



MANLEY PARK

PRIMARY SCHOOL

G R O W I N G T O G E T H E R

VISION

Manley Park: we all belong.

Together, we are committed to all learners being inspired to achieve academic success. We provide learning experiences that are relevant, motivational and challenging. Our curriculum and collaborative learning approaches nurture individual personal growth. Pupils become socially responsible citizens of our community and the world.

CURRICULUM INTENT

Intention one: Our learners will achieve excellent and sustained academic progress.

Intention two: Our learners will develop effective lifelong learning behaviours.

Intention three: Our learners will be supported to think critically and creatively.

Intention four: Our learners will become well informed and responsible citizens.

EYFS Statutory Framework and the National Curriculum

EYFS Statutory Educational Programme:

Understanding the world

Understanding the world involves guiding children to make sense of their physical world and their community. The frequency and range of children's personal experiences increases their knowledge and sense of the world around them – from visiting parks, libraries and museums to meeting important members of society such as police officers, nurses and firefighters. In addition, listening to a broad selection of stories, non-fiction, rhymes and poems will foster their understanding of our culturally, socially, technologically and ecologically diverse world. As well as building important knowledge, this extends their familiarity with words that support understanding across domains. Enriching and widening children's vocabulary will support later reading comprehension.

Early Learning Goals:

Children at the expected level of development will:

- Explore the natural world around them, making observations and drawing pictures of animals and plants;
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

Development Matters Objectives (Non statutory)

Nursery

Biology (Living Things and Plants)

- Talk about what they see, using a wide vocabulary
- Plant seeds and care for growing plants.
- Understand the key features of the life cycle of a plant and an animal
- Begin to understand the need to respect and care for the natural environment and all living things

Chemistry (Materials)

- Use all their senses in hands-on exploration of natural materials
- Explore collections of materials with similar and/or different properties
- Talk about the differences between materials and changes they notice

Physics (How things work, explaining different processes)

- Explore and talk about different forces they can feel
- Explore how things work

Reception

Biology (Living Things and Plants)

- Explore the natural world around them (including plants and animals)
- Describe what they see, hear and feel whilst outside (including plants and animals)
- Recognise some environments that are different from the one in which they live
- Understand the effects of changing seasons on the natural world around them e.g. how animals and plants may change or behave differently

Chemistry (Materials)

- Explore the natural world around them
- Describe what they see, hear and feel while outside

Physics (How things work, explaining different processes)

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National Curriculum

Purpose of study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the

power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Aims

The national curriculum for science aims to ensure that all pupils:

- develop scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics
- develop understanding of the nature, processes and methods of science through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the uses and implications of science, today and for the future

Science in the Early Years Foundation Stage

Skills and Knowledge Progression in Nursery

Natural World (Biology)				
Development Matters Objectives	Talk about what they see using a wide range of vocabulary	Plant seeds and care for growing plants.	Begin to understand the need to respect and care for the natural environment and all living things	Understand the key features of the life cycle of a plant and an animal
Skills Development	Talk about what they can see using a range of situationally relevant vocabulary.	With support, plant and care for seeds, bulbs and pot plants.	Handle living things with care and understand why this is important	Talk about changes they have observed over time in plants and animals (including humans) from

	<p>How to use a magnifying glass</p> <p>Know what to observe when making observations of things around them e.g. textures of seeds or rocks</p>		<p>Showing care by <i>not handling</i> living things in some cases</p> <p>Begin to explore different animal habitats in their local area and school grounds including microhabitats (eg under logs/ under piles of leaves)</p>	<p>first-hand experience such as baby siblings growing, eggs hatching, frog spawn growing, butterflies hatching or plants growing.</p>
Knowledge	<p>Know what a magnifying glass is.</p>	<p>Understand how to look after plants e.g. know that plants need water and light to grow / survive Know what a seed or bulb is and that with the right care it could grow into a plan</p>	<p>Understand the basic ways we can show care for the natural environment e.g. not dropping litter and respecting living things such as trees or plants in our local area. Understand and talk about how to look after plants and animals Have a basic understanding of what animals need to survive eg food, air and water</p>	<p>Understand the concept of growth and how plants and animals (including humans) might change over time</p>
Vocabulary	<p>Magnifying glass Smooth, rough, bumpy, spiky.</p>	<p>plant, leaf, flower, tree, dig, water, grow,soil,</p>	<p>Plant, animal, natural, alive/ living, care, gentle, food, water, eat</p>	<p>Grow, change, baby, young, the names of some common animals and their young. Eg dog/ puppy, cat/ kitten, cow/ calf, sheep/ lamb, bird/ chick, frog/ tadpole, butterfly/ caterpillar.</p>

Skills and Knowledge Progression in Nursery

Natural World (Chemistry)			
Development Matters Objectives	Talk about the differences between materials and changes they notice	Explore collections of materials with similar and/or different properties	Use all their senses in hands-on exploration of natural materials.
Skills Development	<p>Begin to use language to compare and order different materials</p> <p>Begin to notice and talk about how the</p>	<p>Begin to experiment with ways of grouping / sorting different objects by material and properties eg. putting items together that look the same, feel the same or can be used</p>	<p>Develop curiosity and involvement when exploring different materials</p> <p>Begin to talk about likes / dislikes of different</p>

	<p>properties of materials have changed</p> <p>Begin to observe and talk about natural processes e.g. snow and ice melting on cold days, water freezing in puddles in winter, ice in drinks or ice cream melting on hot days, seeing your breath on a cold day, making cakes, mixing ingredients in cooking, adding coloured paint to water, mixing powder paint and water, mixing oobleck, watching popcorn pop in a microwave</p>	<p>for the same purpose</p> <p>Sort natural objects using their senses eg bark, feathers, seeds, cones, leaves sticks, pebbles</p> <p>Look closely at natural objects using a magnifying glass or app on a tablet</p> <p>Describe an item</p> <p>Mark make to record natural objects</p> <p>Group objects that are similar</p> <p>Use natural objects or materials to make pictures and patterns</p>	<p>materials using simple language</p> <p>Explore the natural world with their senses</p> <p>Explore using their senses eg smelling pots/ smelling flowers or herbs, feely bags, listening stations etc</p> <p>Sort natural objects using their senses eg bark, feathers, seeds, cones, leaves sticks, pebbles</p> <p>Look closely at natural objects using a magnifying glass or app on a tablet</p> <p>Talk about what they hear e.g on a sound walk</p> <p>Describe an object or ask questions to identify it</p> <p>Tasting food and say if they like it or not</p>
Knowledge	<p>Begin to understand that some materials can be changed by heating them up, cooling them down or by mixing them with other materials.</p>	<p>Begin to understand that different things can have similar or different characteristics.</p>	<p>Begin to understand that different things feel, look, smell, sound and taste different.</p>
Vocabulary	<p>Suggested vocab: mix, stir, cook, hot, oven, microwave, change, burn, melt, hard, runny, set, freeze, freezer, cold, blended, hard, sort, bendy, stiff, wobbly, wood, plastic, paper, card, fabric</p> <p>Supplementary vocab -(children could be exposed to this vocab but would not be expected to use it) solid, liquid, rigid, stronger, weaker</p>	<p>Key vocab: same, different/ not the same</p> <p>Suggested vocab: natural, plant, animal, leaves, seeds, conkers, acorns, twigs, bark, shells, feathers, pebbles, stones, same, different, pattern</p> <p>Supplementary vocab: living, dead, similar</p>	<p>Key vocab: smell, taste, touch, feel, hear, see, like/ don't like, rough, bumpy, hard, soft, quiet, loud, cold, warm, wet, dry, scratchy.</p> <p>Suggested vocab, blind, deaf</p>

Skills and Knowledge Progression in Nursery

Natural World (Physics)

	Explore and talk about the different forces they can feel	Explore how things work
Skills Development	<p>Begin to describe what is happening when they test if items float/ sink</p> <p>Begin to describe what is happening or what they feel when they play with springs/ magnets/ wind-up toys/ train carriages connected with magnets/ elastic bands/ stretchy fabric or gym resistance belts/ make scooters or bikes go faster or slower/ roll items such as cars or balls down a track/ watch water flow down a water run</p>	<p>Explore and investigate mechanical or electrical toys (turning dials, pushing buttons, turning switches on/off)</p> <p>Describe what they are doing (moving, making a sound, making a light)</p> <p>Suggest ways to make items work if they stop working. (battery and/or manual) (toys such as bee bots, shopping tills, torches, remote control cars, recording devices, ipads, hand held fans etc.)</p>
Knowledge	<p>Understand that objects can be moved by pushing or pulling</p> <p>Begin to understand that 'push' means 'move away' and 'pull' means 'move towards'</p>	<p>Batteries provide power</p> <p>Mechanical toys will perform actions</p>
Vocabulary	<p>Suggested vocab: float, sink, water, up, down, top, bottom, push, pull, magnet, spring, squash, bend, twist, stretch, turn, spin, smooth, rough, fast, slow</p> <p>Supplementary vocab: rising, falling, attract, repel, faster, slower, pulley, gear, elastic</p>	<p>Vocab: battery, plug, move, wire, sound, electricity, light, light, torch, bulb, lamp, spotlight, shiny, bright, brighter, brightest, Sun, shine, glow, mirror</p> <p>Supplementary vocab: light source, reflective, non-reflective, dim, dimmer, dimmest</p>

Skills and Knowledge Progression in Reception

<i>Living things and plants (Biology)</i>			
Development Matters Objectives	<p>Explore the natural world around them (including plants and animals)</p> <ul style="list-style-type: none"> Describe what they see, hear and feel whilst outside (including plants and 	<p>Recognise some environments that are different from the one in which they live</p>	<p>Understand the effects of changing seasons on the natural world around them e.g. how animals and plants may change or behave differently</p>

	animals)		
Skills Development	<p>Begin to recognise and name some familiar plants and animals in their local environment e.g. oak tree, robin etc</p> <p>Find out, from first hand experiences, about plants and animals in contrasting natural environments.</p> <p>Make observations and draw pictures of animals and plants</p> <p>Understand what some different parts of animals and plants are used for e.g. roots helping the plant to take in water from the soil</p>	<p>Explore using secondary sources (video, books, photos) the different environments around the world.</p> <p>Talk about the difference between these environments and the one we live in</p> <p>Talk about the different animals they may find in different environments eg polar bears, tigers, elephants etc</p>	<p>Explore using first hand (seasonal walks) and secondary sources (books, videos, photos...) the effects of the changing seasons.</p>
Knowledge	The names of familiar plants and animals in their local environment	That there are different environments around the world That different animals live in different environments	That the seasons change The effect of seasonal changes on the weather and our immediate environment (eg the leaves fall off some trees in winter)
Vocabulary	<p>Key vocab: plant, leaf, flower, tree, dig, water, grow, soil, stem, trunk, branch, root, seed, berry, fruit, vegetable, plant, hole, shoot, die, dead, weed,</p> <p>Supplementary vocab: bulb, bark, petal, seedling, healthy, unhealthy, strong, sturdy, wilting, decay, mould, life cycle</p>	<p>Key vocab: Names of contrasting environments e.g. beach, forest, woodland, seaside, arctic, jungle, desert.</p>	<p>Key vocab: 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>Supplementary vocab: Vocab to describe animals behaviours during seasonal changes eg hibernate, migrate</p>

Skills and Knowledge Progression in Reception

Materials (Chemistry)

Development Matters Objectives	<ul style="list-style-type: none"> ▪ Explore the natural world around them ▪ Describe what they see, hear and feel while outside
Skills Development	<ul style="list-style-type: none"> - Talk about what they see, hear, smell, feel or taste in different environments and at different times of the year. - explore a range of materials in a sensory way, including natural materials eg · 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 - Make objects from different materials, including natural materials eg · Making pictures using natural materials they have gathered from the environment · Making dens, nests, bug hotels etc. using natural materials · 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 -Talk about the natural materials they explore, using their senses. -Talk about likes / dislikes of different materials -Talk about similarities, differences and patterns -Experiment with ways of grouping / sorting different objects by material and properties Observe and talk about natural processes
Knowledge	
Vocabulary	<p>Key vocab: 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>Vocab for noises they may hear e.g sound, noise, listen, hear, music, voices, bird song, traffic, sirens, thunder, high, low, loud, quiet, soft, volume, crackle, thunder, hum, buzz, roar, vibrations</p> <p>Vocab relating to Earth and Space e.g. Sun, Moon, Earth, star, planet, sky, day, night, space, round, bounce, float</p> <p>Supplementary vocabulary sunrise, sunset, astronaut, astronomer, constellation, orbit, nocturnal, slow-motion, magnify</p> <p>Technical language that could account for changes they notice such as 'hibernate, migrate'</p>

Skills and Knowledge Progression in Reception

How things work/Exploring different processes (Physics)
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Development Matters Objectives	Understand the effects of changing seasons on the natural world around them e.g. how animals and plants may change or behave differently
Skills Development	To observe the 4 seasons.
Knowledge	That the seasons change
Vocabulary	spring, summer, autumn, winter, seasons,

Bridging into the National Curriculum

Early Learning Goals -The Natural World ELG

Children at the expected level of development will:

- Explore the natural world around them, making observations and drawing pictures of animals and plants;
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class;
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

How our early years curriculum prepares for the next stage of education

Early Learning Goals	NC Areas	Year 1
<ul style="list-style-type: none"> • Explore the natural world around them, making observations and drawing pictures of animals and plants; • Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class; 	Biology	Animals including humans <ul style="list-style-type: none"> • identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • identify and name a variety of common animals that are carnivores, herbivores and omnivores • describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)

		<ul style="list-style-type: none"> • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense <p>Plants</p> <ul style="list-style-type: none"> • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • identify and describe the basic structure of a variety of common flowering plants, including trees
<ul style="list-style-type: none"> • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. 	<p>Physics</p>	<p>Seasonal changes</p> <ul style="list-style-type: none"> • observe changes across the 4 seasons • observe and describe weather associated with the seasons and how day length varies
<ul style="list-style-type: none"> • Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. 	<p>Chemistry</p>	<p>Materials</p> <ul style="list-style-type: none"> • 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

Delivering the National Curriculum

Aims - The national curriculum for science aims to ensure that all pupils:

BIOLOGY PROGRESSION

PLANTS (1 - 3)			
	NATIONAL CURRICULUM	AT OUR SCHOOL	VOCABULARY
Year 1	identify and name a variety of common wild and garden plants, including deciduous and evergreen trees	<p><u>Throughout the year</u>, children will explore plants in our local environment and will be able to identify and name different deciduous and evergreen trees. This will support the children's learning around seasonal change.</p> <ul style="list-style-type: none"> - Chn to understand why something is a plant - Chn to spot differences between different plants - Chn to focus on the leaves of different trees - Chn to learn the difference between deciduous and evergreen trees - Chn to use their observation skills of the leaves to identify some trees <p>Deciduous Evergreen</p>	Tree, leaf, identify, classify, magnifying glasses, deciduous, evergreen

	identify and describe the basic structure of a variety of common flowering plants, including trees	<p><u>Throughout the year</u>, children will explore plants in our local environment.</p> <ul style="list-style-type: none"> - Chn to grow some plants in the class in see through pots to allow them to observe the roots. - Chn to observe flowering plants blooming. - Chn to compare plants that produce flowers vs fruits vs berries. - Chn to learn the different parts of trees. 	Stem, flower, Leaf, root, fruit, berry, trunk, branch, bark,
Year 2	observe and describe how seeds and bulbs grow into mature plants	<p><u>Throughout the year</u>, children will explore plants in our local environment and will be able to observe a variety of plants growing.</p> <ul style="list-style-type: none"> - Chn to plant bulbs and seeds in see through pots to observe over time. - Chn to measure the plants - Chn to compare between bulbs and seeds. - Chn to explore how new plants grow if they are not planted by humans 	Seed, bulb, plant, roots, mature plant , germination
	find out and describe how plants need water, light and a suitable temperature to grow and stay healthy	<p><u>Throughout the year</u>, the children will have to care for plants that they have planted or that have been brought to school.</p> <ul style="list-style-type: none"> - Chn to formulate questions about plants. - Chn to grow identical plants in different conditions, eg more or less light and water. - Chn to learn more about the plants' needs. 	Seed, bulb, water, warmth, light
Year 3	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	<ul style="list-style-type: none"> - Chn to discuss what plants need (recap of year 2). Explore the needs of different types of plants (eg cactus versus ivy) - Chn to set up a simple enquiry to check if they thought of all the needs. - Chn to observe over time and measure the plants. 	Nutrients, plants, growth, light, warmth, air, soil, water, investigate, seedlings,
	identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers	<ul style="list-style-type: none"> - Chn to explore the local area to spot different types of plant and look at similarities and differences. - Chn to formulate hypothesis about what is the function of different parts of a plant 	Nutrients, plants, growth, light, warmth, air, soil, water, investigate, seedlings, research root, stem, trunk, leaves, flowers, petals, photosynthesis

		<ul style="list-style-type: none"> - Chn to learn more about the function of the roots, stem and leaves (the role of the flowers will be explored later) 	
	investigate the way in which water is transported within plants	<ul style="list-style-type: none"> - Chn to investigate which way is best to give water to a plant, through the soil or spraying the leaves. - Link to the children's learning about rocks and soils. - Chn to understand that the plant transports water around to help it synthesise its food through a process called photosynthesis (also requires CO2 and light). 	photosynthesis
	explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal	<ul style="list-style-type: none"> - Chn to observe different types of flowers to spot similarities and differences. - Chn to learn what is a life cycle - Chn to learn about the life cycle of a flowering plant. - Different ways for plants to reproduce will be explored in year 5. 	Pollination, pollen, seed formation, seed dispersal, fertilisation, germination, stamens, egg cells.

LIVING THINGS AND THEIR HABITATS (2, 4 - 6)

	National Curriculum	At our school	Vocabulary
Year 2	explore and compare the differences between things that are living, dead, and things that have never been alive	<ul style="list-style-type: none"> - Chn to learn the characteristics of living things (MRS GREN) - Chn to classify everyday things into 3 categories, alive, dead, never been alive. 	Living, dead, never been alive, movement, reproduction, sensitivity, nutrition, excretion, respiration, growth,
	identify and name a variety of plants and animals in their habitats, including microhabitats	<ul style="list-style-type: none"> - Chn to name different living things in and out of our local environment. - Chn to learn what a habitat is. - Chn to explore the difference between a habitat and a microhabitat. - Chn to explore the local environment and identify different habitats and microhabitats. 	Microhabitat and habitat

	<p>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</p>	<ul style="list-style-type: none"> - Chn to explore why we find different living things in different habitats. - Chn to learn about the needs of living things to survive. - Chn to complete a case study on a chosen habitat to show how the habitat relies on the living things and the other way around 	<p>suited, suitable, basic needs, food, shelter, move, feed, habitats (pond, grassland, woodland)</p>
	<p>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</p>	<ul style="list-style-type: none"> - Zoom in the need of nutrients for living things. - Choose an animal and explore what food they need to survive. - Study the habitat of this animal and how the habitat is providing food for the animal. - Explore a simple food chain. 	<p>Food, food chain, energy, transfer, predators, omnivore, herbivore, carnivore (from year 1 animals including humans)</p>
Year 4	<p>recognise that living things can be grouped in a variety of ways</p>	<ul style="list-style-type: none"> - Recap on the definition of alive, dead and never been alive. - Recap of what a habitat is. - Difference between a habitat and an environment. - Observe different living things in the different habitats we have in school. - Group the observed living things (tables, venn diagrams and based on different characteristics). 	<p>Alive, dead, never been alive, movement, reproduction, sensitivity, nutrition, excretion, respiration, growth, habitat, local</p>
	<p>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment</p>	<ul style="list-style-type: none"> - What a classification key is. - Chn to design a simple classification tree and key to classify known living things. - Chn to learn how to use more complex classification trees and keys in order to identify living things. - Chn to develop their own classification key to identify the tree we have in the enchanted forest. - Chn to design their own classification key to identify a variety of living things. 	<p>Classification, classification keys, classification trees.</p>
	<p>recognise that environments can change and that this can sometimes pose dangers to living things</p>	<ul style="list-style-type: none"> - Natural and built environment. Recap difference between habitat and environment. - Natural and human made changes to the environment. - Case study, glaciers 	<p>environment, habitat, migrate, hibernate human impact, positive, negative,</p>

Year 5	describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	<ul style="list-style-type: none"> - Recap characteristics of mammals, amphibians, insects and birds (from animals including human Y1) - Explore and understand the life cycle of a mammal - Explore and understand the life cycle of a bird - Explore and understand the life cycle of an insect - Explore and understand the life cycle of an amphibian 	Life cycle
	describe the life process of reproduction in some plants and animals	<ul style="list-style-type: none"> - Recap from learning about plants from year 3. - Asexual reproduction in plants - Sexual reproduction in plants - Sexual reproduction in animals - Chn to learn about famous naturalists. 	<p>Gamete, stamen, stigma, carpel, pistil, pollination, germination, flowering, sexual reproduction, life cycle, seed, pollen, anther, filament, style, ovary, botanical illustration, dissection</p> <p>Corm, bulb, spores, cutting, fern, moss, liverwort, tubers, asexual, non-flowering, propagation, artificial, natural</p>
Year 6	describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants and animals	<ul style="list-style-type: none"> - Recap of classification knowledge from year 4. - Show the different kingdoms to the chn. - Zoom into subdivision of different kingdoms eg animals into vertebrates and invertebrates. - One class to observe plants in our local environment while the other class observes animals. - Chn to create classification keys and trees to exchange with the other class. - Chn to use the classification tree of the other class to identify living things in our local environment. 	<p>Classification, classification key, kingdom, phylum, class, order, family, genus, species, classification key, micro-organism, organism, opinion, similarities, differences, group, observations, support, refute, Linnaeus.</p>

	give reasons for classifying plants and animals based on specific characteristics	<ul style="list-style-type: none"> - Chn to be exposed to characteristics of living things that aren't true for most of the individuals of the species. - Chn to assess the classification tree given from the other class. 	Characteristics, species
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ANIMALS INCLUDING HUMANS (1 - 6)			
	National Curriculum	At our school	Vocabulary
Year 1	identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense	<ul style="list-style-type: none"> - Chn to learn main joints names such as elbow, shoulders, knees. - Chn to focus on parts of the face. - Chn to learn the different senses and associate them with the right body part. 	head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth, nose, fingers, toes, hands, feet, shoulders, chest, tummy touch, see, smell, taste, hear, fingers (skin), eyes, nose, ear and tongue
	identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals	<ul style="list-style-type: none"> - Chn to look at the features of a variety of animals - Name the animals and compare them 	Head, body, eyes, ears, mouth, teeth, leg, tail, wing, claw, fin, scales, feathers, fur
	describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)	<ul style="list-style-type: none"> - Focus on mammals and reptiles - Focus on fish, amphibians and birds. 	lungs, cold blooded, warm blooded, eggs

	identify and name a variety of common animals that are carnivores, herbivores and omnivores	<ul style="list-style-type: none"> - Discuss the diet of the animals studies previously - Introduce the words carnivores, herbivores and omnivores. - Case study, the polar bear. 	carnivores, herbivores and omnivores.
Year 2	notice that animals, including humans, have offspring which grow into adults	<ul style="list-style-type: none"> - Chn to understand that they are their parents' offspring. - Explore that animals not only humans can have offspring. - Chn to recognise that their parents are older than them. - Chn to look at the evolution of a baby human throughout the years. - Chn to look at the evolution of another baby animal throughout the years. 	Offspring, reproduction, growth, child, young/old stages (examples - chick/hen, baby/child/adult, caterpillar/butterfly),
	find out about and describe the basic needs of animals, including humans, for survival (water, food and air)	<ul style="list-style-type: none"> - Understand what they need to survive and what else they might need to be comfortable and happy. - Understand that what animals need for survival might be similar or different to humans, depending on the animal. - Discuss why they need certain things for survival, including food, water and air 	Basic needs, water, food, air, breathing, survival
	describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene	<ul style="list-style-type: none"> - Chn to explore what happens when they do exercise (some will make their heart beat fast and some slow it down) - Chn to learn why exercise is important. - Chn to explore different types of food (vegetables, fruits, dairies, carbs) - Chn to learn what a healthy plate looks like. 	Heart, beating, healthy, exercise Fruit, vegetables, bread, rice, potatoes, pasta, milk, dairy, food high in fat, sugar, meat, fish, egg, beans

<p>Year 3</p>	<p>identify that humans and some other animals have skeletons and muscles for support, protection and movement</p>	<ul style="list-style-type: none"> - Chn to explore their own bodies (eg your head is hard, why, what is it?) - Chn to learn about the skeletons and some bones' names. - Chn to explore the role of the skeleton - Study vertebrates and invertebrates. - Chn to explore how we can move as they have seen that a skeleton cannot. - Learn about the muscular system 	<p>Skeleton, bones, skull, spine, ribcage, pelvis, femur. Muscles, joints, tendons, contract, relax, biceps, triceps</p>
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	<p>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</p>	<ul style="list-style-type: none"> - Explain to the chn that plants can produce their own food using mainly water, sunlight and CO2 (this will be learnt in the plant unit within Y3) - Contrast with animals who need to get more diverse food to survive. - Revisit the different types of food (year 2 and 3) - Explore the use of different foods for humans, dairies for the bones, proteins from meat for the muscles etc. - Children to explore what a meal with everything humans need looks like. - Contrast this with diets of 2 or more other animals. 	
Year 4	<p>describe the simple functions of the basic parts of the digestive system in humans</p>	<ul style="list-style-type: none"> - Chn to formulate questions about what is happening to the food we are eating using their prior learning (diet year 1,2 and 3). - Explore the journey of the food from the mouth to the rectum. - Explore in more detail what happens in the different parts of the digestive system (make sure to highlight the structure-activity links). <ul style="list-style-type: none"> - Mouth (teeth will be explored further later) - Oesophagus - Stomach - Small and large intestine - Link this new understanding of nutrients and excretion to the characteristics of living things. 	<p>mouth, tongue, saliva, teeth, oesophagus, stomach, and small and large intestine, rectum, faeces, nutrients.</p>
	<p>identify the different types of teeth in humans and their simple functions</p>	<ul style="list-style-type: none"> - Zoom into a part of the digestive system: the teeth. - Teeth are an organ. - Different types of teeth (link structure to activity) - What are teeth made of - How can we take good care of our teeth? 	<p>incisors, canines, premolars and molars, teeth, organs</p>
	<p>construct and interpret a variety of food chains, identifying producers, predators and prey</p>	<ul style="list-style-type: none"> - Define, predator (recap from year 2), prey, producer - Make links between plants and animals through representation of food chains. - Highlight the impact of missing part of a food chain on the other species. - Discuss the impact and responsibility of humans on different food chains. 	<p>Food chain, producer, predator, prey, consumer, herbivore, omnivore, carnivore, impact</p>

<p style="text-align: center;">Year 5</p>	<p>describe the changes as humans develop to old age</p>	<ul style="list-style-type: none"> - Recap from year 2 - Explore changes during the gestation period (2 cells to embryo to foetus) - Explore changes after the birth from newborn to 1 year old (infancy) - Explore changes within the toddler phase (1-5years old) - Explore changes within childhood (3 - 11) - Explore changes within adolescence (11 - 18) <ul style="list-style-type: none"> - Puberty, changes of hormone levels that lead to physical and emotional changes. - Explore changes within adulthood (18 - death) <ul style="list-style-type: none"> - Explore hormonal changes linked with aging (menopause for females and drop of testosterone levels for males) - Explore ageing of the skin through the formation or wrinkles. - Study the loss of hair and/or hair becoming white. 	<p>Cell, embryo, foetus, gestation, infancy, childhood, adolescence, adolescent, puberty, teenager, reproduction, hormones, testosterone, oestrogen.</p>
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Year 6	<p>identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p>	<ul style="list-style-type: none"> - Recap of different body parts from year 3 (skeletal and muscular systems) and from year 4 (digestive system). - Introduce the chn to the circulatory system (heart, blood vessels and blood). - Deepen knowledge about the heart. - Deepen knowledge on blood vessels (arteries, veins and capillaries) - Deepen knowledge on blood (blood cells and blood types). 	<p>Blood, blood vessels, arteries, veins, capillaries, heart, pumps, oxygen, carbon dioxide, lungs, nutrients, water</p>
	<p>describe the ways in which nutrients and water are transported within animals, including humans</p>	<ul style="list-style-type: none"> - Chn to learn and explore the processes of osmosis and diffusion. - Chn to understand how these two processes are ways to transport nutrients and water. 	<p>Osmosis, diffusion, gradient of concentration.</p>
	<p>recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p>	<ul style="list-style-type: none"> - Recap on the types of food from years 2, 3 and 4. - Explore healthy and unhealthy diets - Explore diet's impact and exercise on the circulatory, digestive, skeletal and muscular systems. - Chn to learn about different types of drugs and their impacts on the body. 	<p>Circulatory system, heart, blood, diet, exercise, lifestyle, health Drugs, lifestyle, addiction, disease, medicine, alcohol, cigarettes, stimulant, depressant, analgesic, hallucinogen</p>

EVOLUTION AND INHERITANCE (6) - links to year 3 rocks

	National Curriculum	At our school	Vocabulary
Year 6	recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents	<ul style="list-style-type: none"> - Observe pictures of parents and offsprings. Look for similarities and differences. - Explain that living things inherit characteristics from parents. This information is transmitted through genes. 	Inheritance, offspring, genes, DNA, chromosomes, dominant, recessive.
	identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution	<ul style="list-style-type: none"> - Look at different individuals of the same species (plants and animals). - Differences between individuals are due to variation or mutation of a gene. These are also called adaptation if they give a better chance of survival. - Case study of tortoises on the galapagos islands, and neck of giraffe. - Illustrate that evolution is the natural selection of an adaptation that leads to a change in a species over time. 	Suited/suitable, environment, adaptation, characteristics, vary/variation, inherit/inheritance, natural selection
	recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago	<ul style="list-style-type: none"> - Recap learning about fossils (Y3 chemistry rocks) - How do we know how species have evolved over time? - Case study, what do we know about dinosaurs? Be a palaeontologist. 	Fossils, body fossils, trace fossil, frozen fossils, fossilised resins

CHEMISTRY PROGRESSION

MATERIALS AND MATTER (1 - 5)

	National Curriculum	At our school	Vocabulary
Year 1	distinguish between an object and the material from which it is made	<ul style="list-style-type: none"> - Same object but made of different material (e.g. spoon made of metal and plastic) - Understand that material is what the object is made of. 	Object, materials, plastic, metal, wood
	identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock	<ul style="list-style-type: none"> - Chn to observe different object made of different materials including wood, plastic, glass, metal and rock - Chn to compare if two objects are made of the same materials or not (chn to be exposed to stretchy and non stretchy plastics). - Chn to name different materials 	Material, wood, plastic, glass, metal, water, rock
	describe the simple physical properties of a variety of everyday materials	<ul style="list-style-type: none"> - Chn to compare different plastics and name their properties (stretchy/stiff and hard/soft) - Chn to compare wood and metal (rough/smooth and shiny/dull) - Play a game 'what is in the box' using boxes made of opaque and transparent materials. - Chn to be given a challenge, it is a rainy day, there is a puddle they need to clean it up with a range of materials offered to them. - Introduce the idea of absorbent - Chn to explore how to protect a doll/toy from the rain, what material could they use. - Introduce the idea of waterproof. 	Materials, properties, hard/soft; stretchy/stiff; shiny/dull; rough/smooth; bendy/not bendy; waterproof/not waterproof; absorbent/not absorbent; opaque/transparent.
	compare and group together a variety of everyday materials on the basis of their simple physical properties	<ul style="list-style-type: none"> - Recap different physical properties - Chn to be introduced to grouping (similarities and differences). - Chn to group materials depending on if they're stretchy or stiff - Chn to group materials depending on if they're dull or shiny. - Chn to group materials depending on if they're opaque or transparent. - Chn to be given diverse objects made of diverse materials and to group them according to the property of their choices. 	Properties, materials, similar, different, grouping.

Year 2	<p>identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p>	<ul style="list-style-type: none"> - Recap from year 1 over a few lessons to make sure chn are comfortable naming different materials and their properties. - Explore further the properties of different materials and what they can be used for <ul style="list-style-type: none"> - Wood - Metal - Plastic - Glass - Brick - Rock - Paper - Cardboard - Explore further suitability by building little houses with different materials (eg wood, straw, rocks, cardboard) and how it will react to being outside with wind, rain and sun. - Expose chn to the idea that different materials can be suitable for the same objects (eg. spoons) 	<p>Materials, properties, wood, metal plastic, glass, brick, rock, paper, cardboard, suitability</p>
	<p>Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p>	<ul style="list-style-type: none"> - First introduction to solid (do not use formal definition but you can start to expose the chn to 3 states of matter that will be explored in Y4) - Solids keep their shape in opposition to liquids but some solid can be changed. - Define the words squashing, bending, twisting and stretching - Explore which solids can be bent, twisted, stretched or squashed (eg balloon, playdough, sponge ball, elastic band) - Compare solid objects that can change shape and the ones that cannot 	<p>Solid objects, solid, twist, bend, squash, stretch, shape</p>
Year 4	<p>compare and group materials together, according to whether they are solids, liquids or gases</p>	<ul style="list-style-type: none"> - Define liquids, solids and gases - Elaborate on solids and properties of different solids (stretchy/hard etc) - Elaborate on liquids (viscosity) - Elaborate on gases (gases in liquids, weighing gases) 	<p>Solid, liquid, gas, molecule, granular and powdery solids, viscous liquids, states.</p>

	<p>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)</p>	<ul style="list-style-type: none"> - Explore melting (solid to liquid) - Explore freezing (liquid to solid) - Explore evaporating (liquid to gas) - Explore condensation (gas to liquid) - To go further <ul style="list-style-type: none"> - Explore sublimation (solid to gas) - Explore deposition (gas to solid) 	<p>Temperature, change of state, chemical change, melting point, boiling point, evaporation, temperature,</p>
	<p>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>	<ul style="list-style-type: none"> - Continue to develop an understanding of the liquid, solid and gas focusing on water. - Explore the changes of state of water setting up experiments involving measuring the temperature. - Set up a water cycle in a bag. 	<p>Evaporation, condensation, precipitation, transpiration, cycle, molecule, temperature, change, evidence</p>
Year 5	<p>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</p>	<ul style="list-style-type: none"> - Recap from materials from year 1 onwards and recap on magnets (Y3) - Explore different materials looking at hardness, transparency, response to magnets and their states - Recap on electricity from year 4 - Explore electrical insulators and conductors - Explore thermal insulators and conductors. - Chn to design a safe house (insulator and conductor) 	<p>Conductor, insulator, electrical, thermal, properties, materials, matter</p>
	<p>give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p>	<ul style="list-style-type: none"> - Observe different objects - what are they made of? - Chn to justify the use of different materials for different objects using their knowledge. - Chn to carry on with the design of their safe house thinking about walls, electrical system, roof. 	<p>Materials, properties and uses.</p>

	know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution	<ul style="list-style-type: none"> - Define what dissolve means. - Explore what materials can dissolve in what liquid. - Explain the difference between solution and suspension. - Explore how to recover a solid that was dissolved (recap evaporation from Y4) - Explore how to recover a solid in suspension. 	Dissolve, solution, suspension, recovery, evaporation, states of matter, evaporation, sieving.
	use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating	<ul style="list-style-type: none"> - Explore separation of magnetic and non magnetic solids - Explore separation of fine and coarse granular solids (Eg flour and couscous) - Explore separation of liquids with different density and/or different boiling points - Explore separation of a gas dissolved in a liquid. 	Filtering, sieving, evaporating, density, boiling point,
	demonstrate that dissolving, mixing and changes of state are reversible changes	<ul style="list-style-type: none"> - Explain what is a reversible change - Revisit Y4 learning on the states of matter and the water cycle - Illustrate reversible changes using some of the separation techniques used previously 	Changes of state, reversible, dissolving, mixing, evaporation.
	explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda	<ul style="list-style-type: none"> - Contrast reversible and irreversible changes - Illustrate irreversible change with baking. - Explore the action of acid on bicarbonate of soda. 	Reversible, irreversible, changes

ROCKS (3)			
	National Curriculum	At our school	Vocabulary

Year 3	describe in simple terms how fossils are formed when things that have lived are trapped within rock	<ul style="list-style-type: none"> - What are fossils Look at different fossils Chn to make prediction of how they were formed (expose chn to different types of fossils eg replacement fossils, fossils in ice and fossils in amber) - Explore how body replacement fossils are formed and the different steps. - Compare it with fossils in ice and in amber. - Different types of fossils (trace and replacement (=body) fossils) - Chn to recreate the fossilisation process (trace fossil) 	Fossil, replacement fossil, trace fossil, rock, pressure, solidification.
	compare and group together different kinds of rocks on the basis of their appearance and simple physical properties	<ul style="list-style-type: none"> - Chn to explore rocks that can be found in the local environment. - Chn to group these rocks based on appearance. - Learn about metamorphic, igneous and sedimentary rocks. - Chn to be given known rocks to group based on simple physical properties (rough/ smooth, hard/breakable easily, permeable/impermeable, heavy/light) 	Metamorphic, igneous, sedimentary, permeable, impermeable, properties.
	recognise that soils are made from rocks and organic matter	<ul style="list-style-type: none"> - Difference between rocks and minerals (rocks are made of a group of different minerals) - Difference rocks and organic matter. Organic matter is what living things are made off and what comes out of living things. - Explore soil - what is it made of (e.g sandy, clay, peat, chalk) - Form soil in the classroom. 	Minerals, rocks, organic matter, soil

PHYSICS PROGRESSION

SEASONAL CHANGES (1) / Forces (3, 5) / Earth and space (6)

	National Curriculum	At our school	Vocabulary
Year 1	observe changes across the 4 seasons	<p><u>Throughout the year</u>, the children will observe the impact of the 4 seasons on the local environment.</p> <ul style="list-style-type: none"> - Chn to learn the name of the 4 seasons. - Chn to explore and observe the local area transitioning from Summer to Autumn - Chn to explore and observe the local area during Autumn. - Chn to explore and observe the local area transitioning from Autumn to Winter - Chn to explore and observe the local area during Winter. - Chn to explore and observe the local area transitioning from Winter to Spring - Chn to explore and observe the local area during Spring. - Chn to explore and observe the local area transitioning from Spring to Summer. - Chn to explore and observe the local area during Summer. 	Seasons, Autumn, Winter, Spring, Summer
	observe and describe weather associated with the seasons and how day length varies	<p><u>Throughout the year</u>, the children will observe the impact of the 4 seasons on the weather.</p> <ul style="list-style-type: none"> - Chn to describe the weather as a daily activity including temperature (chn are not expected at this age to measure the temperature with a thermometer). - Summarise as a class what the weather was like throughout a season. - Chn to observe if it was still night time when they woke up and went to bed monthly throughout the year. 	Weather, rain, wind, snow, cold, warm, sun, sunrise, sunset, day length

Year 3	compare how things move on different surfaces	<ul style="list-style-type: none"> - Explore what are forces (push and pull contact only) - Recap on different materials from year 1 and 2 materials (chemistry) units. - Chn to design experiments to evaluate the speed of objects on different surfaces. - Draw conclusions between the type of surface and the speed. 	Forces, push, pull, contact forces, movement, surfaces.
	notice that some forces need contact between 2 objects, but magnetic forces can act at a distance	<ul style="list-style-type: none"> - Explain that some forces need contact such as opening a door. - Explore non contact forces (gravity) objects falling on the floor if dropped. - Explore magnetic force 	Forces, push, pull, contact and non contact, movement, magnets, magnetic
	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	<ul style="list-style-type: none"> - Chn to group objects that are attracted to magnet and objects that are not. - Explain some objects are called magnetic (attracted to magnet) 	Magnetic, materials, metal, plastic, fabric, force, non contact force.
	observe how magnets attract or repel each other and attract some materials and not others	<ul style="list-style-type: none"> - Link to chemistry materials, what materials are magnetic - Not all metals are magnetic - Explore interactions between two magnets 	Magnetic, materials, metal, plastic, fabric, force, non contact force.
	describe magnets as having 2 poles	<ul style="list-style-type: none"> - Explain that magnets are constituted of 2 different parts, the poles - Identical poles repel each other - Different poles attract each other 	Compass, poles, North, South, attract, repel

	<p>predict whether 2 magnets will attract or repel each other, depending on which poles are facing</p>	<ul style="list-style-type: none"> - Children to predict which part of two magnets will attract or repel each other - Chn to build a compass using a magnet to connect their learning of magnets poles and the poles of our planet. 	<p>Compass, poles, North, South, attract, repel</p>
<p>Year 5</p>	<p>explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p>	<ul style="list-style-type: none"> - Recap of y3 learning on contact and non contact forces - Formulate prediction on the topic of gravity - Link between mass and gravity - Difference between mass and weight - Explore what influence the impact of gravity on an object (shape, weight, height of the fall) 	<p>weight, newtons, Support, fall, Earth, gravity, Force</p>
	<p>identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p>	<ul style="list-style-type: none"> - Focus on air resistance <ul style="list-style-type: none"> - What it is, a friction - What increases or reduces air resistance - Focus on water resistance <ul style="list-style-type: none"> - It is a friction - What increases or reduces water resistance - Focus on friction <ul style="list-style-type: none"> - Define - Explore impact of friction and what changes the quantity of friction 	<p>Force, gravity friction, air resistance.</p>
	<p>recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</p>	<ul style="list-style-type: none"> - Levers <ul style="list-style-type: none"> - What they are - How they work - The different types of levers - Pulleys <ul style="list-style-type: none"> - What they are - How they work - Build a pulley - Gears <ul style="list-style-type: none"> - What they are - Clockwise anticlockwise movement - Different types of gears - Gears on a bike 	<p>simple machines, levers, pulleys, forces, load, fulcrum, gears.</p>

Year 6	describe the sun, Earth and moon as approximately spherical bodies	<ul style="list-style-type: none"> - Recap on shapes - Explore the shape of the Earth through images taken from space - Explore one of the 1st practical demonstration through circumnavigation - Explore the shape of the sun - Explore the shape of the moon (our moon) - Compare the sizes of the Earth, our moon and the sun. 	Spherical, celestial bodies, moon, sun, Earth,
	use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky	<ul style="list-style-type: none"> - Observe the location of the sun if possible over a couple of days. - Chn to record their observations - Explain the Earth is spinning on itself leading do days and night - Earth spinning on itself isn't due to gravity but linked to how it formed (all planets rotate) 	Earth, sun, spin, rotation, day and night
	describe the movement of the Earth and other planets relative to the sun in the solar system	<ul style="list-style-type: none"> - Remind chn of their understanding of seasons (Y1) and form hypothesis on why we have seasons - Show the geocentric and heliocentric models. - Explore the movement of the Earth rotating on itself and around the sun - Explore the idea of orbits and what force is involved (gravity) plus all objects in space have a speed (link to gravity knowledge from Y5). 	Earth, sun, solar system, geocentric, heliocentric, orbit, gravity, velocity, revolve
	describe the movement of the moon relative to the Earth	<ul style="list-style-type: none"> - All objects have gravity (recap Y5) - The Earth is revolving around the sun because of gravity - Moon orbits the Earth because of its speed and the Earth's gravity - Chn to represent the solar system including the different planets and the moons. 	Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune (Pluto was reclassified as a 'dwarf planet' in 2006)

ELECTRICITY (4 AND 6)			
	National Curriculum	At our school	Vocabulary

Year 4	identify common appliances that run on electricity	<ul style="list-style-type: none"> - Explore where we have electricity - Differentiate appliances working on main electricity and batteries - Identify the danger of electricity - Identify how to keep safe. 	Electricity, plugs, battery, main electricity system, danger, power, electrocute,, socket, safety
	construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers	<ul style="list-style-type: none"> - From being connected to a power source to function. - Explain that the electricity needs to flow to power things (that is the current measured in Ampere) - Introduce wires - Introduce bulbs - Introduce buzzers 	electricity, circuit, switch, battery, plug, mains, appliance, device, wire, crocodile clip, bulb, buzzer, connection, power, cell, energy, flow =current
	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	<ul style="list-style-type: none"> - Continue to explore the idea that electricity needs to flow - Introduce open and closed circuits - Demonstrate the need of a close circuit to power a bulb 	Open or closed, current, 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	<ul style="list-style-type: none"> - Investigate light switches - Chn to formulate hypothesis about how they work - Chn to investigate the use of switches in simple circuits 	Circuits, electricity, switch
	recognise some common conductors and insulators, and associate metals with being good conductors	<ul style="list-style-type: none"> - Investigate different materials in simple circuits - Group materials that allowed the bulb to light up and the one that didn't - Introduce the vocabulary insulators and conductors. - Deepen how to keep safe with electricity knowing about insulators and conductors 	Insulators, conductors.
Year 6	use recognised symbols when representing a simple circuit in a diagram	<ul style="list-style-type: none"> - Recap of Y4 learning - Introduce the symbols - Chn to build and represent simple electrical circuits. 	electricity, circuit, switch, battery, plug, mains, appliance, device, wire, crocodile clip, bulb, buzzer, connection, power, cell, energy, flow =current, insulators, conductors, danger safety

	associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit	<ul style="list-style-type: none"> - Chn to form hypothesis on how to make a lightbulb brighter - Test the hypothesis - Introduce the idea of voltage - Explore the impact of the number of batteries - Explore the impact of the number of wires - Explore the impact of the number of components 	Voltage, current
	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	<ul style="list-style-type: none"> - Deepen understanding by investigating dimmer switches - Dvp a dimmer switch 	Resistance, dim, bright

LIGHT AND SOUND (3 - 5)			
	National Curriculum	At our school	Vocabulary
Year 3	recognise that they need light in order to see things and that dark is the absence of light	<ul style="list-style-type: none"> - Chn to experience full darkness to recognise that we cannot see without light - Chn to explore different level of brightness to embed this notion - Explore what is a light source 	Light, light source, dark, absence of light,
	notice that light is reflected from surfaces	<ul style="list-style-type: none"> - Chn to learn that everything reflects light to a certain extend - Chn to understand what reflect means - Explore different surfaces and how much they reflect light - Explain that surfaces can absorb some light and let some go through. 	transparent, translucent, opaque, shiny, matt, surface, shadow, reflect, mirror,
	recognise that shadows are formed when the light from a light source is blocked by an opaque object	<ul style="list-style-type: none"> - Explore what happens to light when it hits different objects - Chn to learn that the object has to be opaque and block the light to form a shadow - Chn to observe the pattern between the shape of the object and the shape of the shadow 	Opaque, shadow, shape

	find patterns in the way that the size of shadows change	<ul style="list-style-type: none"> - Chn to explore the link between the distance of the object to the light source and the size of the shadow. - Chn to record sizes of shadows and communicate their results 	Shadow, size, pattern, distance.
	recognise that light from the sun can be dangerous and that there are ways to protect their eyes	<ul style="list-style-type: none"> - Chn to explore the different dangers of the sun - Skin burn - Eye burn - Chn to explore how to protect our skin - Chn to explore how to protect our eyes 	Sunlight, sun safety, burn
Year 4	identify how sounds are made, associating some of them with something vibrating	<ul style="list-style-type: none"> - Chn to observe different musical instruments - Explain vibration - Chn to observe the vibration of a tensed string - Explore different ways to start a vibration 	Sound, vibration,
	recognise that vibrations from sounds travel through a medium to the ear	<ul style="list-style-type: none"> - Sound is formed when something vibrates - Journey from the object to the ear <ul style="list-style-type: none"> - Vibration makes the air (the gases link to chemistry) vibrate - The vibration of the air is propagated between the molecules of gas - The air in my ear vibrates - The eardrum vibrates and make three tiny bones vibrate - This vibration is received by the cochlea that transforms it into a signal the brain can decipher - Explore the travel of sound through different media (air, metal and water). 	Ear, vibration, medium, eardrum, cochlea

	find patterns between the pitch of a sound and features of the object that produced it	<ul style="list-style-type: none"> - Chn to investigate different musical instruments focusing on the pitch - Chn to explore further by looking at different lengths of string. (link to music study the strings instruments violin, viola, cello, double bass) - Chn might notice that tension and diameter also influence the pitch. - Link to learning of violin in year 3 - fingers on the string shorten the strings and make the sound be higher pitch - Explore wind instruments and the length of the air column 	Pitch, length, vibration, tension, thickness
	find patterns between the volume of a sound and the strength of the vibrations that produced it	<ul style="list-style-type: none"> - Chn to look at different musical instruments. How can I play it loudly and quietly - Link to music knowledge on dynamics (piano and forte) - Vibration is an energy, the biggest the energy the loudest. 	Volume of a sound, dynamics, piano, forte
	recognise that sounds get fainter as the distance from the sound source increases	<ul style="list-style-type: none"> - Explore the link between loudness and distance - Explain that the intensity of the vibration will decrease with distance. - Energy to move the molecule of the medium decreases - Chn to build musical instruments (wind, percussion or string) deciding the pitch. 	Distance, volume.
Year 5	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	<ul style="list-style-type: none"> - Recap of Year 3 learning - Difference between light sources and reflective materials. - Chn to understand that light travels from a light source to objects that reflect it to our eyes. 	Light, light source, dark, absence of light, reflect, absorb
	recognise that light appears to travel in straight lines	<ul style="list-style-type: none"> - Link to knowledge of how sound travels from year 4 - Chn to explore how light travels using cards with holes and torches - Chn to deepen this understanding by designing and building a periscope 	Light, travel, periscope

	<p>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</p>	<ul style="list-style-type: none"> - Chn to connect their learning of how we see and that light travels in straight lines - Create a model of the eye and how we can see object 	<p>Light, light source, dark, absence of light, reflect, absorb,</p>
	<p>use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them</p>	<ul style="list-style-type: none"> - Recap of learning on shadows from year 3 - Explore again the pattern between the shadow's shape and the object's shape. - Chn to explain this pattern using their knowledge of how light travels. - Chn to explore the impact of distance and angle of the light source on the shadow's size. 	<p>Light, light source, dark, absence of light, reflect, absorb, shadow</p>

WORKING SCIENTIFICALLY PROGRESSION

Questioning - planning			
	National Curriculum	At our school	When
Year 1	asking simple questions and recognising that they can be answered in different ways	With help and encouragement, ask simple questions that begin with why, what if, how or when	Plants Seasonal changes
Year 2	asking simple questions and recognising that they can be answered in different ways	asking simple questions and recognising that they can be answered in different ways	Plants Animals including humans Materials
Year 3	asking relevant questions and using different types of scientific enquiries to answer them	I can ask questions and recognise that there are different types of enquiry	Rocks Forces Light Plants Animal including humans
Year 4	asking relevant questions and using different types of scientific enquiries to answer them	asking relevant questions and using different types of scientific enquiries to answer them	Animal including humans Matter Electricity Sound
Year 5	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	I ask relevant questions (containing scientific knowledge and understanding) and with help I recognise which type of enquiry is best to answer a question	Living things and their habitats Animals including humans Materials Forces Light
Year 6	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Animals including humans Electricity Earth and space

Observing - measuring			
	National Curriculum	At our school	When
Year 1	observing closely, using simple equipment	Observe using my senses	Plants Animals Materials Seasonal changes
Year 2	observing closely, using simple equipment	observing closely, using simple equipment	Plants Materials
Year 3	making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	<ul style="list-style-type: none"> - I make suggestions about what observations and measurements to make and what equipment I need, including thermometers and dataloggers - I am beginning to make systematic and careful observations. - I sometimes use standard units 	Rocks Forces Light Plants
Year 4	making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers	Animal including humans Matter Electricity Sound Living things including humans
Year 5	taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	<p>I decide what observations and measurements to make (controlling variables with help where necessary) and what equipment to use to make my measurements and observations</p> <p>I use a range of equipment independently</p> <p>The series of observations and measurements I take are adequate for the task</p>	Materials Forces Light
Year 6	taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate	Animals including humans Electricity Earth and space
Testing			
	National Curriculum	At our school	When

Year 1	performing simple tests	<ul style="list-style-type: none"> - Make suggestions about how to do things when we plan a simple test - With help, use simple equipment and non-standard units to find things out 	Seasonal changes
Year 2	performing simple tests	performing simple tests	Plants Animals including humans Materials
Year 3	setting up simple practical enquiries, comparative and fair tests	I can set up simple practical enquiry and I am beginning to understand how to make a fair test	Rocks Forces Plants
Year 4	setting up simple practical enquiries, comparative and fair tests	setting up simple practical enquiries, comparative and fair tests	Animal including humans Matter Sound
Year 5	using test results to make predictions to set up further comparative and fair tests	<ul style="list-style-type: none"> - I look at my results and decide if any observations or measurements are unsuitable - I use what I have found out to suggest improvements to my work giving reasons - I can set up further questions to investigate 	Materials Forces Light
Year 6	using test results to make predictions to set up further comparative and fair tests	using test results to make predictions to set up further comparative and fair tests	Animals including humans Electricity Earth and space Living things including humans Evolution and inheritance
Gathering data			
	National Curriculum	At our school	When
Year 1	identifying and classifying	With support I identify and classify	Plants Animals Materials
Year 2	identifying and classifying	identifying and classifying	Living things and their habitats Materials
Year 3	gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	I gather data and using a pre-prepared table I can record data	Rocks Forces Plants

Year 4	gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	gathering, recording, classifying and presenting data in a variety of ways to help in answering questions	Living things and their habitats Matter Sound
Year 5			
Year 6			
Recording data			
	National Curriculum	At our school	When
Year 1	gathering and recording data to help in answering questions	With help, gather and record data to help me answer my questions	Plants Seasonal changes
Year 2	gathering and recording data to help in answering questions	gathering and recording data to help in answering questions	Plants Materials
Year 3	recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	I record my findings using a drawing and/or words	Forces Light Plants
Year 4	recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Living things and their habitats Matter Sound Animals including humans
Year 5	recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	I gather and record non-complex results (data and observations) using e.g. tables and scientific diagrams	Materials Forces Light
Year 6	recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs	Animals including humans Electricity Earth and space
Reporting data			
	National Curriculum	At our school	When

Year 1			
Year 2			
Year 3	reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	With help I can present my data	Forces Light
Year 4	reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	Electricity Matter Sound Animals including humans
Year 5	reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	I present the results (data and observations) in a range of formats e.g bar and line graphs, simple scatter graphs, keys and frequency charts	Materials Forces Light
Year 6	reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations	Animals including humans Electricity Earth and space
Analysing data			
	National Curriculum	At our school	When
Year 1	using their observations and ideas to suggest answers to questions	Talk about what happened and/or what I saw	Plants Seasonal changes
Year 2	using their observations and ideas to suggest answers to questions	using their observations and ideas to suggest answers to questions	Plants Animals including humans Materials
Year 3	using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	I draw conclusions from my data and observations I can talk about what went wrong	Forces Light Plants Rocks

		I have ideas about what else I would like to find out	
	Identifying differences, similarities or changes related to simple scientific ideas and processes	With help, I can see simple changes, patterns, similarities and differences in my data.	Forces Plants
Year 4	using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions	Matter Animals including humans
	Identifying differences, similarities or changes related to simple scientific ideas and processes	Identifying differences, similarities or changes related to simple scientific ideas and processes	Matter Animals including humans
Year 5	Cf reporting data	Cf reporting data	
Year 6	Cf reporting data	Cf reporting data	
Secondary sources of information			
	National Curriculum	At our school	When
Year 3	using straightforward scientific evidence to answer questions or to support their findings.	I begin to use simple scientific evidence to answer questions	Forces Animals Plants
Year 4	using straightforward scientific evidence to answer questions or to support their findings.	using straightforward scientific evidence to answer questions or to support their findings.	Electricity Sound
Year 5	identifying scientific evidence that has been used to support or refute ideas or arguments	I begin to use basic scientific evidence to support or refute the ideas or arguments for my conclusion	Materials Forces Living things and their habitats Animals including humans
Year 6	identifying scientific evidence that has been used to support or refute ideas or arguments	identifying scientific evidence that has been used to support or refute ideas or arguments	Living things including humans Electricity Earth and space



MANLEY PARK

PRIMARY SCHOOL

GROWING TOGETHER