



Woodside Primary Academy Progression Map



Subject: Science

Intent: The Science Education at Woodside provides children with vast opportunities to think independently and to raise questions about working scientifically. In doing this, they acquire a deep scientific knowledge and understanding as well as a love for scientific enquiry. Lessons fuel a passion for science and its application in past, present and future technologies, leading to all pupils having confidence and competence in the full range of practical skills. All children are facilitated to plan and carry out scientific investigations using our state-of-the-art science lab. During these lessons pupils gain the skills to undertake practical work in a variety of contexts. All staff at Woodside aim for their pupils to have high levels of originality, imagination or innovation in the application of scientific skills. We facilitate innovative, inquiry-based approaches to science, which directly promote the pupils' decision making and creativity. This learning is showcased in written and verbal explanations, including their ability to solve challenging problems and report their scientific findings.

Autumn	EYFS	Key Stage 1		Key Stage 2			
	Nursery 2-3 Nursery 3-4 Year R Taught across the term	Year 1 Autumn	Year 2 Autumn	Year 3 Autumn	Year 4 Autumn	Year 5 Autumn	Year 6 Autumn
Knowledge	<u>Nursery 2-3</u> To begin to understand how to investigate the garden area safely. <u>Nursery 3-4</u> To know what the words rough and smooth mean. <u>Year R</u> To know how to clean their teeth and begin to learn about how to eat healthily.	<u>Materials</u> 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.	<u>Animals' needs for survival</u> Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). <u>Humans</u> Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. <u>Materials</u> Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.	<u>Skeletons</u> Identify that humans and some other animals have skeletons and muscles for support, protection and movement. <u>Movement</u> Identify that humans and some other animals have skeletons and muscles for support, protection and movement. <u>Nutrition and diet</u> Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make	<u>Group and classify living things</u> Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. <u>Data collection</u> Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. <u>States of matter</u> Compare and group	<u>Forces</u> Identify the effects of air resistance, water resistance and friction that act between moving surfaces. Explain that unsupported objects fall towards the Earth because of gravity acting between the Earth and the falling object. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. <u>Space</u>	<u>Living things and their habitats</u> 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. Give reasons for classifying plants and animals based on specific characteristics <u>Electricity</u> Use recognised symbols when representing a simple circuit in a diagram. 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.

		<u>Seasonal changes</u> Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies. <u>Planting</u> Identify and describe the basic structure of a variety of common flowering plants, including trees.	Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.	their own food; they get nutrition from what they eat. <u>Rocks</u> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties. <u>Fossils</u> Describe in simple terms how fossils are formed when things that have lived are trapped within rock. <u>Soils</u> Recognise that soils are made from rocks and organic matter.	materials together, according to whether they are solids, liquids or gases Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.	Describe the Sun, Earth and Moon as approximately spherical bodies. Describe the movement of the Earth and other planets relative to the Sun in the Solar System. Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky Describe the movement of the Moon relative to the Earth. <u>Properties of materials</u> 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 Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic	Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.
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Skills	<u>Nursery 2-3</u>	<u>Materials</u>	<u>Animals' needs for survival</u>	<u>Skeletons</u>	<u>Group and classify living things</u>	<u>Forces</u>	<u>Living things and their habitats</u>
To be able to observe different plants and animals through exploration. <u>Nursery 3-4</u> To explore rough and smooth objects. To begin to explore different materials and their similar/different properties. <u>Year R</u> Children learn about oral hygiene and how to clean their teeth. Children learn how to identify healthy food and why it is healthy.	To observe different plants and animals through exploration. <u>Nursery 3-4</u> To explore rough and smooth objects. To begin to explore different materials and their similar/different properties. <u>Year R</u> Children learn about oral hygiene and how to clean their teeth. Children learn how to identify healthy food and why it is healthy.	Identifying and classifying materials and matching them to given properties. Observing closely, using simple equipment Performing simple tests. Gathering and recording data to help in answering questions. Using their observations and ideas to suggest answers to questions. <u>Earth and Space</u> Observe changes over time in the seasons. Take measurements of the length of a day over the seasons. Ask simple questions. <u>Planting</u> 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. Gathering and recording data to help in answering questions. Identifying and classifying. Using their observations and ideas to suggest answers to questions. <u>Humans</u> Gathering and recording data to help in answering questions Identifying and classifying. Observing closely, using simple equipment. <u>Materials</u> Identifying and classifying. Performing simple tests. Use simple features to compare objects, materials and living things and, with help, decide how to sort and group them (non-statutory). Asking simple questions and recognising that they can be answered in different ways.	Asking relevant questions and using different types of scientific enquiries to answer them Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Talk about criteria for grouping, sorting and classifying (non-statutory). Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. <u>Movement</u> Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations (non-statutory) Communicate their findings in ways that are appropriate for different audiences (non-statutory) <u>Nutrition and diet</u> Talk about criteria for grouping, sorting and classifying (non-statutory).	Talk about criteria for grouping, sorting and classifying (non-statutory). Asking relevant questions and using different types of scientific enquiries to answer them Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions <u>Data collection</u> Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. <u>States of matter</u> Talk about criteria for grouping, sorting and classifying (non-statutory). – Identifying differences, similarities or changes related to simple scientific ideas Asking relevant questions and using different types of scientific enquiries to answer them. 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	Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas (non-statutory). Explore ideas and raise different kinds of questions (non-statutory) Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Taking measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results Identifying scientific evidence that has been used to support or refute ideas or arguments <u>Space</u> 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 – Use and develop keys and other information records to identify, classify and describe living things (non-statutory) Use and develop keys and other information records to identify, classify and describe living things and materials, and identify patterns that might be found in the natural environment (non-statutory). 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 Use relevant scientific language and illustrations to discuss, communicate and justify their ideas and should talk about how scientific ideas have developed over time (non-statutory)

			Observing closely, using simple equipment. Using their observations and ideas to suggest answers to questions.	Using straightforward scientific evidence to answer questions or to support their findings. Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Identifying differences, similarities or changes related to simple scientific ideas and processes. <u>Rocks</u> Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Talk about criteria for grouping, sorting and classifying (non-statutory). Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. <u>Fossils</u> Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results	practical enquiries, comparative and fair tests. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use the idea of the Earth's rotation to explain day and night and the apparent movement of the Sun across the sky. Describe the movement of the Moon relative to the Earth. <u>Properties of materials</u> Use and develop keys and other information records to identify, classify and describe living things and materials (non-statutory). Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. circuit before testing materials. Planning different types	<u>Electricity</u> Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Using test results to make predictions to set up further comparative and fair tests
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				and conclusions. Asking relevant questions and using different types of scientific enquiries to answer them <u>Soils</u> Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables – Using straightforward scientific evidence to answer questions or to support their findings. Setting up simple practical enquiries, comparative and fair tests. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.		of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Using test results to make predictions to set up further comparative and fair tests. Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas (non-statutory).	
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Vocabulary	<u>Nursery 2-3</u>	<u>Materials</u>	<u>Animals' needs for survival</u>	<u>Skeletons</u>	<u>Group and classify living things</u>	<u>Forces</u>	<u>Living things and their habitats</u>
	Leaves trees grass inside outside garden classroom	material, soft, hard, shiny, dull, rock, heavy, light, rough, smooth, object, material, solid, liquid, melt, freeze, ice, float,	Mammal, fur, carnivore, herbivore, omnivore, bird, feathers, beak, insect, wing,	Skeleton, skull, ribcage, spine, pelvis, femur, mammal, bird, fish, amphibian, reptile, antennae, insect, exoskeleton	Mammal, bird, fish, amphibian, reptile, vertebrate, invertebrate, exoskeleton, insect, spider, soft-bodied invertebrate, flowering plant, non- flowering plant, stamen, pistil, pollination, fern, moss	Force, contact force, friction, motion, air resistance, drag, parachute, independent	Organism, excretion, reproduction, living, non- living, vertebrate, invertebrate, flowering
	<u>Nursery 3-4</u> Rough and smooth. same, different	sink, absorb, independent variable, dependent variable, controlled variable, transparent, opaque	fish, scales, gills, fin, amphibian, webbed feet, frog, toad, newt, reptile, adult, baby, shelter	<u>Movement</u> Joint, hinge joint, ball- and-socket joint, skeleton, muscle, bicep and triceps, contract, relax	<u>Data collection</u> Vertebrate, invertebrate, flowering plant, non- flowering plant, bar chart, pictogram, data, prediction	variable, dependent variable, controlled variables, streamline, repeatability, precision, surface area, anomalous result, repeatability, precision, water	plant, non-flowering plant, classification key, mollusc, arachnid, classification, deciduous tree, evergreen
	<u>Year R</u> Teeth, brush, toothbrush, toothpaste, decay, clean, dirty and hygiene.	<u>Seasons</u> Autumn, daylight, night, weather, season, rainfall, rain gauge, winter, rainy, snowy, windy, cloudy, frosty, sunny	<u>Humans</u> Teeth, plaque, filling, gums, heart, exercise, physical health, mental health, healthy diet, unhealthy diet, meat, vegetable, fruit, sugar, germs, hygiene, doctor, disease	<u>Nutrition and diet</u> Carbohydrates, proteins, dairy products, fats, sugars, fruit and vegetables, balanced diet, balanced meal, nutrition, eat well guide, vegan diet, vegetarian diet, pescatarian diet, omnivorous diet, diet, herbivore, carnivore, omnivore	<u>States of matter</u> Solid, liquid, gas, volume, states of matter, pouring solid, volume, Oobleck, flow, freezing, melting, boiling, condensation, evaporation, thermometer, stopwatch, beaker, temperature, independent variable, dependent variable, controlled variable, melting point, the water cycle, precipitation, atmosphere, petri dish, observe, data, conclusion	resistance, streamlined, repeatability, precision, gravity, weight, non contact form, lever, gear, pulley, machine	tree, coniferous tree, microorganism, bacteria, virus, fungi, microscope, classification key, characteristics, carl Linnaeus
		<u>Planting</u> Plant, flower, stem, leaf, roots, seed, soil	<u>Materials</u> Material, natural material, human-made material, recycle, smooth, rough, flexible, rigid, rock, stone, pebble, brick, brittle, flexible, transparent, translucent, opaque, hard, shiny, dull	<u>Rocks</u> Granite, pumice, sandstone, chalk, marble, gneiss, crystals, grains, layers, texture, hardness, float, sink, brittle, reaction, weathering		<u>Space</u> The solar system, planets, spherical, stars, sun, orbit, surface, appearance, model, gravity, gravitational pull, heliocentric, axis, rotation, north pole, south pole, direction of spin, night, day, satellite, moon	<u>Electricity</u> Series circuit, cell, battery, bulb, current, voltage, complete circuit, incomplete circuit, switch, buzzer, independent variable, dependent variable, controlled variables, repeatability, accuracy, evaluate
				<u>Soils</u> Soil, sandy soil, clay soil, peat soil, chalky soil, organic matter, nutrients, habitat loss, deforestation, habitat, independent variable, dependent variable, controlled variable, filter paper, filter funnel, measuring cylinder, absorb, conclusion, evaluation, data		<u>Properties of materials</u> Transparent, translucent, opaque, magnetism, hardness, electrical conductor, electrical insulator, circuit, cell, bulb, independent variable, dependent variable, controlled variable, thermal insulator, thermometer, control breaker, temperature, data, conclusion, anomalous result, properties, wood, metal,	

plastic, lifespan

Spring	EYFS	Key Stage 1		Key Stage 2			
	Nursery 2-3 Nursery 3-4 Year R Taught across the term	Year 1 Spring	Year 2 Spring	Year 3 Spring	Year 4 Spring	Year 5 Spring	Year 6 Spring
Knowledge	<u>Nursery 2-3</u> To know the names of a variety of different animals.	<u>Animals including humans</u> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Name the different parts of a human body – linking to senses Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	<u>Materials</u> Know how objects can be grouped based on the materials they are made from. Understand how some objects are made from their original material. Know the properties of materials (wood, plastic, glass, metal, glass, rock) and group materials according to their properties. Understand how materials are chosen for purposes on the basis of their properties. Know how materials can change shape.	<u>Electrical Circuits</u> Identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.	<u>Electrical Circuits</u> Understand differences between appliances that run on higher and lower voltage, and the advantages and disadvantages of different power sources. Construct series circuits with a range of components and compare them. Solve problems with faulty circuits and predict and identify the effects of changing components in circuits. Understand why a switch affects the function of a circuit and explore the effect of more than one switch in a circuit.	<u>Properties of materials</u> 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. Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.	<u>Light</u> Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes. Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye. Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them. Recognise that light appears to travel in straight lines.
	<u>Year R</u> To be able to distinguish between the seasons.	<u>Living Things</u> Describe things as living, dead or never having been alive. Know the names of animals and the habitats they live in. Know, at a simple level, why animals are	<u>Earth & Space</u> Observe the apparent movement of the Sun during the day. Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.	<u>Movement, Forces and Magnets</u> To compare how things move on different surfaces. To sort and name magnetic and non-magnetic materials. To investigate the strength of magnets.	<u>Sound and Hearing</u> Identify how sounds are made, associating some of them with something vibrating. Recognise that vibrations	<u>Animals including humans</u> Describe the changes as humans develop to old age. <u>Life cycles</u> Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird	<u>Circulatory system</u> Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. Describe the ways in which nutrients and water are transported within animals, including humans.

		suited to their habitats. Know what animals eat. Begin to understand food chains.	<u>Movement, Forces and Magnets</u> Notice and describe how things move, using simple comparisons such as faster and slower. Compare how different things move.	To explore the magnetic poles. I can explain that magnets attract some materials. <u>Living Things</u> Recognise that living things can be grouped in a variety of ways. Explore and use classification keys. Recognise that environments can change and that this can sometimes pose dangers to specific habitats.	from sounds travel through a medium to the ear. Find patterns between the pitch of a sound and features of the object that produced it. Find patterns between the volume of a sound and the strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound source increases. <u>Light and Seeing</u> Recognise that they need light in order to see things and that dark is the absence of light. Notice that light is reflected from surfaces. Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. Recognise that shadows are formed when the light from a light source is blocked by a solid object. Find patterns in the way that the size of shadows change.		
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Skills	<u>Nursery 2-3</u> Label and name animals	<u>Animals and humans</u>	<u>Materials</u>	<u>Electrical Circuits</u>	<u>Electrical Circuits</u>	<u>Properties of materials</u>	<u>Light</u>
	<u>Nursery 3-4</u> Understand the key features of the life cycle of a plant and an animal.	Ask simple questions about animals and humans. Observe animals closely to identify the features of animal groups. Perform simple tests to see how we use our senses and how the body is affected by exercise. Use observations and ideas to suggest answers to questions. Gather and record data about food that they eat and their daily routines to help in answering questions about healthy diets and lifestyles. Identify and classify animal groups such as carnivore, herbivore, omnivore and birds, fish, mammals, reptiles, amphibians and invertebrates <u>Living Things</u> Ask simple questions about living things Observe a range of things to determine the features of living, dead and never alive. Identify and classify.	Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Test materials for a particular purpose for example making boats or a jacket. <u>Earth & Space</u> Identify and classify objects according to the seasons they are associated with. Use observations and ideas to suggest answers to questions Gather and record data to help in answering questions about day length. <u>Movement, Forces and Magnets</u> Observe the movement of objects in responses to pushes and pulls. Perform simple tests to compare the movement of objects.	Construct circuits and complete incomplete circuits. Ask relevant questions about electrical circuits. Record findings using simple scientific language, drawings and labelled diagrams Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests. <u>Movement, Forces and Magnets</u> Compare how things move on different surfaces. Notice that some forces need contact between two objects, but magnetic forces can act at a distance. Observe how magnets attract or repel each other and attract some materials and not others. Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials. Describe magnets as	Set up simple, practical enquiries and compare electrical circuits with different components. Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests. Identify differences, similarities or changes related to simple, scientific ideas and processes. Use straightforward, scientific evidence to answer questions or to support their findings. <u>Sound and Hearing</u> Decide on what equipment to use and how to make observations. Record and present information gathered from an investigation. Use scientific language to explain findings. <u>Light and Seeing</u> Ask relevant questions. Set up simple, practical enquiries and comparative and fair tests. Gather, record, classify and present data in a variety of	Use and develop keys and other information records to identify, classify and describe living things and materials (non-statutory). Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Using test results to make predictions to set up further comparative and fair tests. Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas (non-statutory). <u>Animals including humans</u> Explore ideas and raise different kinds of questions (non-statutory).	Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas (non-statutory). Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Identifying scientific evidence that has been used to support or refute ideas or arguments Talk about how scientific ideas have

		Use observations and ideas to suggest answers to questions about animals, diet and habitat.		having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing. <u>Living Things</u> Gather, record, classify and present data about living things in a variety of ways to help in answering questions. Identify differences, similarities or changes between living things and environments related to simple, scientific ideas and processes.	ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, bar charts and tables. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests. Identify differences, similarities or changes related to simple, scientific ideas and processes. Use straightforward, scientific evidence to answer questions or to support their findings.	Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs Identifying scientific evidence that has been used to support or refute ideas or arguments 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 <u>Life cycles</u> Identifying scientific evidence that has been used to support or refute ideas or arguments Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs 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	changed over time (non-statutory). <u>Circulatory system</u> Explore ideas and raise different kinds of questions (non-statutory) Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas (non-statutory) 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
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Vocabulary	Nursery 2-3 Cat, dog, fish, pet animal farm, pig, sheep, duck, cow & goat	Animals and Humans Birds: Pigeon, crow, blue tit, robin, ducks, swan, owl, eagle, Fish: Sea horse, star fish, goldfish, stingray, shark, pufferfish, clown fish,	Materials material, plastic, wood, fabric, glass, paper, cardboard, rubber, metal, natural, human-made, properties, hard, soft, rigid, strong, opaque, waterproof, transparent, smooth, flexible, heavy, lightweight, absorbent, squash, bend, twist	Electrical Circuits Electricity, power source, voltage, mains, battery, solar, appliance, circuit, components, bulb, buzzer, motor, cell, switch, conductor, insulator	Electrical Circuits Electricity, power source, voltage, mains, battery, solar, appliance, circuit, components, bulb, buzzer, motor, cell, switch, conductor, insulator	Properties of materials transparent, translucent, opaque, magnetism, hardness, electrical conductor, electrical insulator, circuit, cell, bulb, independent variable, dependent, variable, controlled variable, thermal insulator, thermometer, control beaker, temperature, data, conclusion, anomalous, properties, wood, metal, plastic, lifespan	Light light source, retina, pupil, lens, reflection, ray diagram, angle, periscope, shadow, opaque, translucent, transparent, solar eclipse, independent variable, dependent variable, controlled variable, conclusion, evaluate, refraction, medium, rainbow, prism, coloured filter, spectrum of light
	Nursery 3-4 Decay, seed, soil, plant, water, sun, grow	Amphibians: Frogs, toads, salamanders, newts, caecilians Reptiles: Crocodiles, snakes, lizards, turtles, tortoise, gecko, chameleon Mammals: Cats, dogs, monkeys, dolphins, whales, bats	Earth & Space Sun, motion, axis, movement, orbit, shadow, sundial, hemisphere, spring, summer, autumn, winter, daylight	Movement, Forces and Magnets Friction, gravity, force, push, pull, contact, contact force, non-contact force, magnetic, attract, repel, magnetic poles (north/south)	Sound and Hearing Vibration, range, source, resonate, amplify, tension, pitch, sound box, wave, eardrum, ear canal, outer ear	Animals including humans adolescent, baby, foetus, elderly adult, adult, life cycle, milestone, baby, toddler, child, womb, adolescent, period, reproduce, puberty, hormone, life expectancy, womb, gestation, mammal, offspring, lifespan, correlation, anomaly	Circulatory systems circulatory system, heart, blood vessels, veins, arteries, capillaries, red blood cells, white blood cells, lungs, nutrients, plasma, oxygen, atria, ventricles, left atrium, left ventricle, right atrium, right ventricle, blood vessels, oxygenated blood, deoxygenated blood, dissection
	Year R Spring, Summer, Autumn and Winter. Weather, rain, sun, snow, fog, cloudy, hail, storm and frost.	Invertebrates: Worms, slugs, jellyfish, spiders, lobsters, snails, squid, backbone, lungs, webbed feet, beak, feathers, wings, gills, fins, scales Herbivore, omnivore, carnivore, diet,	Movement, Forces and Magnets Force, motion, push, pull, gentle, hard, steep, slope, object, affect, gravity, surface	Living Things Birds, fish, amphibians, reptiles, mammals, insects, arachnids, vertebrates, invertebrates, flowering, non-flowering, grasses, ferns, mosses, trees, classification key, rainforest, Antarctic, woodland, river, desert, deforestation, litter	Light and Seeing light, darkness, luminous, reflective, fluorescent, ultraviolet, cornea, retina, opaque, translucent, transparent, shadow		
						Life cycles	

		eyes, nose, ears, mouth, head, thumb, fingers, toes, legs, knees, ankles, neck, shoulders, arms, wrists, foot, hair, elbow survival, air, food, water, shelter diet, food groups sleep, exercise, rest,				monotreme, offspring, mammary gland, mammal, life cycle, amphibian, frogs spawn, tadpole, froglet, metamorphosis, larva, pupa, chrysalis, insect, bird's egg, hatchling, nestling, fledgling, adult bird	
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Summer	EYFS	Key Stage 1		Key Stage 2			
	Nursery 2-3 Nursery 3-4 Year R Taught across the term	Year 1 Summer	Year 2 Summer	Year 3 Summer	Year 4 Summer	Year 5 Summer	Year 6 Summer
Knowledge	<u>Nursery 2-3</u> To know how different instruments make different sounds. <u>Nursery 3-4</u> To be able to identify differences between materials as they change state. <u>Year R</u> To know how environments can be different.	<u>Plants</u> Identify and describe the basic structure of a variety of common flowering plants, including trees. Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.	<u>Plants</u> Observe and describe how seeds and bulbs grow into mature plants. Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy. <u>Growing up</u> Notice that animals, including humans, have offspring which grow into adults.	<u>Plants</u> 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 grow) and how they vary from plant to plant. Investigate the way in which water is transported within plants <u>Forces</u> Compare how things move on different surfaces. <u>Magnets</u> Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance 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.	<u>Data Collection</u> Explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment. <u>Habitats</u> Recognise that living things can be grouped in a variety of ways Explore and use classification keys to help group, ? identify and name a variety of living things in their local and wider environment. Recognise that environments can change, and that this can sometimes pose dangers to living things <u>Digestive system</u> Comparing the teeth of carnivores and herbivores and suggesting reasons for differences (non-statutory). Identify the different types of teeth in	<u>Reproduction</u> Describe the life process of reproduction in some plants and animals Describe the life process of reproduction in some plants and animals. <u>Reversible and irreversible changes</u> Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Demonstrate that dissolving, mixing and changes of state are reversible changes.	<u>Diet, drugs and life style</u> Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. <u>Variation</u> Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents. <u>Adaptions</u> Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. <u>Fossils</u> Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.

				Observe how magnets attract or repel each other and attract some materials and not others.	humans and their simple functions. Describe the simple functions of the basic parts of the digestive system in humans. <u>Food chains</u> Construct and interpret a variety of food chains, identifying producers, predators and prey.		
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Skills	<u>Nursery 2-3</u> To investigate different pieces of musical equipment and comment on what is happening.	<u>Plants</u> Observing closely, using simple equipment Describe and compare the structure of a variety of common animals.	<u>Plants</u> Observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb or observing similar plants at different stages of growth; Setting up a comparative test to show that plants need light and water to stay healthy.	<u>Plants</u> Using straightforward scientific evidence to answer questions or to support their findings	<u>Data collection</u> Gathering, recording, classifying and presenting data in a variety of ways, to help in answering questions.	<u>Reproduction</u> Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas (non-statutory)	<u>Diet, drugs and life style</u> Identifying scientific evidence that has been used to support or refute ideas or arguments
	<u>Nursery 3-4</u> Changing materials from one state to another. For example, cooking, heating and cooling.	Gathering and recording data to help in answering questions	Identify simple patterns and talk about them. NB: We cover the topic 'Climates' in Geography. This reinforces their knowledge of seasonality and pattern seeking.	Talk about criteria for grouping, sorting and classifying (non-statutory). Asking relevant questions and using different types of scientific enquiries to answer them.	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	Recording data and results of increasing complexity, using scientific diagrams and labels, classification keys, tables, scatter graphs, bar charts and line graphs	Recognise which secondary sources will be most useful to research their ideas and begin the separate opinion from fact (non-statutory).
Verbalise and describe what they hear, see and feel whilst outside.	<u>Year R</u> Recognise that some environments are different from the ones in which they live.			Setting up simple practical enquiries, comparative and fair tests	<u>Habitats</u> Asking relevant questions and using different types of scientific enquiries to answer them	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	planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
			<u>Growing up</u> Identifying and classifying. Asking simple questions and recognising that they can be answered in different ways.	– Identifying differences, similarities or changes related to simple scientific ideas and processes	Gathering, recording, classifying and presenting data in a variety of ways, to help in answering questions	Identifying scientific evidence that has been used to support or refute ideas or arguments.	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
			Record and communicate their findings in a range of ways and begin to use simple scientific language (non-statutory)	Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables	Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.	Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary	Using test results to make predictions to set up further comparative and fair tests.
			Observing closely, using simple equipment.	Use relevant scientific language to discuss their ideas and communicate their findings in ways that are appropriate for different audiences (non-statutory)	<u>The digestive system</u> Identifying differences, similarities or changes related to simple scientific ideas and processes	Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking	<u>Variation</u> Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
			Using their observations and ideas to suggest answers to questions	Reporting on findings from enquiries, including oral and written explanations,	Asking relevant questions and using different types of scientific enquiries to answer them		

				displays or presentations of results and conclusions. <u>Forces</u> Identifying differences, similarities or changes related to simple scientific ideas and processes Using straightforward scientific evidence to answer questions or to support their findings Setting up simple practical enquiries, comparative and fair tests. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions. <u>Magnets</u> Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Identifying differences, similarities or changes related to simple scientific ideas and processes Setting up simple practical enquiries, comparative and fair tests	Recognise when and how secondary sources might help them to answer questions that cannot be answered through practical investigations (non-statutory). Setting up simple practical enquiries, comparative and fair tests. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions <u>Food chains</u> Using straightforward scientific evidence to answer questions or to support their findings Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions	repeat readings when appropriate. Using test results to make predictions to set up further comparative and fair tests. <u>Reversible and irreversible changes</u> Using test results to make predictions to set up further comparative and fair tests. Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, and taking repeat readings when appropriate Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas (non-statutory).	<u>Adaptions</u> Recognise which secondary sources will be most useful to research their ideas and begin to separate opinion from fact (non-statutory) Identifying scientific evidence that has been used to support or refute ideas or arguments N.S Explore ideas and raise different kinds of questions (non-statutory). Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time (non-statutory) 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 <u>Fossils</u> Identifying scientific
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Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.

evidence that has been used to support or refute ideas or arguments

– Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas and should talk about how scientific ideas have developed over time (non-statutory).

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.

							Galapagos Islands, finch, evolution <u>Fossils</u> fossil, rock, decompose, skeleton, Charles Darwin, evolution, fossil, rock, paleontologist, Mary Anning
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Impact (End Points)
& Working
Scientifically Skills

EYFS	Key Stage 1		Key Stage 2			
Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Children are able to identify similarities and differences in relation to places, objects, materials and living things. They are able to discuss the features of their own environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. Children can draw pictures of animals and plants, drawing on their experiences.	Children should be able to name, label and sort animals, plants and body parts into groups. They should be able to perform simple tests, gather data and discuss what they find out. <u>Working Scientifically</u> Ask simple questions. Verbally Know what a question is and why they're important in science. Observe closely, using simple equipment. Use equipment and verbally say observations. Perform simple tests. Teacher to give test for them to conduct. Teaching what an experiment is. Identify and classify. Single circle venn diagram. Does it swim? Yes or no. Use observations and ideas to suggest answers to questions. Basic conclusion from experiment. What did	Children should be able to experience and observe phenomena, looking more closely at the world around them. They should be curious and ask questions about what they notice. They should be developing their scientific enquiry to answer their own questions, including observing changes over a period of time, noticing patterns, grouping and classifying things and carrying out simple tests. <u>Working Scientifically</u> Ask simple questions. Written Why/how questions 5 Ws. Observe closely, using simple equipment. Selecting equipment to conduct experiments with. Recording observations Perform simple tests. Teacher to scaffold experiment with more child-led opportunities. Identify and classify.	Children should be able to label the parts of a plant and have a secure knowledge of what a plant needs to survive. Undertake observations over a period of time, make predictions, present data and analyse findings. Explain how water transportation occurs. Children should be able to confidently compare and group together different kinds of rocks & fossils based on their appearance and physical features. To sort, name and identify magnetic and non-magnetic objects. To understand light & shadows, patterns and reflection <u>Working Scientifically</u> Ask relevant questions. From previous knowledge, ask questions. Identify differences, similarities or changes related to simple, scientific ideas and processes.	Children should be able to explain how sound is made up of vibrations. Children have an understanding of different materials and their state of matter. Children have a deeper understanding of animals within their habitat and a food chain. Children should be able to scientific vocabulary to plan, carry out their own investigations. <u>Working Scientifically</u> Ask relevant questions. From research, ask key questions. Open/vs closed questions. Identify differences, similarities or changes related to simple, scientific ideas and processes. Use straightforward, scientific evidence to answer questions or to support their findings. Compare and contrast based on observations/research Persuasive language to show that key question has been answered.	Children use their knowledge of the solar system to explain regularly experienced natural processes such as day and night and gravity. They can explain similarities and differences between the life cycles of plants, animals and humans using appropriate scientific vocabulary. <u>Working Scientifically</u> Plan enquiries, including recognising and controlling variables where necessary. Introduce variables and how to control them. Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. Building on Yr 3 & 4, by selecting appropriate equipment. For example, selecting a thermometer for temperature. Take measurements, using a range of scientific equipment, with increasing accuracy and precision. Ensuring that readings are taken accurately, identifying common errors with readings. Record data and results of increasing complexity using scientific diagrams and	Children use their scientific skills and vocabulary to plan, carry out and evaluate appropriate investigations to explore the wider world. <u>Working Scientifically</u> Plan enquiries, including recognising and controlling variables where necessary. Children start to recognise when variables have and haven't been controlled. Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work. Know how to use new apparatus such as a newton meter and suggest ways to take reading. Take measurements, using a range of scientific equipment, with increasing accuracy and precision. Ensure that readings are taken accurately, identifying common errors with readings and repeating readings if they are inaccurate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, bar and line graphs, and models. Building on Yr 5, selecting how to record data and present it on graphs, charts etc.

	we find? What did you see? Gather and record data to help in answering questions. Basic charts with tick/cross setup. Verbally answering key questions.	Using two venn diagrams that overlap. Use observations and ideas to suggest answers to questions. Answering own questions from experiments deciding if experiments fully answered the question or not. Gather and record data to help in answering questions. Record slightly more complex data such as numerical data or using vocabulary to describe differences and findings.	Use straightforward, scientific evidence to answer questions or to support their findings. Compare and contrast based on observations/research. Set up simple, practical enquiries and comparative and fair tests. Introduce what a comparative/fair test is with teacher structure. Make accurate measurements using standard units, using a range of equipment, e.g., thermometers and data loggers. Introduce which equipment measures what and scaffold how to take measurements with equipment accurately. Gather, record, classify and present data in a variety of ways to help in answering questions. Record information in a variety of ways (tables, charts, graphs) with a teacher scaffold. Record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables. Record findings using simple scientific language, drawings, labeled	Set up simple, practical enquiries and comparative and fair tests. Introduce what a comparative/fair test is with teacher structure Make accurate measurements using standard units, using a range of equipment, e.g., thermometers and data loggers Starting to independently select equipment to measure with and take accurate readings. Gather, record, classify and present data in a variety of ways to help in answering questions. Select the most appropriate ways to present data and decide how this answers key questions best. Record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables. Decide how to record findings using simple scientific language, drawings, labeled diagrams, bar charts and tables independently. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Present data orally and in a variety of ways with children selecting this independently. Use results to draw simple conclusions and	labels, classification keys, tables, bar and line graphs, and models. Building on Yr 3 & 4, selecting how to record data and present it on graphs, charts etc. Ensuring that graphs and charts follow the Yr 5 maths curriculum with appropriate labels. Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. Present findings in written form, displays and other presentations In a variety of ways and building on Yr 5, Present findings in written form, displays and other presentations using higher level vocabulary. Use test results to make predictions to set up further comparative and fair tests. Independently, use test results to make predictions to set up further comparative and fair tests. Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments With teacher scaffold, use test results to make predictions to set up further comparative and fair tests. Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments Answering key questions using results, graphs, data, charts and persuasive language to support or	Ensure that graphs and charts follow the Yr 6 maths curriculum with appropriate labels. Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. Report findings from enquiries, including oral and written explanations of results, explanations involving causal relationships, and conclusions. Present findings in written form, displays and other presentations In a variety of ways and building on Yr 5, Present findings in written form, displays and other presentations using higher level vocabulary. Use test results to make predictions to set up further comparative and fair tests. Independently, use test results to make predictions to set up further comparative and fair tests. Use simple models to describe scientific ideas, identifying scientific evidence that has been used to support or refute ideas or arguments Answer key questions using results, graphs, data, charts and persuasive language to support or refute arguments. Meta-cognition to decide which evidence is the most impactful.
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			diagrams, bar charts and tables (teacher scaffold). Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Present data orally and in a variety of ways (more teacher led initially with skills explicitly taught) Use results to draw simple conclusions and suggest improvements, new questions and predictions for setting up further tests. Draw conclusion collaboratively with next steps for experiments discussed, making predictions	suggest improvements, new questions and predictions for setting up further tests. Drawing conclusion collaboratively and independently with next steps for experiments discussed, making predictions	refute arguments	
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