



# Meadow Primary School Progression Map



## Subject: Science

Intent: In Science, we intend to inspire pupils with a curiosity and fascination about the world around them. We will develop their scientific knowledge and conceptual understanding through the specific disciplines of biology, chemistry and physics. We will develop their scientific language, enabling children to talk about their methods and explain their findings and conclusions. The curriculum will motivate them to become effective communicators of scientific ideas, facts and data whilst enhancing their practical skills of scientific enquiry.

Autumn	EYFS	Key Stage 1		Key Stage 2			
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6

Knowledge	<p><b>All About Me</b></p> <p>Tasting</p> <p>Tongue</p>	<p><b><u>Seasons (Continuous)</u></b> Name the four seasons and discuss features of them</p> <p>Talk about how the seasons affect them (clothes, weather, etc)</p> <p><b><u>Being a Scientist</u></b> Making mixtures observing melting ice</p> <p><b><u>Materials</u></b> To recall different materials and their properties 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.</p>	<p><b><u>Space Scientists</u></b> Know what skills scientists use. Name some scientist and find out what their jobs entail and how their discoveries have moved scientific knowledge forward. How scientists impact on our everyday lives.</p> <p>Through space missions the children find out about and describe the basic needs of animals, including humans, for survival (water, food and air)</p> <p><b><u>Materials</u></b> Naming and describing materials around them. Identify what materials are suitable for. Test materials for their different properties. Vocabulary of Opaque, Translucent and transparent secured.</p>	<p><b><u>Animals</u></b> Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p> <p><b><u>Rocks/fossils/soil</u></b> Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties Describe in simple terms how fossils are formed when things that have lived are trapped within rock Recognise that soils are made from rocks and organic matter.</p>	<p><b><u>Teeth</u></b> Describe the simple functions of the basic parts of the digestive system in humans</p> <p>Identify the different types of teeth in humans and their simple functions</p> <p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p><b><u>States of matter</u></b> Compare and group 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.</p>	<p><b><u>Materials</u></b> Solids, liquids and gases – characteristics, properties and Describe changes of state, Use scientific terminology in relation to evaporation and condensation</p> <p>Solubility of materials in order to separate mixtures</p>	<p><b><u>Electricity</u></b> 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. Use recognised symbols when representing a simple circuit in a diagram.</p> <p><b><u>Light</u></b> Recognise that light appears to travel in straight lines. 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. 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 why shadows have the same shape as the objects that cast them.</p>
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<p>Skills</p>	<p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate 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.</p>	<p>Observe changes over time in the seasons</p> <p>Asking simple questions</p> <p>Identifying materials and matching them to given properties.</p>	<p><b>Space scientists</b></p> <p>Moon crater experiment: Observing closely, using simple equipment-</p> <p>Dancing Raisins experiment: Using their observations and ideas to suggest answers to questions</p> <p>Be a scientist. They should be encouraged to be curious and ask questions about what they notice.</p> <p><b>Materials</b></p> <p>Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. Test materials for a particular purpose for example making boats.</p>	<p><b>Animals</b></p> <p>Identify bones in the body</p> <p>Identify organs and some of the functions of them in the body</p> <p>Describe the digestive system</p> <p><b>Rocks/fossils/soil</b></p> <p>To compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>To how soil is formed.</p> <p>To know about the permeability of different soils.</p> <p>To know fossils are formed.</p>	<p><b>Teeth</b></p> <p>Identify and compare food groups; sorting foods into the correct group</p> <p>Plan a fair test; make predictions</p> <p>Draw simple conclusions from a fair test</p> <p><b>States of matter</b></p> <p>Explain the properties of different materials using scientific language.</p> <p>Sort materials into groups according to their properties,</p> <p>Decide on what equipment to use and how to make observations</p>	<p>Measuring amount of air in materials (displacement)</p> <p>Rate of evaporation experiment,</p> <p>Investigation – changing temperature of melting ice</p> <p>Separating mixtures using knowledge of materials and solubility / particle size.</p> <p>Use equipment to measure temperature / separate materials - carrying out careful observations e.g. eye level to read the thermometer.</p> <p>Present data in tables and graphs (age-appropriate maths) including drawing scales accurately</p>	<p>Recognise when variables need to be controlled or cannot be controlled and when a fair test is the best way to answer a question.</p> <p>Plan a fair test selecting the most suitable variables to measure, change and keep the same.</p> <p>Decide how detailed data needs to be and what equipment to use to make measurements as accurate as possible.</p> <p>Use equipment accurately to collect observations.</p> <p>Record data appropriately and accurately.</p> <p>Present data in line graphs, scatter graphs and frequency charts.</p> <p>Identify causal relationships.</p> <p>Recognise the patterns in results.</p> <p>Recognise the effect of sample size on reliability.</p> <p>Interpret changes in the data and recognize the effect of changing the time and number of observations.</p> <p>Draw valid conclusions based on the data.</p> <p>Recognise limitations.</p> <p>Recognize the significance of the results of fair tests and relationships between sets of data.</p> <p>Talk and explain causal relationships using scientific knowledge and understanding.</p> <p>Evaluate the effectiveness of fair testing and looking for patterns, recognising variables that were difficult to control.</p>
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Spring	EYFS	Key Stage 1		Key Stage 2			
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge	<p><b>My imagination</b></p> <p>Space</p> <p>Dinosaurs</p>	<p><b><u>Animals</u></b> Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p><b><u>Ourselves &amp; Senses</u></b> 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.</p>	<p><b><u>Humans and Living things</u></b> Notice that animals, including humans, have offspring which grow into adults.</p> <p>Find out about and describe the basic needs of animals, including humans, for survival (water, food and air) Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p><b><u>Animals and their Habitats</u></b> Explore and compare the differences between things that are living, dead, and things that have never been alive Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other Identify and name a variety of plants and animals in their habitats, including microhabitats Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name different sources of food.</p>	<p><b><u>Plants</u></b> 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 Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p> <p><b><u>Famous Scientists</u></b> Children will use prior knowledge of topics learnt so far to learn about the scientists and what they were famous for.</p>	<p><b><u>Sound</u></b> Identify how sounds are made, associating some of them with something vibrating Recognise 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 Recognise that sounds get fainter as the distance from the sound source increases.</p> <p><b><u>Habitats</u></b> 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.</p>	<p><b><u>Forces / Space</u></b> How forces act on an object. Explain the effect of gravity Measure forces in newtons using newton meters How to conduct a fair test Know and describe the effects of air resistance, water resistance and friction on objects. How gears are used to transfer forces Scientific vocabulary including forces, directions, fulcrum etc. Name, order and know key facts about planets in the solar system and how they relate to each other in size and features. Explain day, night, shadows, phases of moon and seasons using appropriate vocabulary. Know that a star is a glowing ball of gas and that these are grouped in constellations Know about moon landings and space exploration</p>	<p><b><u>Living Things</u></b> 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. <b><u>Animals Including Humans</u></b> 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.</p>

Skills	<p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate 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.</p>	<p>Comparing and classifying animals groups such as carnivore, herbivore, omnivore</p> <p>Perform simple tests</p> <p>Gathering and recording data</p>	<p><b><u>Humans and other living things.</u></b></p> <p>Identifying and classifying - Living and non-living, creating their own criteria- using Venn and Carroll diagrams to show data in a variety of ways. To begin to use non-standard measuring skills. Record in simple tally charts.</p> <p><b><u>Animals and their Habitats</u></b></p> <p>Collecting data. Analyse by comparing numerical data Use scientific language to describe causal relationships. Use simple books and electronic media to find things out.</p>	<p><b><u>Famous Scientists</u></b></p> <p>To understand how things were discovered. Children to be able to observe and understand how things were discovered.</p> <p><b><u>Plants</u></b></p> <p>Experiment to see what plants need to grow</p> <p>Dissecting a flower to see the parts of a flower.</p> <p>Water up the stem experiment</p>	<p><b><u>Sound</u></b></p> <p>Decide on what equipment to use and how to make observations. Record and present information gathered from an investigation</p> <p>Use scientific language to explain findings.</p> <p><b><u>Habitats</u></b></p> <p>Sort animals into a range of complex groups according to own criteria, for example vertebrate / invertebrate.</p> <p>Use scientific language to explain findings.</p> <p>Use information sources to find information</p>	<p>Construct a fair test to measure the effect of friction on an object, selecting equipment and method to use. Investigate the effect of air resistance – ball drop experiment - Record measurements on a graph accurately. Use equipment accurately to measure time</p>	<p>Recognise when identifying and classifying will be helpful to answer questions. Decide what equipment tests and secondary sources of information to use to identify and classify things. Use secondary sources to classify things. Make own keys and branching databases using 4 or more items. Use more than one piece of scientific evidence to identify and classify things. Draw valid conclusions when sorting and classifying. Recognise the significance of sorting and classifying. Talk using scientific knowledge. Evaluate how keys worked.</p>
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Summer	EYFS	Key Stage 1		Key Stage 2			
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Knowledge	<p><b>Animals and Traditional Tales</b></p> <p>Growing/ Plants</p> <p>Animal habitats</p>	<p><b><u>Features of Plants</u></b></p> <p>Links to dinosaurs</p> <p>Naming plants</p> <p>Nature walks</p> <p>Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees</p> <p>Identify and describe the basic structure of a variety of common flowering plants, including trees.</p> <p><b><u>Seasons (Continuous)</u></b></p> <p>Name the four seasons and discuss features of them</p> <p>Talk about how the seasons affect them (clothes, weather, etc)</p>	<p><b><u>Pond Life</u></b></p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores</p> <p>Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) (Yr One knowledge to reinforce)</p> <p><b><u>Plants</u></b></p> <p>Observe and describe how seeds and bulbs grow into mature plants</p> <p>Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.</p>	<p><b><u>Light</u></b></p> <p>Recognise that they need light in order to see things and that dark is the absence of light</p> <p>Notice that light is reflected from surfaces</p> <p>Recognise that light from the sun can be dangerous and that there are ways to protect their eyes</p> <p>Recognise that shadows are formed when the light from a light source is blocked by an opaque object</p> <p>Find patterns in the way that the size of shadows change.</p> <p><b><u>Forces/Magnets</u></b></p> <p>To compare how things move on different surfaces.</p> <p>To sort and name magnetic and non-magnetic materials.</p> <p>To investigate the strength of magnets.</p> <p>To explore the magnetic poles.</p> <p>I can explain that magnets attract some materials.</p>	<p><b><u>Circuits &amp; Conductors</u></b></p> <p>Identify common appliances that run on electricity</p> <p>Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers</p> <p>Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery</p> <p>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit</p> <p>Recognise some common conductors and insulators, and associate metals with being good conductors.</p> <p><b><u>Famous Scientists</u></b></p> <p>Leading figures, past and present, in biology, chemistry and physics and their key ideas.</p>	<p><b><u>Life Cycles of plants and animals</u></b></p> <p><b><u>Living things and their habitats</u></b></p> <p>Name parts of flowering plants including male and female reproductive parts and know the functions of these – pollination, fertilization</p> <p>Life cycles of mammals (including abnormal mammals – duck billed platypus)/ birds / amphibians and insects including those with metamorphosis (butterflies)</p> <p>Human life cycle and milestones</p>	<p><b><u>ID</u></b></p> <p>Understand what is meant by the term 'identity'.</p> <p>To identify the different traits that make up them as a person.</p> <p>Identify different physical and personality traits of the class.</p> <p>Identifying patterns and relationships among individual and class measurements.</p> <p>Identify three different types of fingerprints.</p> <p>Understanding the difference between nature and nurture.</p> <p>Identify that we all have different likes and dislikes.</p> <p>Identify pros and cons for different scenarios linked to human rights.</p>

<p>Skills</p>	<p>Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate 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.</p>	<p>Identify and name common plants (trees)</p> <p>Explore and answer questions about plants</p> <p>Describe and compare the structure of a variety of common animals</p> <p>Observe the changes in the seasons. Pattern seeking-temperatures, weather types.</p>	<p><b><u>Pond Life</u></b>          Observing closely, using simple equipment-pond dipping Holly Lodge Trip. Gathering and recording data to help in answering questions.</p> <p><b><u>Plants</u></b>          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. Identify simple patterns and talk about them. NB: We cover the topic 'Climates' in Geography. This reinforces their knowledge of seasonality and pattern seeking.</p>	<p><b><u>Light</u></b>          To recognise that we need light in order to see things and that dark is the absence of light          To know how light is reflected.          To know that light is reflected from surfaces          To recognise that they need light in order to see things and that dark is the absence of light          To find patterns when investigating how shadows change size.</p> <p><b><u>Forces/Magnets</u></b>          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 having two poles          Predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>	<p><b><u>Circuits &amp; Conductors</u></b>          Use scientific language to explain findings.</p> <p>Decide what equipment to use and how to make observations</p> <p>Draw simple conclusions from a fair test</p> <p>Talk about when things can be grouped and decide when questions can be answered</p> <p><b><u>Famous Scientists</u></b>          Create and follow a line of questioning; explore scientific curiosity</p> <p>Carry out research and present findings in different ways (Science Fair)</p>	<p>Design experiment to compare growth of one part of the human body e.g. hands / feet / height or to compare height and hand / foot size</p> <p>Produce graphs of investigation data.</p>	<p>Recognise how data is obtained.</p> <p>Draw valid conclusions from research.</p> <p>Talk about research using scientific knowledge.</p> <p>Evaluate how well research has answered questions.</p> <p>Recognise that some questions may not have been answered definitively.</p> <p>Draw valid conclusions</p> <p>Debate and discuss philosophical questions.</p>
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## Impact (End Points)

EYFS	Key Stage 1		Key Stage 2			
Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Children to be 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.</p>	<p>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.</p>	<p>Children should be able to experience and observe phenomena, looking more closely at 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.</p>	<p>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 &amp; fossils based on their appearance and physical features. To sort, name and identify magnetic and non-magnetic objects. To understand light &amp; shadows, patterns and reflection.</p>	<p>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.</p>	<p>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 lifecycles of plants, animals and humans using appropriate scientific vocabulary.</p>	<p>Children use their scientific skills and vocabulary to plan, carry out and evaluate appropriate investigations to explore the wider world.</p>