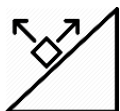




LKS2 A– Forces



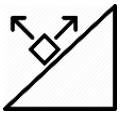
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National Curriculum Objectives	Declarative Knowledge	Procedural Knowledge
<p><u>Forces and Magnets</u> Pupils should be taught to:</p> <ul style="list-style-type: none"> • Compare how things move on different surfaces. • Notice that some forces need contact between two objects, but magnet 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 each other, depending on which poles they are facing. 	<p>Prior Learning <i>How do objects move? Can you categorise them into different movements?</i> <i>What happens if we put an object in water, does the movement change? What happens to the object?</i></p> <p>What is a magnet?</p> <ul style="list-style-type: none"> • Know that magnets can attract or repel each other. • Know that a magnet has two poles. • Know there are different types of magnet: bar magnet, horseshoe magnet, button magnet, ring magnet, cylindrical magnet, and square magnet. • Know some everyday uses for different magnets <p>Can a magnet attract and repel?</p> <ul style="list-style-type: none"> • Know that some forces can act without direct contact. • Know that some forces need contact between two objects. • Know that some materials are attracted to magnets. • Know that materials that are attracted to magnets are known as being 'magnetic'. • Know that magnets produce an invisible pulling force. <p>What is a magnetic field?</p> <ul style="list-style-type: none"> • Know a number of magnetic materials. • Know that a compass works using a magnetic field. • Know what a compass is and what its purpose is. <p>What is friction?</p> <ul style="list-style-type: none"> • Know what friction is. • Know that different surfaces create different levels of friction. • Know that the level of friction impacting on an object affects the speed in which it moves (e.g. toy car across different surfaces such as grass, gravel, sand and a road). 	<ul style="list-style-type: none"> • To be able to compare how different things move and grouping them. • To be able to raise questions and carry out tests to find out how far things move on different surfaces. • To be able to gather and record data to find the answers to their questions. • To be able to explore the strengths of different magnets and find a fair way to compare them. • To be able to sort materials into those that are magnetic and those that are not. • To be able to look for patterns in the way that magnets behave in relation to each other and what might affect this (E.g. strength of the magnet or which poles face each other). • To be able to suggest creative uses for different magnets. • To be able to use a magnetic compass with four points.
Prior Learning	Key Questions	Future Learning
<p>In Year 2 children may:</p> <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? 	<p>In Year 5 children will:</p> <ul style="list-style-type: none"> • Explain that unsupported objects fall towards the Earth because of the force of gravity acting



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	<ul style="list-style-type: none"> • 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? 	<p>between the Earth and the falling object and the impact of gravity on our lives.</p> <ul style="list-style-type: none"> • 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 			
Vocabulary	Key Scientists	Linked Texts			
Force, push, pull, friction, surface, magnet, magnetic, magnetic field, pole, north, south, attract, repel, compass.	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)			
Teaching Ideas					
Comparative tests	Identify & Classify	Observation over time	Pattern seeking	Research	Big Question
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?



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