Nash Mills CofE Primary School
Curriculum Progression Document
Science – Working Scientifically

Skills **Knowledge** **Vocabulary**

	Asking Questions	Measuring and Recording	Concluding	Evaluating	Vocabulary
Early Years	• Being curious and starting to ask questions	• Perform simple testes and use equipment • Using senses to observe and look closely • Looking closely at things and noticing changes Making simple records of what children notice or how things change	• Sorting and matching things	• Talking about what children have done and noticed	I know I think I believe I have seen
Year 1 & 2	• Ask simple questions and recognise that they can be answered in different ways.	• Observe and measure, using simple equipment • Perform simple tests • Understanding why a test is fair • Gather and record data and information to help answer questions • Using books, videos, the internet, people and photos to find answers	• Identify patterns – sorting and grouping • Use observations and ideas to suggest answers to questions	• Explaining results – saying what children found out	question, answer, observe, observing, equipment, identify, sort, group, compare, differences, similarities, describe, measurements, test, results, secondary sources record – diagram, chart
Year 3 & 4	• Ask relevant questions and use different types of scientific enquiries to answer them	• Make careful observations and accurately measure using standard units using a range of equipment appropriately • Set up simple practical enquiries and fair tests (with help) • Record findings using simple scientific language, drawing, labelled diagrams, keys, bar charts, and tables • Gather, record, classify and present data in a variety of ways	• Identify patterns - differences, similarities or changes related to simple scientific ideas and processes • Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions • Use straightforward scientific evidence to answer questions or to support their findings	• Use results to draw simple conclusions • Make predictions for new values, suggest improvements and raise further questions	oral and written explanations, conclusion, predictions, criteria, classify, changes, data, contrast, evidence, improve, secondary sources, guides, keys, construct, interpret research – relevant question equipment – thermometer, data – gather, standard units, record, classify, present record – drawings, labelled diagrams, keys, bar charts, tables
Year 5 & 6	• Using scientific knowledge to ask questions	• Plan different types of enquiries to answer questions, including recognising and controlling variables where necessary • Take measurements, using a range of scientific equipment, with increasing accuracy and precision • Recording data, taking repeat measurements where necessary and calculating a mean • Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, • scatter graph, bar and line graphs	• Using and developing keys to identify and classify living things and materials • Using scientific language to draw conclusions • Identify scientific evidence that has been used to support or refute ideas or arguments • Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations	• Evaluating plans and results and suggesting improvements • Use test results to make predictions to set up further comparative and fair tests	plan, variables, measurements, accuracy, precision, repeat readings, predictions, further comparative and fair test, identify, classify and describe, patterns, systematic, quantitative measurements report data – scientific diagrams, labels, classification keys, tables, scatter graphs, bar graph and line graphs report and present – conclusions, casual relationships, explanations, degree of trust, oral and written display and presentation evidence – support, refute, ideas or arguments biology, physics, chemistry

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	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
Plants	Can talk about some of the things he/she has observed such as plants, animals, natural and found objects tree, leaf, flower, petals, fruit, bulb, seed, roots, stem	Identify and name a variety of common and wild garden plants, including deciduous and evergreen trees Identify and describe the basic structure of a variety of common flowering plants, including trees deciduous, evergreen, tree, leaf, flower (blossom), petals, fruit, bulb, seed, roots, stem, trunk, branches	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 growth, germinate, light, temperature reproduce, lifecycle	Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers Understand 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 Understand the way in which water is transported within plants air, water, transportation, nutrients, soil, reproduction, seed formation, seed dispersal, pollination			
Living Things and their Habitats	Talks about the features of his/her own immediate environment and how environments might vary from one another Makes observations of animals and plants and explains why some things occur, and talk about changes Is developing an understanding of growth, decay, and changes over time season, month, year, day, night, sun, moon, light, dark	**SEASONAL CHANGES** Understand changes across the four seasons Understand and describe weather associated with the seasons and how day length varies season, spring, summer, autumn, winter, month, year, day, night, sun, moon, light, dark	Explore and compare the differences between things that are living, dead, and things that have never been alive Understand 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 Identify and name a variety of plants and animals in their habitats, including micro-habitats Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources		Understand 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 Understand that environments can change and that this can sometimes pose dangers to living things Construct and interpret a variety of food chains, identifying producers, predators, and prey vertebrates, invertebrates (+ 1 example of each) environment, habitat, classification key	Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals life process, reproduction, offspring,	Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants, and animals Give reasons for classifying plants and animals based on specific characteristics **Evolution and Inheritance** Understand that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Understand that living things produce offspring of the same kind, but

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			of food living, dead, habitat, microhabitat, woodland, meadow, hedgerow, pond				normally offspring vary and are not identical to their parents Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution characteristic, classification, organism, micro-organism
Animals, Including Humans	Knows that the environment and living things are influenced by human activity head, nose, ear, neck, shoulder, arm, elbow, wrist, hand, back, chest, hip, leg, knee, ankle, foot wing, beak, tail, fin sight, smell, touch, taste, hearing	Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals Identify and name a variety of common animals that are carnivores, herbivores and omnivores Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each Sense amphibians, fish, reptiles, mammals, birds (+ 1 example of each) herbivore, omnivore, carnivore head, nose, ear, neck, shoulder, arm, elbow, wrist, hand, back, chest, hip, leg, knee, ankle, foot wing, beak, tail, fin sight, smell, touch, taste, hearing	Understand that animals, including humans, have offspring which grow into adults Investigate and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene survival, water, air, food reproduce, adult, baby, offspring, kitten, calf, puppy food chain, prey, predator, camouflage, protection exercise, hygiene, balanced diet	Understand 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 Understand that humans and some other animals have skeletons and muscles for support, protection and movement skeleton, skull, bones, muscles, movement, support, protection, nutrition	Describe the simple functions of the basic parts of the digestive system in humans Understand and Identify the different types of teeth in humans and their simple functions mouth, tongue, teeth, oesophagus, stomach, small intestine, large intestine, nutrients, absorb, canine, incisor, molar producer, consumer, apex predator	Describe the changes as humans develop to old age womb, foetus, embryo, gestation, baby, toddler, teenager, elderly growth, development, puberty	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function describe the ways in which nutrients and water are transported within animals, including humans function, circulatory system, heart, valve, blood vessel, vein, artery transport, oxygenated, deoxygenated lifestyle, drug

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	Skills	Knowledge	Vocabulary				
Properties of Materials, States of Matter, Rocks	Knows the properties of some materials and can suggest some of the purposes they are used for hard, soft, rough, smooth, shiny, dull, bendy, stiff	Distinguish between an object and the material from which it is made Understand 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 wood, plastic, glass, paper, metal, rock, hard, soft, rough, smooth, shiny, dull, bendy, stiff	Understand and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses Investigate the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching brick, fabric, elastic, foil property, solid, waterproof, absorbent, opaque, transparent, squash, bend, flexible, twist, stretch, push, pull, roll, slide, bounce	Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Understand and describe in simple terms how fossils are formed when things that have lived are trapped within rock Understand that soils are made from rocks and organic matter soils, organic matter, fossil, crystal, sandstone, granite, marble, pumice absorbent, crumble sedimentary, layer, sediment igneous, magma, lava, gas bubbles (tiny holes/spaces) metamorphic, change, squeeze, pressure	Compare and group materials together, according to whether they are solids, liquids or gases Understand 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 solid, liquid, gas, evaporation, condensation, particle, temperature, freezing, heating	Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Understand that dissolving, mixing and changes of state are reversible changes Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda hardness, transparency, conductivity (electrical, thermal) solubility, solution dissolve, filter, evaporate, sieve, reversible, irreversible	

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Electricity					Identify common appliances that run on electricity Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit Recognise some common conductors and insulators, and associate metals with being good conductors appliance, battery power, main power, circuit, series, cell, battery, wire, bulb, switch, break in circuit, conductor, insulator		Understand and associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches Understand and use recognised symbols when representing a simple circuit in a diagram circuit - series, parallel, voltage, volts, amps
Forces	Talks about why things happen and how things work			Compare how things move on different surfaces Understand that some forces need contact between two objects, but magnetic forces can act at a distance Understand how magnets attract or repel each other and attract some materials and not others Compare and group together a variety of		Understand that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object Understand the effects of air resistance, water resistance and friction, that act between moving surfaces Recognise that some mechanisms, including levers, pulleys and gears,	

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				everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Describe magnets as having two poles Understand and predict whether two magnets will attract or repel each other, depending on which poles are facing force, contact, surface, magnetic, attract, repel, poles		allow a smaller force to have a greater effect air resistance, water resistance, friction, gravity lever, gear, pulley, Newtons	
Light and Sound				Understand that they need light in order to see things and that dark is the absence of light Understand that light is reflected from surfaces Understand that light from the sun can be dangerous and that there are ways to protect their eyes Understand 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 light source, mirror, reflect, reflective, reflection shadow, blocked transparent, translucent, opaque	-Understand how sounds are made, associating some of them with something vibrating -Understand that vibrations from sounds travel through a medium to the ear -Find patterns between the pitch of a sound and features of the object that produced it Find patterns between the volume of a sound and the strength of the vibrations that produced it -Understand that sounds get fainter as the distance from the sound source increases vibration, wave, volume, pitch, tone, insulation		Understand that light appears to travel in straight lines Understand the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye Understand that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes Understand the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them refraction, reflection, spectrum, rainbow

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Earth and Space						Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Understand the movement of the Moon relative to the Earth Understand the Sun, Earth and Moon as approximately spherical bodies Use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky Earth, sun, moon, solar system, axis of rotation, day, night, phases of the moon, star, constellation	