



SCIENCE PROGRESSION MAP OF SKILLS AND KNOWLEDGE AT BISHOPS ITCHINGTON PRIMARY SCHOOL

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Year 3	Year 4	Year 5	Year 6
<p>Working Scientifically Read and spell scientific vocabulary correctly and with confidence <u>Asking questions</u> Ask relevant questions Use different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests Make a sensible prediction <u>Measuring and recording</u> Make systematic and careful observations Where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Gather, record, classify and present data in a variety of ways to help in answering questions Record findings using simple scientific language Record findings using drawings, labelled diagrams, keys, tables and bar charts <u>Concluding</u> Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use straightforward scientific evidence to answer questions or to support findings Identify differences, similarities or changes related to simple scientific ideas and processes <u>Evaluating</u> Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	<p>Working Scientifically Read and spell scientific vocabulary correctly and with confidence <u>Asking questions</u> Ask relevant questions Use different types of scientific enquiries to answer them Set up simple practical enquiries, comparative and fair tests Make a sensible prediction <u>Measuring and recording</u> Make systematic and careful observations Where appropriate, take accurate measurements using standard units, using a range of equipment, including thermometers and data loggers Gather, record, classify and present data in a variety of ways to help in answering questions Record findings using simple scientific language Record findings using drawings, labelled diagrams, keys, tables and bar charts <u>Concluding</u> Report on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions Use straightforward scientific evidence to answer questions or to support findings Identify differences, similarities or changes related to simple scientific ideas and processes <u>Evaluating</u> Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions</p>	<p>Working Scientifically Read, spell and pronounce scientific vocabulary correctly <u>Asking questions</u> Plan different types of scientific enquiries to answer questions, including an investigation in which changes are observed over time Recognise and control variables where necessary, describing how to change one variable while keeping others the same Make predictions with an explanation using some scientific ideas <u>Measuring and recording</u> Select the appropriate equipment for an investigation Take measurements using a range of scientific equipment, with increasing accuracy and precision Take repeat readings when appropriate Record data and results of increasing complexity using scientific diagrams and labels classification keys, tables scatter graphs, bar graphs and line graphs <u>Concluding</u> Report and present findings from enquiries by using conclusions, causal relationships using the convention of 'er' words (eg. the heavier the load, the longer the spring) and explanations of and degree of trust in results Report and present these findings in oral and written forms such as displays and other presentations <u>Evaluating</u> Use test results to make predictions to set up further comparative and fair tests</p>	<p>Working Scientifically Read, spell and pronounce scientific vocabulary correctly <u>Asking questions</u> Plan different types of scientific enquiries to answer questions, including an investigation in which changes are observed over time Recognise and control variables where necessary, describing how to change one variable while keeping others the same Make predictions with an explanation using some scientific ideas <u>Measuring and recording</u> Select the appropriate equipment for an investigation Take measurements using a range of scientific equipment, with increasing accuracy and precision Take repeat readings when appropriate Record data and results of increasing complexity using scientific diagrams and labels classification keys, tables scatter graphs, bar graphs and line graphs <u>Concluding</u> Report and present findings from enquiries by using conclusions, causal relationships using the convention of 'er' words (eg. the heavier the load, the longer the spring) and explanations of and degree of trust in results Report and present these findings in oral and written forms such as displays and other presentations <u>Evaluating</u> Use test results to make predictions to set up further comparative and fair tests</p>
<p>Plants 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>Animals including Humans 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 Construct and interpret a variety of food chains, identifying producers, predators and prey</p>	<p>Living things and their habitats Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird Describe the life process of reproduction in some plants and animals</p> <p>Animals including Humans Describe the changes as humans develop to old age</p>	<p>Animals including Humans 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 bodies function Describe the ways in which nutrients and water are transported within animals, including humans</p>



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<p>Animals including Humans Identify that animals, including humans, need the right types and amount of nutrition Identify that animals, including humans, 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>States of Matter 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>Properties of Materials Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal) and response to magnets Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic</p>	<p>Living things and their habitats 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</p>
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<p>Forces and Magnets 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 and repel each other and attract some materials and not others Compare and group together everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials Describe magnets as having two poles and a magnetic field Predict whether two magnets will attract or repel each other, depending on which way the poles are facing</p>	<p>Living things and their habitats 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 the local and wider environment Recognise that environments can change and that this can sometimes pose dangers to living things</p>	<p>Changes of Material Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution Demonstrate that dissolving, mixing and changes of state are reversible changes Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible (including burning, and the action of acid on bicarbonate of soda)</p>	<p>Evolution and Inheritance Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents Identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution</p>
<p>Light Recognise that we 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 our eyes Recognise that shadows are formed when the light from a light source is blocked by an opaque object Find patterns in the way that the size of shadows change</p>	<p>Electricity Identify common electrical appliances 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</p>	<p>Earth and Space Describe the Sun, Earth and Moon as approximately spherical bodies Describe the movement of the Earth, and other planets, relative to the Sun in the solar system Describe the movement of the Moon relative to the Earth 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>Electricity Associate the brightness of a bulb or the volume of a buzzer with the number and voltage of cells used in the circuit Use recognised symbols when representing a simple circuit in a diagram 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>Rocks</p>	<p>Sound</p>	<p>Forces</p>	<p>Light Recognise that light appears to travel in straight lines</p>

<p>Compare and group together different kinds of rocks based on 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>Recognise that soils are made from rocks and organic matter</p>	<p>Identify how sounds are made, associating some of them with something vibrating</p> <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>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</p>	<p>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 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>
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