

Science Progression Map

EYFS

Development Matters/ELG – Understanding the World (The Natural World)		
Three and Four Years Olds	Reception	ELG
<ul style="list-style-type: none"> Use all their senses in hands-on exploration of natural materials. Explore collections of materials with similar and/or different properties. Talk about what they see, using a wide vocabulary. Begin to make sense of their own life-story and family's history. Explore how things work. Plant seeds and care for growing plants. Understand the key features of the life cycle of a plant and an animal. Begin to understand the need to respect and care for the natural environment and all living things. Explore and talk about different forces they can feel. Talk about the differences between materials and changes they notice. <p>C&L:</p> <ul style="list-style-type: none"> Understand 'why' questions, like: "Why do you think the caterpillar got so fat?" <p>PSED:</p> <ul style="list-style-type: none"> Make healthy choices about food, drink, activity and toothbrushing. 	<ul style="list-style-type: none"> Explore the natural world around them. Describe what they see, hear and feel whilst outside. Recognise some environments that are different to the one in which they live. Understand the effect of changing seasons on the natural world around them. <p>C&L:</p> <ul style="list-style-type: none"> Learn new vocabulary. Ask questions to find out more and to check what has been said to them. Articulate their ideas and thoughts in well-formed sentences. Describe events in some detail. Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. Use new vocabulary in different contexts. <p>PSED:</p> <ul style="list-style-type: none"> Know and talk about the different factors that support their overall health and wellbeing. 	<ul style="list-style-type: none"> Explore the natural world around them, making observations and drawing pictures of animals and plants. Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class. Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter. <p>C&L:</p> <ul style="list-style-type: none"> Make comments about what they have heard and ask question to clarify their understanding. <p>PSED:</p> <ul style="list-style-type: none"> Manage their own basic hygiene and personal needs, including the importance of healthy food choices.

Term	Topic	Key Learning Outcomes
Autumn - <i>Nursery</i>	Marvellous Me & Perfect Pets	<p><u>Autumn 1</u> <u>Our Bodies</u> Children to...</p> <ul style="list-style-type: none"> • Name basic body parts. (head, shoulders, arms, legs, feet, tummy, eyes, ears, nose and mouth) • Describe simple features on themselves and others. (Hair colour, eye colour, skin colour) • Explore senses and know what we use to see, smell, hear and taste. <p><u>Autumn 2</u> <u>Animals – Domestic Pets</u> Children to...</p> <ul style="list-style-type: none"> • Name 3 animals that can be domestic pets. • Talk about how we look after our pets and what they need to be happy.
Autumn - <i>Reception</i>	Marvellous Me & Wonderful Woodlands	<p><u>Autumn 1</u> <u>Our Bodies</u> Children to...</p> <ul style="list-style-type: none"> • Label the parts of a human body and discuss what they do e.g legs for walking, running, jumping etc. • Name some internal organs and discuss their jobs. (Brain, heart, lungs) • Know how the heart helps us and how we can look after it. (World Heart Day) • Know the life cycle of a human. • Explore senses outdoors. What can they see, hear, smell, feel? <p><u>Autumn 2</u> <u>Animals – Woodland Creatures</u> Children to...</p> <ul style="list-style-type: none"> • Name some woodland creatures. • Know what a habitat is and discuss the habitats of some woodland creatures. • Find out about animals that hibernate. • Recall simple facts about snails. • Know the life cycle of a snail. <p><u>Seasons & Weather – Forest School</u> Children to...</p>

		<ul style="list-style-type: none"> Describe and explore Autumn & Winter, describe how each season feels in terms of weather and changes in the environment. Name different weather and discuss how it feels.
Term	Topic	Key Learning Outcomes
Spring - Nursery	Hot and Cold & On the Farm	<p>Spring 1 <u>Animals & Habitats: Hot and Cold</u> Children to...</p> <ul style="list-style-type: none"> Name 3 animals that live in colder climates. Name 3 animals that live in warmer climates. Explore and describe animals habitats in warmer climates and colder climates. Recall simple facts about Penguins. (Habitat, Diet etc) Recall simple facts about Monkeys. (Habitat, Diet etc) <p>Spring 2 <u>Animals – On the Farm</u> Children to...</p> <ul style="list-style-type: none"> Name and describe 5 farm animals. Recall simple facts about farm animals. Know the life cycle of a chicken. Match adult farm animals to their young. Explain how a farmer takes care of their animals. <p><u>Seasons & Weather</u> Children to...</p> <ul style="list-style-type: none"> Explore Seasons & Weather - Say what they can see, hear and feel. Discuss the simple differences between each season. Name different weather and discuss how it feels. (Wind, Rain, Sun, Snow)
Spring - Reception	It's Cold Outside & Amazing Africa	<p>Spring 1 <u>Animals & Habitats: Cold Creatures</u> Children to...</p> <ul style="list-style-type: none"> Name and describe 5 animals that live in colder climates. Explore and discuss habitats for animals in cold climates and discuss what they need to survive. Know some simple facts about penguins. Compare and contrast life in Antarctica in comparison to where we live.

		<p><u>Natural Processes</u> Children to...</p> <ul style="list-style-type: none"> • Explore freezing/melting – snow and ice. <p><u>Spring 2</u> <u>Animals & Habitats: African Animals</u> Children to...</p> <ul style="list-style-type: none"> • Name and describe the 'Big 5' African animals. • Explore and discuss habitats for animals in hotter climates and discuss what they need to survive. • Know some simple facts about elephants. • Compare and contrast life in Africa in comparison to where we live. <p><u>Natural Processes</u> Children to...</p> <ul style="list-style-type: none"> • Explore the effects of adding water to soil and sand. <p><u>Seasons & Weather – Forest School</u> Children to...</p> <ul style="list-style-type: none"> • Describe and explore Spring, describe how the season feels in terms of weather and changes in the environment. • Name different weather and discuss how it feels.
Term	Topic	Key Learning Outcomes
Summer - Nursery	Growing & Wonderful Water	<p><u>Summer 1</u> <u>Growing</u> Children to...</p> <ul style="list-style-type: none"> • Name and describe some flowers. (shapes and colours) • Name the different parts of a flower. (leaf, stem, root, petal) • Know what a plant needs to grow. (Sunlight, water, soil) • Know the life cycle of a bean. • Plant seeds and make observations of growth over time. • Know some food we can get from plants and use these to make soup. <p><u>Summer 2</u> <u>Animals & Habitats: Ponds and Rock Pools</u> Children to...</p>

		<ul style="list-style-type: none"> • Name some animals that can be found in a pond. • Understand the key features of a pond. • Know the life cycle of a duck. • Name some animals that can be found in a rock pool. • Understand the key features of a rock pool. • Know some simple facts about rock pool creatures. (Features, Diet, How they move)
<p>Summer - <i>Reception</i></p>	<p>Changing and Growing & Under the Sea</p>	<p><u>Summer 1</u> <u>Life Cycles</u> Children to...</p> <ul style="list-style-type: none"> • Know the life cycle of a caterpillar. • Know the life cycle of a moth. <p><u>Animals & Habitats: Minibeasts</u> Children to...</p> <ul style="list-style-type: none"> • Name and describe 5 minibeasts. • Discuss where different minibeasts like to live and what they need to survive. • Name the different body parts of minibeasts and explain their function e.g wings, antennae etc. • Discuss the differences between moths and butterflies. <p><u>Plants & Growing</u> Children to...</p> <ul style="list-style-type: none"> • Know what a plant needs to grow. (sunlight, water, soil, nutrients) • Name and describe some plants. (daisy, sunflower, rose, daffodil, tulip, buttercup) • Make observational drawings of plants and flowers. • Plant sunflower seeds and make observations of growth over time. • Begin to understand how plants and animals help each other. • Name some fruits and vegetables and explore how they are grown. <p><u>Summer 2</u> <u>Animals & Habitats: Sea Creatures</u> Children to...</p> <ul style="list-style-type: none"> • Name and describe 6 sea creatures. • Recall some simple facts about their favourite sea and water animals. • Understand what some different parts of animals are used for. • Identify how different sea and water animals move.

		<p><u>Environment</u> Children to...</p> <ul style="list-style-type: none">• Know how we can look after the oceans and what impact we have on the oceans. (WOD)• Understand what recycling means and take part in this process in the classroom. <p><u>Forces</u> Children to...</p> <ul style="list-style-type: none">• Predict whether an object will float or sink. Explain how something floats and why something sinks.• Measure distance and speed in water – Boat Races. <p><u>Seasons & Weather – Forest School</u> Children to...</p> <ul style="list-style-type: none">• Describe and explore Summer, describe how the season feels in terms of weather and changes in the environment.• Name different weather and discuss how it feels.
--	--	--

Key Stage 1 Strands	Year 1 knowledge Pupils should know:	Year 2 knowledge Pupils should know:
Biology	<p>Animals including humans</p> <ul style="list-style-type: none"> • The main body parts which can be seen (nose, eyes, knee, shoulder etc.) • 5 senses: sight, hearing, smell, touch and taste • The differences between main animal groups: amphibians, birds, fish, mammals and reptiles. • Animals within different groups such as amphibians, mammals, birds, reptiles and fish. • What carnivores, herbivores and omnivores are. <p>Plants</p> <ul style="list-style-type: none"> • A variety of common wild and garden plants, including trees: poppy, tulip, daffodil. • the difference between deciduous and evergreen trees • The basic structure of a plant and tree: stem, leaf, roots, flower, trunk. 	<p>Plants</p> <ul style="list-style-type: none"> • Life cycle of plants: How seeds and bulbs grow into mature plants. • The basic needs of a plant, such as water, light, temperature <p>Living things and habitats</p> <ul style="list-style-type: none"> • Differences between things that are living, dead and things that have never been alive. • Know what a habitat (ocean, woodlands, coastlines and rainforest) is and describe how different habitats provide for the basic needs of both animals and plants. • A variety of different plants and animals in their habitats, including microhabitats. • How animals obtain their food through exploration of food chains/sources. <p>Animals including humans</p> <ul style="list-style-type: none"> • Know that animals, including humans have offspring which grow into adults. • Basic needs of animals and humans for survival. • Know the importance of exercise, diet and hygiene. • Know basic food groups

Chemistry	Everyday materials <ul style="list-style-type: none"> The differences between an object and the materials which it is made from. The names of different materials, such as wood, glass, rock, metal etc. Some physical properties, such as rough, soft, hard, waterproof and transparent. How to group together everyday materials based on their simple properties. 	Everyday materials <ul style="list-style-type: none"> The suitability of different materials for different uses. Recyclable materials How solid objects made from some materials can be changed by squashing, bending, twisting and stretching.
Physics	Seasonal change <ul style="list-style-type: none"> All 4 seasons and associated months. Observe changes across seasons. Weathers associated with the seasons and the varied day lengths. 	
Working Scientifically	<ul style="list-style-type: none"> Ask simple questions and recognise that they can be answered in different ways Observing closely, using simple equipment Perform simple tests Identify and classify Use observations and ideas to suggest/predict answers to questions Gathering and recording data to help answer questions 	

Lower Key Stage 2 Strands	Year 3 knowledge Pupils should know:	Year 4 knowledge Pupils should know:
Biology	Animals including humans <ul style="list-style-type: none"> 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. Saturated/unsaturated fats Basic food groups and understand their nutritional values That humans and some other animals have skeletons and muscles for support, protection and movement. Main parts of skeleton, endo and exo-skeletons. Identify invertebrates and vertebrates. 	Living things and habitats <ul style="list-style-type: none"> That living things can be grouped in different ways. How to use classification keys to help groups, identify and name a variety of living things in their local and wider environment. That environments can change and the dangers that come with it. Animals including humans <ul style="list-style-type: none"> The simple function of the basic parts of the digestive systems in humans. The different types of teeth and their functions.

	<p>Plants</p> <ul style="list-style-type: none"> • How to describe functions of different flowering parts: roots, stem/trunk, leaves and flowers. • Know the requirements of plant for life and growth (air, light, water, nutrients from soil, room to grow) and how they vary plant to plant • The way in which water is transported within plants • Know the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal (carried by the wind/animal fur etc) 	<ul style="list-style-type: none"> • Know how to construct and interpret food chains, identifying producers, predators and prey.
Chemistry	<p>Rocks</p> <ul style="list-style-type: none"> • Know how to compare and group together different kinds of rocks on the basis of their appearance and simple physical properties: igneous, sedimentary and metamorphic. • Know in simple terms how fossils are formed when things that have lived are trapped within rock • Know that soils are made from rocks and organic matter. 	<p>States of matter</p> <ul style="list-style-type: none"> • Know how to compare and group materials together, according to whether they are solids, liquids or gases. • Know that some materials change state when they are heated or cooled, and measure or research temperature at which this happen in degrees Celsius (°C) • Know the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.
Physics	<p>Light</p> <ul style="list-style-type: none"> • Identify light sources (and knowing that the moon is not) • Know that light is needed in order to see things and that dark is the absence of light. • Know that light is reflected from surfaces, such as in a mirror. • Transparent, translucent and opaque • Know and recognise that light from the sun can be dangerous • Know that shadows are formed when the light from a light source is blocked by a solid. • That there are patterns in the way that the size of shadows changes. <p>Forces and magnets</p> <ul style="list-style-type: none"> • Magnetic materials • How to compare and know how things move on different surfaces. • That some forces need contact between two objects but magnetic forces can act at a distance. 	<p>Electricity</p> <ul style="list-style-type: none"> • Identify and know common appliances which run on electricity. • How to construct a simple circuit, naming the basic parts, including cells, wires, bulbs, switches and buzzers. • Whether a lamp will light in a simple series circuit, based on whether it is a complete loop with a battery. • Know that a switch opens and closes the circuit and associate this with whether or not a lamp lights in a simple series circuit. • Some common conductors and insulator and associate metals with being good conductors. <p>Sound</p> <ul style="list-style-type: none"> • Know how sounds are made, associating them with something vibrating. • That vibrations travel through a medium in the ear. • That there are patterns between the pitch of a sound and features of the object that produced it. • That there are patterns between the volume of a sound and the strength of the vibrations that produced it.

	<ul style="list-style-type: none"> • How magnets push/pull each other and attract some other materials and not others through observation. • How to compare and group a variety of everyday materials on the basis of whether they are magnetic and identify some magnetic materials. • To describe magnets as having 2 poles. • Whether 2 magnets will attract or repel each other depending on which poles are facing. 	<ul style="list-style-type: none"> • That sounds get fainter as the distance from the sound source increases.
Working Scientifically	<ul style="list-style-type: none"> • Ask relevant questions and use different types of scientific enquiries to answer them • Set 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 • Gather, record, classify and present data in a variety of ways to help in answering questions • Record findings using simple scientific language, drawings, diagrams, keys, 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, make predictions, suggest improvements and raise further 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. 	

Upper Key Stage 2 Strands	Year 5 knowledge Pupils should know:	Year 6 knowledge Pupils should know:
Biology	<p>Living things and habitats</p> <ul style="list-style-type: none"> • Describe differences in life cycles of mammals, insects, amphibians and birds. • Describe the life processes of (asexual and sexual) reproduction in both plants and animals. <p>Animals including humans</p> <ul style="list-style-type: none"> • Understand changes (including puberty) as humans develop from birth to old age • Gestation periods (understand when things occur as we grow) 	<p>Evolution and Inheritance</p> <ul style="list-style-type: none"> • Know the earth and living things have changed over time. • Know how fossils can be used to find out about the past. • Know about characteristics being passed on through (inheritance/adaptation) reproduction and offspring. • Know what is meant by survival of the fittest. • Know how animals and plants are adapted to suit their environment. • Explain what is meant by evolution. • Link adaptation over time to evolution. <p>Living things and habitats</p>

		<ul style="list-style-type: none"> Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including microorganisms, plants, humans and animals. <p>Animals including humans</p> <ul style="list-style-type: none"> Identify and name the main parts of the human circulatory system. Know the function of the heart, blood vessels, lungs and blood. Know the ways in which nutrients and water are transported in animals including humans. Know the impact of diet, exercise, drugs and lifestyle on health.
Chemistry	<p>Properties and changes of materials</p> <ul style="list-style-type: none"> Compare and group materials based on properties. Know and explain how a material dissolves to form a solution. Know and show how to recover a substance from a solution. Know and demonstrate how some materials can be separated, some changes are reversible and some are not, how some result in the formation of a new material (which is usually irreversible). Grouping mixtures: soluble and insoluble 	
Physics	<p>Earth and space</p> <ul style="list-style-type: none"> Know and explain the movement of the earth and their planets relative to the sun. Know about and explain the movement of the moon relative to the earth. Know and demonstrate how night and day are created. Describe the sun, earth and moon. <p>Forces</p> <ul style="list-style-type: none"> Know what gravity is and its impact. Identify and know the effect of air and water resistance, friction. Explain how levers, pulleys and gears allow a smaller force to have a greater effect. 	<p>Light</p> <ul style="list-style-type: none"> Know how light travels and how we see objects. Know and demonstrate how we see objects. Know why shadows have the same shape as the object which casts them and how simple optical instruments work. Know that white light is made up of a spectrum of colours. Understand reflection and refraction. <p>Electricity</p> <ul style="list-style-type: none"> How to compare and give reasons why components work and do not work in a circuit. Testing Conductivity Electricity Safety How to draw and recognise components in circuit diagrams using correct symbols.

		<ul style="list-style-type: none"> • How the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer.
Working Scientifically	<ul style="list-style-type: none"> • Know which type of investigation is needed to suit a particular scientific enquiry. • Set up a fair test and plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. • Know what the variables are in a given enquiry and can isolate each one when investigating. • Take measurements, using a range of scientific equipment, with increasing accuracy and precision (capacity, mass, ratio, and proportion). • Record data and present them in a range of ways including diagrams and labels, classification keys, tables, scatter graphs and bar and line graphs • Use test results to make predictions to set up further comparative and fair tests. • Report and present findings from enquiries including conclusions, causal relationships and explanations of results, in oral and written forms such as displays and other presentations. • Give explanations set out clearly why something has happened and its possible impact on other things. 	