognise that they need light in order to see things, and that dark is the absence of light. • Notice that light is reflected from surfaces.	• Identify and describe the functions of different parts of flowering plants: roots; stem/trunk; leaves; and flowers. • Explore the requirements of plants for life and growth (air, light, water,	• Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant.

	• Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. • Recognise that shadows are formed when the light from a light source is blocked by an opaque object. • Find patterns in the way that the size of shadows change.	nutrients from soil, and room to grow) and how they vary from plant to plant. • Investigate the way in which water is transported within plants. • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.	• Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. • Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food – they get nutrition from what they eat.
Enrichment ideas, suggestions (EDI) & cross-curricular links	• To carry out investigations; refract light through prisms, draw around shadows in the playground at different times during the day to notice changes in shadows • Make shadow puppets	• To dissect a flower and label its simple parts • To carry out investigations: to plant flowering plants and measure growth as class, cut a flower off the top of the plant and see what happens if replanted, cut a flowering plant in half and put each half in different colour water pots and see what happens over time to the petals, 'walking water' investigation • Watch a time lapse video of growing plants	• Visit Cassiobury park and the education officer there • Visit College Lake in Tring
Questions for assessment	• How do we see? Explain your answer • How do we make shadows? • What happens to your shadow during the day when it is sunny? • What can you do to protect yourself in the sun? • Why is it important to protect yourself?	• What are the basic parts of a plant? What are their functions? • Name the names of different trees and plants you know • What does a plant need in order to grow well? • How does water travel around a plant?	• What can you do to care for the environment? • What are you doing that harms the environment? • What will happen if the planet is not looked after? • What animals need protecting? Why?

Science Subject Overview

LAURANCE HAINES SCHOOL

Year 4			
	Autumn 1	**Autumn 2**	**Spring 1**
Topic	**Sound**	**Humans**	**States of Matter**
Prior learning/ Links	• Explore how things work. (Nursery – Sound) • Describe what they see, hear and feel whilst outside. (Reception – Sound) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)	• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans) • Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Animals, including humans) • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans) • Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (Y3 - Animals, including humans)	• Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) • Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) • Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials) • Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials) • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)

Science Subject Overview

LAURANCE HAINES SCHOOL

Vocabulary	Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation	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	Solid, liquid, gas, heating, cooling, state change, melting, freezing, melting point, boiling, boiling point, evaporation, condensation, temperature, water cycle
End points	• Identify how sounds are made, associating some of them with something vibrating. • Recognise that vibrations from sounds travel through a medium to the ear. • Find patterns between the pitch of a sound and features of the object that produced it. • Find patterns between the volume of a sound and the strength of the vibrations that produced it. • Recognise that sounds get fainter as the distance from the sound source increases.	• 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. • Construct and interpret a variety of food chains, identifying producers, predators and prey.	• 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, and measure or research the temperature at which this happens in degrees Celsius (°C). • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
Enrichment ideas, suggestions (EDI) & cross-curricular links	• Play games on the bench without speaking • Learn British Sign Language • Play with different musical instruments using rice or water to demonstrate the sound waves	• Complete investigations; Dissolve candy canes, Absorption investigations: sugar cubes, gummy bears • Tooth decay investigation, make ‘poo’, digestion investigation • Make a mouth using marshmallows	• Go on a bus or train journey and see condensation on windows • Visit Affinity Water, Bushey • Go outside in the rain • Jump in puddles • Make a snowman and watch/time it until it melts

Science Subject Overview

LAURANCE HAINES SCHOOL

Questions for assessment	• What are the parts of the ear? Which part is the most useful? Why? • How does sound change volume and pitch? • Explain how sound travels	• What are the names and functions of human teeth? Which ones are the most important? Why? • How are human teeth different/similar to other animal teeth? Why? • What are the names and functions of the human digestion system? • How are omnivore, carnivore and herbivore animals similar or different to each other? Why? • What's a food chain? What's a food web? What's the same/difference between food chains and food webs? • Give examples of and explain these terms; producers, predators and prey.	• What are the differences between solids, liquids and gases? • Name different solid, liquids and gases • Is sand a solid or a liquid? Why? How is it a untypical solid? • What is evaporation and condensation? • What happens in the water cycle? • What would happen if there wasn't any rain? Why? • What happens to a solid, liquid or gases when it is heated/cooled? • How can you increase/slow down the rate of evaporation and condensation?

Science Subject Overview

LAURANCE HAINES SCHOOL

Year 4				
	Spring 2	**Summer 1**	**Summer 2**	
Topic	**Electricity**	**Living things and their habitats**	**Recap**	
Prior learning/ Links	Explore how things work. (Nursery - Electricity)	• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. (Y1 - Plants) • Identify and describe the basic structure of a variety of common flowering plants, including trees. (Y1 - Plants) • Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals including humans) • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Animals, including humans) • Identify and name a variety of plants and animals in their habitats, including microhabitats. (Y2 - Living things and their habitats)		
Vocabulary	Electricity, electrical appliance/device, mains, plug, electrical circuit, complete circuit, component, cell, battery, positive, negative, connect/connections, loose connection, short circuit, crocodile clip,	Classification, classification keys, environment, habitat, human impact, positive, negative, migrate, hibernate	○	○

	bulb, switch, buzzer, motor, conductor, insulator, metal, non-metal, symbol			
End points	• Identify common appliances that run on electricity. • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • Recognise some common conductors and insulators, and associate metals with being good conductors.	• Recognise that living things can be grouped in a variety of ways. • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. • Recognise that environments can change and that this can sometimes pose dangers to living things.	-	
Enrichment ideas, suggestions (EDI) & cross-curricular links	• Electricity show and Wonderlab experience at the Science Museum • Take apart electrical items to see how they work	• Visit a farm or zoo • Zoolab animal workshop • Make: a hurricane in a jar, jelly earthquakes, jelly volcanoes, volcano experiments; sweet classification keys using liquorice all sorts • Classify and group toy animals individually, in pairs or in groups	…	
Questions for assessment	• What appliance runs on electricity? • What uses direct/alternating current? How can you tell? Explain your answer • What are conductors and insulators? How are they different?	• How can humans affect animals/the environment positively/negatively? • How can animals/humans be affected if an environment changes? • How could you group different living things? Explain your reasoning		

	• Are spoons conductors or insulators? Explain your answer	• What are the different types of animals? What do they mean? (omnivores/herbivores/carnivores)	

Science Subject Overview

LAURANCE HAINES SCHOOL

Year 5			
	Autumn 1	**Autumn 2**	**Spring 1**
Topic	**Human life cycles**	**Forces**	**Earth and Space**
Prior learning/ Links	• Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans) • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)	• Compare how things move on different surfaces. (Y3 - Forces and magnets) Notice that some forces need contact between two objects, but magnetic forces can act at a distance. (Y3 - Forces and magnets) • Observe how magnets attract or repel each other and attract some materials and not others. (Y3 - Forces and magnets) Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. (Y3 - Forces and magnets) • Describe magnets as having two poles. (Y3 - Forces and magnets) • Predict whether two magnets will attract or repel each other, depending on which poles are facing. (Y3 - Forces and magnets)	• Explore the natural world around them. (Reception – Earth and space) • Describe what they see, hear and feel whilst outside. (Reception – Earth and space) Observe changes across the four seasons. (Y1 - Seasonal changes) • Observe and describe weather associated with the seasons and how day length varies. (Y1 - Seasonal changes)
Vocabulary	Life cycle, reproduce, sexual, fertilises, asexual, plantlets, runners, tubers, bulbs, cuttings	Force, gravity, Earth, air resistance, water resistance, friction, mechanisms, simple machines, levers, pulleys, gears	Sun, Moon, Earth, planets (Mercury, Jupiter, Saturn, Venus, Mars, Uranus, Neptune), spherical, Solar System, rotate, star, orbit
End points	• Describe the changes as humans develop to old age.	• Explain that unsupported objects fall towards the Earth because of the	• Describe the movement of the Earth, and other planets, relative to the Sun in the solar system.

		force of gravity acting between the Earth and the falling object. • Identify the effects of air resistance, water resistance and friction that act between moving surfaces. • Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	• Describe the movement of the Moon relative to the Earth. • Describe the Sun, Earth and Moon as approximately spherical bodies. • Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky.
Enrichment ideas, suggestions (EDI) & cross-curricular links	• Visit to local care home • Visiting parent and baby – make comparisons • PSHE lessons	• Visit to the science museum • To carry out investigations; push cars down a range of surfaces and time how long they take to go down them; wear a range of footwear and travel on different surfaces and see what happens; how much force is needed to break eggshells? • Make plastic bottle/film cannister rockets, a parachute for a boiled egg. a boat which floats, a balloon powered car, a CD hovercraft	• Visit to the science museum • Use secondary sources to help create a model e.g. role play or using balls to show the movement of the Earth around the Sun and the Moon around the Earth. • Use secondary sources to help make a model to show why day and night occur. • Make first-hand observations of how shadows caused by the Sun change through the day. Make a sundial. • Research time zones. • Consider the views of scientists in the past and evidence used to deduce shapes and movements of the Earth, Moon and planets before space travel.
Questions for assessment	• What happens to humans over time? Explain your answer • Can you identify patterns in life cycles?	• Why is gravity useful? • What would happen if you didn't have x (force)? Why? • What forces do you know? What do they do?	• How does the Moon move around the Earth? • How does the Earth move around the Sun? • What does the Earth/Sun/Moon look like? Describe • Why is there day and night? • Why does the Sun seem to move in the sky?

Science Subject Overview

LAURANCE HAINES SCHOOL

Year 5			
	Spring 2	**Summer 1**	**Summer 2**
Topic	**Properties and changes in material**	**Life cycles - animals**	**Recap and retrieval**
Prior learning/ Links	• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials) • Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials) • Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials. (Y3 - Forces and magnets) Compare and group materials together, according to whether they are solids, liquids or gases. (Y4 - States of matter) Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this	• Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans) • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants)	

	happens in degrees Celsius (°C). (Y4 - States of matter) • Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. (Y4 - States of matter)			
Vocabulary	Thermal/electrical insulator/conductor, change of state, mixture, dissolve, solution, soluble, insoluble, filter, sieve, reversible/non-reversible change, burning, rusting, new material	Life cycle, reproduce, sexual, fertilises, asexual, plantlets, runners, tubers, bulbs, cuttings	○	○
End points	• 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, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes. Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including	• Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. • Describe the life process of reproduction in some plants and animals.	-	

	changes associated with burning and the action of acid on bicarbonate of soda.		
Enrichment ideas, suggestions (EDI) & cross-curricular links	• Density activities; oil and water, 'dancing raisins' • Create a fire • Evaporation activities; draw around puddles and time their evaporation/measure their decreasing size • Absorption activities; add liquids to sugar cubes, make sugar cube towers	• Use secondary sources and, where possible, first-hand observations to find out about the life cycle of a range of animals. • Compare the gestation times for mammals and look for patterns e.g. in relation to size of animal or length of dependency after birth. • Look for patterns between the size of an animal and its expected life span. • Grow and observe plants that reproduce asexually e.g. strawberries, spider plants, potatoes. • Take cuttings from a range of plants e.g. African violet, mint. • Plant bulbs and then harvest to see how they multiply. • Use secondary sources to find out about pollination.	…
Questions for assessment	• How can you separate solids/liquids/gases? • What does filter/sieve/evaporate mean? • Give examples of irreversible and reversible changes	• Can you compare two or more animal life cycles? • Can you explain how a range of plants reproduce asexually?	

Science Subject Overview

LAURANCE HAINES SCHOOL

Year 6

	Autumn 1	Autumn 2	Spring 1
Topic	**The human body**	**Electricity**	**Light**
Prior learning/ Links	• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans) • Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (Y3 - Animals, including humans) • Describe the simple functions of the basic parts of the digestive system in humans. (Y4 - Animals, including humans) • Identify the different types of teeth in humans and their simple functions. (Y4 - Animals, including humans)	• Identify common appliances that run on electricity. (Y4 - Electricity) • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. (Y4 - Electricity) • Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. (Y4 - Electricity) • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. (Y4 - Electricity) • Recognise some common conductors and insulators, and associate metals with being good conductors. (Y4 - Electricity)	• Recognise that they need light in order to see things and that dark is the absence of light. (Y3 - Light) • Notice that light is reflected from surfaces. (Y3 - Light) • Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. (Y3 - Light) • Recognise that shadows are formed when the light from a light source is blocked by an opaque object. (Y3 - Light) • Find patterns in the way that the size of shadows change. (Y3 - Light) • 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. (Y5 - Properties and changes of materials)
Vocabulary	Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle	Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage **N.B.** Children do not need to understand what voltage is, but will use volts and voltage to describe different batteries. The	As for Year 3 - Light, plus straight lines, light rays

		words “cells” and “batteries” are now used interchangeably.	
End points	• Identify and name the main parts of the human circulatory system, and 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.	• Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. • Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. • Use recognised symbols when representing a simple circuit in a diagram.	• Recognise that light appears to travel in straight lines. • Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. • Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. • Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them
Enrichment ideas, suggestions (EDI) & cross-curricular links	• Dissect a lambs heart - draw diagram and label accurately • Create a role play model for the circulatory system. • Carry out a range of pulse rate investigations: fair test – effect of different activities on my pulse rate • Exploring which groups of people may have higher or lower resting pulse rates • Observation over time - how long does it take my pulse rate to return to my resting pulse rate (recovery rate) • Pattern seeking – exploring recovery rate for different groups of people. • Research the negative effects of drugs (e.g. tobacco) and the benefits of a healthy diet and regular exercise	• Make fruit batteries (lemon) • Build an electric motor	• Create a mirror maze • Walk in the dark/without the sense of sight • Watch shadow puppet show

	by asking an expert or using carefully selected secondary sources		
Questions for assessment	• What are the main parts of the circulatory system? • What does the heart do? • How does blood travel around the body? Explain • How can drugs, diet, exercise and lifestyle impact the body? Explain	• How do you make a light brighter or dimmer? • How do you make a buzzer louder or quieter? • When are the key symbols when representing a simple circuit?	• How does light travel? How do you know? • How can we see things? • What would happen if there wasn't light? Why? • What happens when something blocks light?

Science Subject Overview

LAURANCE HAINES SCHOOL

Year 6			
	Spring 2	**Summer 1**	**Summer 2**
Topic	**Classification**	**Evolution and inheritance - adaptation**	**Recap and retrieval**
Prior learning/ Links	• Recognise that living things can be grouped in a variety of ways. (Y4 - Living things and their habitats) • Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. (Y4 - Living things and their habitats) • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats) • Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats)	• Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. (Y2 - Living things and their habitats) • Notice that animals, including humans, have offspring which grow into adults. (Y2 - Animals, including humans) • Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal. (Y3 - Plants) • Describe in simple terms how fossils are formed when things that have lived are trapped within rock. (Y3 - Rocks) Recognise that environments can change and that this can sometimes pose dangers to living things. (Y4 - Living things and their habitats) • Describe the life process of reproduction in some plants and animals. (Living things and their habitats - Y5)	

Science Subject Overview

LAURANCE HAINES SCHOOL

Vocabulary	Vertebrates, fish, amphibians, reptiles, birds, mammals, invertebrates, warm-blooded, cold-blooded, insects, spiders, snails, worms, flowering, non-flowering, mosses, ferns, conifers	Offspring, sexual reproduction, vary, characteristics, suited, adapted, environment, inherited, species, fossils, evolve, evolution	
End points	• Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals. • Give reasons for classifying plants and animals based on specific characteristics.	• Recognise that living things have changed over time and that 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. • Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.	
Enrichment ideas, suggestions (EDI) & cross-curricular links	• Minibeast hunt equipment - magnifiers, digiscopes, pots, trays, paint brushes, i-pads • Explore the range of living organisms found at each location - were predictions correct? • Record the different organisms by taking photographs then print and annotate photos. Use annotated photographs of the invertebrates we found and create a classification key. • Research rainforest animals. • Compare and contrast monkeys or snakes that live in rainforests finding similarities and differences. How many different species can you find?	• DNA activities; paper origami helix, make DNA using jelly babies and cocktail sticks, extract fruit DNA • Make animation of evolution process • Visit Natural History Museum (Charles Darwin and evolution workshop/Nature Live talk/Investigate workshop) • Read DNA Detective books	

	• Outdoor lesson - identifying flowering and non-flowering plants in the school grounds. • Look at photographs of the flowers and seeds of some vegetable plants on the allotment - identify common features. • Photograph examples of flowering and non-flowering plants - print and annotate photos explaining key characteristics of each group. • Collect leaves and use classification keys to name the trees. • Plan an investigation to see what the best conditions are for growing mould on bread. Set up a fair test, observe changes over time.		
Questions for assessment	• How could you classify/group living things? • Give examples of common observable characteristics	• How have humans adapted over time? • How have animals and humans adapted to the environment around them? Can you give examples? • What does 'adaption' mean? • Why are offspring the same as their parents?	