

Year 3 – Forces (& Magnetism)						
National Curriculum Objectives		Sticky Knowledge		Vocabulary		
<ul style="list-style-type: none"> Compare how things move on different surfaces. Know how a simple pulley works and use making lifting an object simpler 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 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"> Magnets exert attractive and repulsive forces on each other. Magnets exert non-contact forces, which work through some materials. Magnets exert attractive forces on some materials. Magnet forces are affected by magnet strength, object mass, distance from object and object material. 		Force, push, pull, friction, surface, magnet, magnetic, magnetic field, pole, north, south, attract, repel, compass		
		Working Scientifically		Key Scientists	Linked Texts	
		1.1 asking relevant questions and using different types of scientific enquiries to answer them 1.2 setting up simple practical enquiries, comparative and fair tests 1.3 making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers 1.4 gathering, recording, classifying and presenting data in a variety of ways to help in answering questions 1.5 recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables 1.6 reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions 1.7 using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions 1.8 identifying differences, similarities or changes related to simple scientific ideas and processes 1.9 using straightforward scientific evidence to answer questions or to support their findings.		William Gilbert (Theories on Magnetism) Andre Marie Ampere (Founder of Electro-Magnetism)	The Iron Man (Ted Hughes) Mrs Armitage: Queen of the Road (Quentin Blake) Mr Archimedes' Bath (Pamela Allen)	
Maths National Curriculum Objectives <ul style="list-style-type: none"> Interpret and present data using bar charts, pictograms and tables. Solve one-step and two-step questions using information presented in scaled bar charts and pictograms and tables. 						
Prior Learning		Key Question(s):		Future Learning		
In Year 2 children: <ul style="list-style-type: none"> May have an awareness of how to make things stop and start, using simple pushes and pulls. They may know about floating and sinking. 		<ul style="list-style-type: none"> What are magnetic materials? How can we find out? Can I make a magnetic material non-magnetic? How far away does a magnet have to be before it attracts a magnetic material? How far away can the magnetic attraction between two magnets be experienced? Is the repulsive force the same size? How is the magnetic attraction of repulsion force affected by putting materials between the magnets? Are bigger magnets stronger? How could you use magnets to measure the number of pages in a book? 		In Year 5 children will: <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 and the impact of gravity on our lives. Identify the effects of air resistance, water resistance and friction, which act between moving surfaces. Recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect. 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. Describe the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky. 		
Teaching Ideas						
Comparative tests	Identify & Classify	Observation over time	Pattern Seeking	Research	BIG Question – Assessment Opportunity	
How does the mass of an object affect how much force is needed to make it move? Which magnet is strongest? Which surface is best to stop you slipping?	Which materials are magnetic?	If we magnetise a pin, how long does it stay magnetised for?	Do magnetic materials always conduct electricity? Does the size and shape of a magnet affect how strong it is?	How have our ideas about forces changed over time? How does a compass work?	How can we move magnets?	