

Prior Knowledge

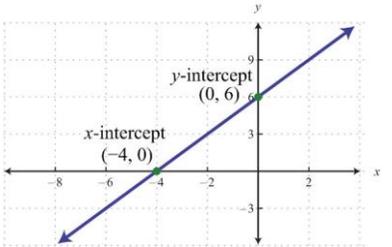
To solve a linear equation, use inverse operations.

To solve a quadratic equation, use either factorise, use the quadratic formula, or complete the square.

To solve a linear inequality, use inverse operations.

Greater than $>$ Greater than or equal to \geq Not equal to \neq
 Less than $<$ Less than or equal to \leq

The y intercept is where a graph crosses the y axis. The x intercept is where a graph crosses the x axis.



The Quadratic Formula

$$ax^2 + bx + c = 0 \quad \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Solve $x^2 + 9x + 18 = 0$

$a = 1$ $\frac{-9 \pm \sqrt{9^2 - (4 \times 1 \times 18)}}{2 \times 1}$
 $b = 9$ $\frac{-9 \pm 3}{2}$ or $\frac{-9 - 3}{2}$
 $c = 18$

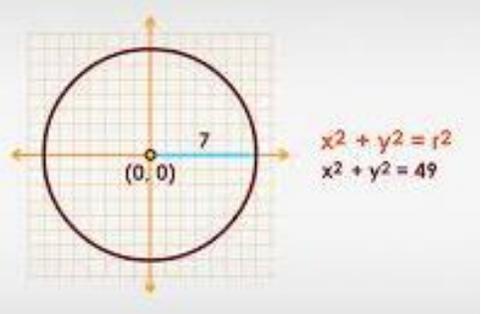
$x = -3$ or $x = -6$

Solve $5x^2 + 8x - 12 = 0$

$a = 5$ $\frac{-8 \pm \sqrt{8^2 - (4 \times 5 \times -12)}}{2 \times 5}$
 $b = 8$ $\frac{-8 \pm \sqrt{304}}{10}$ or $\frac{-8 - \sqrt{304}}{10}$
 $c = -12$

$x = 0.94$ or $x = -2.54$

When the graph of a circle has the centre at (0,0), the equation of the circle is $x^2 + y^2 = r^2$ where r is the radius.



Expand the brackets

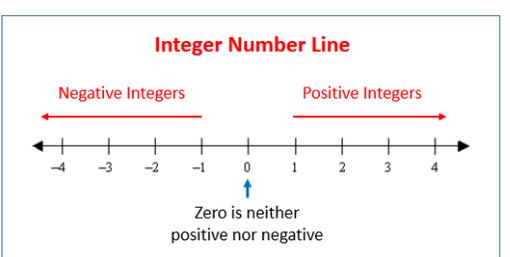
F O I L
 first outer inner last

$(x + 8)(x + 5)$
 multiply
 $x^2 + 5x + 8x + 40$
 multiply
 $x^2 + 13x + 40$

$(2y - 6)(y + 7)$
 multiply
 $2y^2 + 14y - 6y - 42$
 multiply
 $2y^2 + 8y - 42$

To expand double brackets, multiply each term in one brackets by each term in the other bracket. Simplify where you can.

An integer is a whole number.



Key Concepts

Higher – Unit 15 – Equations and Graphs

Turning Point	The lowest of highest point of the parabola where the graph turns. It is either a minimum or a maximum.	
Roots	The x-values where the graph intersects the x-axis are the solutions of the equation $y=0$.	The x-intercepts of a graph are the solutions of the equation. A quadratic equation can have one of three types of solutions:
No Real Roots	If a graph does not cross the x-axis.	
One Repeated Root	If the graph just touches the x-axis.	
Cubic Function	Highest power of x is x^3 . It is written in the form $y=ax^3+bx^2+cx+d$. The graph intersects the y-axis at $y=d$. The roots can be found by finding x when $y=0$.	<ul style="list-style-type: none"> When $a > 0$ the function looks like When $a < 0$ the function looks like
Simultaneous Equations	You can solve a pair of simultaneous equations graphically by plotting the graphs and finding the point(s) of intersection.	
Iterative Process	To find an accurate root of a quadratic equation you can use an iterative process. Iterative means carrying out a process repeatedly.	$x_1 = \frac{1}{2} = \frac{0^2}{5} = 0.3333...$ $x_2 = \frac{1}{2} - \frac{(0.3333)^2}{5} = 0.21139119629...$ $x_3 = \frac{1}{2} - \frac{(0.21139119629)^2}{5} = 0.3000195016...$
Sketch a quadratic	Calculate the solutions to the equation $y=0$. Find the y-intercept. Find the coordinate of the turning point (maximum or minimum).	

Prior Knowledge

Discrete data can only take certain values.

Continuous data is data that can take any value.

Examples	
Discrete	Continuous
<ul style="list-style-type: none"> # of eggs in a basket # of kids in a class # of Facebook likes # of diaper changes in a day # of wins in a season # of votes in an election 	<ul style="list-style-type: none"> Weight difference to 8 decimals before and after cookie binge. Wind speed Water temperature Volts of electricity

To estimate the mean from grouped frequency: find the midpoint, multiply by the frequency for each class, add the total, divide by the total frequency.

class	f	x	fx
$12 \leq t < 18$	3	15	45
$18 \leq t < 24$	6	21	126
$24 \leq t < 30$	1	27	27
	10		198

$198 \div 10 = 19.8$

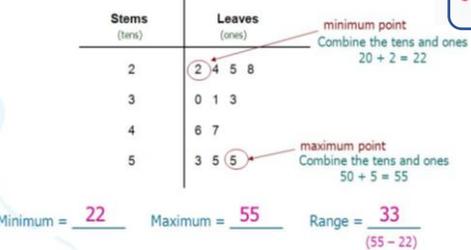
There are many methods on how to multiply fractions with whole numbers. One method is:

- Rewrite the whole number as a fraction.
- Multiply the numerators of the fraction.
- Multiply the denominators of the fraction.
- Reduce/simplify the answer, if possible.

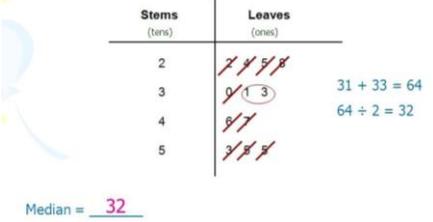
$$\frac{2}{7} \times 3 = \frac{2 \times 3}{7 \times 1} = \frac{6}{7}$$

STEP ONE: $\frac{2}{7} \times \frac{3}{1}$
STEP TWO: $\frac{2 \times 3}{7 \times 1}$
STEP THREE: $\frac{6}{7}$

A **Stem and Leaf Plot** is a special table where each data value is split into a "stem" (the first digit or digits) and a "leaf" (usually the last digit).



- Cross out the smallest and highest leaves together until you find the middle value.
- If there are 2 middle values, take the average of the 2.



The **modal class** is the group with the highest frequency.

Mode The mode is the value that appears most often in a set of data.

The mean is the total of all the values, divided by the number of values. **Mean**

Median The median is the middle number in a list of numbers ordered from lowest to highest.

The range is the difference between the lowest value and the highest value. **Range**

Inequality tells us about the relative size of two values.

Equality and Inequality

$=$ equal \neq not equal
 $>$ greater than $<$ less than
 \geq greater than or equal \leq less than or equal

Weight (Kg)	Frequency
60 up to 70	13
70 up to 75	2
75 up to 95	45
95 up to 100	7

Key Concepts

Higher – Unit 14 – Further Statistics

Box Plot (Box and whisker)	Displays data to show the median and quartiles.																						
Summary Statistics	The averages, range and quartiles.	<p>Mode The mode is the value that appears most often in a set of data.</p> <p>The range is the difference between the lowest value and the highest value. Range</p> <p>The median is the middle number in a list of numbers ordered from lowest to highest. Median</p> <p>The mean is the total of all the values, divided by the number of values. Mean</p>																					
Cumulative Frequency Table	Show how many data values are less than or equal to the upper class boundary of each data class.	<table border="1"> <thead> <tr> <th>Height (cm)</th> <th>Frequency</th> <th>Cumulative Frequency</th> </tr> </thead> <tbody> <tr> <td>$90 < h \leq 100$</td> <td>5</td> <td>5</td> </tr> <tr> <td>$100 < h \leq 110$</td> <td>22</td> <td>$5 + 22 = 27$</td> </tr> <tr> <td>$110 < h \leq 120$</td> <td>30</td> <td>$27 + 30 = 57$</td> </tr> <tr> <td>$120 < h \leq 130$</td> <td>31</td> <td>$57 + 31 = 88$</td> </tr> <tr> <td>$130 < h \leq 140$</td> <td>18</td> <td>$88 + 18 = 106$</td> </tr> <tr> <td>$140 < h \leq 150$</td> <td>6</td> <td>$106 + 6 = 112$</td> </tr> </tbody> </table>	Height (cm)	Frequency	Cumulative Frequency	$90 < h \leq 100$	5	5	$100 < h \leq 110$	22	$5 + 22 = 27$	$110 < h \leq 120$	30	$27 + 30 = 57$	$120 < h \leq 130$	31	$57 + 31 = 88$	$130 < h \leq 140$	18	$88 + 18 = 106$	$140 < h \leq 150$	6	$106 + 6 = 112$
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Upper Class Boundary	Highest possible value in each class.	<table border="1"> <thead> <tr> <th>Amount spent £x</th> <th>Cumulative frequency</th> </tr> </thead> <tbody> <tr> <td>$0 < x \leq 50$</td> <td>6</td> </tr> <tr> <td>$0 < x \leq 100$</td> <td>30</td> </tr> <tr> <td>$0 < x \leq 150$</td> <td>80</td> </tr> </tbody> </table>	Amount spent £x	Cumulative frequency	$0 < x \leq 50$	6	$0 < x \leq 100$	30	$0 < x \leq 150$	80													
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Cumulative Frequency Graph	Data values on the x-axis and cumulative frequency on the y-axis.																						
Histogram	A type of frequency diagram used for grouped continuous data. For unequal class intervals, the area of the bar represents the frequency.																						
Frequency Density	The height of each bar in a histogram.	$\text{Frequency density} = \frac{\text{frequency}}{\text{class width}}$																					
Comparative Box Plots	For two different sets of data drawn on the same diagram.																						

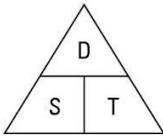
Prior Knowledge

Substitution is the name given to the process of swapping an algebraic letter for its value.

$$x + \frac{x}{2}$$

$$x = 5 \rightarrow 5 + \frac{5}{2}$$

10% (Divide by 10)
 5% (Divide 10% by 2)
 1% (Divide 10% by 10) or (Divide by 100)



$$D = S \times T$$

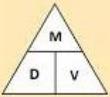
$$S = D \div T$$

$$T = D \div S$$

Distance = speed x time.
 To work out what the units are for speed, you need to know the units for distance and time.

To calculate a percentage of an amount, use combinations of simple calculations.

Mass Density Volume



$$\text{Volume} = \frac{\text{Mass}}{\text{Density}}$$

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

$$\text{Mass} = \text{Density} \times \text{Volume}$$

Mass = density x volume.
 Density is normally measured using units of g/cm³ for smaller amounts, and kg/m³ for larger amounts.

In a linear equation (equation of a straight line) the gradient is the coefficient of x.

A prism has the cross section the same all along its length.
 Volume = area of cross section x length.

$$y = mx + c$$

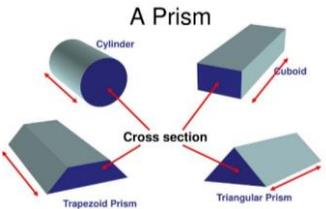
gradient y-intersect

Index notation is a way of representing repeated multiplications of the same number, by writing the number as a base with the number of repeats.

exponent (or index, or power)
 base

$$10^2$$

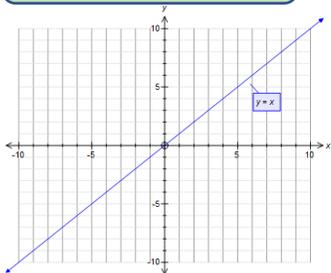
A **ratio** shows how much of one thing there is compared to another. **Ratios** are usually written in the form a:b.



$$\text{Volume of Prism} = \text{length} \times \text{Cross-sectional area}$$

$$Y=x$$

Direct Proportion.



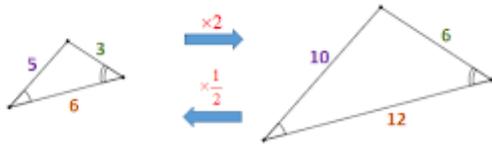
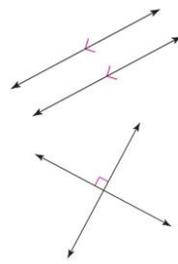
Foundation – Unit 14 – Multiplicative Reasoning

Direct Proportion	Pairs of values in the same ratio.					
Compound Interest	The interest earned each year is added to money in the account and earns interest the next year.	<table border="1"> <tr> <td>Simple Interest \$10,000 5% per year Over 40 years</td> <td>Compound Interest \$10,000 5% per year Over 40 years</td> </tr> <tr> <td>\$30,000</td> <td>\$70,399</td> </tr> </table>	Simple Interest \$10,000 5% per year Over 40 years	Compound Interest \$10,000 5% per year Over 40 years	\$30,000	\$70,399
Simple Interest \$10,000 5% per year Over 40 years	Compound Interest \$10,000 5% per year Over 40 years					
\$30,000	\$70,399					
Growth	Increases in quantity.					
Decay	Decreases in quantity.					
Density	The mass of a substance contained in a certain volume. It is usually measure in grams per cubic centimetre g/cm ³ .	Density = $\frac{\text{mass}}{\text{volume}}$ or $D = \frac{M}{V}$				
Pressure	The force of newtons applied over an area in cm ² or m ² . It is usually measure in newtons N per square metre N/m ² or square centimetre N/cm ² .	Pressure = $\frac{\text{force}}{\text{area}}$ or $P = \frac{F}{A}$				
Kinematic Formulae	The features or properties of motion in an object.	<p>These are kinematics formulae:</p> $v = u + at$ $s = ut + \frac{1}{2}at^2$ $v^2 = u^2 + 2as$ <p>Velocity "speed in a given direction"</p>				
Velocity, v	Speed in a given direction; possible units are m/s.					
Initial velocity, u	Speed in a given direction at the start of the motion.					
Acceleration, a	Rate of change of velocity, m/s ² .					

Prior Knowledge

Parallel lines are in the same plane that never intersect. They are always the same distance apart.

Perpendicular lines are lines that meet at a right angle, that is, at an angle that measures 90° .



A scale factor is the number by which all the dimensions of an object are multiplied in order to create a proportion enlargement or reduction.

If one shape can become another using Turns, Flips and/or Slides, then the shapes are Congruent.

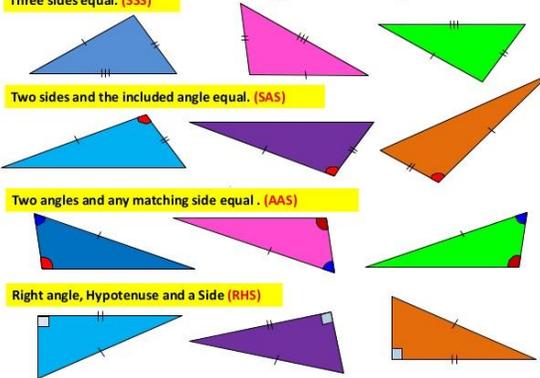
Congruency Rules

Three sides equal. (SSS)

Two sides and the included angle equal. (SAS)

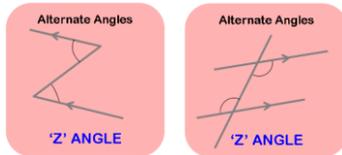
Two angles and any matching side equal. (AAS)

Right angle, Hypotenuse and a Side (RHS)

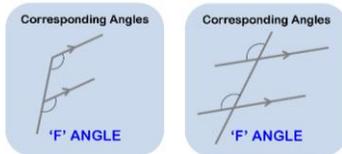


A line which intersects a pair of parallel lines is called a transversal.

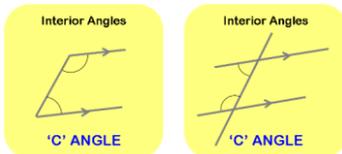
On parallel lines, alternate (or Z) angles are equal.



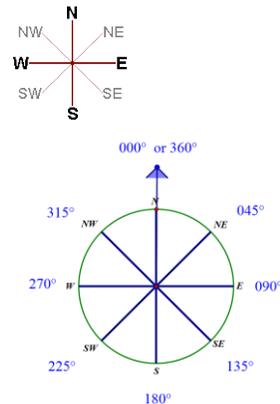
On parallel lines, corresponding (or F) angles are equal.



On parallel lines, interior (or C) angles add up to 180° .



8-point compass includes the four cardinal directions (N, E, S, W) plus the four "intercardinal" or "ordinal directions" (NE, SE, SW, NW), at angles of difference of 45° .



Key Concepts

Foundation – Unit 15 – Constructions, Loci and Bearings

Region	An area bounded by loci.	
Net	A 2D shape that folds to make a 3D shape.	
Scale	A ratio that shows the relationship between a length on a map or drawing and the actual length.	1 cm = 13 km
Locus (Loci)	A set of points that obey a given rule. This produces a path followed by the points.	
Construct	Means to draw accurately using a ruler and compasses.	
Bisect a line	Cut a line exactly in half.	
Perpendicular bisector	Cuts a line in half at right angles.	
Plan View	View from above an object.	
Front Elevation	View of the front of an object.	
Side Elevation	View of the side of an object.	
Plane	A flat 2D surface.	
Plane of Symmetry	When a plane cuts the shape in half so that the part of the shape on one side of the plane is an identical reflection of the part on the other side of the plane.	
Bearing	An angle measured in degrees clockwise from North. A bearing is always written using three digits.	
Angle Bisector	Cuts an angle exactly in half.	

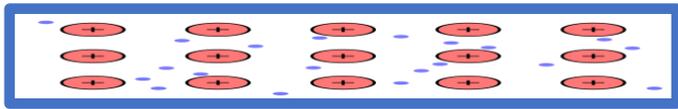


Tadmorden High Science Knowledge Organiser

Year 11 Topic CP 9 Electrical Circuits

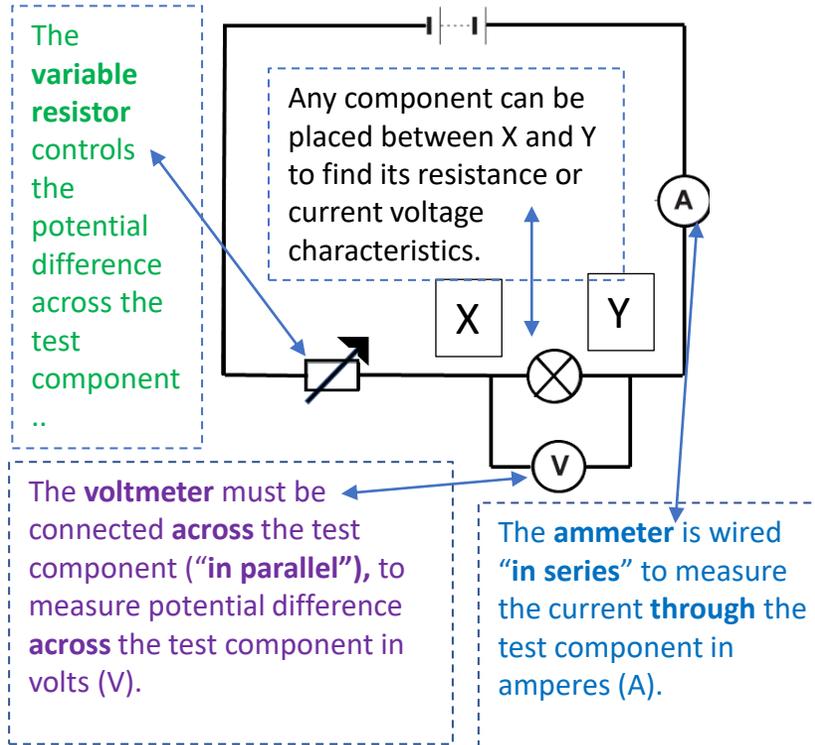
The **TEST circuit** is used in all electricity investigations. **Make sure you can draw one.**

Key term	Definition
Current (I) (through)	The rate of flow of charge per second , measured in amperes (A) . I stands for current in equations.
potential difference (V) (across)	The energy transferred per unit of charge that flows across two points, measured in volts (V) . A potential difference causes a current to flow.
resistance (of)	The ratio of potential difference to current , measured in ohms (Ω) . A larger resistance gives a smaller current for the same potential difference.
Power (P)	Is the energy transferred per second measured in watts (W) .
Charge (Q)	is measured in coulombs (C) . Electrons have a relative charge of -1 . Ions in solution have charge to e.g. Cu²⁺ .



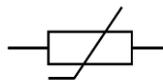
← Think of a metal wire as fixed metal ions in a sea of free electrons. When a potential difference is applied the free electrons can flow – that's a current.

Circuit Rules	Series (_one_ loop)	Parallel (two or more loops))
I	SAME $I_1 = I_2 = I_3 = \dots I_n$	SHARED $I_{out} = I_1 + I_2 + \dots I_n$
V	SHARED (proportional to R) $V_{in} = V_1 + V_2 + V_3 + \dots V_n$	SAME (across each branch) $V_{in} = V_1 = V_2 = V_3 = \dots V_n$
ΣR	Adding resistors in series increases net (effective) resistance $\Sigma R = R_1 + R_2 + \dots R_n$	Adding resistors in parallel decreases net (effective) resistance Because there are more pathways for the current to flow.
V=IR	Always obeyed!	Always obeyed!

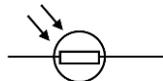


Equations to Learn. Make sure you know what each term stands for and the units!		
$V = I \times R$		
$V = \frac{E}{Q}$	$I = \frac{Q}{t}$	$R = \frac{V}{I}$
$P = \frac{E}{t}$	$P = IV$	$P = I^2R$
$E = IVt$		

Useful Components.



Thermistors are useful because their resistance **reduces** as temperature increases. They can be used in automatic temperature controlled circuits e.g. incubators, central heating circuits etc.



Light Dependent Resistors (LDRs) are useful because their resistance **reduces** as light intensity increases. They can be used in automatic street lighting.

Resistor or wire (At a constant temperature)	Filament lamp	Diode
 Current ↑ Voltage →	 Current ↑ Voltage →	 Current ↑ Voltage →
Constant resistance 	Resistance increases at higher voltages	Very high resistance (no current) until a specific voltage

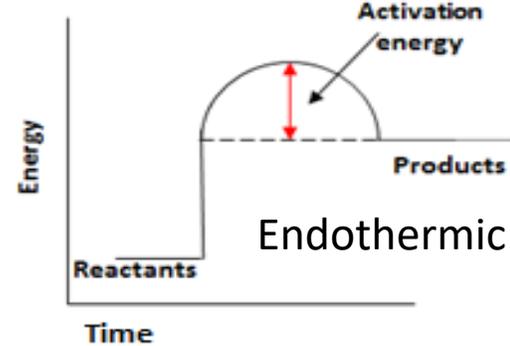
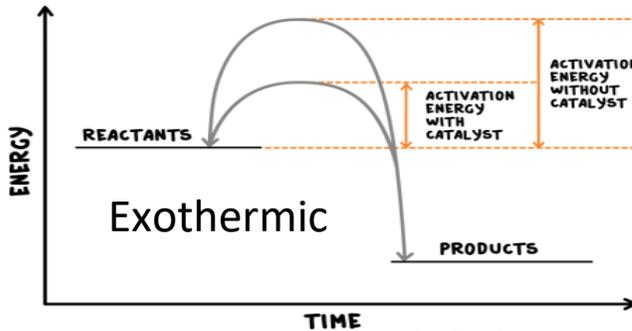
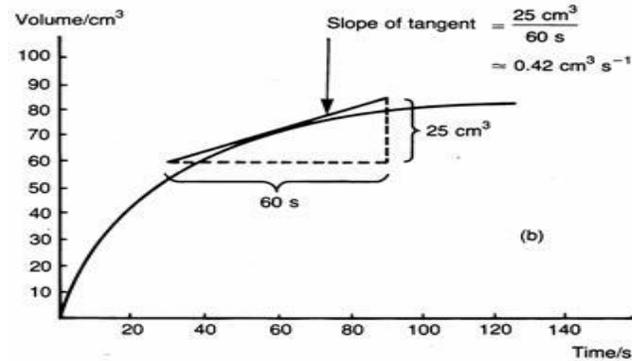


Science K.O. Rates of Reaction and energy changes in reactions CC14-15

Key Concepts	Rate of Reaction and Collision Theory
Collision theory	Chemical reactions can only occur when, <ol style="list-style-type: none"> reacting particles collide with each other, with sufficient energy. i.e. greater than or equal to the activation energy, The greater the number of successful collisions per second the greater the rate of reaction.
5 factors affecting the rate of reaction	Temperature, concentration of reactants, surface area of solid, pressure (of gases), presence of a catalyst
Bonds and energy	Bond breaking requires energy and is endothermic. Bond making releases energy and is exothermic.

Key terms	Definition / equation
Rate of reaction equation 1	$\text{Rate} = \frac{\text{increase in products}}{\text{time taken}}$
Rate of reaction equation 2	$\text{Rate} = \frac{\text{decrease in reactants}}{\text{time taken}}$
Activation energy	is the minimum amount of energy colliding particles need in order to react.
A catalyst	increases the rate of a reaction, but is not chemically changed by the reaction.
exothermic reaction	the temperature increases and energy is transferred out to the surroundings.
endothermic	the temperature decreases and energy is transferred in from the surroundings.

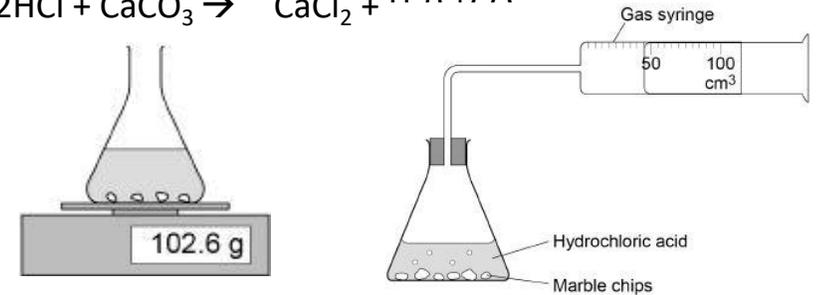
Rate of reaction graph.



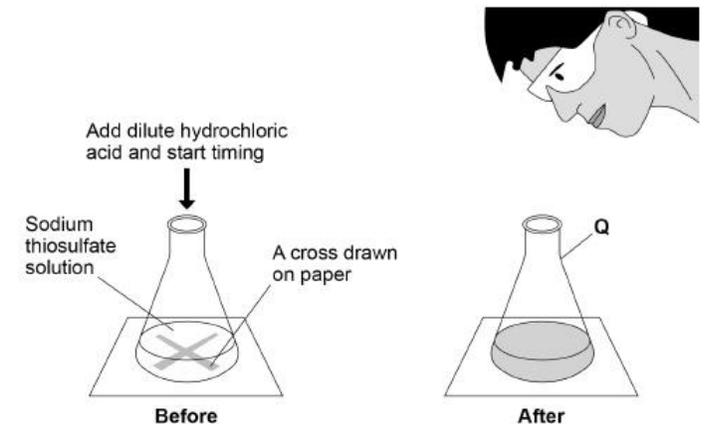
HT: Make sure you can calculate energy changes given bond energies in kJmol^{-1} .

Required Practicals

Measuring the rate of reaction from the **gas produced** in the reaction between acid and marble chips.



Measuring the rate of reaction from the **colour change** when sodium thiosulphate reacts with hydrochloric acid to form a precipitate. (Disappearing Cross)



Add dilute hydrochloric acid and start timing

Sodium thiosulfate solution

A cross drawn on paper

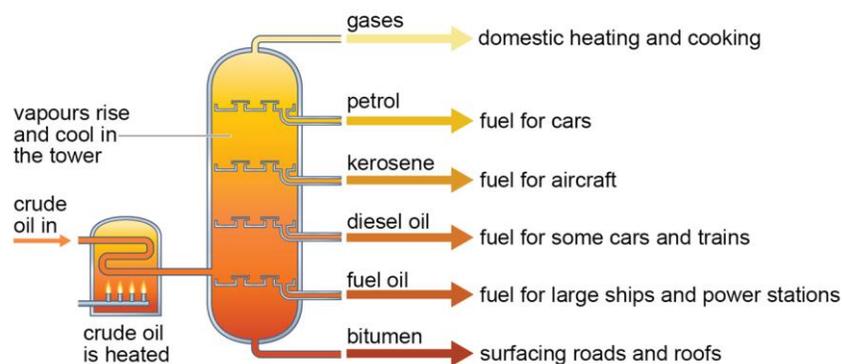
Before

After

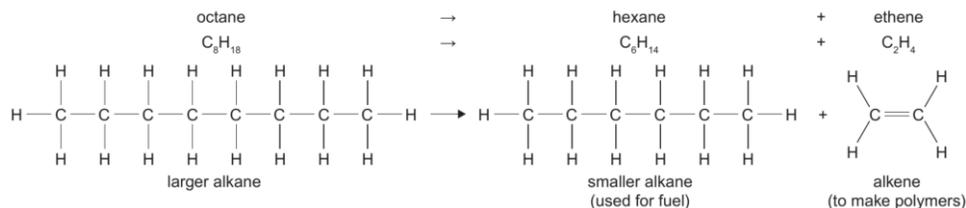
Science CC16-17 – Fuels and Atmospheric Science

Key Word	Definition
Acid Rain	Rain turns more strongly acidic when sulphur dioxide and nitrogen oxide dissolves in the clouds.
Alkane	A saturated hydrocarbon with the formula C_nH_{2n+2} .
Alkene	An unsaturated hydrocarbon with the formula C_nH_{2n} .
Atmosphere	The mixture of gases that surrounds our planet.
Climate Change	The change to the general weather over time e.g. the UK is less cold and more wet.
Combustion	An exothermic reaction where a fuel reacts with oxygen to make carbon dioxide and water.
Cracking	The process of turning an alkane into a more useful alkene. An alkane is heated and passed over a catalyst.
Crude oil	A non-renewable fossil fuel that is used to produce most of our fuel, plastics and other petrochemical products.
Fractional Distillation	A process of separating crude oil into different length hydrocarbon chains.
Global Warming	The small increases to the average global temperature over time, this has increased at a greater rate over recent years.
Homologous	A similar 'family' of chemicals, different by CH_2 .
Hydrocarbon	A compound that contains hydrogen and carbon atoms only.
Saturated	A hydrocarbon containing only carbon-carbon single bonds.
Unsaturated	A hydrocarbon containing at least one carbon=carbon double bond (C=C).
Viscosity	How easily something flows. A thick syrup is viscous.

Fractional distillation



Cracking

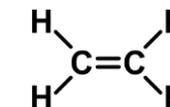


Hydrocarbons

Alkanes

Name	Molecular formula	Structural formula
methane	CH_4	$\begin{array}{c} H \\ \\ H-C-H \\ \\ H \end{array}$
ethane	C_2H_6	$\begin{array}{c} H & H \\ & \\ H-C & -C-H \\ & \\ H & H \end{array}$
propane	C_3H_8	$\begin{array}{c} H & H & H \\ & & \\ H-C & -C & -C-H \\ & & \\ H & H & H \end{array}$

Alkenes



Alkenes are a family of hydrocarbon compounds with the general formula C_nH_{2n} .

Alkenes are very similar to alkanes, but they have one important difference: they contain at least one double covalent bond between carbon atoms.

Combustion

Complete combustion:

Methane + Oxygen \rightarrow Carbon Dioxide + Water

Incomplete combustion:

Methane + Oxygen \rightarrow Carbon Monoxide + Water + Carbon

Problems of combustion:
 Carbon dioxide is linked to Global Warming.
 Carbon monoxide is a toxic gas.
 Carbon particulates cause respiratory problems.

Evolution of the Atmosphere

Early Atmosphere	Mainly CO_2 , H_2O , NH_3 . Similar to atmosphere of Mars or Venus today
Water condensed to form oceans, carbon dioxide dissolved in oceans and turned to oxygen by photosynthesis	
Current atmosphere	79% nitrogen. 21% oxygen. 0.96% argon. 0.04% carbon dioxide (small but increasing).



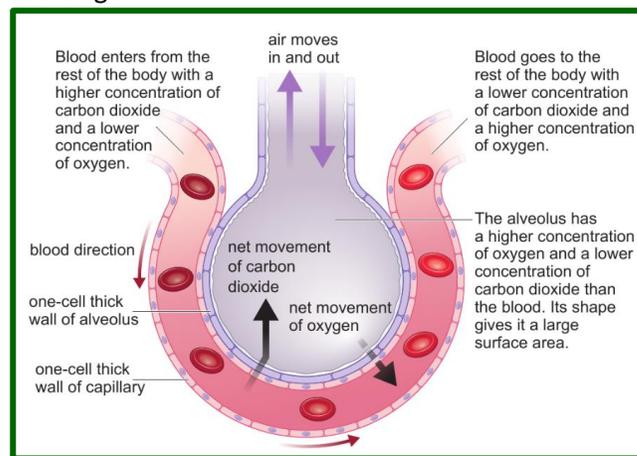
Todmorden High Science K.O.

CB8 Exchange and Transport in Animals

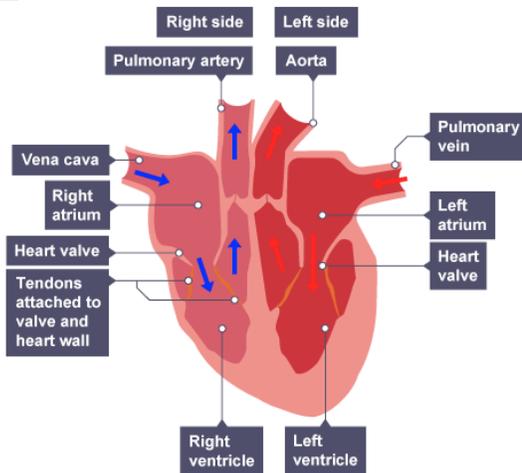
Key term	Definition
Circulatory system	The system that moves blood through the body. It consists of the heart, arteries, veins and capillaries.
Gas Exchange	A process in which one gas diffuses across a membrane and another gas diffuses in the opposite direction.
Alveolus	A small pocket in the lungs in which gases are exchanged between the air and the blood (plural is alveoli).
Diffusion	The random movement and spreading of particles. There is a net (overall) diffusion of particles from a region of higher concentration to a region of lower concentration.
Red blood cell	A biconcave disc containing haemoglobin that gives blood its red colour and carries oxygen around the body to the tissues. Also known as an erythrocyte.
White blood cell	A type of blood cell that forms part of the body's defence system against disease. There are many different types of white blood cell, including lymphocytes and phagocytes.
Atrium	An upper chamber in the heart that receives blood from the veins (plural is atria).
Ventricles	A lower chamber in the heart that pumps blood out into the arteries.
Aerobic Respiration	A type of respiration in which oxygen is used to release energy from substances such as glucose.
Anaerobic Respiration	A type of respiration that does not need oxygen.

Alveoli

Alveoli are found in the lungs, they are adapted to support gas exchange.



The Heart



Cardiac Output

Is the volume of blood pushed into the aorta each minute. It can be calculated using the following equation:

$$\text{cardiac output (litres/min)} = \text{stroke volume (litres/beat)} \times \text{heart rate (beats/min)}$$

Blood Vessels

	Arteries	Capillaries	Veins
Where they carry blood?	Carry blood away from the heart.	Carry blood to tissues in the body.	Carry blood towards the heart.
Structure	Wall is a thick layer of elastic and muscle fibres.	Narrow tube with a wall one cell thick.	Thin, flexible wall.
How are they well adapted to their function?	The walls are thick to withstand the sudden increase in pressure when the heart beats.	Cell wall is very thin to allow faster diffusion of substances into and out of the capillary.	Valves prevent blood flowing backwards.

Aerobic Respiration

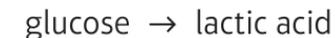
Cellular respiration is a series of reactions which release energy from glucose. This occurs in mitochondria in cells.



It is an exothermic reaction so some of the energy is transferred out of the cells as heat.

Anaerobic Respiration

During strenuous exercise, oxygen is used up faster than we can replace it. Anaerobic respiration will then occur in the cytoplasm in cells which doesn't require oxygen.



It doesn't release as much energy as aerobic respiration and the lactic acid causes muscle fatigue. It is useful for animals when they need to move fast, suddenly, e.g. to catch prey.

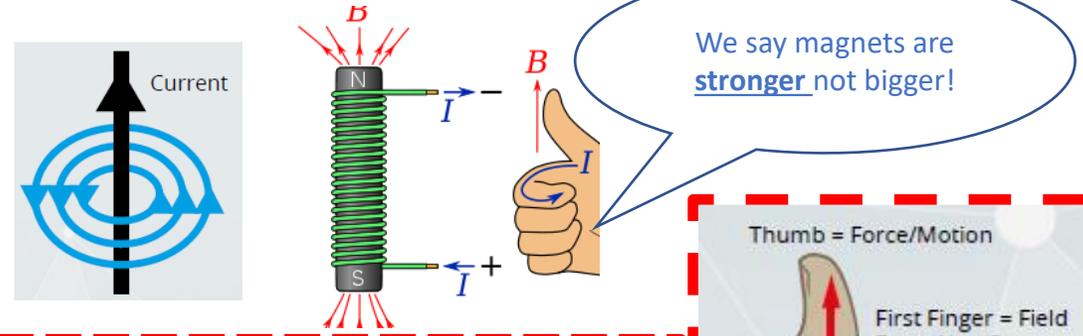


Todmorden High Science Knowledge Organiser

Year CP10 Topic...Magnetism

Key term	Definition
Permanent magnets	Produce a magnetic field around them which exerts a non-contact force on a magnetic material (or a moving electrical charge).
Magnetic materials	Can be attracted by permanent magnets, but cannot be repelled by magnets! Iron, nickel and cobalt are the only magnetic elements. Magnetic materials become induced magnets in a magnetic field.
Magnetic field lines.	These are not real but represent the strength and direction of the magnetic force on a North pole of a magnet, they always point from N to S
solenoid	A coil of wire used in an electromagnet.
Soft iron core	readily magnetises and de-magnetises.
Magnetic Field lines.	show the direction and strength of a magnetic field. The closer they are the stronger the field. They always point from N to S.
Magnetic flux density (B)	The strength of a magnetic field measured in teslas (T).

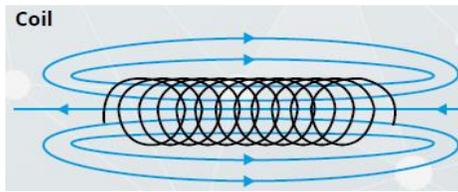
The **Right Hand Screw Rule** gives the direction of a magnetic field around a current in a wire.



HT only. Fleming's Left Hand Rule predicts the direction of the force on a current in a magnetic field.

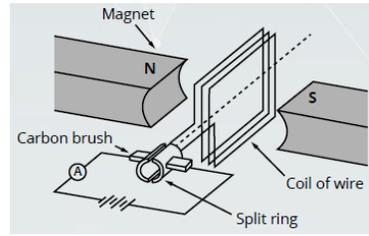
F=BIL calculates the magnitude of the force (**F**) on a length of wire (**L**), carrying a current (**I**) at right angles to the magnetic field (**B**).

A coil or a **solenoid** produces a **very strong uniform magnetic field** inside the coil. And a much weaker field outside the coil.

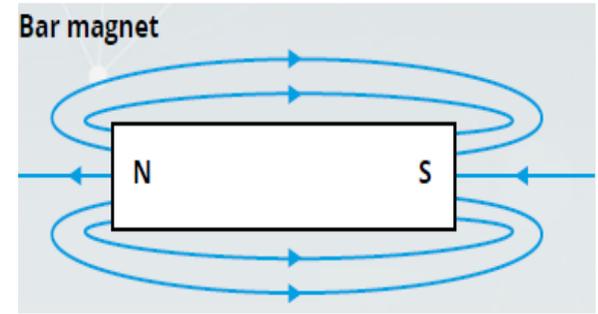


The magnetic field strength of the solenoid can be increased by,

- increasing the current
- increasing the number of turns per m
- adding a soft iron core to the centre.

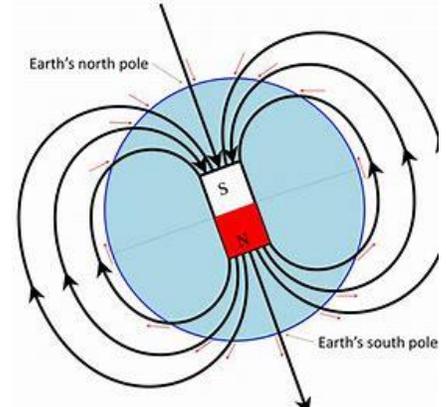


An electric motor uses the fact that magnetic field from the current carrying wire **INTERACTS** with the magnetic field from the magnet and this creates a force on the wire. Each side of the coil carries current in the opposite direction (relative to the magnetic field). Therefore the forces on each side of the coil are in opposite directions, causing the coil to spin. A **split ring commutator** ensures the coil spins in one direction and the wires do not tangle.



Core practical. To show the shape and direction of a magnetic field.

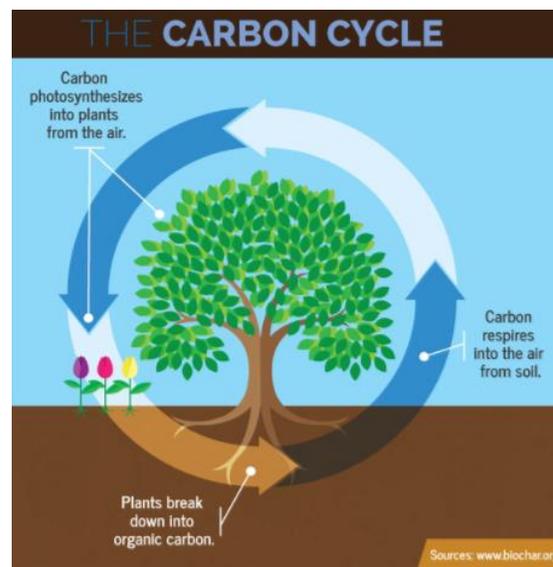
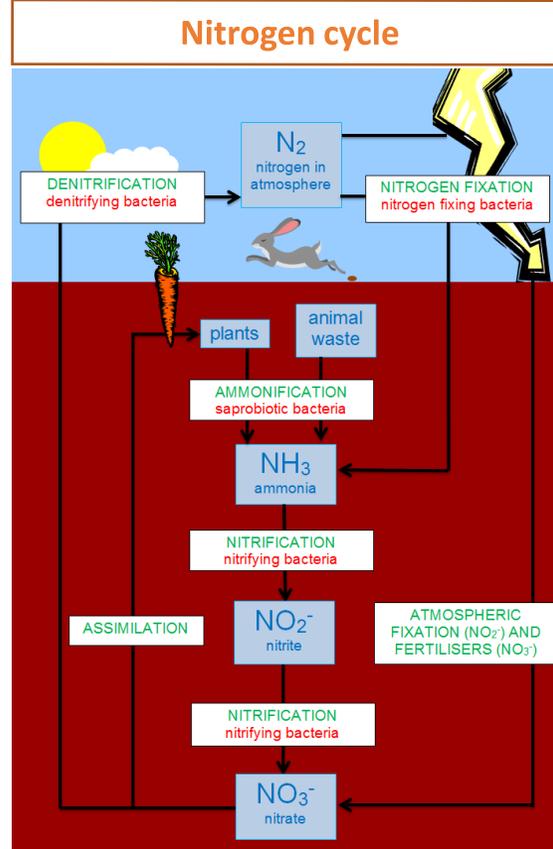
- #1 Place a sheet of paper over the bar magnet.
- #2 Sprinkle iron filings over the paper.
- #3 Using a pencil mark the lines where the filings lie, these are the magnetic field lines.
- #4 Remove the iron filings – making sure that the papers stays in the same position over the magnet.
- #5 Place a plotting compass on the field lines to determine the direction of the field. The North pole of the compass will point towards the South pole of the magnet. (Same poles repel, opposite poles attract). **This is how we know that at geographical North there is a magnetic south pole.**





K.O. CB9 – Ecosystems and material cycles

Key Terms / Words	Definition
Environment	The conditions surrounding an organism; abiotic and biotic.
Habitat	Place where organisms live e.g. woodland, lake.
Population	Individuals of a species living in a habitat.
Community	Populations of different species living in a habitat.
Quadrats	Organisms are counted within a randomly placed square.
Transects	Organisms are counted along a belt (transect) of the ecosystem.
Interdependence	Species depend on each other for food, shelter, pollination, seed dispersal etc. Removing a species can affect the whole community.
Mutualistic relationships	For example, insects and flowers in pollination. Plant ovum are successfully fertilised, insect species receive food (nectar).
Parasites	Parasites feed off a host causing harm to the host e.g. tape worm living inside digestive system.
Abiotic	Non-living factors that affect a community.



Food chains

Feeding relationships in a community

Producer	Primary consumer	Secondary consumer	Tertiary consumer
			
Grass → Grasshopper → Mouse → Owl			
All food chains begin with a producer e.g. grass that is usually a green plant or photosynthetic algae.		Consumers that kill and eat other animals are predators and those eaten are prey.	
Maintaining local and global biodiversity	Conservation of animal species	Protecting rare or endangered species by protecting habitats and use of breeding programmes.	
	Impact of reforestation	Increasing range of habitats so that an area can support a greater range of species.	

Positive and negative human interactions within ecosystems

Fish farming	Can be used to reduce over fishing of wild species and increase biodiversity.
Introduction of non-indigenous species	Can decrease biodiversity by introducing predators where prey do not have time to adapt.
Eutrophication	Fertilisers on farm land lead to too many nutrients in water act as pollutants reducing biodiversity.



Key characters

Romeo Montague	Devoted and romantic, Romeo is a young man who is driven by his emotions. He is loyal and committed.
Juliet Capulet	Young, sensible, dutiful at the beginning of the play, Juliet becomes conflicted, deceitful and unable to trust anyone except Romeo.
The Nurse	The Nurse is a mother figure to Juliet. She is comedic and sometimes inappropriate, but her intentions are usually good.
The Friar	Friar Lawrence is a holy man and an apothecary. He has been a father figure to Romeo for some time and he supports Romeo and Juliet's plan to be together.
Mercutio	Mercutio is Romeo's friend. He often makes long speeches and he is entertaining. Fiercely loyal, he will do anything for his family and friends.
Paris	Paris is an honourable gentleman who wants to marry Juliet. He is determined and persistent.

Plot

- Act 1.** The play opens with a fight between bitter rival families, the Montagues and the Capulets. Romeo, who has had his heart broken by Rosaline, speaks to his friends, Benvolio and Mercutio, about the fighting.
- They decide to 'gate-crash' a party at the Capulet mansion. Whilst there, Romeo falls in love with Juliet, who belongs to the rival family.
- Act 2.** Romeo and Juliet decide to get married and the Friar agrees to help them. The only other character who is aware of the marriage is the Nurse.
- Act 3 and 4.** Tybalt, Juliet's cousin, kills Mercutio in a fight. Devastated, Romeo retaliates by killing Tybalt. He is banished and Juliet is left to 'marry' Paris. Desperate, Juliet fakes her own death by drinking a sleeping potion and her family bury her in the family tomb. She sends a letter to Romeo, telling him to rescue her before the potion wears off.
- Act 5.** Romeo doesn't get the letter. He hears that Juliet is dead and goes to Juliet's tomb to kill himself. He drinks poison and dies by Juliet's side. Juliet wakes up, sees that Romeo is dead and kills herself with a dagger.

Literary techniques

Simile	Comparing two things using like or as.
Metaphor	Stating one thing as though it is something else
Personification	Giving human features/characteristics to a non-human object.
Repetition	Where an idea is repeated multiple times throughout a text often to strengthen the idea presented.
Dramatic irony	Where the audience knows something that someone on stage doesn't.
Imperative verb	A command verb such as 'put' or 'don't'.
Blank verse	Poetry that doesn't rhyme and usually has 10 syllables.
Soliloquy	A long speech where a character is speaking alone and voicing their emotions.
Sonnet	A poem that has 14 lines and a strict rhyme scheme.

Themes – tick them off when you have seen them in the play

Love	<input type="radio"/>	Marriage	<input type="radio"/>
Religion	<input type="radio"/>	Honour	<input type="radio"/>
Family	<input type="radio"/>	Fate	<input type="radio"/>
Gender	<input type="radio"/>		<input type="radio"/>
Age	<input type="radio"/>		<input type="radio"/>
Conflict	<input type="radio"/>		<input type="radio"/>

Context

1564

William Shakespeare is born in Stratford-Upon-Avon. When he was 22, he married Anne Hathaway and they had three children together. Religion was hugely important, and although marriages were arranged for money, weddings took place in churches.

1585

Shakespeare begins a career as an actor. The success of his plays could be attributed to his background as a stage actor.

1589

William Shakespeare begins writing the first of 37 plays. Romeo and Juliet is published in 1597.

The Globe Theatre

Theatre audiences included servants and labourers. Members of the audience would often become noisy, shouting comments at the actors and occasionally throwing rotten fruit onto the stage. The poorer people stood in front of the stage, whatever the weather. Richer people sat in covered areas at the sides of the stage.

Year 11 Art

Key Vocabulary

Sketch - A rough or unfinished drawing or painting, often made to assist in making a more finished picture.

Proportion - Comparative relation between things or magnitudes as to size.

Refine - To add the finishing touches to something or to improve the quality.

Composition - The considered layout of a piece of work.

Tone - Shade or shadow.

Hatching - Shading with closely drawn parallel lines.

Cross Hatching - A shading technique where lines are overlapped to create the illusion of tone.

Analyse – Examine (something) methodically and in detail, typically in order to explain and interpret it.

It is important that students create a project that is developed and personal. This can be achieved by the use of own photography. Students are encouraged to take around ten photographs that they can use in order to develop their project. This is preferable to using images found online or through another source as it shows another skill and ability (photography) as well as embedding a more personal element as the photographs are from the student's personal experience.

Overview

During this project, students will use all their knowledge gained from year 10 to create a self-led project. Students will be able to have full autonomy over their project and the direction in which they take the work. To begin, students will be asked to research into a specific artist and decide on a theme that their work will be based on (AO2). During this initial research, students will create a digital artist research page and a mood board of their ideas for a theme. Both these pieces of work will contain images for inspiration but also written analysis expresses their ideas and choices (AO3). The next stage of this project will see students develop their understanding of their chosen artist by creating studies of their artist's work (AO1 & AO3) which will help students to improve their understanding of the artist's process and improve their technique and use of materials. Students will need to take a range of photographs in order to advance this project and will then begin to incorporate the artist's style into an image of something more personal to them. During this stage, students will experiment with other materials in order to discover which works best for the style of art they are wanting to create (AO3). They will then analyse this work in writing: discussing the work they have produced, the intentions behind the work and how these experiments have helped them understand the next steps to be taken. Development of ideas will then show students moving away from a clear use of another artist's style and start to use their gained understanding to create more individualised work. This development will then lead to a final piece, which should be a culmination of all their ideas so far (AO4). The final piece should be clearly linked to all their work and be an obvious final outcome. The journey of the project should always flow and be clear when looking over it. The final piece needs to be highly refined and show a strong confidence with the subject matter, style and use of materials. This piece will then be evaluated where students will write their feelings towards the piece. They will need to explain their intentions, discuss the areas of inspiration behind the piece and the journey which they took to arrive at it. They will also discuss the areas of strength and those they would like to continue to develop.

Each project must have:

- Artist research page.
- Copies of artist work.
- Analysis of artist's study.
- Relevant photographs.
- Work inspired by photography.
- Development work.
- Analysis of development work.
- Final piece.
- Evaluation of final piece.

Assessment Objective 1 is around artist research and showing an understanding and a clear link to other photographers' work. This can be shown through artist research pages and copies of the artist's work
Assessment Objective 2 is your experimentation and ability to use materials. This will be shown through the quality of the work produced and ability to refine those pieces.
Assessment Objective 3 is about annotation and written analysis, this will be shown throughout the project. Annotation must show personal ideas and thoughts rather than facts.
Assessment Objective 4 is the final piece which must show compositional understanding, effective use of materials and a clear link to all previous project work.

Business Growth

There are four ways a business can merge or takeover another business:
 Join with a supplier.
 Join with a competitor.
 Join with a customer.
 Join with an unrelated business.

Sources of Finance for Large Businesses

Internal source of finance

Retained Profits.
 Selling Assets.

External Sources of Finance

Loan capital.
 Share capital.

Changing Aims and Objectives

As a business grows, its aims and objectives will change. They could:

- Change if they aim to survive (earlier stages) or grow (more established business).
- Change the size of their workforce.
- Enter or exit new markets.
- Change the size of their product range.

Economies of Scale

Larger businesses can buy raw materials in bulk, so get them at a cheaper price per unit.

Larger firms can afford to operate and purchase advanced machinery that are faster and cheaper to run.

A factory that is 10x as big wont be 10x as expensive—the law of dimensions.

Key words

Internal growth (organic growth)

when a business grows by expanding its own activities. It is low risk, but slow.

External Growth (inorganic growth)

when a business merges or takeover another business. This is higher risk, but faster.

Merger

when two businesses join together to form a new larger business.

Takeover

when an existing form expands by buying more than half the shares in another business.

Retained Profits Selling Assets

profits the owners have put back into the business business can sell fixed assets no longer in use.

Loan Capital Share Capital

money borrowed from the bank, paid back with interest.
 If a business becomes a limited company they can sell shares.

Public Limited Company

Shares in the company are traded on the stock market so they can be bought and sold by anyone. They have limited liability.

Economies of Scale

When a business expands, its costs may decrease per unit produced. This is called economies of scale.

Diseconomies of Scale.

When a business expands, it could cause some costs to increase per unit.

Globalisation

when businesses and countries become more connected because of better technology, travel and communication .

Tariffs

taxes on goods being exported or imported.

Trade blocs

groups of countries that have little or no trade barriers between them (such as the European Union).

Sustainability

acting in a way that will not harm the earth for the future.

Globalisation

Globalisation can have many impacts on business: Imports: businesses have a larger, global, market to buy from. Can buy supplies cheaply. Exports: Easy to export so a larger market to sell to.
 Location: easier for businesses to locate and operate abroad
 Multinationals: when a company operates in a new country, businesses already in that country need to make sure they are able to compete.

There are barriers to international trade:

Tariffs and Trade Blocs

How businesses can compete internationally:

- Use e-commerce to sell goods online.
- Adjust the marketing mix to suit a given country.

Environmental Influences

Businesses can be sustainable by:
 · Using less packaging and recycling.
 · Disposing of hazardous waste in the correct way.
 · Using efficient machinery.
 · Using renewable energy sources such as solar.

Benefits of being environmentally friendly:

Positive brand image.
 Being “green” can be a USP and give competitive advantage
 However, being environmentally friendly can be expensive, such as buying new energy efficient equipment.
 A stakeholder that persuades businesses to be more environmentally friendly are pressure groups. They can run campaigns on businesses that are not environmentally friendly and ruin their brand image.

Ethical Considerations

Businesses may act unethically by:
 Forcing staff to work excessively long hours.
 Forcing staff to work for low pay.
 Buying raw materials from businesses that exploit staff
 Lying in marketing about their products or competitors.

Advantages of acting ethically:

- Can give competitive advantage as a unique selling point.
- May encourage investment.
- Positive brand image.

Disadvantages of acting ethically:

Can be expensive for the business.
 Can be difficult to find suppliers.
 May not make much profit on products.

Play Environments

Home

Child's home or childminder's house. Children will feel comfortable here. Range of toys might be limited.

Nurseries

Private businesses that make a profit. Qualified staff follow the EYFS framework.

Pre-school

Children who are 3-4 years. Here they develop skills for school. There will be a focus on pencil grip.

Reception class

The first class children go into when they start school (in the academic year they turn 5). Following the EYFS framework, qualified teachers build on children's skills.

Community groups

Groups run for different ages of pre-school children. These groups might be run by volunteers and usually a parent stays with their child.

You will need to be able to suggest age appropriate play activities for each of these aspects of development!

Key terminology

Spacial awareness	Physical Development	Understanding where you are in relation to the objects in your environment. Children gain control of eye movements with hand movements (hand-eye co-ordination).
Staying healthy		Children should be taught about staying healthy. This includes getting exercise, being hygienic and eating the right foods.
Taking care of yourself		Involving children in self-care routines from a young age supports this. As they grow children should help cleaning their teeth, toilet train and learn to dress themselves.
Gross motor skills		The movement of larger muscles. Body management skills are used to control the body. Body co-ordination is the movement of different areas of the body.
Fine motor control		Control over small muscles, particularly in the hands. Movements become more accurate and children are better at manipulating objects.
Problem solving	Cognitive and Intellectual	Children are naturally inquisitive (curious) . They love solving problems. This supports their resilience and perseverance .
Imagination and creativity		Using your mind to be creative opens children up to new ideas. Pretend play is an important part of this.
Listening and attention skills		Children build up their ability to listen and concentrate for longer periods of time. Children learn when to speak and social skills of turn taking in a conversation.
Numeracy skills		The foundation of mathematics children learn about more and less and counting . Shape, weight, money and number patterns are also part of numeracy.
Exploring environments		This includes indoor and outdoor play . Children should be able to safely explore indoor and outdoor environments.
Confidence using Technology	Technology is an important part of our lives. Children should learn about the technology around them and be taught how to use it safely.	

Listening Skills

Listening develops communication. Children learn new words and what they mean. This starts with understanding what other people say and leads to being able to talk themselves.

Building Vocabulary and literacy

The number of words a child knows, understands and can use builds over time. Reading books and listening to others talk supports this.

Expressing feelings

Children find ways to communicate their feelings before they can talk. As they grow older their **vocabulary** increases so they can express their emotions.

Understanding others' experiences

Children first develop a sense of self, that they are separate from their parents. This then moves to understanding that **other people are different from them**. They will ask questions about this and the world for them.

Developing relationships

Children's relationships change as they grow. They make strong **social and emotional bonds** with care givers and can feel **separation anxiety** when these people go away from them. As they get older they develop friendships and choose who they play with.

Sharing, turn taking and compromise

These are key social skills that need to be taught. They develop in interactions with other children and children need to be supported by adults to learn these skills.

Understanding culture and values

Children need to understand about **diversity of cultures**. Different play activities and themes can support with this.

Expression of feelings

It is important that children express their feelings and learn about healthy and appropriate ways to do this.

Self-confidence, self-esteem, self-awareness

Children first develop self-awareness, (a sense of who they are). Self-confidence and self-esteem come from this as they feel **secure** in who they are.

Promoting independence

Independence is an **essential life skill**. Children learn to be gradually less reliant on adults and are confident to do things for themselves. Sometimes a desire to be confident leads to **frustration**.

Communication and language

Social Development

Emotional Development

Creative iMedia, Cambridge National, R087, Creating Interactive Multimedia Products

KEY VOCABULARY

Purpose	Why the interactive product is made.
Use	Where is it used for example, as a kiosk or website.
Multimedia	One or more of the following: Images, sound, video, text.
Interactive	A user can change what they see by clicking on hyperlinked assets or media.
Bandwidth	How much data can be transferred across a network at one time.
Asset	Any item included on your slides, for example, text, video, sound or shapes.
Hardware	The physical items that make up the interactive product, for example, computer, cabling, mouse.

Hardware, peripherals and software

In order to create and view an interactive media product, you will need the following:

Hardware

- Computer.
- Mouse, keyboard, monitor, touch screen.
- Internet service provider, network cabling, server.

Software

- Web authoring software, for example, Dreamweaver.
- Graphic editor software, for example, Photoshop.
 - Browser for example, Chrome.

KNOWLEDGE

Factors that affect performance

Have you ever been searching the internet or watching Netflix on your phone and suddenly it will freeze or take a long time to open pages, this is due to poor network performance? Something is preventing the pages from opening fast or the Netflix film to download fast. There are many reasons why network performance can be affected. Some of these reasons are as follows:

- Low bandwidth.
- Type of network hardware you are using, for example, copper cable, instead of fibre optic cable.
- Using high quality media, for example, TIFF files for images instead of JPEG or PNG.
- How many users are using the network at one time.

Test plan

Before you release an interactive product, you will need to test it works. This is called a test plan. You could test the following:

- Do the pages open as intended?
 - Do the hyperlinks work?
- Does all the media or assets open correctly?

Examples of interactive multimedia kiosks

An interactive multimedia product uses technology to allow a user to change what they see, using hyperlinks. Examples include, websites, kiosks and apps.

Purposes

There are five reasons why interactive multimedia products are created. These reasons can be thought of as their purpose. These purposes are as follows:

- Entertain.
- Advertise.
- Inform.
- Promote.
- Educate.

File formats

Interactive multimedia products consist of multimedia, which includes images, sound, video and text. All these form of media can be saved in different file formats, as below.

Media	File format
Image	JPEG , TIFF
Sound	MP3, WAV
Video	MP4, MOV

Uses

You can break down the purposes opposite, into uses. Uses are examples of how interactive multimedia products are used within each purpose. An example would be as follows:

Purpose, to entertain

- Use 1. Website – www.you.tube.co.uk.
- Use 2. Apps – Spotify.
- Use 3. Games – Minecraft.
- Use 4. - Social media.

Purpose, to inform

- Use 1. Website – www.gov.uk.
- Use 2. NHS app.
- Use 3. Kiosk – Museum.

Purpose, to advertise

- Use 1. Website – www.autotrader.co.uk.
- Use 2. Kiosk – shop kiosk (Argos).

Computer Science GCSE J277 1.5 System Software

KEY VOCABULARY (Operating Systems)

Operating systems (OS)	Collections of programs that tell the computer hardware what to do.
User interface	The means of communication between the user and the computer. These are typically either <i>command line</i> or <i>GUI</i> .
Command Line	The most simple form of user interface where users type commands into a prompt.
Graphic User Interface (GUI)	Most modern computers have a GUI, which uses icons to represent the programs and files. The user runs the programs through a touch-screen or mouse-controlled pointer.
Voice Command	Increasingly users are able to speak commands to devices such as Google Home and Amazon's Alexa.
Memory management	The OS controls available memory, moving programs to and from secondary storage to RAM.
Multitasking	Often users have more than 1 program running at once. In reality, each CPU core can only carryout 1 task at a time, but the OS alternates between the programs to make it appear that multiple tasks are running simultaneously.
Peripheral management	Computers must communicate with a range of external devices such as printers, monitors and scanners (peripherals). The OS uses <i>drivers</i> to correctly pass data to the device and ensure correct function.
Drivers	A driver is a piece of software which provides communication between the CPU and a peripherals device.
User management	Multiple users can have accounts on the same computer, each with their own files, settings and applications, protected with passwords. The OS will ensure that only users who are granted permissions can use files or programs belonging to other users.
File management	Computers store files and data in hierarchical folder systems. This is efficient and allows for quick navigation.

KNOWLEDGE

Software Utilities

Utility	Description	Benefits
Encryption	Coding data so it can only be read using the correct key.	Secures data when sending across a network.
Defragmentation	Reorganising fragmented data on a drive to store in a contiguous order and group empty space.	Improves system performance by improve disk read/write speeds.
Data Compression	Process of making file size smaller.	Compressed files take up less storage space and are quicker to download.
Back-up	Copy of computers system files and settings store externally.	Protects against data loss, such as: hardware failure, flood, fire and accidental deletion.

Types of Backup

Full	Incremental
This is when a copy of every file on the system is taken. Full back-ups take lots of storage space, take a long time to create but are quicker to restore from.	Is when only files created or edited since the last back-up are backed up. This is quicker and takes less storage. However, restoring is much slower as incremental back-up needs to be restored.

Open Source vs Proprietary Software

Open Source:	Advantages	Disadvantages	Proprietary:	Advantages	Disadvantages
Software than be modified and shared by anyone	Usually Free. Can be adapted to suit user. Made not for profit (benefit the wider good).	Limited documentation and customer support. May not get regular updates and could contain errors.	Software than can only be modified and shared by the creator (e.g. Microsoft).	Well tested and more reliable. Comes with warranties and customer support. Regular patches and updates.	Can be expensive. Companies may longer support older versions. May not fit exact user needs.

Computer Science GCSE J277 1.4 Network Security

KEY VOCABULARY – Vulnerabilities

Hacking	Attempting to bypass a system's security features to gain unauthorised access to a computer.
Malware	Malware is malicious software, loaded onto a computer with the intention to cause damage or to steal information. Viruses are a type of malware.
Passive Attack	Is where someone monitors data travelling on a network and intercepts that data (e.g. packet sniffing).
Active Attack	Where someone attacks a network with malware.
Phishing	Phishing is a common way to try to steal information like passwords. Emails are sent, requesting the user logs into a website, but the site is a fake, and the user's details are logged.
Social engineering	People are the weakest point of any system. If a hacker can convince a user to give over their data, this is the easiest way into a secure system.
Brute force attack	Using an algorithm to try every possible combination of characters to 'guess' the user's password.
Data interception	Data interception, or <i>Man in the Middle attacks</i> are hacks that use 'packet sniffer' software to look at every piece of data being transmitted in the local area to find ones that meet the hacker's criteria. Often done by creating 'fake' wireless networks to record users details.
SQL injection	Using SQL statements to trick a database management system (DBMS) into providing large amounts of data to the hacker.
Denial of Service Attack	Hackers flood a network with huge amounts of fake data and requests in an attempt to overload the system so that it crashes.

KNOWLEDGE

Preventative Measures

Measure	Description	Prevents (Vulnerabilities)
Firewall	Scans incoming and outgoing network traffic to check if it's legitimate.	Stops potential malware from entering the network.
User level access	Controls what files/folders or areas of the network different groups of users can access.	Restricts the use of social engineering as a method to gain access to data and sensitive information.
Encryption	Coding data so it can only be decrypted using the correct key.	Protects against data interception when data is being sent across a network.
Penetration Testing	Uses ethical (white hat) hackers to test the network for vulnerabilities.	Helps to prevent hacking and DDOS attacks .
Network Policy	A set of rules and procedures users must follow to ensure the network is secure. (e.g. must encrypt sensitive data).	Ensures the security of the whole network from both active and passive attacks as well as human error .

Types of Malware

Virus	Type of malware spread as an attachment to a file.
Worm	A type of virus capable of replicating itself.
Trojan Horse	Malware disguised as legitimate software.
Ransomware	Uses encryption techniques to lock users out of files.
Malware – Can be used to delete or change files. It can also be used to lock files – in a ransomware attack. It can also be used to monitor network traffic and intercept sensitive data.	

Design Technology – Year 10

Briefs, Specifications, ideas and development

Design Briefs

A design brief is the statement of how you will solve the design problem
It will often include:

- Constraints/ limitations.
- What the product is.
- Materials/processes.
- Any key information you know.

Design Specifications

A design specification is a list of requirements your product has to meet in order to be successful

It is also useful for evaluation. If your product hasn't met the spec, then it gives you a starting point for improvements.

Aesthetics	What the product looks like? Style? Colour Scheme? Design Movement?
Customer	Who would buy it (age, gender, socio-economic, personality)? How does the design appeal to them?
Cost	How much will it cost (min-max)? Why?
Environment	Where will it be used? Why? How will you make it suitable?
Safety	How is it safe? How will it be checked? Why must it be safe?
Size	What is the maximum or minimum size? Why?
Function	What does the product do? What features make it do that function well? How is it unique from similar products?
Materials	What is it made from? Why?
Manufacture	How might it be made? Why? What scale of production? Why?

Technique	Description/ notes	Diagram
Orthographic Projection/ Working Drawings	<ul style="list-style-type: none"> • Includes "Front", "Plan" and "End" 2D Views, and often an Isometric 3D View. • Standardised method for scale, dimensions and line types. • Great for manufacturing. 	
Isometric	<ul style="list-style-type: none"> • Common 3D sketching method. • Can be drawn free-hand or using isometric paper and ruler. • Angles are at 30 degrees. • Great for seeing most of the products. 	
1-Point Perspective	<ul style="list-style-type: none"> • A 3D drawing method. • Often used by interior designers and architects. • Gives drawings depth. • Only uses 1 vanishing point. 	
2-Point Perspective	<ul style="list-style-type: none"> • Used for 3D designs. • Exaggerates the 3D effect. • Objects can be drawn above of below the horizon line but must go to the 2 vanishing points. 	
Annotated Drawings/ Free and Sketches	<ul style="list-style-type: none"> • Quick and easy way of getting ideas down. • Range of ideas can be seen. • Annotation helps explain designs further. 	
Exploded View	<ul style="list-style-type: none"> • Helps see a final design of a product and all its parts. • Can see where all the parts fit. 	

Modelling and development are key to testing and improving products.
This can be done physically using materials like; card, foam, clay, man-made boards or virtually in **CAD**.

Modelling helps the designer get feedback from the customer, check aesthetics, function, sizes and even materials and production methods and change them if needed.

Key terms

Rupa	Statue of Buddha.
Dhammapada	Collective teachings of the Buddha (holy book).
Tripitaka	Buddhist Holy book containing the dharma.
Mala	Prayer beads to help meditation and chanting.
Mantra	Short religious phrase that is chanted (EG Om manne Padme hum).
Meditation	Focussing deeply.
Samatha Meditation	Meditation that focuses on clearing the mind. Buddhists may focus on a single object or their breathing)- Therevada and Mahayana do this.
Vipissana Meditation	Meditation that focusses on the dharma. It is usually done after samatha. Therevada Buddhists do this.
Visualization	Buddhists 'visualize' themselves as a Buddha to unlock their Buddha-nature.
Parinirvana Day	Mahayana festival that celebrated the enlightenment and passing on of the Buddha.
Wesak	Therevada festival celebrating the birth, life, enlightenment and death of the Buddha.
6 Perfections	Mahayana qualities you need to become a Bodhisattva (P atience, M orality, M editation, W isdom, G enerosity and E nergy).
Sunyata	Emptiness (of the mind).
4 Sublime states	4 Qualities needed to become a perfected being in Mahayana Buddhism (Metta, Karuna, Calmness, sympathetic joy).
Metta	Loving kindness.
Karuna	Compassion.
Gompa	Meditation hall.
Vihara	Monastery.
Shrine	An area with items to help Buddhists worship. May contain candles, flowers, rupas or thangkas.
Stupa	A structure/tower containing relics. It can have 8 rings and 4 corners to represent the 8FP and 4MEs. It points 'up to Nirvana.'
Thangka	A picture or image of the Buddha used to help visualization.

Key teachings

Mourning Ceremonies

Also known as funerals, these can be done as cremation (burning), sky burials (feeding the bodies to vultures) or as a Pure Land Burial (chanting Amitabha in order to send the person to Sukhavati Heaven). By watching the skandhas get burned or torn apart, Buddhists are reminded of Anicca and anatta and the need to avoid attachment.

Samatha Meditation

This is where Buddhists will focus on a kasina (such as their breathing, a rupa or a red dot) to clear their mind. This will give them 'right concentration' on the 8FP/3FW and it is similar to how the Buddha achieved enlightenment.

Vipissana Meditation

This type of meditation focuses on the dharma. For example, on the 8 fold Path. By internalising the dharma, Buddhists increase their chance of reaching Nirvana as they will always act with it in mind.

Visualisation

Through looking at a thangka or rupa and imagining they have achieved Buddhahood, Buddhists unlock their Buddha nature. This is the potential to become a Buddha which we all have whether monk, lay, male or female.

Zen Meditation

This is 'sitting meditation' where the Buddhists sits on a zazen cushion. It is neither too comfy (like Palace life) or too un-comfy (like ascetic life), thus it reminds Buddhists of the middle way. The Buddha was enlightened in a similar way. Some variations include Zen archery or walking meditation so believers can learn to meditate while doing everyday activities.

Loving Kindness meditation

This is where Buddhists imagine showing love to family, a friend, a stranger a person they dislike and their worst enemy. It helps them develop metta which leads to doing good actions to even the most challenging people! This gains good karma.

Puja

Worship in Buddhism does not mean worshiping Buddha, but acknowledging the 'worth' of the dharma. Buddhists will use different places of worship to help them as well as different items such as sand mandalas. These sand patterns are complex and take a long time to make. They are then destroyed to remind Buddhists about Anicca. By learning the dharma, Buddhists gain good karma and develop 'right understanding' on the 8FP.

The 3 Refuges

Buddhists take 'refuge' or shelter from suffering. They do this through the **Buddha**- he gives hope it is possible to reach Nirvana through his example. **Dharma** - If we follow the dharma and gain good karma we can reach enlightenment. **Sangha** - By becoming a monk and following all ten precepts (5 lay & 5 monastic), Buddhists can reach Nirvana.

Retreat

As well as going on pilgrimage, Buddhists may go on retreat. This can be anywhere (such as a Buddhist centre, a cave, somewhere to be alone). Here, they will practise meditation, the dharma and try and reach Nirvana without distraction just like when Buddha retreated to the Bodhi tree.

Key Quotes

Meditation

Meditation frees us from Mara's fetter' Buddha

'Peace comes from within' Buddha

'What we think we become' Buddha

Life of Buddha

'Legs like bamboo...back like a rope' Jataka

'3 mansions- one for winter, one for Summer and one for the Rainy Season' Jataka

'I vow to sit here until I reach enlightenment...or die' Jataka

Focussing on Nirvana

The poison dart analogy. (Buddha)

The Sitar analogy. (Buddha)

Further quotations

'If you see the Buddha on the road...kill him'.
Tich Naht Hahn

Nirvana is 'ineffable'. William James.

'No one can save us but ourselves'. Buddha

'My religion is kindness'. The Dalai Lama

Paper 2: Changing Economic World

Classifying & measuring development

HIC	Wealthiest countries, high GNI and high quality of life.
LIC	Poorest countries, low GNI and low quality of life for most.
NEE	Rapidly getting richer, move from agricultural to industrial economy.
GNI per head	Total value of goods and services per year divided by population.
Birth rate	Number of life births per 1000 per year.
Death rate	Number of deaths per 1000 per year.
Infant mortality rate	Number of babies that die in first year out of 1000 live births.
People per doctor	Number of doctors per 100 of population.
Literacy rate	Percentage of adults who can read and write.
Access to safe water	Number of people who have access to safe water.
Life expectancy	Average age a person can be expected to live.
HDI	Combination of GNI, life expectancy and education level.
DTM	Demographic transition model.

Nigeria a NEE

Nigeria	West coast of Africa, richest African nation and set to be in top 20 largest global economies by 2050.
Wider context	Politically , used to be UK colony, socially , it is has a multi faith mix, culturally , there's Nollywood and environmentally , there's a mix of desert in the north and more tropical in the south.
Changing economic structure	An NEE that's moving from an agricultural based economy to an industrial one.
TNCs	Royal Dutch Shell is one of main TNCs; they make a huge positive contribution to taxes and export revenue however oils spills and human rights abuse are also a feature.
Aid	100 million live on less than \$1 a day therefore they receive plenty of international aid e.g. nets for life.

Development gap causes and strategies to reduce

CAUSES	
Physical	Poor climate, low quality farmland or natural hazards.
Economic	Poor trade links, agricultural economy or debt.
Historical	Colonisation and conflict in past create lack of development.
STRATEGIES TO REDUCE	
Investment	Foreign Direct Investment FDI – when companies open in a country.
Industrial dev	Moving economy to industry and away from agriculture.
Tourism	Increase in tourism can boost economy.
Aid	Money and resources can be given.
Intermediate tech	Sustainable simple technology built and repaired locally.
Fair trade	Ensuring famrers receive a living wage.
Debt relief	Cancelling debt so money saved can be invested.
Microfinance loan	Small loans to help people set up small businesses.

UK – Economic future

Historic economic change	UK has de-industrialised and now is a post-industrial globalised economy.
Industrial environmental impact	Heavy industry was very polluting; modern industry can be far more environmental and sustainable.
Changes in rural landscapes	Hebden Bridge is a booming rural location with close transport links to Manchester and Leeds. Nelson is declining without such connections.
Transport improvements	HS2 is set to improve rail provision, Smart motorways reduce congestion and 3 rd runway at Heathrow.
North – south divide	Higher salaries and more job opportunities in the south. BBC move to Media City in Manchester to help redress.
UK and wider world	Strong trade and political links with rest of world.

Health and Social Care

Knowledge Organiser: Year 11, Term 1

LO1: Knowledge about dietary requirements/guidelines

Eatwell Guide:

Carbohydrates – to provide energy. Includes rice, cereals, bread, pasta and potatoes.

Protein – for growth and repair. Includes fish, meat, eggs, beans and pulses.

Fat – to provide energy and store energy in the body. Includes butter, oil and nuts.

Vitamins - small amounts to maintain health. From fruit and vegetables.

Minerals – small amounts to maintain health. From salt (sodium), milk (for calcium) and green leafy vegetables (for iron).

The importance of nutrients, function, and source, i.e.:

Macro nutrients - protein, fat, carbohydrates.

Micro nutrients - vitamins A, B group, C, D, E, K, minerals - calcium, iron.

Function = job/their role.

Nutrients = umbrella term for a collection of types of foods that allow the body to do a specific job.

Source = where to nutrients/ food comes from.

The dietary needs for the different life stages and how they change as we grow and age.

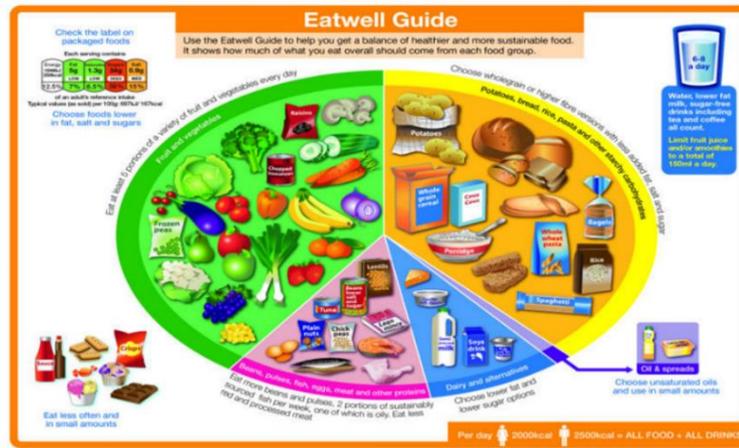
Young people (14-25).

Adults (25-64).

Older adults (65+).

D.R.V (Dietary Reference Values).

R.N.I (Reference Nutrient Intake).



Nutritional needs at different life stages:

Young people: They need more carbohydrates as their body needs the energy to grow. They need protein, for muscles to grow, and more calcium because their bones are growing and becoming more dense. Girls need plenty of iron because during menstruation, to ensure that they do not become anaemic due to losing blood each month. Additionally because of rapid growth, they need more carbohydrates, for energy to allow their body to grow at very fast, protein, for their muscles to grow and calcium so their bones can grow in size and density and have the correct shape and formation. Children need a lot of starchy carbohydrates to keep them concentrating at school, as, if they are hungry, they are distracted, and starchy carbohydrates keep them fuller for longer.

Children need a lot of fruit and vegetables, as they contain vitamins which can help boost their immune system, and prevent them from getting disorders such as rickets and scurvy as well as helping to protect them from getting cold and flu viruses when they go to school. It is important for babies to get enough vitamin D and calcium as a lack of them can cause disorders such as rickets. Rickets is a skeletal disorder that can cause them to have weak and soft bones, stunted growth, and, in severe cases, skeletal deformities.

Adulthood: Adults need different amounts of food depending on age, activity level, gender, and height. If people work out often, they may need more protein as that helps to repair muscles that could have been damaged during the work-out. Adults do not grow in height anymore and do not have growth spurts like children/teenagers, but their body is always being impacted by general life so needs to be able to repair itself daily.

Pregnant or breastfeeding woman need more calories to allow the baby to grow. Low iron levels in early pregnancy have been linked to premature birth and low birth weight therefore it is important for expectant mothers to increase their red meat and green leafy vegetable intake. Vitamin C is also important to ensure that the iron is absorbed into the body so eating citrus fruits can help during this life stage with protecting cells and keeping them healthy from toxins and for the elimination of scurvy and for wound healing.

Obesity is generally caused by eating too much and moving too little. Consuming more than the average 2,000-2,500 calories a day, and not burning it off, will cause it to be stored by the body as fat. This means eating starchy carbohydrates and reducing fat at this life stage is important to reduce the risk of early obesity.



Key people

Presidents during the 1920s

Warren Harding

Republican President March 4, 1921 - August 2, 1923. Focused on getting America back to normal after war.

Calvin Coolidge

Republican President August 2, 1923 - March 4, 1929. Famously said 'the chief business of the American people is business.'

Herbert Hoover

Republican President March 4, 1929 - March 4, 1933. Believed in Rugged Individualism.

Celebrities during the 1920s

Henry Ford

American entrepreneur and business man, founder of the Ford Motor Company and chief developer of the assembly line technique of mass production.

Charlie Chaplin

Famous actor in silent movies. Born in England. Earning \$1500 a week. A fortune in the 1920s.

Al Capone

Gang boss in Chicago. Famous for the St. Valentines Day Massacre of the rival Bugs Moran Gang.

Sacco and Vanzetti

Italian Immigrant to America who were executed for a crime they probably didn't commit.

Key words

American Dream

American ideal in which equality is available to all.

Congress

The American national government.

Consumerism

A social and economic order and ideology that encourages the acquisition of goods and services in ever-increasing amounts.

Credit

Buying goods with an agreement to pay later (in instalments).

Hire Purchase

Method to buy goods and pay in regular instalments

Immigration

People moving to a foreign country to live there permanently.

Ku Klux Klan

White American group using violence against Black Americans and other minority groups/individuals.

Prohibition

Law banning the production and sale of alcohol 1920-33.

Speculation

Investing money in the hope of gain, but also risking loss.

Laissez-faire

French phrase meaning 'leave alone' = no high taxes.

Republican Party

A political party who liked to keep hold of traditions and stay out of people's lives. A kind of Businessman's party.

Democratic Party

More of an ordinary people's party. They favoured helping those in need.

Key events

Economic 'Boom' in the 1920s

- First World War left America in a stronger position than Europe.
- American business was able to mass produce goods and sell them meaning more people were employed and so more people had money to spend.
- Advertising encouraged people to spend not save
- Hire purchase gave people a way to buy things on a payment plan.

Exclusions form the 'Boom'

- African Americans did not experience the boom. They were paid less and lived in poorer conditions.
- Immigrants had similar experiences to American Americans. They were treated with suspicion. Sacco and Vanzetti would be a good example.
- Farmers also found they didn't benefit. They were already living in poverty when the boom started.

Popular Culture

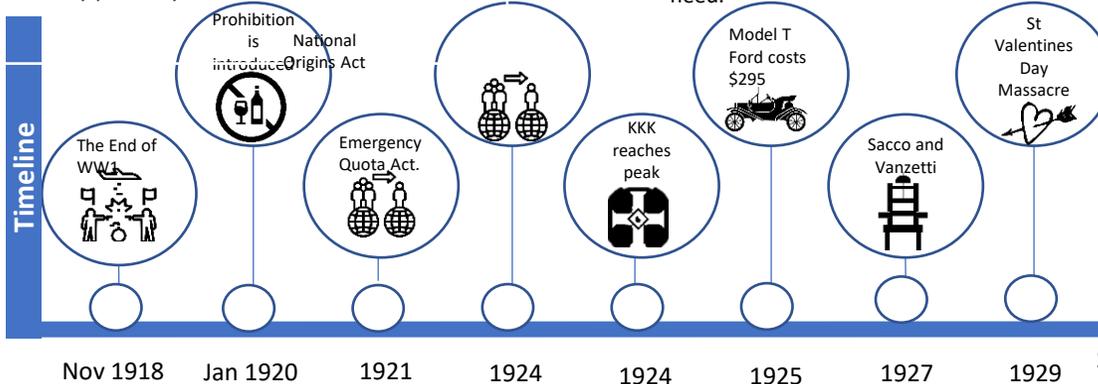
- Cinemas were hugely popular. 100 million people went a week by 1929.
- Jazz became incredibly popular and new dances went with it. For example The Charleston and The Black Bottom.
- Watching sport was a favoured pass time. Babe Ruth was a national hero for setting a home run record. He was paid \$80,000 a year.
- Cray crazes also took over. Marathon dancing and pole sitting were very popular. Alvin 'shipwreck' Kelly set the record when he remained on a platform for 49 days.

Women

- By 1929 10.5 million women were in work. That's 25% more than in 1920.
- Flappers were a new sort of woman. They wore more revealing clothes, rode motorbikes, smoked and went out without a chaperone.
- Women also had the right to vote.
- However, women were still not equal and the flapper tended to be middle class and above.

Negatives

- Prohibition banned alcohol and encourage gang activity to provide illegal alcohol to Americans.
- Gangs run by men like Al Capone almost took over whole cities. For example, Chicago was largely out of control and run by gangs.
- Immigration quotas created a split society and racial tension in America. African Americans and European immigrants were subjected to persecution by the KKK.



Scan here for Pods on this topic.

Key terminology

Employee	Someone who works in the industry and has an employment contract.
Employer	Someone who hires staff to work for them.
Worker	Someone who works in the industry but does not have an employment contract.
Covers	Customer orders that are sent to the kitchen.
Workflow	The way food passes through a kitchen from delivery to plate.
HACCP	Hazard Analysis Critical Control Point – safety procedure that identifies hazards and prevents them.
FSA	Food Standards Agency – responsible for enforcing food hygiene and safety laws.
Kitchen Porter	Member of staff responsible for kitchen organisation, supplying the chefs and the stock of the kitchen.
Brigade	Term for a group of chefs in a professional kitchen.

Head Chef Responsibilities

- Making sure food is of the right quality and price and is produced on time.
- Managing stocks of food/meeting suppliers.
- Managing health and hygiene procedures.
- Organising the staff duty rota.
- Overall responsibility for daily operations in the kitchen.
- Deals with customer complaints.

- Employees receive the necessary training.
- The Executive Chef assigns duties to his or her staff.
- Ordering supplies.
- Meal creations/menus/producing menus and new dishes
- Maintaining or raising the profit margins on food/costings of dishes.
- Staffing: hiring and firing of staff.
- Attending meetings.

EHO Responsibilities

- Carrying out routine or unplanned visits and inspections to ensure compliance with health and safety legislation and taking action to improve conditions.
- Taking video of the area investigating.
- Measuring noise level.
- Providing advice and assistance to householders and businesses.
- Taking photos, producing drawings, removing samples and conducting interviews as part of the inspection process.
- Investigating complaints from the general public.
- Investigating accidents at work and complaints about poor standards of health and safety, as well as identifying areas of negligence.
- Investigating outbreaks of infectious disease and preventing it spreading any further.
- Taking enforcement action, initiating legal proceedings, preparing and giving evidence in court.

Agenda	A list of items to be discussed during a formal meeting.
Minutes	A written record of topics discussed during a formal meeting.
Gantt chart	A diagram to show the length and timescale of a project, with the various phases of the project clearly outlined.
Promotional material	Documents to advertise an event, including posters, flyers, website banners and social media adverts.
Stage hand	A person who works backstage or behind the scenes during, before and after a performance.
Light and sound engineer	A person or team of people who control the lights and sound during a performance.
Front of house	A team of people who manage the public sections of a theatre, concert hall or performance space.
Floor plan	A diagram to show the seating plan, stage and backstage area within a performance space.
Cue sheet	A document containing annotations of sound, props, movement and lights for stage hands and engineers to use during a performance.
Risk Assessment	A documents containing information about the hazards, control measures and systems in place within the performance venue.

Portfolio

Weekly logbook.
 Written evidence of meetings.
 Video footage.
 Sketches.
 Research.
 Promotional material.
 Resources for the event.
 Evaluation.

Music Products

Creating a music event.
 Delivering a concert.
 Creating an EP/album.
 Writing and creating a podcast.
 Creating a radio show.
 Writing a music blog/vlog.
 Music journalism.
 Creating a school music newsletter.

Knowledge organiser: Things I Know to be True

Genre: Family drama

Style: Naturalistic acting with non-naturalistic physical sections

Synopsis:

Cast:		Key scenes/ aims:				Plot Act 1	Physical	Set	Lighting	Evaluation				
Matthew Barker - Mark	Rosie comes home: Establishes the close relationship between Rosie and Mark.	Mark's monologue: Aims to show the audience that Mark is uncomfortable in his own skin.	Mark's revelation: Shows the emotional turmoil he is experiencing.	Mark's Goodbye: Audience become emotionally attached to Mark. Isolated, he's an outsider to the family. Can picture emotional farewell	<ul style="list-style-type: none"> Opening-phone call. Rosie's monologue. Rosie returns home. Pip's melt down. Chopping onions. Pip's letter. Mark's monologue. Mark tells his parents about his sexuality. 						Facial expression (angry, cheery). Eye contact. Posture (relaxed, upright). Movement/stillness. Body Language. Gesture. Gait (uneven, steady). Proxemics. Stage space. Timing. Pace. Levels. Physical appearance: age, height, build, facial features. Physical contact.	Scale Texture Colour Trucks Material Flies Multi media Revolve Levels Backdrop	Colour Intensity Gauze Gobo Wash Spotlight Follow spot Floor lamps Angle Effect on stage space	Convincing Believable Credible Reasonable Adequate Unconvincing Un/Successful In/effective Superb Outstanding Disappointing Lack-lustre Satisfactory Passionate Accurate Innovative Cleverly crafted Resounding
Natalie Casey - Pip	Rosie comes home: Establishes the family dynamic. Clear that she has a tense relationship with Fran.	Pip in the garden: Aims to show the tense relationship between Fran and Pip. Shows how unhappy she is.	Pip's letter: Physically and vocally extends on the fractured relationship. Pip's last contact with Fran.	Final Scene: Cathartic feel as Pip never made up with Fran and she died on bad terms with Pip. Communicate her distress.										
Richard Mylan - Ben	Rosie comes home: Establishes that Ben is playful, confident/arrogant, mothered.	Ben's confession: See the generational divide between Ben and Bob. Shows he's emotionally distressed. Dependent on Fran.	Rosie leaves: Extends on her relationship particularly with Fran. Shows she is close with Bob.	Final Scene: The audience empathise for Ben as he goes to Fran when he is in trouble, no more reassurance.										
Kirsty Oswald - Rosie	Opening Scene: Establishes Rosie as an innocent character which grows during the play. Shows she has had her heart broken.	Rosie comes home: Establishes Rosie's relationship with each relative- clear that she is the youngest.	Mark packing: Shows close relationship. Shows that Rosie is the youngest.	Final Scene: Cathartic feel. The audience are left devastated as we have seen Fran and Rosie's relationship.										
Ewan Stewart - Bob	Rosie comes home: Establishes Bob and Rosie's close relationship.	Ben's confession: See the generational divide between Ben and Bob. We see that Bob is angry. We also see his values.	Rosie Leaves: Extends on his relationship to Rosie. Shows the closeness between the two.	Final Scene: Shows how vulnerable Bob is. We see the depth of his grief.										
Imogen Stubbs - Fran	Rosie comes home: Establishes the relationship between Fran and Rosie. It's clear that she is the matriarch.	Bob and Fran's argument: The audience finally see Bob and Fran as a husband and wife not just as parents.	Bob and Fran's Dance: Shows that their marriage is still strong which makes it even more devastating when Fran dies.	Rosie Leaves: The audience are left devastated as we have seen Fran's relationship with each character.										
Production team:		Aims:				Plot Act 2	Vocal	Costume	Sound	Audience response				
Andrew Bovell - Writer	He went about creating a very similar family structure to the one he escaped: loving, overwhelmingly emotionally fraught but perhaps a little claustrophobic. He has watched his children run away to become the people they need to be. He aims to show the idea of escaping your family in the play and the complexity of family life.				<ul style="list-style-type: none"> Mark packs. Mark's monologue about the airport. Bob and Fran dance. Ben's confession. Bob and Fran's argument. Rosie tells Bob she is leaving. Final scene. 						Pace (fast, slow, controlled, hesitant). Pitch (high, low, deep). Pause. Tone (aggressive, harsh, authoritative, proud, nervous, warm). Volume (loud, quiet, soft). Emphasis. Intonation. Inflection. Diction. Timing. Accent. Projection.	Colour Fabric Accessories Make up/wigs Shape Appropriate fit Symbolism Condition Period detail Movement constraints	Volume Amplification Fade Levels Sound effects Music Distortion Diegetic /Non-diegetic Echo Underscore Direction	Sympathy Laughter Cathartic Tears Personal response This made me feel... As an audience member, I responded with... Personally, I felt...
Georgie Brookman - Director	He believed that denying the action places the potential for movement in the mind of the audience. This is why some sections are still.													
Scott Graham - Director	Graham decided on a minimalistic approach so the audience focus on the performance and not a spectacle. He decided to explore the scenes through tension, movement and proximity.													
Geoff Cobham - Set & lighting	The lighting and the idea with this design was to take the normal into the heightened surreal world of Gregory Crewdson's photo. His images are often dominated by beams of light. Cave of lights has 131 bulbs, represents that Bob has never travelled and doesn't want any of his family to leave the bubble.													
Ailsa Paterson - Costume	Bob: Bob wears plain, comfortable clothes. Green polo shirt + blue jeans appropriate fit is oversized, no money. A simple man.	Fran: Plain, creased shirt and black pants. Sleeves rolled up shows practicality. Pass clipped to her pant, works a lot. Flat, practical shoes.	Rosie: Cotton dress, shows vulnerability and innocence. Tribal pattern shows she has been travelling. Red shows she is passionate/loving.	Pip: Similar to Fran she wears a plain top and black pants, shows practicality because she is a mother. Suit isn't flattering = self-image.										
Andrew Howard - Sound	They needed music that could be subtle and beautiful. At times it needed to be light and flitter around the cast and at others it needed to reflect the love and the breaking heart of the play.													

Year 11 Photography

Key Vocabulary

Rule of thirds - A type of composition in which an image is divided evenly into thirds and the focal point is placed around the edges.

Leading Lines – Lines that our eyes follow round a composition are called leading lines. They are a useful tool to create a visual flow or to emphasise focal points.

Refine - Finishing touches to something or to improve the quality.

Composition - The considered layout of a piece of work.

Contrast – A strong distinction between the darkest areas and the lightest areas of an image.

Sequence – the repetition of a focal point.

Texture – the feel, appearance, or consistency of a surface.

Scale - the use of symbols to represent ideas or qualities.

Analysis – detailed examination of the elements or structure of something.

Focal Point - the center of interest or activity.

Photoshoots need to show at least 30 images that demonstrate professional standards such as thought for props, costumes, composition and backdrops. Contact sheets need to show understanding and use of the compositional elements and must be effective shots before they are edited. Students must not rely on editing to make their photographs effective - editing must simply be a way of subtly improving an already high-quality image.

Overview

During this project students will be developing their own styles and creating work based around a personal topic of interest within photography. Students will begin by researching different styles of photography and creating a piece of analysis around these different styles (AO1). This will be a combination of visual references and written analysis. This process will help develop students' understanding of different types of photography and help them to decide which area to focus on for their own project. These pieces of work will also contain in depth written analysis of the photographer's work as well as the students ideas and intentions for their project (AO3).

After the initial research stage, students will design and implement a photoshoot showing compositional understanding and professional presentation. Elements such as background, costumes, props and angles of shot should all have been considered and be easily shown through their contact sheet.

Students will edit their images using a variety of editing tools, showing a deep understanding of Photoshop and how to create the effect they have intended. (AO2) They will create a number of refined editing journeys for each image in order to show the steps and annotate these steps to demonstrate their understanding (AO3). This project will conclude with a number of final piece images that are specifically chosen by the student. These images will then be analysed by the student writing a personal response to it. They will discuss how the image was achieved and why the student believes this is an effective image. They will also write about how they believe this photograph realizes their intentions and how they would improve it if they could have more time on the project.

Each project must have:

- Artist research page.
- Photoshoot plan.
- Annotated contact sheet.
- Photographs that are sharp and high quality.
- Minimum of 10 annotated editing journeys.
- Final piece as a whole slide.
- Evaluation.

Assessment Objective 1 is around artist research and showing an understanding and clear link to other photographer's work. This can be shown through artist research pages and analysis.

Assessment Objective 2 is about editing your images and showing a clear and developed understanding of editing software and how to improve the quality of your images. This will be shown through editing journeys including print screens of process and annotation of steps.

Assessment Objective 3 is about annotation and written analysis, this will be shown through the project. Annotation must show personal ideas and thoughts rather than facts.

Assessment Objective 4 is the final piece which must show compositional understanding, effective editing and a clear link to the chosen photographer.

Los problemas mundiales – Global problems

¿Cuáles son los problemas mundiales más serios hoy en día?

What are the most serious global problems nowadays?



Me preocupa(n) mucho... – I'm really worried about...

Lo que más me preocupa es (que) ...– the thing I'm most worried about is (that)...

Para mí, el problema más serio es (que)... – For me, the most serious problem is (that) ...

el paro/el desempleo – unemployment
la obesidad – obesity
la diferencia entre ricos y pobres – the rich/poor divide
los sin hogar/los sin techo – the homeless
la soledad – loneliness
el prejuicio – prejudice
la igualdad – equality
el SIDA – AIDS
el terrorismo – terrorism
los animales en peligro de extinción – endangered species
los problemas del medio ambiente – environmental problems

el hambre/la pobreza – hunger/poverty
la drogadicción – drug addiction
la crisis económica – the economic crisis
el estrés – stress

el racismo – racism
el crimen – crime
la guerra – war
el paro/el desempleo – unemployment



Es terrible* que haya... It is terrible that there is...

No es justo que existe... It is not fair that ...exists

tanta desigualdad social/ contaminación - so much social inequality/pollution
tanta gente sin trabajo y sin techo – so many people out of work and homeless
tanta gente obesa y tantos drogadictos – so many obese people and so many drug addicts

¡OJO!

The underlined words could be substituted for another adjective depending on the expression.



¿Cuál es la solución?

What is the solution?



Es necesario *que... – It's necessary that...

Es esencial* que... – It's essential that...



cuidemos el planeta – we look after the planet
hagamos proyectos de conservación - we do conservation projects
compremos/ usemos productos verdes/de comercio justo – we buy/we use green products/ fair trade products
apoyemos proyectos de ayuda – we support aid projects
recaudamos dinero/fondos – we raise money/funds
hagamos campañas publicitarias – we carry out publicity campaigns
construyamos más casas – we build more houses
creemos oportunidades de trabajo – we create job opportunities

¡OJO!

The underlined words could be substituted for another adjective depending on the expression.



SCAN ME

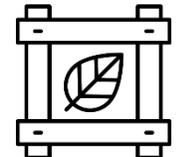
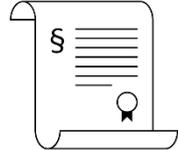
¡ESCUCHA! - SCAN ME FOR PRONUNCIATION.

Vocabulario útil – Useful vocabulary

una organización benéfica – a charity
una residencia de ancianos – old people's home
una tienda solidaria/con fines benéficos – charity shop
el trabajo voluntario – voluntary work
una campaña – a campaign
el desarrollo – development

el humo – the smoke
el olor – the smell
muerto/a – dead
un fumador – a smoker
un ladrón – a thief
un(a) gamberro/a – a thug

los voluntarios - volunteers
la ONG - NGO
los delitos - crimes
los niños de la calle – street children
el/la filántropo/a - philanthropist
la comunidad - community

<p>El medio ambiente – The environment</p>	<p>¿Qué problemas medioambientales existen hoy en día? -</p> <p>What environmental problems exist nowadays?</p> 	<p>Me preocupa(n) mucho... – I’m really worried about...</p> <p>Lo que más me preocupa es (que) ...– The thing I’m most worried about is (that)...</p> <p>Opino que el problema más grave es (que)... – I think that the most serious problem is (that) ...</p>	<p>la deforestación – deforestation las mareas negras – oil spills los problemas del medio ambiente – environmental problems las especies amenazadas/en peligro de extinción – threatened/endangered species la polución de los mares y los ríos – sea and river pollution la destrucción de los bosques – destruction of woods/forests los combustibles fósiles se acaban – fossil fuels are running out hay demasiada basura en las calles – there’s too much litter/rubbish in the streets hay demasiado tráfico – there’s too much traffic el tráfico causa mucho ruido – the traffic causes a lot of noise la gente no recicla – people don’t recycle el calentamiento global – global warming el tornado – tornado</p> 	<p>la lluvia ácida – acid rain la sobrepoblación – overpopulation la contaminación – pollution la sequía – drought los terremotos – earthquakes los huracanes – hurricanes las inundaciones - floods los incendio forestales – forest fires la tormenta de nieve – snow storm el temblor – tremor</p>  
<p>Las soluciones – Solutions</p>	<p>¿Qué deberíamos hacer para proteger el medio ambiente? -</p> <p>What should we do to protect the environment?</p> 	<p>Para proteger el medio ambiente.../ el planeta... – -</p> <p>To protect the environment.../ the planet...</p>	<p>(no) se debe – you must (not) / one must (not)</p> <p>(no) se debería – you should (not) one should (not)</p>	<p>apagar las luces – turn off the lights ducharse en vez de bañarse – shower instead of having a bath separar la basura – separate the rubbish reciclar el plástico y el vidrio – recycle plastic and glass desenchufar los aparatos eléctricos – unplug electrical appliances ahorrar energía – save energy cerrar el grifo – turn off the tap hacer todo lo posible – do everything possible malgastar agua – waste water usar bolsas de plástico – use plastic bags</p>   
		<p>Es esencial que... – It’s essential that...</p> <p>Es importante que... – It’s important that ...</p>	<p>cuidemos el planeta – we look after the planet hagamos proyectos de conservación – we do conservation projects compremos/usamos productos verdes - we buy/ use eco-friendly products compremos/usamos productos de comercio justo – we buy/use fair trade products ahorremos agua – we save water cambiemos la ley – we change the law consumamos menos – we consume less</p>	 

¡OJO!

The underlined words could be substituted for another adjective depending on the expression



Leadership roles and opportunities in sport

Captains

Help to make decisions for their team and influence and motivate people around them.

A good captain will listen to the viewpoints of others but will make decisions when required.

Coaches

Coaches can work on a 1-1 basis or may coach large groups. Their leadership role is to guide and help performers to reach their potential.

Coaches usually have official coaching qualifications.



Managers

Help to manage the processes and procedures, tactics and strategies that a team or sports performer uses. In football managers play a key role and have many media duties to fulfill.

Expedition leaders

Expedition leaders may well hold responsibilities for the group they are leading, such as guiding them down a mountain. An example would be someone leading an activity for the Duke of Edinburgh award.



Teachers

Are in a position of authority and have the opportunity to lead and guide those they are teaching. PE teachers often lead extra-curricular sports teams.

Role models

Role models can be positive or negative. Sports men and women, managers and PE teachers can all be role models. Sports people should act as positive role models, however this does not always happen.

Role-related responsibilities

Knowledge of activity

Any sporting leader must fully understand the rules. Sports leaders should understand how to plan appropriate training sessions.

Enthusiasm for activity

A sports leader has to show an appropriate amount of motivation and enthusiasm for the activity. An uninterested sports leader is unlikely to get the best out of their group.

Knowledge of safety

Sports leaders should have knowledge of:

- How to reduce risks.
- What clothing and footwear is appropriate.
- The techniques to be used.
- What equipment is deemed safe.

Knowledge of child protection

Children should feel safe and supported when playing sport. Coaches and teachers, for example, have to have a DBS check before coaching children.

Knowledge of basic first aid

Sports leaders often attend first aid courses so they know what to do if someone gets injured.