



Subject: Science (Forces and Magnets)

Year Group	What knowledge would we like to know?	What skills would we like to know?	How else could we challenge the pupils?	Vocabulary
R				
Y1	<p>Not on the NC for this year group</p> <p><i>Explore floating and sinking, pushes and pulls.</i></p>	<ul style="list-style-type: none"> • Ask simple questions and recognise that they can be answered in different ways • Use simple equipment to observe closely • Perform simple tests • Identify and classify • Use his/her observations and ideas to suggest answers to questions • Gather and record data to help in answering questions 		
Y2	<p>Not on the NC for this year group</p> <p><i>Explore cars moving quicker on different surfaces.</i></p> <p><i>Sort objects using a magnet.</i></p>	<ul style="list-style-type: none"> • Ask simple questions and recognise that they can be answered in different ways including use of scientific language from the national curriculum • Use simple equipment to observe closely including changes over time • Perform simple comparative tests • Identify, group, and classify • Use his/her observations and ideas to suggest answers to questions noticing similarities, differences, and patterns 		

Settrington All Saints' Long Term Planning - Skills and Knowledge ladder



		<ul style="list-style-type: none"> Gather and record data to help in answering questions including from secondary sources of information 		
Y3	<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 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 each other, depending on which poles are facing 	<ul style="list-style-type: none"> Ask relevant questions and use 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, 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, 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 Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions Identify differences, similarities or changes related to simple scientific ideas and processes Use straightforward scientific evidence to answer questions or to support his/her findings 	<p>What happens to the speed of a car when it runs on plastic/sandpaper?</p> <p>What happens when a N/S magnet is put together? What happens when they attract or repel?</p> <p>What is friction?</p> <p>Which objects are attracted to a magnet, how can we test?</p>	<p>Y3</p> <p>force contact force non-contact forces air resistance friction motion surface resistance texture tilt magnet attracts repel bar magnet horseshoe magnet magnetism magnetic field iron steel non-contact forces compass magnetic needle magnetic north direction orienteering</p>

Settrington All Saints' Long Term Planning - Skills and Knowledge ladder



Y4	Not on NC for this year group, though some teaching will happen.	<ul style="list-style-type: none"> • Ask relevant questions and use 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, 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, 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 • Use results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identify differences, similarities or changes related to simple scientific ideas and processes • Use straightforward scientific evidence to answer questions or to support his/her findings 		

Settrington All Saints' Long Term Planning - Skills and Knowledge ladder



<p>Y5</p>	<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 	<ul style="list-style-type: none"> • Plan different types of scientific enquiries to answer questions, including 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 • Use test results to make predictions to set up further comparative and fair tests • 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 • Identify scientific evidence that has been used to support or refute ideas or arguments 	<p>What is gravity and how can you see it in action?</p> <p>Test water resistance by shaping blue tack and dropping it into a container of water. What happens to a flat shape compared to a ball?</p> <p>What happens on a water wheel? How is the force of the water used?</p>	<p>Y5</p> <p>Sir Isaac Newton gravity astronomy weight mass Galileo Galilei air resistance opposing streamlined parachute water resistance streamlined upthrust buoyant sink friction resistance lubricant Newton meter Newton lever load pivot fulcrum pulley mechanism gear mesh rack and pinion bevel gear</p>
<p>Y6</p>	<p>Not on NC for this year group, though some teaching will happen.</p>	<ul style="list-style-type: none"> • Plan different types of scientific enquiries to answer their own or others' questions, including 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 		

Settrington All Saints' Long Term Planning - Skills and Knowledge ladder



		<p>labels, classification keys, tables, scatter graphs, bar and line graphs</p> <ul style="list-style-type: none">• Use test results to make predictions to set up further comparative and fair tests• 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• 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• Describe and evaluate their own and other people's scientific ideas related to topics in the national curriculum (including ideas that have changed over time), using evidence from a range of sources• Group and classify things and recognise patterns		
--	--	---	--	--