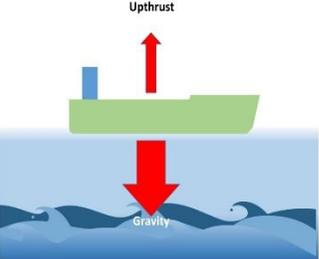
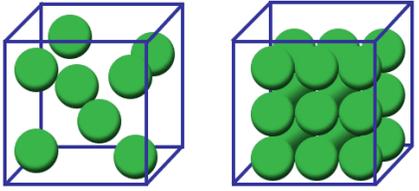
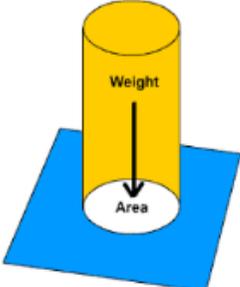
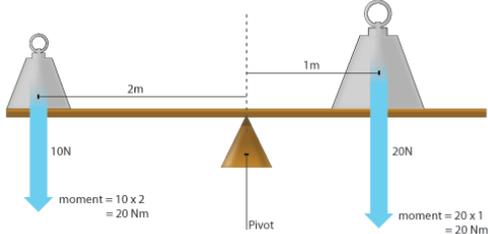


1. Floating and Sinking	2. Forces, mass and weight	3. Calculating pressure
<p>Key ideas:</p> <p>When an object is placed in water, <u>gravity/weight</u> act toward the centre of the earth. <u>Upthrust</u> acts upwards and is the force that the water puts onto the object.</p> <p>The balance between gravity and upthrust determines whether something floats or sinks.</p>  <p>If gravity and upthrust are equal, an object will float.</p> <p>If upthrust is smaller than gravity, an object will sink.</p>	<p>Key ideas:</p> <p>Force: Pushes or pulls that occur when 2 objects interact</p> <p>Weight is not the same as mass. Mass is a measure of how much stuff is in an object.</p> <p>Weight is the result of gravity. The Earth's gravity attracts objects towards the centre of the Earth and you feel forces like this as weight.</p>  <p>My WEIGHT on Earth is around 560N</p> <p>My WEIGHT on the moon is around 90N</p> <p>My MASS is always 56kg!!</p>	<p>Key ideas:</p> <p>To calculate pressure, you need to know two things:</p> <ul style="list-style-type: none"> • the force or weight exerted • the surface area over which the force or weight is spread <p>Pressure is calculated by dividing force by area:</p> <p style="text-align: center;">pressure = force ÷ area</p> <p>To increase pressure - increase the force or reduce the area the force acts on.</p> <p>To reduce pressure - decrease the force or increase the area the force acts on.</p>
<p>Keywords:</p>	<p>Key words</p>	<p>Keywords</p>
<p>Upthrust: The upward force that a liquid exerts on a solid</p> <p>Gravity: the force which attracts objects towards the centre of the Earth. It is measured in N/kg</p> <p>Buoyancy: another word for upthrust</p> <p>Density: a measure of the mass per unit of volume</p> <p style="text-align: center;">Density</p>  <p style="text-align: right; font-size: small;">TheEngineeringMindset.com</p>	<p>Newton: The unit that we use to measure forces. It can be shown as – N.</p> <p>Mass: The mass of an object is the amount matter or 'stuff' something contains. It is measured in kilograms (kg) or grams (g)</p> <p>Weight: Weight is the force an object has because of gravity. It is measured in Newtons.</p> <p>Newton meter: the equipment we use to measure forces. It can also be called a force meter.</p> <p>Weight = mass x gravity</p> <p>Gravity: the force which attracts objects towards the centre of the Earth. It is measured in N/kg</p>	<p>N/m² (Newtons per square metre) or N/cm² (Newtons per centimetre squared) = the unit for pressure Sometimes you will see another unit being used. This is called the pascal and it has the symbol Pa.</p> 
<p>Action required Revise this information to prepare for a quiz test in your science lesson. Your teacher will tell you the date of the test.</p>		

4. Moments	5. Balancing and using moments	6. Pressure in fluids (liquids and gases)
<p>Key ideas</p> <p>Forces can make objects turn if there is a pivot. Think of a playground see-saw. The pivot is the thing in the middle of it. When no-one is on the see-saw it is level, but it tips up if someone gets onto one end. Turning forces around a pivot are called moments.</p> <p>To work out a moment, we need to know two things:</p> <ul style="list-style-type: none"> • The distance from the pivot that the force is applied • The size of the force applied. <p style="text-align: center;">moment = force × distance</p>	<p>Key ideas</p> <p>Here is an example of balanced moments. 10 N at 2 m from the pivot is balancing 20 N at 1 m from the pivot. The objects create moments of 20 Nm that are equal and opposite, so the see-saw is balanced.</p>  <p>If you double the distance of a force, the moment will be doubled and vice-versa. If you halve the distance of the force, the moment will be halved</p>	<p>Key ideas</p> <p>Liquids and gases are fluids. A fluid is able to change shape and flow from place to place. Fluids exert pressure on surfaces.</p> 
<p>Key words</p> <p>Nm – the units that moments are measured in</p> <p>Lever: a type of simple machine that makes it easier to do certain jobs.</p> <p>Pivot: the point at which a lever turns around. The pivot is also known as the fulcrum.</p> <p>Load: is the object you are trying to move.</p> <p>Effort: is the force applied to move the load.</p> <p>Newton (N): The unit that forces are measured in</p> <p>m: unit of distance in the calculations for moments.</p> 	<p>Balanced moments: moments (turning effects) are the same in size or value.</p> <p>Unbalanced moments: moments (turning effects) have different sizes or value.</p> <p>Clockwise moment: Moment that will turn a lever to the right</p> <p>Anticlockwise moment: Moment that will turn a lever to the left.</p>	<p>Key words</p> <p>Fluid: liquid or a gas</p> <p>Atmospheric pressure: the pressure on us from the gases in our atmosphere. Atmospheric pressure changes with altitude. The higher you go:</p> <ul style="list-style-type: none"> • the lower the weight of the air above you • the lower the atmospheric pressure <p>Liquid pressure: particles in liquids can exert a force on objects. The pressure in liquids changes with depth. The deeper you go:</p> <ul style="list-style-type: none"> • the greater the weight of liquid above • the greater the liquid pressure
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