

## EYFS - NURSERY AND RECEPTION

### Characteristics of effective teaching and learning:

Playing and Exploring	Active Learning	Creating and Thinking Critically
<ul style="list-style-type: none"> <li>Children investigate and experience things through play and exploration</li> <li>Plan and think ahead about how they will explore or play with objects</li> </ul>	<ul style="list-style-type: none"> <li>Keep on trying when things are difficult, e.g. learning through trial and error, watching an adult or another child - modelling what to do, or listening to their guidance.</li> </ul>	<ul style="list-style-type: none"> <li>Review their progress as they try to achieve a goal. Check how well they are doing.</li> <li>Know more, so feel confident about coming up with their ideas</li> <li>Make more links between those ideas</li> </ul>

EYFS (Understanding the World)	Autumn	Spring	Summer
Nursery	<ul style="list-style-type: none"> <li>Use all their senses in hands-on exploration of natural materials</li> <li>Explore collections of materials with similar and/or different properties</li> <li>Talk about what they see, using a wide vocabulary</li> <li>Explore how things work</li> <li>Provide mechanical equipment for children to play with and investigate. Suggestions: wind-up toys, pulleys, sets of cogs with pegs and boards</li> <li>Plant seeds and care for growing plants</li> <li>Understand the key features of the life cycle of a plant and an animal</li> <li>Begin to understand the need to respect and care for the natural environment and all living things</li> <li>Explore and talk about different forces they can feel</li> <li>Talk about the differences between materials and changes they notice</li> </ul>		
Reception	<ul style="list-style-type: none"> <li>Explore the natural world around them</li> <li>Describe what they see, hear and feel whilst outside</li> <li>Looks closely at similarities, differences, patterns and change in nature</li> <li>Makes observations of animals and plants and explains why some things occur, and talks about changes</li> <li>Understand the effect of changing seasons on the natural world around them</li> </ul>		



Statutory ELG: <b>The Natural World</b>	Children at the expected level of development will:
Statutory ELG: <b>Listening, attention and understanding</b>	<ul style="list-style-type: none"> <li>● <b>Explore the natural world around them, making observations and drawing pictures of animals and plants</b></li> <li>● <b>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</b></li> <li>● <b>Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter</b></li> </ul> <p>Links: <b>Make comments about what they have heard and ask questions to clarify their understanding</b></p>
Statutory ELG: <b>Speaking</b>	<ul style="list-style-type: none"> <li>● <b>Links: Offer explanations for why things might happen, making use of recently introduced vocabulary, the past through settings, characters and events encountered in books read in class and storytelling</b></li> </ul>
Vocabulary	<p>seasons, weather, weather forecast, shower, sleet, storm, frost, hail, icicle, snowflake, sunshine, puddle, damp, dry, wet, seasonal change, light, dark, shadow, daytime, night time, sky, star, sun, day, week, month, year, days of the week, months of the year, float, freeze, melt, sink, light, heavy, chart, choose, collect, count, favourite, least, most, popular, discover, compare, environment, school grounds, natural, rock, stone, similar, different, plant, crop, leaf, bark, seed, root, shoot, stem, flowering, petal, garden, soil, compost, plant names, germinate, nectar, pollen, live, insect, insect names, minibeast hotel, habitat, rock pool, low tide, life-cycle, pupa, chrysalis, cocoon, clean, dirty, germs, hygiene, bacteria, skeleton, bones, joints, muscles, parts of the body including hips, pelvis, elbow, shoulder, ribs, heart, ankle, wrist, teeth, gums, tongue, molars, incisors, canine, senses, animal names, names of animal young, fur, whisker, paw, claw, beak, feather, camouflage, nocturnal, carnivore, herbivore, mammal, scales, reptile, horn, tusk, creature, sea animal names, hibernate, migrate, shiny, smooth, rough, reflection, symmetry, bounce, dull, mirror, metal, glass, rubber, plastic, cardboard, paper, pulp, fabric, material, waterproof, transparent, fluid, liquid, solid, magnetic, non-magnetic, test, predict, watch, observe, investigate, question, try, electricity, remote-control, wire, switch, bulb, plug, circuit, buzzer</p>



Animals including Humans	Plants	Forces	Electricity	Living Things	Light	Materials	Earth/Space/Seasons
--------------------------	--------	--------	-------------	---------------	-------	-----------	---------------------

### YEAR 1

YEAR 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer	Summer 2
Vocabulary		shade, shelter, warmth, protection, weather, structures, environment, materials, strong, sturdy, temporary, permanent, similarities, differences, prototype		seasons (pattern of the), spring, summer, autumn, winter, events, weather patterns, changeable, deciduous, bare, active, blossom, visible, abundant growth, lengthen, shorten, die off, warm, cool		animal groups, amphibians, fish, birds, invertebrates, mammals, reptiles, Venn diagrams, Carroll diagrams, pets, carnivores, herbivores, omnivores, earthworms, working scientifically, identifying, classifying, comparative test, pattern seeking, research, structures, diets, care  wild plants, garden plants, local environment, change over time, seasonal changes, seeds, bulbs, flower, leaf, root, stem, fruit, thorn, deciduous,



# Science - Whole School Long Term Planning

Academic Year 2023-24

						<p>evergreen, woody, meadow, hedgerow, identify, compare, group, garden centre</p>
N.C. Coverage		<p>-distinguish between an object and the material from which it is made</p> <p>-identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock</p> <p>-describe the simple physical properties of a variety of everyday materials</p> <p>-compare and group together a variety of everyday materials on the basis of their simple physical properties</p>		<p>-observe changes across the 4 seasons</p> <p>-observe and describe weather associated with the seasons and how day length varies</p>		<p>identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>-identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>-describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals including pets)</p> <p>wild plants, garden plants, local environment, change over time, seasonal changes, seeds, bulbs, flower, leaf, root, stem, fruit, thorn, deciduous, evergreen, woody, meadow, hedgerow, identify, compare, group, garden centre</p>





# Science - Whole School Long Term Planning

Academic Year 2023-24

Significant People						
Enquiry Questions		What is it made from?		How can I measure the weather like a meteorologist?		What kind of animal are you?  Where will this plant grow?
Scientific Skills	Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.					
Enrichment				Create own weather forecast.		Raptor Foundation: seeing birds of prey



Animals including Humans	Plants	Forces	Electricity	Living Things	Light	Materials	Earth/Space/Seasons
--------------------------	--------	--------	-------------	---------------	-------	-----------	---------------------

## YEAR 2

YEAR 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer	Summer 2
Vocabulary		food, nutrients, energy, growth, water, shelter, protection, predators, prey, space, offspring, habitat, woodland, arctic, savannah, jungle, ocean, desert, living, non-living, breathing, senses, feeding, food chain, producer, consumer, herbivore, omnivore, carnivore, adaption, animal, speed, weapon, warning colouration, shield, mimicry, camouflage, plant, spines, quills, thorns, hairs, prickly leaves, stings, chemicals		materials, absorbent, opaque, transparent, waterproof, reduce, reuse, recycle, material, bend, stretch, twist, squash, properties  Germinate, habitat, season, sunlight, nutrients, fruit, leaf, flower, stem, root, deciduous, evergreen, trunk, bark, seeds, bulbs		survival, human, nutrition, hydration, aerobic, strengthening, stretching, balancing, hygiene, germs, carbohydrates, juvenile, proteins  habitat, invertebrate, microhabitat, food chain, survival, life cycle, offspring, consumer, hibernation, producer, reproduce, survive
N.C. Coverage		-explore and compare the		-identify and compare the		-describe the importance for



# Science - Whole School Long Term Planning

Academic Year 2023-24

		<p>differences between things that are living, dead, and things that have never been alive</p> <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> <p>-identify and name a variety of plants and animals in their habitats, including microhabitats</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>		<p>suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses</p> <p>-find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching</p> <p>-observe and describe how seeds and bulbs grow into mature plants</p> <p>-find out and describe how plants need water, light and a suitable temperature to grow and stay healthy</p>		<p>humans of exercise, eating the right amounts of different types of food, and hygiene</p> <p>-notice that animals, including humans, have offspring which grow into adults</p> <p>-find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p>
Significant People						
Enquiry Questions		How do living things survive?		Why do we have different materials?		Do all animals need the same things to survive?





# Science - Whole School Long Term Planning

Academic Year 2023-24

				Can plants survive without light?		
Scientific Skills	Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.					
Enrichment				Botanical Gardens		Raising caterpillars into butterflies.



Animals including Humans	Plants	Forces	Electricity	Living Things	Light	Materials	Earth/Space/ Seasons
--------------------------	--------	--------	-------------	---------------	-------	-----------	----------------------

### YEAR 3

YEAR 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer	Summer 2
Vocabulary		nutrition, carnivore, herbivore, omnivore, human, diet, vegetarian, vegan, balanced, fruit, vegetables, carbohydrates, proteins, dairy, oils, Eatwell, seasonal changes, skeleton, support, bones, vertebrates, endoskeleton, exoskeleton, invertebrates, vertebra, joints, muscles		forces, push, pull, oppose, contact, objects, bodies, friction, surfaces, heat, roughness, smoothness, force meter, newton meter, spring balance, non-contact force, poles, south pole, north pole, attraction, repulsion, magnetic field, invisible, magnetic Earth, bar magnet, magnetosphere, aurora, navigational compass		plant parts, functions, flower, carpel, stamen, sepal, petal, nectar, pollinators, pollination, reproduction, seeds, stem, vessels, xylem, phloem, leaves, photosynthesis, transpiration, water, blade, stalk, veins, pores, gases, taproots, fibrous roots, root system, role, anchor, nutrients, seedling, young plant, mature plant, seed dispersal, wind, animals, explosion, varying needs, anther, stigma





# Science - Whole School Long Term Planning

Academic Year 2023-24

						light, energy, travels, straight lines, darkness, night, absence, sun, life, plants, growth, survive, daytime, living things, light sources, produces, natural, artificial, reflectors, reflect, reflective, non-reflective, sight, eye, shiny, dull, shadows, object, passage of light, opposite, safety, ultraviolet light, skin, invisible, ages, sunburn, cancer, protect, opaque, transparent, translucent, changes, high, low, short, long
N.C. Coverage		-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,		-compare how things move on different surfaces -notice that some forces need contact between 2 objects, but magnetic forces can act at a distance -observe how magnets attract or repel each other and attract some materials and not others		-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, nutrients from soil, and room to



# Science - Whole School Long Term Planning

Academic Year 2023-24

		protection and movement		<p>-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</p> <p>-describe magnets as having 2 poles</p> <p>-predict whether 2 magnets will attract or repel each other, depending on which poles are facing</p>		<p>grow) and how they vary from plant to plant</p> <p>-investigate the way in which water is transported within plants</p> <p>-explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal</p> <p>-recognise that they need light in order to see things and that dark is the absence of light</p> <p>-notice that light is reflected from surfaces</p> <p>-recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>-recognise that shadows are formed when the light from a light source is</p>
--	--	-------------------------	--	--	--	---



# Science - Whole School Long Term Planning

Academic Year 2023-24

						<p>blocked by an opaque object</p> <p>-find patterns in the way that the size of shadows change</p>
Significant People						
Enquiry Questions		Are all skeletons the same?		Why are magnets important?		<p>How incredible are plants?</p> <p>Could we survive without light?</p>
Scientific Skills	<p>Ask simple questions and recognise that they can be answered in different ways.</p> <p>Observe closely, using simple equipment.</p> <p>Perform simple tests.</p> <p>Identify and classify.</p> <p>Use their observations and ideas to suggest answers to questions.</p> <p>Gather and record data to help in answering questions.</p>					
Enrichment		Museum of Zoology				Growing plants from seeds.



Animals including Humans	Plants	Forces	Electricity	Living Things	Light	Materials	Earth/Space/Seasons
--------------------------	--------	--------	-------------	---------------	-------	-----------	---------------------

### YEAR 4

YEAR 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer	Summer 2
Vocabulary		<p>sound, energy, vibrations, sound source, waves, medium, ears, eardrum, bones, ossicles, cochlea, hearing, pattern, air particles, collide, volume, loud, decibels, pitch, high, low, hertz, diagram, peaks, troughs, muffling, earplugs, ear defenders, soundproofing</p> <p>food, digestive system, producer, consumer, plants, herbivore, omnivore, carnivore, predator, prey, ecosystem, living organisms, microorganisms,</p>		<p>states of matter, solid, liquid, gas, gaseous, properties, shape, flow, space, compressed, held, container, invisible, particle theory, particles, regular pattern, arranged, random, freely move, changing state, melting, freezing, evaporation, condensation, reversible, process, states of water, melting / boiling points, measuring temperature, degrees, thermometer, Celsius scale, marked / unmarked divisions, line graph, variables</p>		<p>electrical circuits, conductors, electricity, circuits, energy, power, sources, mains electricity, cells, portable device, power station, safety, powerful, dangerous, fires, burns, electric shock, death, overload, components, switch, amp, cell, battery, wire, buzzer, motor, emits, circuits, collection, electrical current, flow, series circuit, gaps, incomplete circuit, conductivity, resistance, metals, silver, copper, gold, non-metals, graphite,</p>



# Science - Whole School Long Term Planning

Academic Year 2023-24

		<p>interdependence,          biotic, abiotic,          balance, change,          food chain, primary,          secondary, tertiary,          food web,          connected, digestion,          broken down,          particles, absorbed,          body, mouth,          oesophagus,          stomach, small          intestine, large          intestine, teeth,          primary teeth,          permanent teeth,          incisors, canine,          premolars, molars,          crown, root, enamel,          dentine, pulp, root          canal, oral hygiene,          bacteria, plaque,          tooth decay, gum          disease</p>		<p>grouping, classifying,          classification, living,          non-living, groups,          subgroups,          categories,          observable features,          single-stage,          multi-stage, serial          ordering, property,          specific, repeated          questions, taxonomy,          species, five          kingdoms, animal          kingdom, plant          kingdom,          invertebrates,          annelid, mollusc,          arthropod, arachnid,          crustacean, insect,          myriapod,          vertebrates,          backbone,          amphibian, bird, fish,          mammal, reptile,          plants with seeds -          flowering, plants          with seeds -          cone-bearing, plants          with spores, vascular,          evolution, origin</p>		<p>plugs, three-pin plug,          3-core flexible cable,          wire, terminal, flex          grip, cartridge fuse,          fuse holder,          micro:bit, future,          fossil fuels,          renewable energy,          solar power, wind          power, geothermal,          LED</p>
N.C. Coverage		<p>-identify how sounds          are made, associating          some of them with          something vibrating</p> <p>-recognise that          vibrations from</p>		<p>-compare and group          materials together,          according to whether          they are solids,          liquids or gases          -observe that some          materials change</p>		<p>-identify common          appliances that run          on electricity</p> <p>-construct a simple          series electrical          circuit, identifying</p>



# Science - Whole School Long Term Planning

Academic Year 2023-24

		<p>sounds travel through a medium to the ear</p> <p>-find patterns between the pitch of a sound and features of the object that produced it</p> <p>-find patterns between the volume of a sound and the strength of the vibrations that produced it</p> <p>-recognise that sounds get fainter as the distance from the sound source increases</p> <p>-describe the simple functions of the basic parts of the digestive system in humans</p> <p>-identify the different types of teeth in humans and their simple functions</p> <p>-construct and interpret a variety of food chains, identifying producers, predators and prey</p>		<p>state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C)</p> <p>-identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature</p>		<p>and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>-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</p> <p>-recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <p>-recognise some common conductors and insulators, and associate metals with being good conductors</p>
--	--	---	--	---	--	---



# Science - Whole School Long Term Planning

Academic Year 2023-24

Significant People						
Enquiry Questions		<p>How amazing is sound?</p> <p>What happens if we stop eating?</p>		<p>What causes the changes to states of matter?</p> <p>Are there any living things that are difficult to classify?</p> <p>Are there any anomalies when classifying living things?</p>		<p>How has electricity changed our lives?</p> <p>How does a night light glow?</p>
Scientific Skills	<p>Ask simple questions and recognise that they can be answered in different ways.</p> <p>Observe closely, using simple equipment.</p> <p>Perform simple tests.</p> <p>Identify and classify.</p> <p>Use their observations and ideas to suggest answers to questions.</p> <p>Gather and record data to help in answering questions.</p>					
Enrichment		<p>Listening to various pieces of music / a local musician.</p> <p>Digestive system experiment.</p>		Wicken Fen		



Animals including Humans	Plants	Forces	Electricity	Living Things	Light	Materials	
--------------------------	--------	--------	-------------	---------------	-------	-----------	--

### YEAR 5

YEAR 1	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer	Summer 2
Vocabulary		solar system, phases of the moon, Sun, Earth, spherical bodies, planet, rotation, axis	acne, adolescent, amphibian, birth, blastocyst, breasts, cell, development, egg, embryo, emotion, fallopian tube, female, fertilisation, foetus, gestation, hormone, infant, larva, male, mammal, menopause, metamorphosis, offspring			absorbent, chemical reaction, conduct, filter, solute, solution, solvent, condense, conductor, dissolve, electrically conductive, evaporate, filtration, gas, heterogeneous mixture, homogeneous mixture, insoluble, insulator, liquid, particle, thermally conductive
N.C. Coverage		-describe the movement of the Earth and other planets relative to the sun in the solar system -describe the movement of the	-describe the changes as humans develop to old age			-compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency,



# Science - Whole School Long Term Planning

Academic Year 2023-24

		<p>moon relative to the Earth</p> <p>-describe the sun, Earth and moon as approximately spherical bodies</p> <p>-use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky</p>				<p>conductivity (electrical and thermal), and response to magnets</p> <p>-know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution</p> <p>-use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating</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> <p>-demonstrate that dissolving, mixing and changes of state are reversible changes</p> <p>-explain that some changes result in the formation of new materials, and that</p>
--	--	--	--	--	--	---



# Science - Whole School Long Term Planning

Academic Year 2023-24

						this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda
Significant People						
Enquiry Questions		Why do we have night and day?	Do all living things have the same life cycle?			Is it possible to separate mixtures or are all changes irreversible?
Scientific Skills	Ask simple questions and recognise that they can be answered in different ways. Observe closely, using simple equipment. Perform simple tests. Identify and classify. Use their observations and ideas to suggest answers to questions. Gather and record data to help in answering questions.					
Enrichment		National Space Centre				



Animals including Humans	Plants	Forces	Electricity	Living Things	Light	Materials	
--------------------------	--------	--------	-------------	---------------	-------	-----------	--

## YEAR 6

YEAR 6	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer	Summer 2
Vocabulary		circulatory system, body, heart, blood, plasma, red blood cells, white blood cells, platelets, vessels, vena cava, right atrium, valves, right ventricle, septum, aorta, pulmonary artery, left atrium, pulmonary vein, valves, left ventricle, muscular organ, pump, lungs, absorbs, oxygen, arteries, capillaries, veins, structure, tissues, elastic wall, narrow, wide, lumen, pulse, heart rate (resting), exercise, stronger, smoking, alcohol, drugs, negative effects, high blood pressure, heart	evolution, evolved, inheritance, classification (system), grouping, living things, characteristics, five kingdoms, animal, plant, fungus, protista, monera, specific features, multicellular, unicellular, food, movement, live (land or water), reproduce, sexually, asexually, microorganisms, viruses, microscope, fossils, fossil record, remains, once-living things, trace of life, footprints, tracks, dung, burrow, preserved, inhabited, environment, extinction events, decayed, fossilised,		electrical circuits, components, electricity, energy, electrical appliances, cords, cordless, plugs, powered, power supply, portable device, components, switch, lamp, cell, battery, wire, buzzer, motor, LED, circuits, collection, flow, loop, single path, current, complete circuit, incomplete circuit, loose wires, damaged, flat cells, conductors, insulators, metals, copper, plastic, hazards, dangerous, mains electric, current, body,	



# Science - Whole School Long Term Planning

Academic Year 2023-24

		<p>disease, cancer, stroke, bladder problems, fertility problems, respiratory problems, processed food, sugar, salt, fat, nutrition, labels, traffic light system, antibody, excretion, hormone, immune system, respiration</p>	<p>soft-bodied, diversity, theory of evolution, naturalist, assumptions, simple, complex, common ancestors, related, survive, reproduce, evolutionary tree diagram, evolutionary relationships, offspring, genes, variation, natural differences, continuous, discontinuous, natural selection, adaption, survival of the fittest, DNA, deoxyribonucleic acid, random mixing attribute, plant adaptation, structural, behavioural, chemical, artificial selection, selective breeding, desirable characteristics, crops, disease-resistant</p>		<p>serious injury, death, overloading plug sockets, fires, wet, electric shock, damaged wires, circuit (component) symbols, circuit diagrams, simplified, voltage, pump, pushing, electric charge, voltmeter, multimeter, volts, labelled, decreases, sensors, electrical devices, environmental variables, light, movement, temperature, programmed, response, rises, programming, micro:bits, computers, LED display</p> <p>light theory, light source, natural, artificial, objects, reflect, reflective, absorb, scatter, transparent, translucent, opaque, reflected, transmitted, travel, energy, straight lines, diagram,</p>	
--	--	---	--	--	--	--





# Science - Whole School Long Term Planning

Academic Year 2023-24

					<p>arrowhead, direction of travel, surface, mirror, angle, equal, angle of impact, light, sight, eyes, cornea, retina, retina, electrical signal, optic nerve, focal point, pupil lens, brain, seen, image, light rays, electromagnetic spectrum, gamma rays, x-rays, ultraviolet, infrared, microwaves, radio waves, visible, close, far apart, white light, small particles, visible light, continuous spectrum, colours, violet, red, black, mix together, white light, small particles, visible light, continuous spectrum, colours, violet, red, black, mix together, white light, perceiving colour, light-sensitive cells, rods, stimulated signal, interprets, primary colours,</p>	
--	--	--	--	--	---	--



# Science - Whole School Long Term Planning

Academic Year 2023-24

					<p>shadows, reflection, plane, concave, convex, perpendicular, refraction, water, denser, air, liquid, gas, direction, phenomena, absorb</p>	
N.C. Coverage		<p>-identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood</p> <p>-recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function</p> <p>-describe the ways in which nutrients and water are transported within animals, including humans</p>	<p>-recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago</p> <p>-recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents</p> <p>-identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>		<p>-associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit</p> <p>-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</p> <p>-use recognised symbols when representing a simple circuit in a diagram</p> <p>-recognise that light appears to travel in straight lines</p> <p>-use the idea that light travels in straight lines to explain that objects are seen because they give out or</p>	



# Science - Whole School Long Term Planning

Academic Year 2023-24

					<p>reflect light into the eye</p> <p>-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</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>	
Significant People						
Enquiry Questions		WHY should I keep my heart healthy?	How do we know that evolution exists?		<p>How does electricity work?</p> <p>Can light travel around a corner?</p>	
Scientific Skills	<p>Ask simple questions and recognise that they can be answered in different ways.</p> <p>Observe closely, using simple equipment.</p> <p>Perform simple tests.</p> <p>Identify and classify.</p> <p>Use their observations and ideas to suggest answers to questions.</p> <p>Gather and record data to help in answering questions.</p>					
Enrichment		VR headsets to explore the human body.	Museum of Zoology - Workshop Evolution		Explore Dome - Light Show	



## Appendix 1

KS1	LKS2	UKS2
<p><b>KS1 Science National Curriculum</b></p> <p>Asking simple questions and recognising that they can be answered in different ways.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a explore the world around them, leading them to ask some simple scientific questions about how and why things happen;</li> <li>b begin to recognise ways in which they might answer scientific questions;</li> <li>c ask people questions and use simple secondary sources to find answers.</li> </ul>	<p><b>Lower KS2 Science National Curriculum</b></p> <p>Asking relevant questions and using different types of scientific enquiries to answer them.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a start to raise their own relevant questions about the world around them in response to a range of scientific experiences;</li> <li>b start to make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions;</li> <li>c recognise when a fair test is necessary;</li> <li>d help decide how to set up a fair test, making decisions about what observations to make, how long to make them for and the type of simple equipment that might be used.</li> </ul>	<p><b>Upper KS2 Science National Curriculum</b></p> <p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>a with growing independence, raise their own relevant questions about the world around them in response to a range of scientific experiences;</li> <li>b with increasing independence, make their own decisions about the most appropriate type of scientific enquiry they might use to answer questions;</li> <li>c explore and talk about their ideas, raising different kinds of scientific questions;</li> <li>d ask their own questions about scientific phenomena;</li> <li>e select and plan the most appropriate type of scientific enquiry to use to answer scientific questions;</li> <li>f make their own decisions about what observations to make, what measurements to use and how long to make them for, and whether to repeat them;</li> <li>g plan, set up and carry out comparative and fair tests to answer questions, including recognising and controlling variables where necessary.</li> </ul>



	KS1	LKS2	UKS2
Record	<p><b>KS1 Science National Curriculum</b> Gathering and recording data to help in answering questions.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>record and communicate findings in a range of ways with support;</li> <li>sort, group, gather and record data in a variety of ways to help in answering questions, such as in simple sorting diagrams, pictograms, tally charts, block diagrams and simple tables.</li> </ul>	<p><b>Lower KS2 Science National Curriculum</b> Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>collect data from their own observations and measurements;</li> <li>present data in a variety of ways to help in answering questions;</li> <li>use, read and spell scientific vocabulary correctly and with confidence, using their growing word reading and spelling knowledge;</li> <li>record findings using scientific language, drawings, labelled diagrams, keys, bar charts and tables.</li> </ul>	<p><b>Upper KS2 Science National Curriculum</b> Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Children can:</p> <ul style="list-style-type: none"> <li>decide how to record data from a choice of familiar approaches;</li> <li>record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar graphs and line graphs.</li> </ul>



	KS1	LKS2	UKS2
Do	<b>KS1 Science National Curriculum</b> Observing closely, using simple equipment.  Performing simple tests.  Identifying and classifying.  Children can: <ul style="list-style-type: none"> <li>observe the natural and humanly-constructed world around them;</li> <li>observe changes over time;</li> <li>use simple measurements and equipment;</li> <li>make careful observations, sometimes using equipment to help them observe carefully;</li> <li>carry out simple practical tests, using simple equipment;</li> <li>experience different types of scientific enquiries, including practical activities;</li> <li>talk about the aim of scientific tests they are working on;</li> <li>use simple features to compare objects, materials and living things;</li> <li>decide how to sort and classify objects into simple groups with some help.</li> </ul>	<b>Lower KS2 Science National Curriculum</b> Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers.  Setting up simple practical enquiries, comparative and fair tests.  Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.  Children can: <ul style="list-style-type: none"> <li>make systematic and careful observations;</li> <li>observe changes over time;</li> <li>use a range of equipment, including thermometers and data loggers;</li> <li>ask their own questions about what they observe;</li> <li>where appropriate, take accurate measurements using standard units using a range of equipment;</li> </ul>	<b>Upper KS2 Science National Curriculum</b> Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.  Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.  Children can: <ul style="list-style-type: none"> <li>choose the most appropriate equipment to make measurements and explain how to use it accurately;</li> <li>take measurements using a range of scientific equipment with increasing accuracy and precision;</li> <li>make careful and focused observations;</li> <li>know the importance of taking repeat readings and take repeat readings where appropriate;</li> <li>independently group, classify and describe living things and materials;</li> <li>use and develop keys and other information records to identify, classify and describe living things and materials.</li> </ul>
		<ul style="list-style-type: none"> <li>set up and carry out simple comparative and fair tests;</li> <li>talk about criteria for grouping, sorting and classifying;</li> <li>group and classify things</li> </ul>	