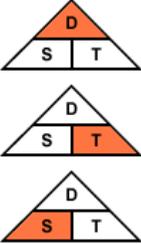
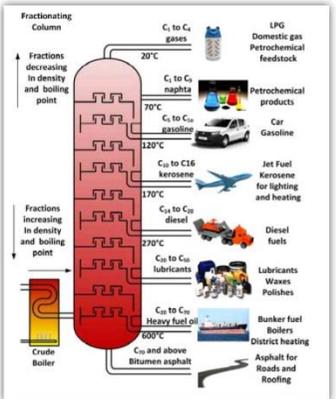


1. Inheritance	2. Speed	3. Stopping Distances
<p>We inherit genes from each of our parents when the egg is fertilised by the sperm, our genes together with our environment determine our characteristics. Because we inherit some genes from each of our parents we may have family similarities in our characteristics. We inherit a pair of each gene, one version from mum and one from dad. Some genes are dominant and some are recessive.</p> <p>Non-identical twins are produced when 2 eggs are fertilised at the same time, identical twins are formed when the embryo splits and each part grows into a baby</p>	<p><b>Key ideas:</b></p> <p>Speed can be determined by measuring distance travelled and time taken. Distance–time graphs and be used to represent a journey.</p> <div style="display: flex; align-items: center; justify-content: center;">  <div style="margin-left: 20px;"> <p>Distance = Speed x Time</p> <p>Time = <math>\frac{\text{Distance}}{\text{Speed}}</math></p> <p>Speed = <math>\frac{\text{Distance}}{\text{Time}}</math></p> </div> </div> <p>A change in force can produce a change in speed, an acceleration or deceleration. Air resistance and water resistance are forces that oppose motion.</p>	<p><b>Key ideas</b></p> <p>The stopping distance for a moving vehicle is dependent on the <b>thinking distance</b> and <b>braking distance</b>.</p> <p>Factors which affect thinking distance are anything which may distract the driver or increase their <b>reaction time</b>, for example tiredness, alcohol or a mobile phone.</p> <p>Factors which affect braking distance are physical issues with the vehicle or the road, for example the condition of the tyres or a wet road.</p>
<p><b>DNA:</b> is a molecule that carries the genetic instructions</p> <p><b>Characteristic:</b> a feature or quality belonging typically to an organism</p> <p><b>Chromosome:</b> are bundles of tightly coiled DNA located within the cell nucleus.</p> <p><b>Environmental variation:</b> differences that are caused by factors other than out genes e.g climate, diet &amp; lifestyle.</p> <p><b>Gene:</b> is a section of <b>DNA</b> that has the genetic code for making a particular protein.</p> <p><b>Genetic variation:</b> is the differences in <b>genes</b></p> <p><b>Inheritance:</b> is the process by which <b>genetic</b> information is passed on from parent to child.</p>	<p><b>Key words</b></p> <p><b>Acceleration:</b> is the rate at which an object changes its velocity, in everyday language we use it to mean speeding up</p> <p><b>Average speed:</b> is the distance travelled divided by the time it took to travel this distance</p> <p><b>Deceleration:</b> is the opposite of acceleration, in everyday language it means slowing down</p> <p><b>Friction:</b> <b>Friction</b> is a force between two surfaces that are sliding over each other. It slows down a moving object.</p> <p><b>Air resistance:</b> is a type of friction</p> <p><b>Thrust:</b> is a push or force which makes an object move</p> <p><b>Velocity:</b> is speed in a given direction</p>	<p><b>Key words</b></p> <p><b>Stopping distance:</b> the distance over which a vehicle travels before coming to a full stop.</p> <p><b>Thinking distance:</b> the distance over which a vehicle travels between the driver seeing an obstacle and putting their foot on the brake.</p> <p><b>Braking distance:</b> the distance over which a vehicle travels between the driver pressing the brake and the vehicle stopping.</p> <p><b>Reaction time:</b> The time it takes for a person to respond to a stimulus.</p>
<p><b>Action required ?</b></p>	<p><b>Action required</b> Why are distance time graphs useful?</p>	<p><b>Action required</b></p>
<p>Answer the homework questions</p>	<p>Write a distance time description of a journey that you have taken and draw a distance time graph of the journey. Your journey needs to have at least 4 sections.</p>	<p>Read the police report given to you by your teacher about the accident involving Mr Kemp and the Cow. You should use the facts about thinking and braking distances to work out whether Mr Kemp could be responsible for the death of the cow.</p>
<p>Action completed</p>	<p>Action completed</p>	<p>Action completed</p>

4. Using chemistry	5. Using Chemistry	DIRT						
<b>Key ideas</b>								
<p>In chemical reactions total mass is always conserved because mass cannot be created or destroyed. This means that you have the same number of atoms after the reaction as you did before the reaction; they have just been rearranged to make new substances. This is why we have to balance equations.</p> $2\text{Fe}_2\text{O}_3 + 3\text{C} \longrightarrow 4\text{Fe} + 3\text{CO}_2$ <table style="margin-left: 20px;"> <tr> <td>Fe = 4</td> <td>Fe = 4</td> </tr> <tr> <td>O = 6</td> <td>O = 6</td> </tr> <tr> <td>C = 3</td> <td>C = 3</td> </tr> </table> <p>Exothermic reactions give out energy and endothermic reactions take in energy from the surroundings. Catalysts can be used to speed up reactions. Enzymes are biological catalysts. Catalysts are used in industrial processes and in catalytic converters.</p>	Fe = 4	Fe = 4	O = 6	O = 6	C = 3	C = 3	<p>Crude oil was formed over millions of years, this makes it non-renewable. It is a mixture of hydrocarbon compounds. To make it useful it must be separated into fractions containing similar sized molecules by a process called fractional distillation. In this process crude oil is heated to a vapour and fractions condense at different boiling points, therefore we say they are separated by their boiling points.</p> 	
Fe = 4	Fe = 4							
O = 6	O = 6							
C = 3	C = 3							
<b>Key words</b> <b>Atom:</b> An atom is the smallest unit of matter <b>Compound:</b> Two or more different atoms chemically joined together e.g. H <sub>2</sub> O, CH <sub>4</sub> , CO <sub>2</sub> <b>Element:</b> A substance made of only one type of atom e.g. O <sub>2</sub> , Mg, S <sub>8</sub> <b>Molecule:</b> Two or more atoms chemically joined together e.g. O <sub>2</sub> , HCl, NH <sub>3</sub> . Some elements are made of molecules, all compounds are made of molecules. <b>Product:</b> is a substance that is formed as the result of a chemical reaction <b>Reactant:</b> are the starting materials in a chemical <u>reaction</u>	<b>Key words</b> <b>Alkane:</b> A type of hydrocarbon with single bonds between the carbon atoms. <b>Alkene:</b> A type of hydrocarbon with atleast one double bond between the carbon atoms. <b>Condense:</b> particle arrangement changes from a gas to a liquid. <b>Hydrocarbon:</b> A substance made of molecules that contain hydrogen atoms and carbon atoms e.g. CH <sub>4</sub> , C <sub>2</sub> H <sub>6</sub> , C <sub>3</sub> H <sub>8</sub> <b>Fraction:</b> each fraction contains hydrocarbon molecules with a similar number of carbon atoms <b>Mixture:</b> is made from different substances that are not chemically joined this means they can be separated.							
<b>Action required</b>	<b>Action required</b>							
Research catalyst. Explain what a catalyst is and give 5 industrial uses of catalysts. Why do catalysts help companies save money?	Complete the homework questions							
Action completed	Action completed							

