



## Year 5 Science Skills and Knowledge Organiser

### Forces

Key Knowledge and Skills	Working Scientifically	Key Vocabulary	Key Questions
<p>To identify weight as a force</p> <p>To identify that force is measured in Newton's</p> <p>To name simple forces such as gravity, friction and air resistance</p> <p>To recognise that more than one force can act on an object</p> <p>To draw force diagrams with arrows showing the direction of forces acting on an object</p> <p>To observe and explore the effect of several forces on objects</p> <p>To recognise that air resistance slows things down</p> <p>To recognise that friction can be useful or not useful</p> <p>To identify the effects of air resistance, water resistance and friction, that act between moving surfaces</p> <p>To describe some situations in which there is more than once force acting on an object</p> <p>To describe and explain the motion of some familiar objects in terms of several forces acting on them</p> <p>To identify forces on an object as either balanced or unbalanced</p> <p>To use the terms 'balanced' and unbalanced' when describing several forces on an object</p> <p>To explain that balanced forces on an object cause it to remain stationary or travel at the same speed</p> <p>To explain that unbalanced forces on an object cause it to speed up, change shape or slow down</p>	<p>planning different types of scientific enquiries to answer questions</p> <p>including recognising and controlling variables where necessary taking measurements</p> <p>using a range of scientific equipment with increasing accuracy and precision</p> <p>taking repeat readings when appropriate</p> <p>recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs</p> <p>using test results to make predictions to set up further comparative and fair tests</p> <p>reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms</p>	<p>Force- a force is a push or a pull. Forces make objects start moving, stop moving, speed up, slow down or change direction</p> <p>Friction- when one surface moves against another, the forces that tried to stop them is called friction. It gives us grip.</p> <p>Air resistance- this is the force that slows down objects that move through the air.</p> <p>Water resistance- this is the force that slows down objects that move through water.</p> <p>Attraction- the force by which one object attracts another.</p> <p>Magnetic attraction- attraction for iron; also associated with electrical circuits.</p> <p>Gravity- a force which pulls things down towards the centre of the Earth.</p>	<p>How can we measure forces?</p> <p>How does air resistance slow objects down?</p> <p>Describe what happens when more than one force is acting on an object.</p> <p>What is gravity and why is it important?</p> <p>What is the effect on levers, pulleys and gears on a force?</p>



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<p>To explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object</p> <p>To understand that air resistance is the frictional force of air on objects moving through it</p> <p>To describe some of the factors that increase friction between solid surfaces and increase air and water resistance</p> <p>To describe situations in which frictional forces are helpful as well as those in which frictional forces are unhelpful</p> <p>To compare the tread on bicycle tyres according to how much friction they need</p> <p>To identify streamlined objects and describe why they have been designed in this way (e.g. cycling helmets, formula 1 cars, dolphins)</p> <p>To explore the effects of levers, pulleys and gears</p> <p>To recognise that some mechanisms, including levers, pulleys and gears, allow a smaller force to have a greater effect</p> <p>To describe how levers, pulleys and gears are used in everyday life (e.g. describe how having gears can make it easier to pedal a bike, how a bottle opener makes it easier to open a bottle lid)</p> <p>To explain how introducing gears onto bikes has changed cycling</p>	<p>such as displays and other presentations</p> <p>identifying scientific evidence that has been used to support or refute ideas or arguments</p>	<p>Direction- the course or line along which a person or thing moves, points, or lies</p> <p>Motion- the action or process of moving or being moved.</p> <p>Up thrust- the upward force that a liquid or gas exerts on an object floating in it.</p> <p>Newton- the unit for measuring force.</p> <p>Force meter- the piece of equipment used for measuring forces.</p> <p>Stationary- not moving or not intended to be moved</p> <p>Surface area- the amount of area covered by the surface of something</p> <p>pulley, lever, gear weight</p>	
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