



# Manland Primary School-Long Term Curriculum Plan

## Overview of Skills – Science



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Reception	<p>Comment and ask questions about the world around them</p> <p>Talk about things they have observed about the environment, things they have found and things they have seen</p> <p>Develop an understanding of growth, decay and changes over time</p> <p>Show care and concern for the environment</p>		<p>Talk about themselves and what makes them the same and different to others</p> <p>Look closely at similarities, differences, patterns and change</p> <p>Talk about the features of their environment</p> <p>Talk about the features of their environment and how this is different to other environments</p> <p>Talk about change</p> <p>Make observations of animals and plants</p> <p>Know the properties of some materials and what they could be used for</p> <p>Talk about scientific concepts e.g. floating, sinking, experimentation</p>		<p>Talk about scientific concepts e.g. floating, sinking, experimentation</p> <p>Know that the environment can be influenced by human activity</p> <p>Talk about things people can do to maintain the area they live in</p> <p>Make observations of animals and plants</p>	
Year 1	<p>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>Working scientifically</b></p> <p>-Use observations and ideas to suggest answers to simple questions</p> <p>-Observing closely, using simple equipment</p> <p>-Performing simple tests</p> <p>Gathering and recording data to help in answering questions</p> <p>Identify and classify</p>	<p><b>Everyday Materials</b></p> <p>Distinguish between an object and the material from which it is made.</p> <p>Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.</p> <p>Describe the simple physical properties of a variety of everyday materials.</p> <p>Compare and group together a variety of everyday materials on the basis of their simple physical properties.</p> <p><b>Working Scientifically</b></p> <p>Decide on foci.</p> <p>Observe closely, using simple equipment.</p> <p>Gather and record data to help in answering questions.</p> <p>Identify and classify.</p>	<p>Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals .</p> <p>Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</p> <p>Describe and compare the structure of a variety of common animals. (fish, amphibians, reptiles, birds and mammals, including pets)</p> <p><b>Working Scientifically</b></p> <p>Observe closely, using simple equipment.</p> <p>Use their observations and ideas to suggest answers to questions.</p> <p>Gather and record data to help in answering questions.</p>	<p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p> <p><b>Working Scientifically</b></p> <p>Decide on foci.</p> <p>Observe closely, using simple equipment.</p> <p>Gather and record data to help in answering question. (for that season)</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>Working Scientifically Plants</b></p> <p>Observe closely, using simple equipment.</p> <p>Perform simple tests.</p> <p>Identify and classify.</p> <p>Use observations and ideas to suggest answers to questions</p>	<p>Observe changes across the four seasons.</p> <p>Observe and describe weather associated with the seasons and how day length varies.</p> <p><b>Working Scientifically</b></p> <p>Decide on foci.</p> <p>Observe closely, using simple equipment.</p> <p>Gather and record data to help in answering question. (for that season)</p>



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		<p>Use their observations and ideas to suggest answers to questions.</p> <p><b>Seasonal Changes</b> Observe changes across the four seasons. Observe and describe weather associated with the seasons and how day length varies.</p> <p><b>Working Scientifically</b> Decide on foci. Observe closely, using simple equipment. Gather and record data to help in answering question. (for that season)</p>				
Year 2	<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. Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</p> <p><b>Working Scientifically</b> Perform simple tests. Observe closely, using simple equipment. Using their observations and ideas to suggest answers to questions. Gather and record simple data to help in answering questions. Identify and classify.</p>	<p>Notice that animals, including humans, have offspring which grow into adults. Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</p> <p><b>Working Scientifically</b> Observe closely, using simple equipment. Ask simple questions and recognise that they can be answered in different ways.</p>	<p>Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</p> <p><b>Working Scientifically</b> Gather and record simple data to help in answering questions. Use their ideas and observations to suggest answers to questions. Identify and classify</p>	<p><b>Plants started and continued into summer term.</b> Observe and describe how seeds and bulbs grow into mature plants.</p>	<p>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.</p> <p><b>Working Scientifically</b> Ask simple questions and recognise that they can be answered in different ways. Perform simple tests. Observe closely, using simple equipment. Use their observations and ideas to suggest answers to questions. Identify and classify. Gather and record data to help in answering questions.</p>	<p>Identify and name a variety of plants and animals in their habitats, including micro-habitats. Explore and compare the differences between things that are living, dead, and things that have never been alive. 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. Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.</p> <p><b>Working Scientifically</b></p>



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						Gather and record simple data to help in answering questions. Identifying and classifying. Use their observations and ideas to suggest answers to questions.
Year 3	<p>Gather and record data to help in answering questions. 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. To group and compare light sources. To observe over time. <b>Working Scientifically</b> Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. 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.</p>	<p>Compare how things move on different surfaces. Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing <b>Working Scientifically</b> Asking relevant questions and using different types of scientific enquiries to answer them. 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. Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Use results to draw simple conclusions.</p>	<p>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>Working Scientifically</b> Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language. Identifying differences, similarities or changes related to simple scientific ideas and processes. Using straightforward scientific evidence to answer questions or to support their findings.</p>	<p>Compare and group together different kinds of rocks on the basis of their appearance and simple properties. Describe in simple terms how fossils are formed when things that have lived are trapped in rocks. <b>Working Scientifically</b> Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Recording findings using simple scientific language. Identifying differences, similarities or changes related to simple scientific ideas and processes. Using straightforward scientific evidence to answer questions or to support their findings.</p>	<p>Identify and describe the functions of different parts of flowering plants. 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. <b>Working Scientifically</b> Asking relevant questions and using different types of scientific enquiries to answer them. Setting up simple practical enquiries, comparative and fair tests. Making systematic and careful observations Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions. Recording findings using simple scientific language, drawings, labelled diagrams.</p>



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	Using straightforward scientific evidence to answer questions or to support their findings.					Using results to draw simple conclusions, and raise further questions.
Year 4	<p>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. Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p> <p><b><u>Working Scientifically</u></b> Ask relevant questions and use different types of scientific enquiries to answer them. Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, including thermometers and data loggers. Gather and record data in a variety of ways to help in answering questions. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions. Identify differences, similarities or changes</p>	<p>Describe the simple functions of the basic parts of the digestive system in humans. Identify the different types of teeth in humans and their simple functions.</p> <p><b><u>Working Scientifically</u></b> Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Record and present findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Report on findings from enquiries in simple scientific language, using both oral and written explanations, displays or presentations of results and conclusions. Identify similarities, differences or changes related to simple scientific ideas and processes. Use straightforward scientific evidence to answer questions or to support their findings.</p>	<p>Construct and interpret a variety of food chains, identifying producers, predators and prey.</p> <p><b><u>Working Scientifically</u></b> Ask relevant questions and using different types of scientific enquiries to answer them. Make systematic and careful observations. Gather, record and present data in a variety of ways to help in answering questions. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p>	<p>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. Recognise that living things can be grouped in a variety of ways.</p> <p><b><u>Working Scientifically</u></b> Gather, record, classify and present data in a variety of ways to help in answering questions. Use straightforward scientific evidence to answer questions or to support their findings.</p>	<p>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. Working Scientifically Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Report on findings from enquiries, including oral</p>	<p>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 then strength of the vibrations that produced it. Recognise that sounds get fainter as the distance from the sound sources increases.</p> <p><b><u>Working Scientifically</u></b> Ask relevant questions and using different types of scientific enquiries to answer them. Set up simple practical enquiries, comparative and fair tests. Make systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers. Record findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables. Use results to draw simple conclusions, make predictions for new values,</p>



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	related to simple scientific ideas and processes. 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. With support, make predictions for new values, within or beyond the data collected. With support, raise further questions.			and written explanations, displays or presentations of results and conclusions. Use results to draw simple conclusions. Make predictions for new values and suggest improvements. With support, raise further questions.	suggest improvements and raise further questions.
Year 5	<p>Properties of Materials To compare and group together everyday materials on the basis of their properties, including hardness, transparency and conductivity electrical and thermal) . Working Scientifically To plan different types of scientific enquiries to answer questions, recognising and controlling variables where necessary. To record data and results of increasing complexity, using scientific diagrams and labels, classification keys, tables, scatter graphs, bar chart line graphs. To report and present findings from enquiries, including conclusions, causal relationships and explanations of and the degree of trust in results in oral and written forms such as displays and other presentations.</p>	<p>Changing of Matter To compare and group everyday materials on the basis of their properties including their solubility, transparency and responses to magnets. To give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, woods and plastics. To know that some materials will dissolve in liquid to from a solution, and describe how to recover a substance from a solution. To use knowledge of solids, liquids and gases to decide how mixtures might be separated, including filtering, sieving and evaporating. To demonstrate that dissolving, mixing and</p>	<p>Forces To identify the effects of air resistance, water resistance, and friction that act between moving surfaces. To explain that unsupported objects fall towards the Earth because of the forces of gravity acting between the Earth and the falling object. To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.</p> <p>Working Scientifically To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary. To take measurements using scientific equipment, with increasing accuracy and precision. To take repeat reading when appropriate. To record data and results of increasing complexity.</p>	<p>Earth and Space To describe the movement of the Earth and other planets, relative to the Sun in the Solar. To describe the movement of Moon relative to the Earth. To describe the Sun, and Moon as approximately spherical bodies. To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.</p> <p>Working Scientifically To identify scientific evidence that has been used to support or refute ideas or arguments.</p>	<p>Animals To describe the changes as humans develop to old age.</p> <p>Working Scientifically. To record and present findings using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. To report on findings from enquire in oral and written explanations</p>	<p>Living things and their habitats/ Life Cycles To describe the differences in life cycles of a mammal, amphibian, insect and a bird. To describe the life process of reproduction in plants and animals. Working Scientifically To record and present findings using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. To report on findings from enquire in oral and written explanations.</p>



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	<p>To use test results to make predictions to set up further comparative fair tests.</p>	<p>changes of state are reversible changes. To 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.</p> <p>Working Scientifically To plan different types of scientific enquiries to answer questions, recognising and controlling variables where necessary. To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. To report and present findings from enquiries, including conclusions, causal relationships and explanations of and the degree of trust in results in oral and written explanations such as displays and other presentations. To use test results to make predictions to set up further comparative fair tests.</p>	<p>To record and present findings using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. To 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 To identify scientific evidence that has been used to support or refute ideas of arguments.</p>			
Year 6	Describe how living things are classified into broad groups according to common observable characteristics and based	Recognise that living things produce offspring of the same kind, but normally offspring vary	Identify and name the main parts of the human circulatory system, and describe the functions of the heart, vessels and blood.	Recognise that light appears to travel in straight lines. Explain that we see things because light travels from the light source to our eyes or from	Use recognised symbols when representing a simple circuit in a diagram.	Deciding as a class where to take our learning. Planning different types of enquiries to answer scientific questions.



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	<p>on similarities and differences, including micro organisms, plants and animals. Give reasons for classifying plants and animals based on specific characteristics. <b>Working Scientifically</b> Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p>	<p>and are not identical to their parents. To identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution. To recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago. <b>Working Scientifically</b> Identify scientific evidence that has been used to support or refute ideas or arguments. Use test results to make predictions and to set up further comparative fair tests.</p>	<p>Recognise the impact of diet, exercise, drugs, and lifestyle on the way their bodies function. Describe the way in which nutrients and water are transported within animals, including humans. <b>Working Scientifically</b> To plan different types of scientific enquires to answer questions, recognising and controlling variables where necessary. Take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Report and present 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.</p>	<p>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 object that cast them. 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. <b>Working Scientifically</b> Plan different types of scientific enquiries to answer questions, recognising and controlling variables where necessary. Take measurements using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs. Report and present findings from enquires including conclusions, causal relationships and explanations, of and a degree of trust in results, in oral and written explanations such as displays and other presentation. Use test results to make predictions and to set up further comparative and fair tests.</p>	<p>Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. 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. <b>Working Scientifically</b> Plan different types of scientific enquiries to answer questions recognising and controlling vairables where necessary. Take measurements, in standard units, using a range of scientific quiepment, with increasing accuracy and precision, taking repeat readings when appropriate. Record and present findings using scientific diagram and labels, classification keys, tables, scatter grpahs, bar and line graphs. Identify causal relationships and expalnation of results. Draw conslusions conclusions, explain and interpet results (including the degree of trust). Use test result to make predictions and to set up further tcomparative and fair tests.</p>	
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