

Brough Primary School Working Scientifically Progression of Skills

Year 5&6



Science Unit	Working scientifically skills non-negotiables (linked to FLIC)	Working Scientifically skills activities
<u>Animals including humans (Year A)</u> describe the changes as humans develop to old age.	<p>Begin to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Begin to identify scientific evidence that has been used to support or refute ideas or arguments.</p>	<p>Compare data about the gestation periods, and life expectancy of humans and other animals</p> <p>or find out and record the length and mass of a baby as it grow.</p>
<u>Forces (Year A)</u> explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object. identify the effects of air resistance, water resistance and friction that act between moving surfaces. recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect.	<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 use test results to make predictions to set up further comparative and fair tests.</p> <p>Begin to take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p>	<p>Carry out fair tests with parachutes to determine which are the most effective.</p> <p>Explore resistance in water by making and testing boats of different shapes</p>
<u>Properties and changes of materials (Year A)</u>	<p>Begin to plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p>	<p>Carry out tests to answer questions such as 'Which materials would be the most effective for keeping the bomb warm or for making conductive wires?'</p>

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Year 5&6



<p>together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets.</p> <p>know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution.</p> <p>use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating.</p> <p>give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic.</p> <p>demonstrate that dissolving, mixing and changes of state are reversible changes.</p> <p>explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes</p>	<p>Begin to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Begin to use test results to make predictions to set up further comparative and fair tests.</p> <p>Begin to identify scientific evidence that has been used to support or refute ideas or arguments.</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>Observe and compare the changes that take place, for example when burning different materials.</p>
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Brough Primary School Working Scientifically Progression of Skills

Year 5&6



associated with burning and the action of acid on bicarbonate of soda		
<p><u>Living things and their habitats (Year A)</u></p> <p>describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird.</p> <p>describe the life process of reproduction in some plants and animals.</p>	<p>Begin to identify scientific evidence that has been used to support or refute ideas or arguments.</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 plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Begin to record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p>	<p>Observe and compare the life cycles of plants and animals in their local environment with other plants and animals around the world (in the rainforest, in the oceans, in desert areas and in prehistoric times),</p> <p>Ask pertinent questions and suggest reasons for similarities and differences.</p>
<p><u>Light (Year B)</u></p> <p>recognise that light appears to travel in straight lines.</p> <p>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.</p> <p>explain that we see things because light travels from light sources to our</p>	<p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.</p>	<p>Decide where to place rear-view mirrors on cars;</p> <p>Design and make a periscope and using the idea that light appears to travel in straight lines to explain how it works.</p> <p>Investigate how the size of shadows change related to the position of the light source</p>

Brough Primary School Working Scientifically Progression of Skills

Year 5&6



<p>eyes or from light sources to objects and then to our eyes.</p> <p>use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</p>	<p>Use test results to make predictions to set up further comparative and fair tests.</p>	
<p><u>Electricity (Year B)</u></p> <p>brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <p>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.</p> <p>use recognised symbols when representing a simple circuit in a diagram</p>	<p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>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>Use test results to make predictions to set up further comparative and fair tests.</p>	<p>Identify the effect of changing one component at a time in a circuit;</p> <p>Design and make a set of traffic lights, a burglar alarm or some other useful circuit.</p>
<p><u>Animals including humans (Year B)</u></p> <p>identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.</p>	<p>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>Explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.</p>

Brough Primary School Working Scientifically Progression of Skills

Year 5&6



<p>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>	<p>Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p>	
<p><u>Evolution and inheritance (Year B)</u> recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.</p> <p>recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.</p> <p>identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.</p>	<p>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>Identify scientific evidence that has been used to support or refute ideas or arguments.</p> <p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p>	<p>Observe and raise questions about local animals and how they are adapted to their environment; compare how some living things are adapted to survive in extreme conditions, for example cactuses, penguins and camels.</p> <p>Analyse the advantages and disadvantages of specific adaptations, such as being on two feet rather than four, having a long or a short beak, having gills or lungs, tendrils on climbing plants, brightly coloured and scented flowers</p>
<p><u>Living things and their habitats (Year B)</u> things are classified into broad groups according to common observable characteristics and based on similarities and differences,</p>	<p>Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.</p> <p>Identify scientific evidence that has been used to support or refute ideas or arguments.</p>	<p>Devise classification systems and keys to identify some animals and plants in the immediate environment.</p> <p>Research animals and plants in other habitats and decide where they belong in the classification system.</p>

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including micro-organisms, plants and animals. give reasons for classifying plants and animals based on specific characteristics.	Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of truth in results, in oral and written forms	
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