

SCIENCE PROGRESSION (PHYSICS ELEMENTS) – SKILLS AND CONTENTS AT TOLLERTON SCHOOL

Area of Physics	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
<p>Working Scientifically</p>	<ul style="list-style-type: none"> *asking simple questions and recognising that they can be answered in different ways *observing closely, using simple equipment *performing simple tests *identifying and classifying *using their observations and ideas to suggest answers to questions *gathering and recording data to help in answering questions. 		<ul style="list-style-type: none"> *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 *reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions *using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions *identifying differences, similarities or changes related to simple scientific ideas and processes *using straightforward scientific evidence to answer questions or to support their findings. 		<ul style="list-style-type: none"> *planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary *taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate *recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs *using test results to make predictions to set up further comparative and fair tests *reporting and presenting 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 *identifying scientific evidence that has been used to support or refute ideas or arguments 	
<p>Forces</p>			<ul style="list-style-type: none"> *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 		<ul style="list-style-type: none"> *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. 	

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			each other, depending on which poles are facing.			
Light			<ul style="list-style-type: none"> *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 *find patterns in the way that the size of shadows change. 			<ul style="list-style-type: none"> *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.
Sound				<ul style="list-style-type: none"> *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>Electricity</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.</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 *use recognised symbols when representing a simple circuit in a diagram.</p>
<p>Earth and Space</p>					<p>*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 *describe the Sun, Earth and Moon as approximately spherical bodies *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>Seasonal Changes</p>	<p>*observe changes across the four seasons *describe weather associated with the seasons and how day length varies.</p>					

