

# Brough Primary School - Working Scientifically Progression of Skills

## Year 3&4



Science Unit	Working scientifically skills non-negotiables (linked to FLIC)	Working Scientifically skills activities
<p><b>Forces and magnets (Year A)</b> compare how things move on different surfaces.</p> <p>notice that some forces need contact between two objects, but magnetic forces can act at a distance.</p> <p>observe how magnets attract or repel each other and attract some materials and not others.</p> <p>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.</p> <p>describe magnets as having two poles.</p> <p>predict whether two magnets will attract or repel each other, depending on which poles are facing.</p>	<p>Begin to set up simple practical enquiries, comparative and fair tests.</p> <p>Begin to ask relevant questions and use different types of scientific enquiries to answer them.</p> <p>Begin to identify differences, similarities or changes related to simple scientific ideas and processes.</p> <p>Begin to use results to draw conclusions, make predictions for new values, suggest improvements.</p> <p>Begin to gather, record, classify and present data in a variety of ways to help in answering questions.</p> <p>Begin to record findings using simple scientific language, drawings' labelled diagrams, keys, bar charts.</p> <p>Begin to use straightforward scientific evidence to answer questions of to support their findings.</p>	<p>Investigate how vehicles move on different surfaces.</p> <p>Set up a fair test to consider what is attracted by magnets and what is repelled by magnets.</p> <p>Explore the strengths of different magnets and finding a fair way to compare them;</p> <p>Sort materials into those that are magnetic and those that are not;</p> <p>Look for patterns in the way that magnets behave in relation to each other and what might affect this, such as the strength of the magnet or which pole faces another;</p> <p>Identify how these properties make magnets useful in everyday items and suggesting creative uses for different magnets.</p>

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<p><b><u>Living Things and their habitats (Year A)</u></b></p> <p>recognise that living things can be grouped in a variety of ways.</p> <p>explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment.</p> <p>recognise that environments can change and that this can sometimes pose dangers to living things</p>	<p>Record findings using simple scientific language, drawings labelled diagrams, keys, bar charts and tables.</p> <p>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment.</p> <p>Ask relevant questions and use different types of scientific enquiries to answer them.</p> <p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Identify differences, similarities or changes related to simple scientific ideas and processes.</p>	<p>Explore local small invertebrates and using guides or keys to identify them;</p> <p>Make a guide to local living things;</p> <p>Raise and answer questions based on their observations of animals and what they have found out about other animals that they have researched.</p>
<p><b><u>Animals, including humans (Year A)</u></b></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.</p> <p>identify that humans and some other animals have skeletons and muscles for support, protection and movement.</p>	<p>Begin to gather, record, classify and present data in a variety of ways to help in answering questions.</p> <p>Begin to ask relevant questions and use different types of scientific enquiries to answer them.</p> <p>Begin to record findings using simple scientific language, drawings' labelled diagrams, keys, bar charts.</p> <p>Begin to use straightforward scientific evidence to answer questions to support their findings.</p>	<p>Identify and group animals with and without skeletons and observe and compare their movement;</p> <p>Explore ideas about what would happen if humans did not have skeletons.</p>

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<p><b><u>Plants (Year A)</u></b>          identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers.</p> <p>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.</p> <p>investigate the way in which water is transported within plants.</p> <p>explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.</p>	<p>Begin to ask relevant questions and use different types of scientific enquiries to answer them.</p> <p>Begin to gather, record, classify and present data in a variety of ways to help in answering questions</p> <p>Begin to set up simple practical enquiries, comparative and fair tests.</p> <p>Begin to use straightforward scientific evidence to answer questions to support their findings.</p>	<p>Compare the effect of different factors on plant growth, for example the amount of light, the amount of fertiliser; room to grow.</p>
<p><b><u>Earth and Space (Year A)</u></b>          describe the movement of the Earth, and other planets, relative to the Sun in the solar system.</p> <p>describe the movement of the Moon relative to the Earth.</p> <p>describe the Sun, Earth and Moon as approximately spherical bodies.</p>	<p>Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Begin to report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of truth in results, in oral and written forms.</p> <p>Begin to record data and results of increasing complexity using scientific diagrams and labels,</p>	<p>Compare the time of day at different places on the Earth through internet links and direct communication;</p> <p>Use simple models of the solar system;</p> <p>Construct simple shadow clocks and sundials, calibrated to show midday and the start and end of the school day.</p>

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<p>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>classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Begin to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p>	
<p><b><u>Light (Year A)</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 a solid object.</p> <p>find patterns in the way that the size of shadows change.</p>	<p>Begin to set up simple practical enquiries, comparative and fair tests.</p> <p>Begin to identify differences, similarities or changes related to simple scientific ideas and processes.</p> <p>Begin to set up simple practical enquiries, comparative and fair tests.</p> <p>Begin to use results to draw conclusions, make predictions for new values, suggest improvements.</p> <p>Begin to use straightforward scientific evidence to answer questions of to support their findings.</p>	<p>Set up a fair test to see what happens to the size of a shadow when an object is at different distances from a light source.</p> <p>Look for patterns in what happens to shadows when the distance between the light source and the object changes</p>
<p><b><u>Sound (Year B)</u></b></p> <p>identify how sounds are made, associating some of them with something vibrating.</p>	<p>Ask relevant questions and use different types of scientific enquiries to answer them.</p>	<p>Find patterns in the data (for example, blowing across the top of bottles, changing the length and thickness of elastic bands).</p>

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<p>recognise that vibrations from sounds travel through a medium to the ear.</p> <p>find patterns between the pitch of a sound and features of the object that produced it.</p> <p>find patterns between the volume of a sound and the strength of the vibrations that produced it.</p> <p>recognise that sounds get fainter as the distance from the sound source increases.</p>	<p>Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions.</p> <p>Identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment.</p> <p>Set up simple practical enquiries, comparative and fair tests.</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions.</p>	<p>Make and play own instruments by using what they have found out about pitch and volume.</p>
<p><b><u>Rocks (Year B)</u></b></p> <p>compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</p> <p>describe in simple terms how fossils are formed when things that have lived are trapped within rock.</p>	<p>Begin to make systematic and careful observations and, where appropriate, take accurate measurements.</p> <p>Begin to set up simple practical enquiries, comparative and fair tests.</p> <p>Begin to report on findings from enquiries, including oral and written explanations, displays or presentations.</p>	<p>Observe rocks; using a hand lens or microscope to help them to.</p> <p>Identify and classify rocks according to whether they have grains or crystals, and whether they have fossils in them.</p>

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recognise that soils are made from rocks and organic matter.		
<p><b><u>Electricity (Year B)</u></b> 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>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment.</p> <p>Set up simple practical enquiries, comparative and fair tests.</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions.</p> <p>Ask relevant questions and use different types of scientific enquiries to answer them.</p> <p>Use straightforward scientific evidence to answer questions or to support findings</p>	<p>Observe patterns, for example that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.</p>
<p><b><u>States of matter (Year B)</u></b> compare and group materials together, according to whether they are solids, liquids or gases.</p>	<p>Set up simple practical enquiries, comparative and fair tests.</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions.</p>	<p>Set up experiments and investigations associated with changing state.</p> <p>Explore the effect of temperature on substances such as chocolate, water, wax.</p>

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<p>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)</p> <p>identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</p>	<p>Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions.</p> <p>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment.</p> <p>Use straightforward scientific evidence to answer questions or to support findings</p>	
<p><b><u>Animals, including humans (Year B)</u></b></p> <p>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>Make systematic and careful observations and, where appropriate, take accurate measurements using standard units, using a range of equipment.</p> <p>Use straightforward scientific evidence to answer questions or to support findings.</p> <p>Identify differences, similarities or changes related to simple scientific ideas and processes</p> <p>Set up simple practical enquiries, comparative and fair tests.</p> <p>Gather, record, classify and present data in a variety of ways to help in answering questions.</p>	<p>Compare the teeth of carnivores and herbivores, and suggesting reasons for differences;</p> <p>Find out what damages teeth and how to look after them. They might draw and discuss their ideas about the digestive system and compare them with models or images.</p>

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