
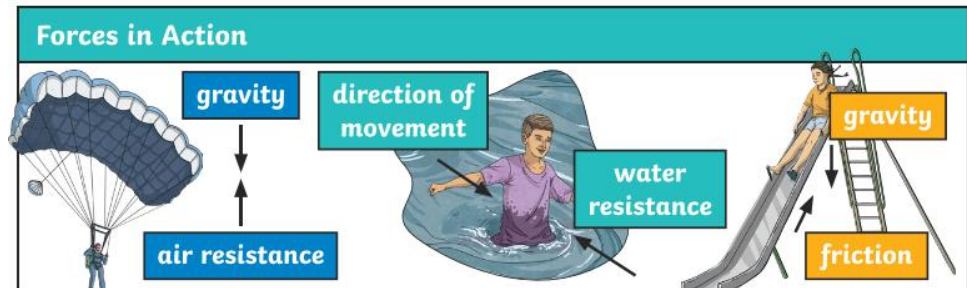

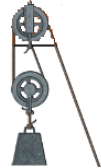






## Science Learning Organiser Year 5 & 6 – Summer Term – Forces

Key Knowledge			Vocabulary
<p>Forces can be categorised as pushes or pulls.</p> <p>Mass is the measure of the amount of matter within an object and is typically measured in grams (g) or kilograms (kg).</p> <p>Weight is the measure of the gravitational force acting on an object and is measured in newtons (N).</p> <div></div>			<p><b>Air resistance</b> - a form of friction that occurs between air and an object moving through it. It can also be referred to as 'drag'.</p> <p><b>Force</b> - a push or pull that can cause an object to start or stop moving or change its speed, direction or shape.</p> <p><b>Friction</b> - a contact force that occurs between two touching surfaces that are either trying to move or are already moving across each other.</p> <p><b>Gears</b> - wheels with teeth that lock together and turn each other to transfer motion.</p> <p><b>Gravity</b> - a pulling force exerted by the Earth (or any object with mass).</p> <p><b>Lever</b> - a mechanism that uses a small force to move a heavier load by pivoting on a fixed point.</p> <p><b>Mechanism</b> - the smaller moving parts of a machine.</p> <p><b>Newton (N)</b> - a unit of measurement used to measure force, named after Sir Isaac Newton.</p> <p><b>Pulley</b> - a wheel (or set of wheels) over which a rope is looped, used to lift heavy objects with less effort.</p> <p><b>Streamline</b> - Streamlined objects have a shape that allows them to move more efficiently through air or water by reducing resistance.</p> <p><b>Water resistance</b> - a type of friction that happens when water (or any liquid) pushes against an object moving through it.</p>
<div><p><b>Forces in Action</b></p></div>			
<p><b>Levers</b></p> 	<p><b>Pulleys</b></p> 	<p><b>Gears</b></p> 	
<p>A lever has three main parts: the pivot point (where the lever rotates); the</p>	<p>A pulley with a single wheel allows you to change the direction of the force applied</p>	<p>When gears are connected, they always rotate in opposite directions,</p>	

force applied to one end; and the load (object or resistance) being moved at the other end. The distance between the pivot and where the force is applied affects how easy it is to lift the load.	when lifting. The more wheels added to a pulley system, the less force is needed to lift the load. For example, adding a second wheel halves the amount of force required.	allowing them to change the direction of motion. If the first gear is larger than the second, the second gear will rotate faster, increasing the speed of motion.		
<b>Key Scientists</b>			<b>Lesson</b>	<b>Key Questions &amp; Learning Sequence</b>
Sir Isaac Newton	Galileo Galilei	Ibn Al-Haytham	1	Can I identify the effects of air resistance, water resistance and friction?
			2	Can I explore the effect gravity has on an object?
			3	Can I investigate the effects of friction?
			4	Can I identify the effects of air resistance?
Newton theorised that a force must pull objects downwards after observing an apple fall from a tree. This sparked his curiosity about why objects fall downwards rather than sideways or upwards.	Galileo suggested that, if he were to drop two balls of different masses from the top of the Leaning Tower of Pisa with no air resistance to slow their fall, both balls would hit the ground at the same time.	Al-Haytham described gravity as the attraction between two masses and explored how the force of gravity causes objects to accelerate.	5	Can I explore the effects of water resistance?
			6	Can I understand different mechanisms including levers, pulleys and gears?