ASH GREEN SCHOOL
Creative Education Trust

"For every minute spent organising, an hour is earned."

Benjamin Franklin

YEAR 10

KNOWLEDGE ORGANISER

2023-2024

Name:

Form:

Year 10 Ash Green School Knowledge Organiser Contents			
Subject	**Page number**	**Subject**	**Page number**
Maths	5-18	Sports Science	126-127
English	19-29	Art	128-129
Science	30-63	Graphics	130-131
Geography	64-76	Computer Science	132-141
History	77-95	Business Studies	142-147
Religious Studies	96-101	Health and Social Care	148-153
French	102-107	Writing Frames	154-158
Spanish	108-113		
Dance	114-115		
Drama	116-122		
Music	123-125		

How to use your Knowledge Organiser

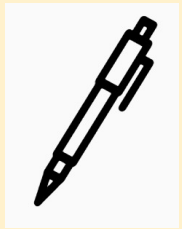
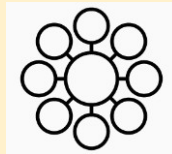
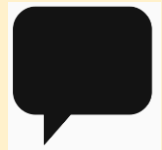
What is a Knowledge Organiser and how will it help me ?
It is an organised collection of knowledge that you need to know and learn for every topic you study in every subject. It will help you to be successful in your tests and exams.
Your teacher will use the knowledge organiser in your lessons. They will ask you to refer to various sections - they might talk this through and/or ask you to make key notes in your books or to highlight certain sections on your knowledge organiser.
Your teacher will set homework, where you will be asked to learn key knowledge from your knowledge organiser - you will then be tested in lessons regularly via short quizzes.

Do I have to bring my Knowledge Organiser every day ?
Yes, you do. It is one of our key expectations that you bring your knowledge organiser to every lesson, every day in your special Knowledge Organiser bag. Your Form Tutor will check this every morning.

Is there anything I could use to support me when using my knowledge organiser ?
Some people find post it's handy to stick onto their knowledge organiser pages - these are useful for extra notes.
Small white revision/flash cards are helpful so you can write key facts down. These can then be placed up around the house to help your revision.

How should I use my Knowledge Organiser to help me learn ?
There are lots of ways to use your knowledge organiser - the key to success is to find what works for you. The table below shows you some different ways to use them.

How to use a knowledge organiser – A step by step guide

	Look, Cover, Write, Check	Definitions to key words	Flash Cards	Self Quizzing	Mind Maps	Paired Retrieval
Step 1	Look at and study a specific area of your knowledge organiser. 	Write down the key words and definitions. 	Use your knowledge organiser to condense and write down key facts and information on your flash cards 	Use your knowledge organiser to create a new quiz. Write down questions using your knowledge organiser. 	Create a mind map with all the information you can remember from your knowledge organiser. 	Ask a partner or family member to have the knowledge organiser or flash cards in their hands 
Step 2	Cover or flip the knowledge organiser over and write down everything you remember. 	Try not to use your knowledge organiser to help you. 	Add pictures to help support. Then self quiz yourself using the flash cards. You can write questions on one side and answers on the other. 	Answer the questions and remember to use full sentences. 	Check your knowledge organiser to see if there were any mistakes with the information you have made. 	They can then test you by asking you questions on different sections of your knowledge organiser 
Step 3	Check what you have written down. Correct any mistakes in green pen and add anything you missed. Repeat. 	Use your green pen to check your work. 	Use a parent/carer or friend to help quiz you on the knowledge. 	You can also use family to help quiz you. Keep self-quizzing until you get all questions correct. 	Try to make connections that links information together. 	Write down your answers. 

LONG TERM CURRICULUM LINKS: Algebraic manipulation, Quadratic Equations

Year 10 Maths: Linear Equations

Equations

An equation is a number statement with an equal sign (=). Expressions on either side of the equal sign are of equal value and can be solved.

a + 14 = 20	a add 14 equals 20
b – 20 = 15	b subtract 20 equals 15
4c = 28	c multiplied by 4 equals 28
d + 12 = 30	d add twelve equals 30
3e – 5 = 10	e multiplied by 3 then subtract 5 equals 10

Solving 1-step Equations

Example 1: x + 5 = 12

- 5 - 5

x = 7

Take 5 from both sides (balancing method)

Example 2: 4x = 20

÷ 4 ÷ 4

Divide both sides by 5 (balancing method)

Solving 2-step Equations

Example:

$$2x + 4 = 10$$

$-4 \quad -4$ — Subtract 4 from both sides

$$2x = 6$$

$\div 2 \quad \div 2$ — Divide both sides by 2

$$\boldsymbol{x = 3}$$

Solving with unknowns on both sides

Example: $5x + 4 = 2x + 10$

$-2x \quad -2x$

$3x + 4 = 10$

$-4 \quad -4$

$3x = 6$

$\div 3 \quad \div 3$

$x = 2$

Start by balancing the equation so that all the variables ($x's$) are on one side.

Then solve using the balancing method

Equations with brackets

Example: $12(x - 4) = 24$

Expand the brackets

$12x - 48 = 24$

$+48 \quad +48$

$12x = 72$

$\div 12 \quad \div 12$

$x = 6$

Formulae

A formula also contains equal expressions but values are substituted to evaluate one variable.

Example:

The formula to find the area of a rectangle is:

$$Area = length \times width$$

If we are told the length is 7cm and width is 5cm, we can use the formula to find the area:

$$Area = 5 \times 7$$

$$Area = 35cm^2$$

Rearranging formulae

We can manipulate formulae and 'change the subject' to calculate other variables. This means we don't have to learn loads of different formulae, and can instead manipulate the ones we already know.

Example: The formula to find the area of a rectangle is:

$$Area = length \times width$$

The current subject of this formula is Area as this is on its own. We can rearrange to change the subject to length:

$$Area = length \times width$$

$\div width \qquad \div width$

$$\frac{Area}{Width} = length$$

We can now use this formula to work out the length of any rectangle given the area and width.

KEY VOCABULARY

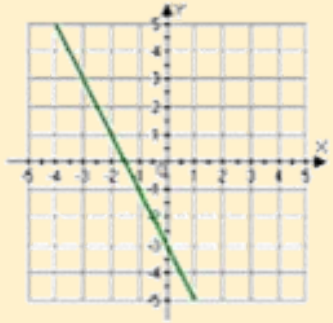
Word	Definition
Equation	A statement that the values of two mathematics expressions are equal.
Formula	Equal expression where values of substituted to find variables
Variable	A value that is unknown, letters are used to represent these values.
Subject	The variable that is on its own in a formula. It is the variable that is being worked out

LONG TERM CURRICULUM LINKS: Sequences, Coordinates, Substitution, Solving

Year 10 Maths H: Linear Graphs

Straight line graphs

The general equation of a linear graph is $y = mx + c$ where m is the gradient and c is the y-intercept (where is crosses the y axis). The equation of a linear graph can contain an x-term, a y-term and a number



Example:
The equation of the green line is $y = -2x - 3$.
The gradient of the line is -2 and it crosses the y-axis at (0,-3)

Finding the equation of line

To find the equation of a line we use $y = mx + c$. We need to calculate the gradient and y-intercept to find the equation of a line.

Example 1:

Find the equation of a straight line that passes through the points:
(0,4) and (5, 14)

Step 1: Find the gradient.

$$Graident = \frac{Change\ in\ y}{change\ in\ x} = \frac{10}{5} = 2$$

Step 2: Find the y-intercept.
In this example we have the y-intercept (0,4). We know this because the x coordinate is 0.
Therefore out final equation is:

$$y = 2x + 4$$

Example 2: Find the equation of a straight line that passes through the points:
(5,9) and (7,5)

Step 1: Find the gradient.

$$Graident = \frac{Change\ in\ y}{change\ in\ x} = \frac{-4}{2} = -2$$

Step 2: Find the y-intercept.
This time we do not have the y-intercept so we substitute 1 pair of coordinates into our new equations

$$y = -2x + c$$
$$9 = -2(5) + c$$
$$9 = -10 + c$$
$$9 + 10 = c$$

Therefore the final equation is:

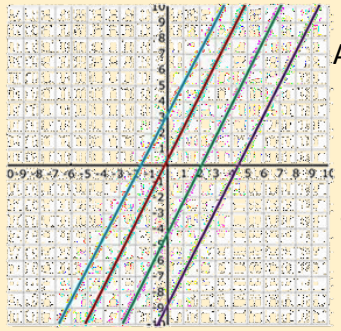
$$y = -2x + 19$$

Parallel Lines

If two lines are **parallel**, they will have the **same gradient**.

Example: The equation for each line:

$y = 2x + 3$
$y = 2x$
$y = 2x - 4$
$y = 2x - 9$

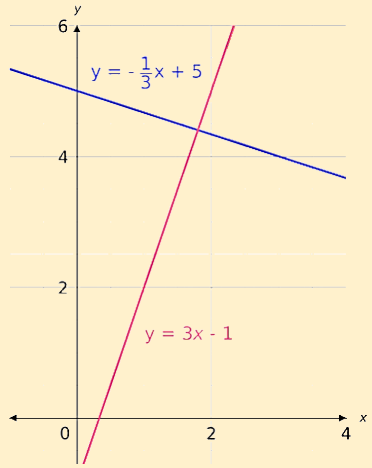


As these lines are **parallel**, they all have the same gradient of 2

Perpendicular Lines

If two lines are **perpendicular**, they meet at a right angle. Their gradients multiply to make -1. This means that the gradients of two perpendicular lines are the negative **reciprocal** of each other.

Example:
Find the equation of the line perpendicular to $y = 3x - 1$ that passes through the point (9, 2)



Step 1: Calculate the gradient.
The gradient of the first line is +3. The gradient of a line perpendicular to this is the negative reciprocal so = $-\frac{1}{3}$

Step 2: Find the y-intercept.

$$y = -\frac{1}{3}x + c$$
$$2 = -\frac{1}{3}(9) + c$$
$$2 = -3 + c$$
$$2 + 3 = c$$

Therefore the final equation is:

$$y = -\frac{1}{3}x + 5$$

KEY VOCABULARY

Word	Definition
Gradient	The steepness of a line.
Y-intercept	The point at which a line crosses the y-axis.
Parallel	Always the same distance apart, will never meet.
Perpendicular	Meet at a right angle.
Reciprocal	A pair of numbers that, when multiplied together, equal 1.

Long term curriculum links: Algebraic Manipulation, Solving Equations

Year 10 Maths: Quadratics

Expanding double brackets

To expand double brackets, we need to multiple all terms in one bracket by all the terms in the other. We use the multiplication grid to help us out:

Example :

Expand & Simplify:

$$(x+3)(x-2)$$

×	x	$+3$
x	x^2	$+3x$
-2	$-2x$	-6

$$x^2+3x-2x-6$$

$$x^2+x-6$$

Step 1: Split up each term onto the sides of the multiplication grid, including the positive/negative sign.
Step 2: Multiply all 4 terms together
Step 3: Write all these 4 terms down, making sure to include all positive/negative signs.
Step 4: Collect the like terms to simplify the answer.

Factorising quadratics

Factorsing quadratics is the opposite of expanding. The aim is to put a quadratic expression in the form x^2+bx+c back into double brackets.

Top tip: The numbers in the bracket multiply to make c and add to make b

Example :

Factorise:
x^2+6x+8

Step 1: List the factors of +8:
1 and 8
2 and 4

Step 2: Which add to make +6?
1 and 8
2 and 4

Step 3: Complete the brackets
$(x+2)(x+4)$

Solving Quadratic Equations

We solve quadratic equations by factorising it first following the steps above.

Important: Quadratic equations need to be equal to zero to solve by factorising, if it is not, rearrange it to make it equal to zero before you start

Example :

Solve: $x^2+7x+13=3$

Step 1: Balance the equation to make it equal to zero

$$x^2+7x+13=3$$
$$-3 \quad -3$$
$$x^2+7x+10=0$$

Step 2: Factorise the quadratic

$$(x+5)(x+2)=0$$

Step 3: Make each bracket equal to 0 and solve.

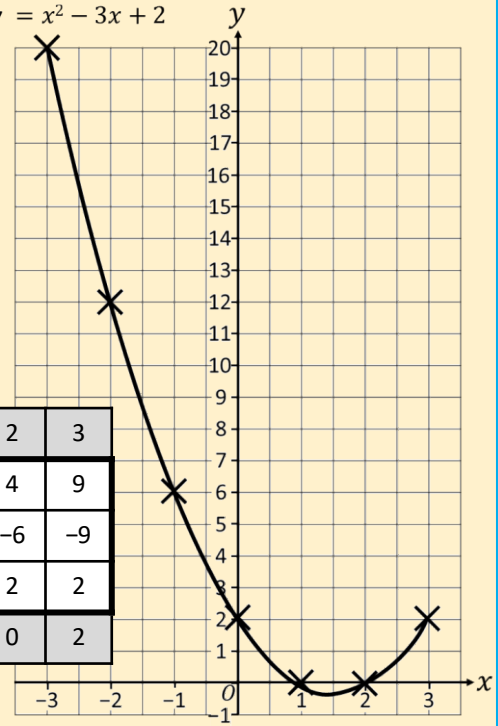
$(x+5)=0$ $x=-5$ *or* $(x+2)=0$ $x=-2$

Plotting Quadratic Graphs

Plot the graph of
$y=x^2-3x+2$

1) Split the equation into separate terms in the table.
2) Complete each row.
3) Total the columns
4) Use the x value with the y value as coordinates.

x	−3	−2	−1	0	1	2	3
x^2	9	4	1	0	1	4	9
$-3x$	9	6	3	0	−3	−6	−9
$+2$	2	2	2	2	2	2	2
y	20	12	6	2	0	0	2



KEY VOCABULARY

Word	Definition
Quadratic	An expression or equation containing a squared term. E.g. x^2
Expand	To multiply each term in the bracket by the expression outside the bracket
Factorise	The reverse process of expanding brackets

Long term curriculum links: Algebraic manipulation, Solving equations

Year 10 Maths: Simultaneous Equations

Solving Through Pictures

We can use maths, and algebra, to solve problems like this.

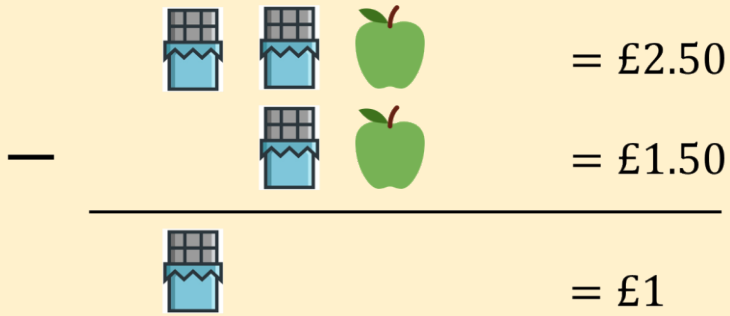
If we calculate the **difference** between these sums, we can see how much **more** Jill spent.

Jill bought 1 more apple and spent 50p more.
1 apple must be 50p

If 1 apple is 50p, 1 doughnut must be £1.

2 chocolate bars & 1 apple costs £2.50
1 chocolate bar & 1 apple costs £1.50

How much is a chocolate bar?



Simultaneous equations are multiple equations that share the same variables and which are all true as the same time.

Solving using elimination

When solving using elimination, we need to make the coefficients of one variable the same before adding/subtracting the equations to eliminate one variable.

Example: Solve $4x + 3y = 14$ (1)
$5x + 7y = 11$ (2)

Number the equations and equate the coefficients of one variable…

(1) x5 -> $20x + 15y = 70$
(2) x4 -> $20x + 28y = 44$

Subtract the equations to eliminate x

$$\begin{array}{r} 20x + 15y = 70 \\ -\ 20x + 28y = 44 \\ \hline -13y = 26 \end{array}$$

Solve to find out y

$$-13y = 26$$
$$y = -2$$

Substitute y back into one of the starting equations to calculate x

$$4x + 3y = 14$$
$$4x + 3(-2) = 14$$
$$4x - 6 = 14$$
$$4x = 20$$
$$x = 5$$

$x = 5, y = -2$

Solving using substitution

Sometimes, especially when one of the equations is non-linear. It is easier to substitute one equation into another.

Example: Solve $x^2 + 2y = 9$
$y = x + 3$

Since the second equation is in terms of y, we can substitute this into the first equation…

$$x^2 + 2(x + 3) = 9$$

This will form a quadratic. Remember to factorise to solve

$$x^2 + 2x + 6 = 9$$
$$x^2 + 2x - 3 = 0$$
$$(x - 1)(x + 3) = 0$$
$$x = 1 \text{ and } x = -3$$

We have two solutions for x. We use both to find two solutions for y using the 'simpler' equation…

When $x = 1$, $y = 1 + 3 = 4$
When $x = -3$, $y = -3 + 3 = 0$

Remember to include all solutions in your answer

When $x = 1$, $y = 4$
When $x = -3$, $y = 0$

KEY VOCABULARY

Word	Definition
Simultaneous Equations	two or more algebraic equations that share common variables and are solved at the same time
Substitution	the act, process, or result of substituting one thing for another

LONG TERM CURRICULUM LINKS: Substitution, Rearranging Formulae

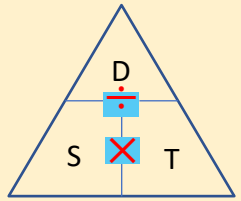
Year 10 Maths: Compound Measures

Speed, Distance & Time

The speed of an object is how far the object travels in one unit of time.

Common units:
metres per second (m/s), kilometres per hour (km/h)
miles per hour (mph).

From this useful triangle we get three different formulae:



$$\text{Speed} = \frac{\text{Distance}}{\text{Time}} \qquad \text{Time} = \frac{\text{Distance}}{\text{Speed}}$$

$$\text{Distance} = \text{Speed} \times \text{Time}$$

Example 1:
A car travels 90 miles in 3 hours.
Calculate the car's average speed.

Speed = $\frac{90}{3}$ = 30 mph

Example 2:
Jim drives at 40 mph for 3 hours.
How far did he travel?

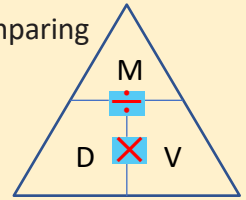
Distance = 40 × 3 = 120 miles

Example 3:
A train travels 300 miles at 60 mph.
How long did this take?

Time = $\frac{300}{60}$ = 5 hours

Density, Mass & Volume

Density is a way of comparing how heavy different materials are with the same volume.

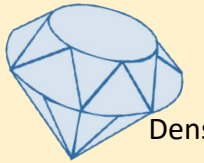


From this useful triangle we get three different formulae:

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

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

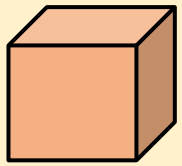
Example 1:



7.02 g (Mass)
2 cm³ (Volume)

Density = $\frac{7.02\text{ g}}{2\text{ cm}^3}$ = 3.51 g/cm³

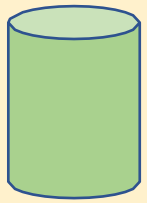
Example 2:



8 cm³ (Volume)
7.1 g/cm³ (Density)

Mass = 8 cm³ x 7.1 g/cm³
= 56.8 g

Example 3:

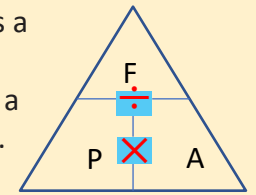


70 g (Mass)
1.55 g/cm³ (Density)

Volume = $\frac{70\text{ g}}{1.55\text{ g/cm}^3}$ = 45.2 cm³

Pressure, Area & Pressure

The unit of force is a Newton (N).
The unit of area is a square metre (m²).
Pressure will be measured in Newton/m².



From this useful triangle we get three different formulae:

$$\text{Pressure} = \frac{\text{Force}}{\text{Area}} \qquad \text{Area} = \frac{\text{Force}}{\text{Pressure}}$$

$$\text{Force} = \text{Area} \times \text{Pressure}$$

Example 1:
A force of 150 N is being applied over an area measuring 0.5m^2. Calculate the pressure on the object ensuring you give the correct units.
Pressure = 150 ÷ 0.5 = 300 N/ m^2

Example 2:
A woman is applying 300 N/ m^2 of pressure onto a door with her hand. Her hand has area 0.02 m^2. Work out the force being applied.
Force = 300 × 0.02 = 6 N

Example 3:
Pressure of 150 N/ m^2 is experienced when a force of 2000 N is applied. Calculate the area over which the force is applied to obtain the pressure stated.
Area =2000 ÷ 150 = 13.3 m^2

Unit Cost

The **unit price** of an object is the price for one unit. It is used to compare the value of objects.

Example:
Which packet of biscuits is better value?

Pack A: £1 for 400 g

Pack B: £1.90 for 1 kg

It is hard to decide which item is better value if they are different sizes. We must first work out the unit price for each packet.

Pack A: 100p ÷ 400g = 0.25 pence per gram.
Pack B: 190p ÷ 1000g = 0.19 pence per gram.

So the large packet is better value as the unit cost is lower.

Rates of Pay

$Pay = Hours \times Rate$

Example:
In a week, Janice works for 8 hours a day for 5 days.
Janice earns £8.62 an hour.
How much does she get paid a week?

(8 × 5) × 8.62 = £344.80

KEY VOCABULARY

Word	Definition
Speed	a measure of how fast something is travelling.
Density	a measurement of the amount of a substance contained in a certain volume
Pressure	the amount of force being exerted per unit area

Long term curriculum links : Algebra, solving equations, graphs

Year 10 Maths: Inequalities

Inequalities are used to represent a range of numbers that satisfy a rule. We use the following symbols $<, >, \leq, \geq, \neq$.
Inequalities have infinite solutions all numbers that fit the rule could be a solution, including decimals. We are often asked to consider the **Integer** solutions.

Writing Inequalities

Inequalities show the range of numbers that satisfy a rule.

$x < 2$ means x is less than 2
$x \leq 2$ means x is less than or equal to 2
$x > 2$ means x is greater than 2
$x \geq 2$ means x is greater than or equal to 2
$x \neq 2$ means x does not equal 2

We can also have 'double sided' inequalities that show a range of number between two limits.

$2 \leq x < 5$ means x is greater than or equal to 2 but less than 5.

These have infinite numbers that fall into this range but sometimes only **Integer** solutions are required.

Example:

State the Integers of n that satisfy:

$$-2 < n \leq 3$$

Cannot be equal to -2 — Can be equal to 3

-1, 0, 1, 2, 3

Representing Inequalities on a number line

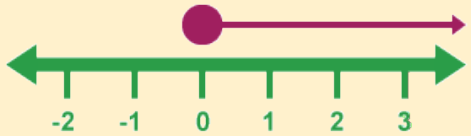
On a **number line** we use circles to highlight the key values:

○ An empty circle is used **for less/greater than**

● A solid circle is used **for less/greater than or equal to**

Example 1:

$$x \geq 0$$



Example 2:

$$x < 0$$

Example 3:

$$-5 \leq x < 4$$

Solving inequalities

We solve inequalities the same as equations by using the balancing method but keep the inequality symbol rather than the equals sign

Example: Solve the inequality $3m + 2 > -4$ and represent the solution on a number line:

$$\begin{array}{rcl} 3m + 2 & > & -4 \\ -2 & & -2 \\ 3m & > & -6 \\ \div 3 & & \div 3 \\ m & > & -2 \end{array}$$

KEY VOCABULARY

Word	Definition
Inequality	When one thing is not equal to another. This could be less than, greater than or not equal.
Integer	A whole number. This can be positive or negative. For example 2 is an integer but 2.5 is not.
Solve	Find the value of the variable (the letter)

LONG TERM CURRICULUM LINKS: Simplifying, Fractions, Division

Year 10 Maths: Ratio & Proportion

Simplifying Ratio

A **ratio** is used to compare one quantity to another. We can **simplify ratio** like we do with fractions, **divide all parts by a common factor**:

Example 1: Simplify the ratio 15:30:24

$$15:30:24 \quad \div 3$$
$$5:10:8$$

When simplifying ratio, the solution should **always have integer (whole number) parts**. However sometimes we are asked **to express a ratio in the form 1:n or n:1**. To do this we divide both sides by the part we need to make 1 :

Example 2: Express 4 : 35 in the form 1:n

$$4:35 \quad \div 4$$
$$1:\frac{35}{4}$$
$$= 1:8\frac{3}{4} = 1:8.75$$

Ratio to Fractions

Ratios can be written as **fractions** in a couple of ways:

Example 1: The ratio of red to blue counters in a bag is 3 : 2

There are $\frac{3}{2}$ as many red counters as blue counters

There are $\frac{2}{3}$ as many blue counters as red counters

Alternativiley, we can write either part as a fraction of the total. E.g. $\frac{2}{5}$ of the counters are blue

Sharing in a Ratio

We can **share amounts into a given ratio**. There are 3 types of questions we need to know:

The ratio of blue to green tokens is 2 : 3

Scenario 1: Given the total. There are 45 tokens…

45 ÷ 5 = 9 per part

Blue	9	9		18 Blues
Green	9	9	9	27 Greens

Scenario 2: Given one amount. There are 30 blue tokens…

30 ÷ 2 = 15 per part

Blue	15	15		30 Blues
Green	15	15	15	45 Greens

Scenario 3: Given the difference. There are 12 more green than blue tokens…

12 ÷ 1 = 12 per part

Blue	12	12		24 Blues
Green	12	12	12	36 Greens

Direct Proportionality

If two quantities are **directly proportional**, then as **one increases the other also increases** at the same rate (proportionally), e.g. as one doubles, the other one also doubles

Example:

4 pens cost £3.20
Multiply by 2
8 pens cost £6.40
Divide by 8
1 pens cost £0.80
Multiply by 30
30 pens cost £24.00

Calculating the value of 1 is called the unitary method and is most useful

Inverse Proportionality

If two quantities are **inversely proportional**, then as **one increases the other decreases** at the same rate (proportionally), e.g. as one doubles, the other one halves

Example:

6 builders can build 10 houses in 30 months
Multiply 6 and 30
1 builder would take 180 months
Divide by 18
18 builders would take 10 months

Calculating the value of 1 is called the unitary method and is most useful

KEY VOCABULARY

Word	Definition
Ratio	The relationship between two or more quantities
Proportion	The relationship of one thing to another in terms of quantity, size, or number
Factor	A number than divides another number equally (without a remainder)

LONG TERM CURRICULUM LINKS: Graphs, Algebraic Manipulation

Year 10 Maths: Linear Graphs

Linear Graphs The equation y = 2x + 1 is a **linear** equation or forms a straight line on the **graph**. When the value of x increases, then ultimately the value of y also increases by twice of the value of x plus 1.

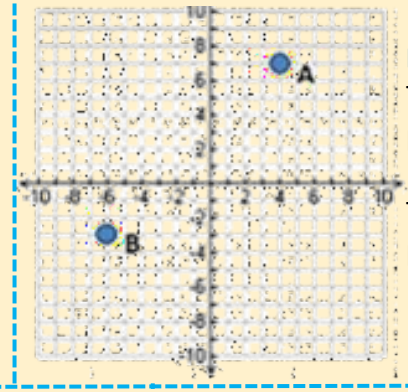
Equations provide a very precise way to describe various features of the world and how to work something out

Linear Graphs:

- Ensure the equation of the straight line is in the form y = mx + c
- Draw a table to represent the x and y values
- Substitute the values of x into the equation and find the y values – these are the (x, y) coordinates
- Draw the x & y axes (usually drawn on the exam paper)
- Plot the (x, y) coordinates and draw the straight-line graph

Coordinates

Coordinates are numbers, written in pairs and give the position of a point on a graph. The first term is the x-coordinate (movement across). The second term is the y-coordinate (movement up or down)

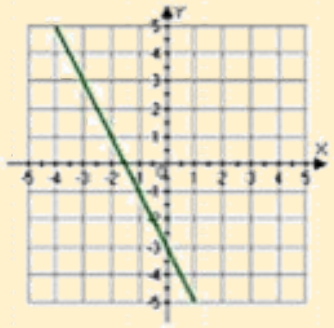


Example:
The coordinates of point A are (4,7)

The coordinates of point B are (-6,-3)

Straight line graphs

The general equation of a linear graph is $y = mx + c$ where m is the gradient and c is the y-intercept (where is crosses the y axis). T**he** equation of a linear graph can contain an x-term, a y-term and a number



Example:
The equation of the green line is $y = -2x - 3$.
The gradient of the line is -2 and it crosses the y-axis at (0,-3)

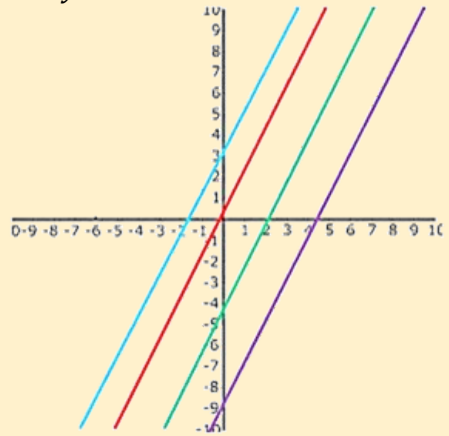
Parallel Line

If two lines are **parallel**, they will have the **same gradient**.

Example: The equation for each line:

$y = 2x + 3$
$y = 2x$
$y = 2x - 4$
$y = 2x - 9$

As these lines are **parallel**, they all have the same gradient of 2



Find the gradient

To find the gradient of a line we calculate we calculate the change in the y-coordinates and divide it by the change in the x coordinates:

Example:
Change in y = 3
Change in x = 2

$$Gradient = \frac{change\ in\ y}{change\ in\ x}$$

$$Gradient = \frac{3}{2}$$

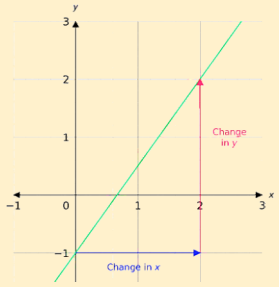


Table of values

We use a table of values to generate a list of coordinates so that we can plot a line. In a table of values, the value of y depends on the value of x. That means that we choose the values for x and substitute them into the equation to generate the corresponding value for y.

Example: $y = 2x + 5$ Multiply the x by 2 then add 5

x	−3	−2	−1	0	1	2	3
y	−1	1	3	5	7	9	11

(−3, −1)(−2, 1) (−1, 3) (0, 5) (1, 7) (2, 9) (3, 11)

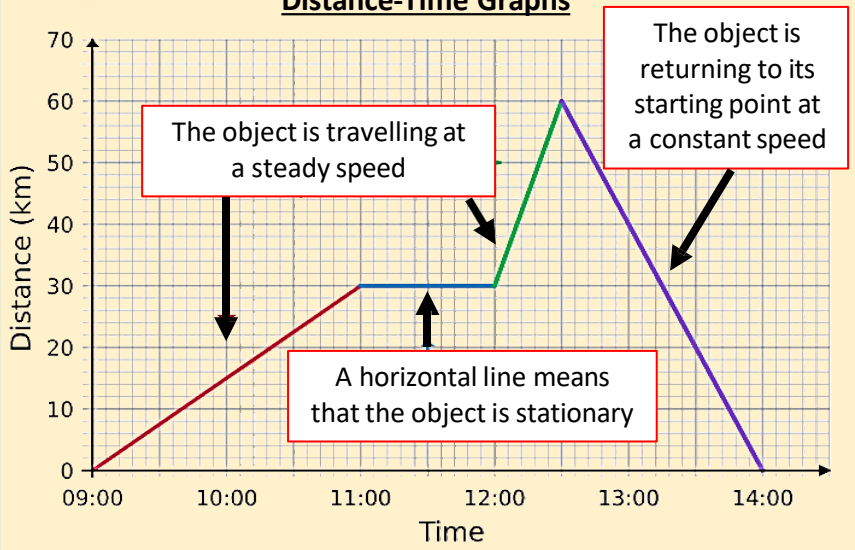
KEY VOCABULARY

Word	Definition
Linear Graph	Linear means straight and a graph is a diagram which shows a connection or relation between two or more quantity. So, the linear graph is nothing but a straight line or straight graph which is drawn on a plane connecting the points on x and y coordinates.
Equations	A statement that the values of two mathematical expressions are equal (indicated by the sign =)

LONG TERM CURRICULUM LINKS: Linear graphs, Rearranging Formulae

Year 10 Maths: Real Life Graphs

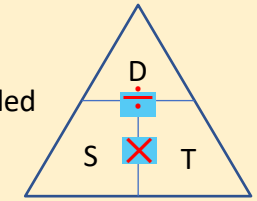
Distance-Time Graphs



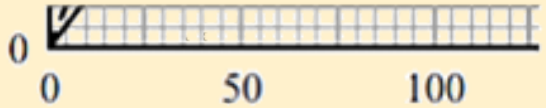
The speed of an object can be calculated from the gradient of the graph.

The greater the gradient (the steeper the line) the faster the object is moving.

Example: (Using the above graph)
Calculate the speed at which the object travelled between 9am and 11am: Speed = 30 ÷ 2
= 15 km/hr

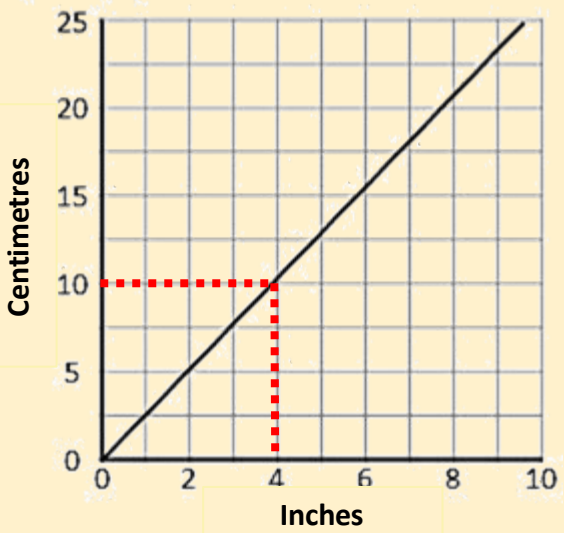


Always check the scales used before answering a question.



Here, the scale is 50 seconds in 10 small squares.
Each small square is 50 ÷ 10 = 5 seconds.

Conversion Graphs



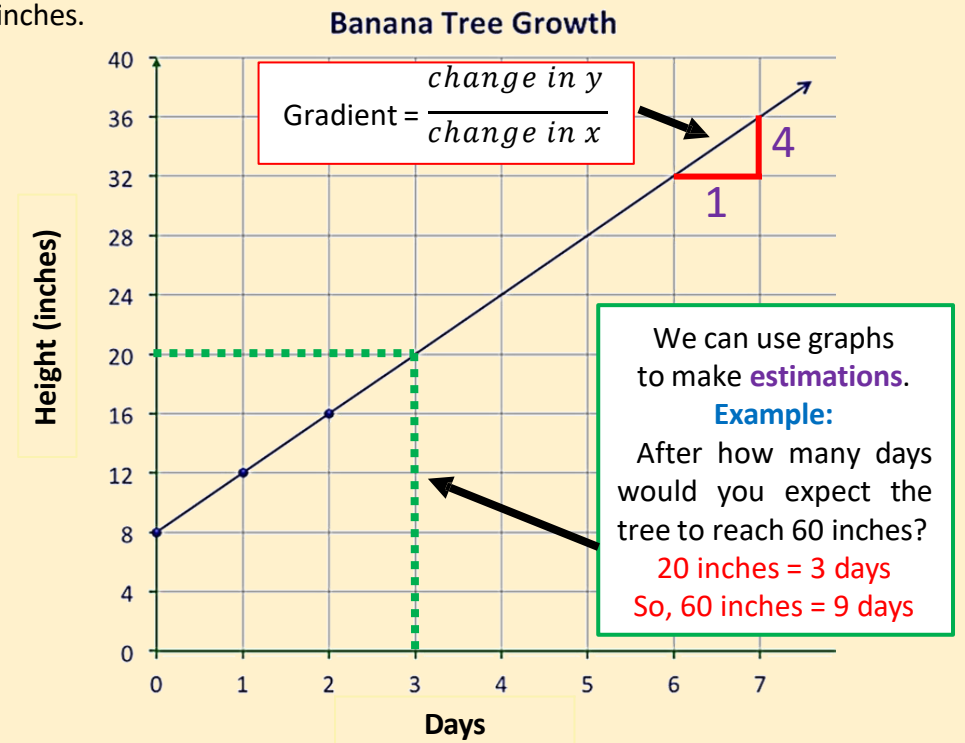
A line graph to convert one unit to another.
Can be used to convert units (eg. miles and kilometres) or currencies ($ and £)
Find the value you know on one axis, read up/across to the conversion line and read the equivalent value from the other axis.

Example: (Using the above graph)
Convert 10 cm to inches:
Draw across from 10 to the graph, then down to read off the amount of inches. 10 cm = 4 inches

Graphs can be used to represent a number of real life situations. It is important to read the labels on both axes to determine the meaning of the graph.

Other real life graphs

Example: (Using the graph below)
A graph showing the growth of a banana tree for various numbers of days.
The gradient shows the growth per day. It grows 4 inches per day.
The y-intercept shows the height of the tree when the measurements began, 8 inches.



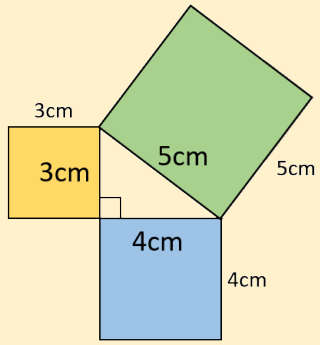
KEY VOCABULARY

Word	Definition
Gradient	Describes both the direction and the steepness of the line
Convert	To change a value or expression from one form to another.
Variable	A variable is a quantity that may change within the context of a mathematical problem or experiment

LONG TERM CURRICULUM LINKS : Square numbers, Square root, Solving 2-step Equations

Year 10 Maths: Pythagoras

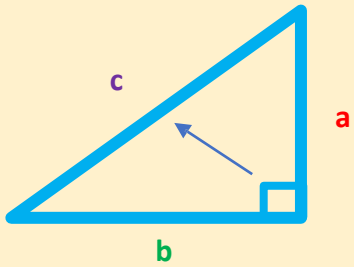
Pythagoras' theorem is an equation that describes a relationship between the 3 sides of a right-angle triangle. We can use it to determine a missing length when given the two other lengths.



The equation is:

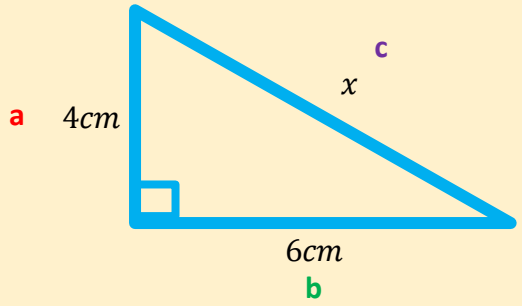
$$a^2 + b^2 = c^2$$

Where c is the hypotenuse and a and b are the two other sides. The hypotenuse is always the longest side of the triangle and can be found opposite the right angle.



Finding the length of hypotenuse

Example: Find the length of side x. Give your answer in 3 significant figures



You should always label the hypotenuse first. This is the side facing the right angle.

$$a^2 + b^2 = c^2$$

1) Substitute your values into the formulae:

$$4^2 + 6^2 = x^2$$

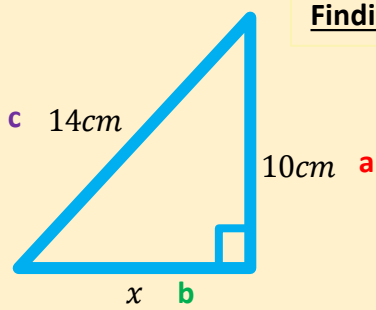
2) Work out the values that you can:

$$16 + 36 = x^2$$
$$52 = x^2$$

3) Now use inverse operations to find the values of x:

$$x^2 = 52$$
$$\sqrt{x} = \sqrt{52}$$
$$x = 7.211102551 \; or \; 7.21 \; (3 \; s.f.)$$

Finding the length of a shorter side



Example: Find the length of side x. Give your answer in 3 significant figures

$$a^2 + b^2 = c^2$$

1) Substitute your values into the formulae:

$$10^2 + x^2 = 14^2$$

2) Work out the values that you can:

$$100 + x^2 = 196$$
$$96 = x^2$$

3) Now use inverse operations to find the values of x:

$$100 + x^2 = 196$$
$$-100 \qquad -100$$
$$x^2 = 96$$
$$\sqrt{} \qquad \sqrt{}$$
$$x = \sqrt{96}$$
$$x = 9.797958971cm \; or \; 9.8 \; (3 \; s.f.)$$

KEY VOCABULARY

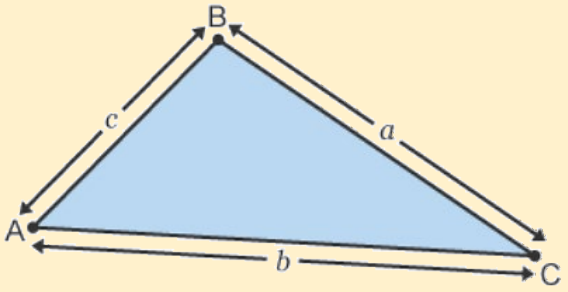
Word	Definition
Hypotenuse	The longest side in a right angles triangle
Square number	The result when you multiply a number by itself
Right-angle triangle	A triangle in which one angle is of 90°
Square root	The reverse operation of squaring the number.

LONG TERM CURRICULUM LINKS: Pythagoras' theorem, Ratio, Triangles

Year 10 Maths H: Trigonometry, Sine and Cosine Rules

The Sine rule - Higher

The angles are labelled with capital letters. The opposite sides are labelled with lower case letters. Notice that an angle and its opposite side are the same letter.



The sine rule is: $\frac{a}{SinA} = \frac{b}{SinB} = \frac{c}{SinC}$

This can be re-arranged to:

$$\frac{Sin\ A}{a} = \frac{Sin\ B}{b} = \frac{Sin\ C}{c}$$

This version is used to calculate missing angles.

The Cosine rule - Higher

The cosine rule is:

$$a^2 = b^2 + c^2 - 2bc\ cosA$$

This version is used to calculate missing lengths.

This can be re-arranged to:

$$cosA = \frac{b^2 + c^2 - a^2}{2bc}$$

This version is used to calculate missing angles.

The area of a triangle - Higher

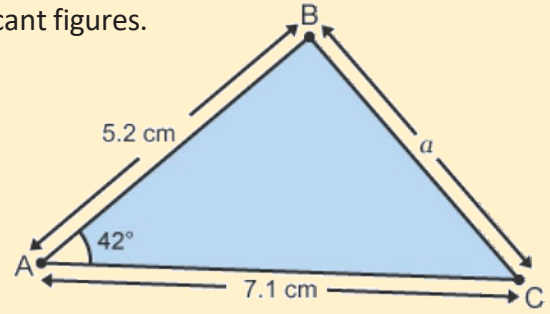
The area of any triangle can be calculated using the formula:

$$Area\ of\ a\ triangle = \frac{1}{2}absinC$$

To calculate the area of any triangle the lengths of two sides and the angle in between are required.

Example:

Calculate the area of the triangle. Give the answer to 3 significant figures.



Use the formula:

$$Area\ of\ a\ triangle = \frac{1}{2}bcsinA$$

$$Area\ of\ a\ triangle = \frac{1}{2} \text{ x } 7.2 \text{ x } 5.2\ sin42$$

$$Area = 12.4cm^2$$

Trigonometry Exact Values

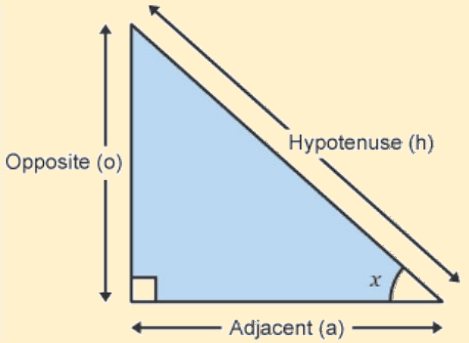
	0^o	30^o	45^o	60^o	90^o
Sin	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
Cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
Tan	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	

Trigonometric ratios

Trigonometry involves calculating **angles** and **sides** in triangles.

Labelling the sides:

The three sides of a right-angled triangle have specific names.



Remember the formulae for the trigonometric ratios:

$$s_h^o\ c_h^a\ t_a^o$$

Three trigonometric ratios:

- Trigonometry involves three ratios - **sine**, **cosine** and **tangent** which are abbreviated to sin, cos and tan.
- The three ratios can be found by calculating the ratio of two sides of a right-angled triangle.
  - $\sin x = \frac{\text{opposite}}{\text{hypotenuse}}$
  - $\cos x = \frac{\text{adjacent}}{\text{hypotenuse}}$
  - $\tan x = \frac{\text{opposite}}{\text{adjacent}}$

KEY VOCABULARY

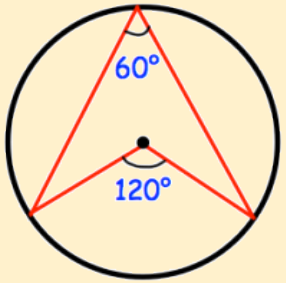
Word	Definition
Hypotenuse	Is the longest side (h)
The opposite	Is opposite the angle in question (o)
Adjacent	Is next to the angle in question (a)
Substitute	Replace a given value for another
Inverse	The opposite or reverse
Area	The amount of space taken up by a 2D shape

Long term curriculum links : Angle properties, substitution, using a calculator

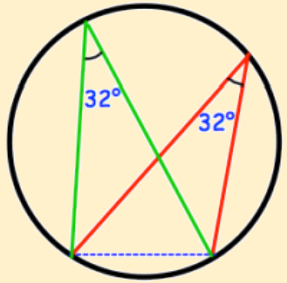
Year 10 Maths H: Circles, Sectors & Circle Theorems

Circle Theorems deal with angle facts that occur with shapes and lines drawn within and connected to a circle. You need to be familiar with these, recognise them in diagrams and use in calculations. You are likely to be asked to state the circle theorem you have used to calculate a missing angle. You may be asked to calculate the circumference or area of circles, or parts of circles (sectors). You need to be able to recall the formulae and substitute values from the diagram using a calculator. On a non-calculator question, you may be asked to leave your answers in terms of pi.

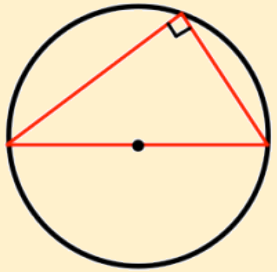
The angle at the centre is twice the angle at the circumference



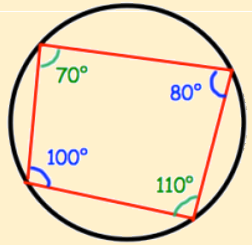
Angles in the same segment are equal.



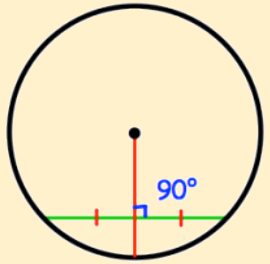
The angle in a semicircle is 90°



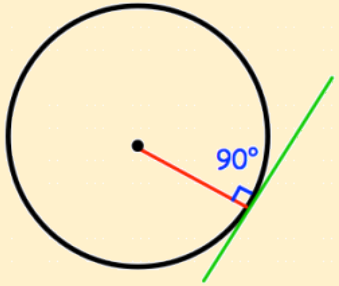
Opposite angles in a cyclic quadrilateral add up to 180°



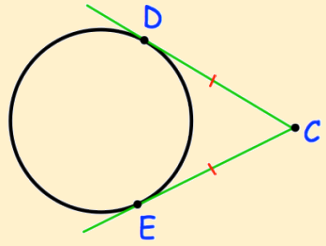
The perpendicular from the centre to the chord bisects the chord



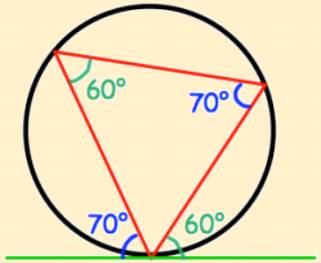
The angle between a tangent and a radius is 90°

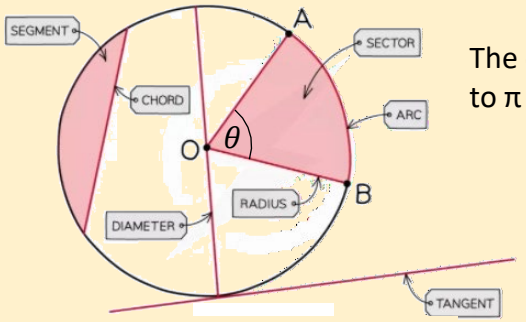


Tangents from a point outside a circle are equal in length



Alternate segments are equal





The diameter is equal to twice the length of the radius

d = 2r

Circumference of a circle

The circumference of a circle is equal to π multiplied by the diameter :

C = πd

Area of a circle

The circumference of a circle is equal to π multiplied by the diameter :

A = πr²

Area of a sector

A sector is a portion of the area of the circle, determined by the angle it covers.

$A = \frac{\theta}{360} \times \pi r^2$ where θ is the angle of the sector

KEY VOCABULARY

Word	Definition
Segment	A part (area) of a circle cut off by a chord
Chord	A straight line connecting two points on a circumference
Circumference	The distance around the outside of a circle.
Arc	A part of the circumference
π	The Greek letter pi. Used to represent the never ending number 3.141592654…
Sector	An area enclosed by two radii and an arc, looks like a slice of pizza.

Year 10 Maths H: Area, Surface Area and Volume

LONG TERM CURRICULUM LINKS: Properties of shapes, Substitution, Formulae

Area

The **area** of a 2D shape is the amount of space it takes up in 2 dimensions, and its units are always squared, e.g. cm^2,m^2

You need to know the formulas to calculate the areas following shapes and be able to rearrange them

Area of a Rectangle = Base x Height

Area of a Triangle = $\frac{\text{Base x Perpendicular Height}}{2}$

Area of a parallelogram = Base x Perpendicular Height

Area of a trapezium = $\frac{1}{2}(a+b)h$

(where a and b are the parallel sides and h the perpendicular height)

Surface area

The **surface area** is the combined area of the faces of a 3D shape. We need to be able to calculate the surface area of prisms and also some complex 3D shapes.

Volume

The **volume** is the space inside a 3D shapes.

Volume of any prism = Area of cross section x Depth

We also need to be able to work out the volume of some complex 3D shapes.

Pyramids

A pyramid is not a prism because it does not have a consistent cross section.

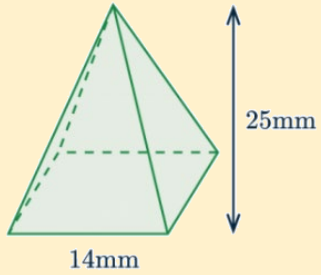
$$\textbf{Volume of a pyramid} = \frac{\textbf{area of base} \times \textbf{Perpendicualr height}}{3}$$

Example: Find the volume:

$Area\ of\ base = 14 \times 14 = 196$

$$Volume = \frac{196 \times 25}{3}$$

$$Volume = 1633.3mm^3$$



To find the **surface area** of a pyramid, you would work out the area of the base and the triangles that make up the sides.

Cones

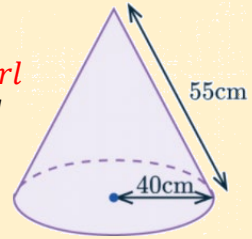
A cone is similar to a pyramid but has a circular base and a curved surface. **Volume** is similar to a pyramid except the base is a circle so will need to use πr^2.

$$\textbf{Volume of a cone} = \frac{\textbf{area of base } (\pi r^2) \times \textbf{Perpendicualr height}}{3}$$

Example: Find the surface area:

$surface\ area\ of\ a\ cone = \pi r^2 + \pi rl$

Where r is the radius and l is the slanted length.



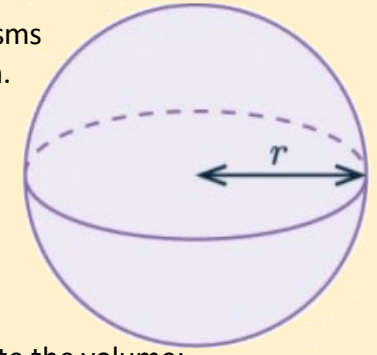
S.A = $\pi \times 40^2 + \pi \times 40 \times 55$

Surface area = $11938.1m^2$

Remember: Surface area is units squared as it is a form of area.

Spheres

Spheres, like cones and pyramids, are not prisms as they do not have a consistent cross section. We have two formulae we need to know involving spheres:



$$\textbf{Volume of a sphere} = \frac{4\pi r^3}{3}$$

$$\textbf{Surface area of a sphere} = 4\pi r^2$$

Example 1: Find the volume

The above sphere has a radius of 4cm calculate the volume:

$$volume = \frac{4 \times \pi \times 4^3}{3}$$

$$volume = 268.08cm^3$$

Example 2: Find the surface area

The above sphere has a radius of 4cm calculate the volume:

$$Surface\ area = 4 \times \pi \times 4^2$$

$$volume = 201.02cm^2$$

KEY VOCABULARY

Word	Definition
Prism	A 3D shape with a uniform cross-section
Cross section	A face of a 3D shape that is consistent throughout.
Perpendicular	Meet at a right angle
Parallel	Two lines that never meet.

LONG TERM CURRICULUM LINKS: Fractions, Simplifying, Algebraic manipulation

Year 10 Maths H: Algebraic Fractions

Simplifying linear algebraic fractions

Algebraic fractions can be simplified the same as normal fractions, by finding common factors in the numerator and denominator.

Example:

$$\frac{55x^4y^3}{15x^2y}$$

Using our knowledge of simplifying numbers and index laws, this fraction would simplify to:

$$\frac{11x^2y^2}{3}$$

Simplifying quadratic algebraic fractions

Algebraic fractions containing quadratics may not have obvious factors, but if we factorise, we can compare factors to find common ones:

Example:

$$\frac{x^2+x-6}{3x+9}$$

Step 1: Factorise the numerator and denominator (we are looking for common factors):

$$\frac{(x+3)(x-2)}{3(x+3)}$$

Step 2: Cancel the common factors

$$\frac{\cancel{(x+3)}(x-2)}{3\cancel{(x+3)}}$$

Answer: $\frac{x-2}{3}$

Adding and subtracting algebraic fractions

We add and subtract algebraic fractions the same as we do normal fractions. We first need to find a common denominator:

Example 1:

$$\frac{x+4}{3}+\frac{x+1}{2}$$

Step 1: find equivalent fractions with common denominators:

$$\frac{2(x+4)}{6}+\frac{3(x+1)}{6}$$

Step 2: Combine as 1 fraction, expand and simplify:

$$\frac{2x+8+3x+3}{6}$$

$$\frac{5x+11}{6}$$

Example 2:

$$\frac{2}{x+5}+\frac{3}{(x+1)}$$

Step 1: find equivalent fractions with common denominators:

$$\frac{2(x+1)}{(x+5)(x+1)}+\frac{3(x+5)}{(x+5)(x+1)}$$

Step 2: Combine as a single fraction, expand and simplify:

$$\frac{2(x+1)+3(x+5)}{(x+5)(x+1)}$$

$$\frac{2x+2+3x+15}{(x+5)(x+1)}$$

$$\frac{5x+17}{(x+5)(x+1)}$$

Note: If the denominator is already factorised, unless told, we don't need to expand.

Multiplying and Dividing algebraic fractions

Example 1:

$$\frac{x+5}{7}\times\frac{5}{2x+3}$$

Multiply the numerators and denominators and combine a single fraction

$$\frac{5(x+5)}{7(2x+3)}=\frac{5x+25}{14x+21}$$

Note: On some occasions you may need to simplify if they have common factors.

Example 2:

$$\frac{3x+1}{x-1}\div\frac{2x}{x-1}$$

Step 1: Use Keep Flip Change (K.C.F) like with normal fractions:

$$\frac{3x+1}{x-1}\times\frac{x-1}{2x}$$

Step 2: Multiply and combine as a single fraction:

$$\frac{(3x+1)(x-1)}{2x(x-1)}$$

Step 3: Cancel down any common factors:

$$\frac{(3x+1)\cancel{(x-1)}}{2x\cancel{(x-1)}}=\frac{3x+1}{2x}$$

KEY VOCABULARY

Word	Definition
Numerator	The number on the top of a fraction
Denominator	The number on the bottom of a fraction
Equivalent	Fractions that are the same in value but with different numerators and denominators

ASH GREEN SCHOOL

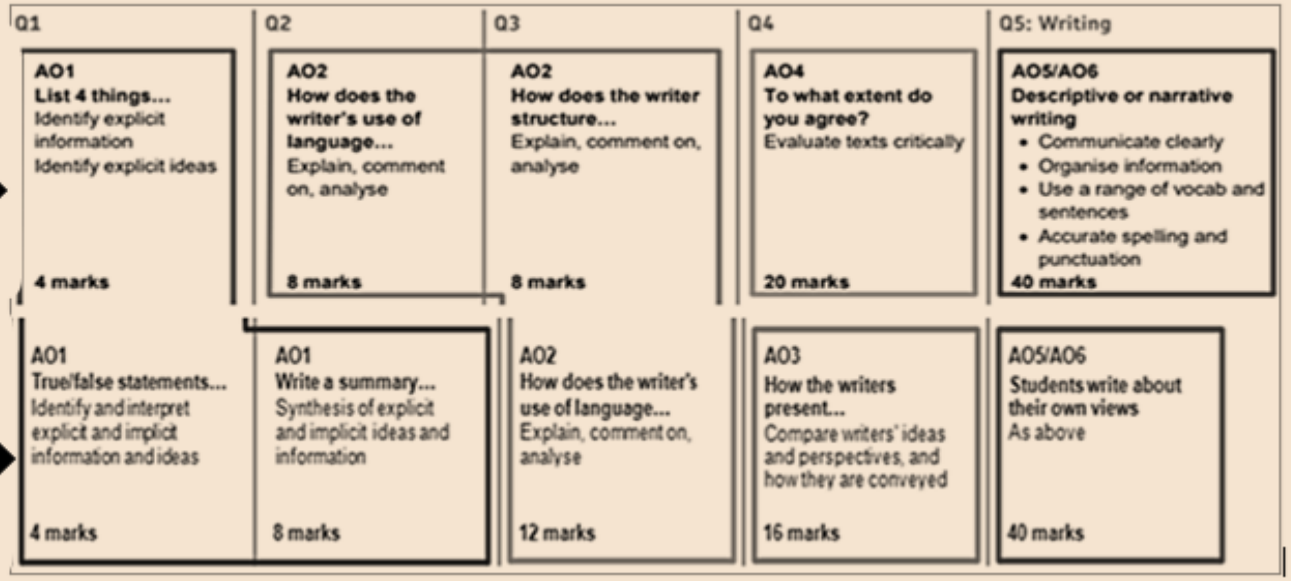
ENGLISH LANGUAGE: COMPLETE KNOWLEDGE ORGANISER

Language Paper 1: Order

- Q5
- Q4
- Q1
- Q2
- Q3

Language Paper 2: Order

- Q5
- Q1
- Q3
- Q4
- Q2



Language Paper 1 **1 hour 45mins** **1 Fiction Extract**	**Question 1** **Box the passage off** & highlight key passages. Write **4 full sentences** and be clear / explicit.	**Question 2** **2 x PEA** paragraphs • Point • Evidence • Analysis Aim for **2 paragraphs** Higher marks for rigorous analysis (see overleaf)	**Question 3** **2-3 PEA** paragraphs • Point • Evidence • Analysis Focus on **shifts** in narrative focus, tone, character, ideas. Always compare the start to the end! Structural features overleaf.	**Question 4** **2-3 PEAL** paragraphs • Point • Evidence • Analysis • Link (to statement) Evaluate the statement: can you agree? Can you challenge it? Analyse methods & infer deeper meanings/reasons.	**Question 5** **Descriptive Writing:** Describing a scene in detail, evoking imagery for your reader. **Narrative Writing:** Conveying character and setting in your writing, developing action and plot **Tips:** Plan a well-crafted piece of writing: clear thread throughout; cyclical structure: 2-3 pages. • Vary sentence types and punctuation to control pace & tone. • Stretch your vocabulary; no boring words.
Language Paper 2 **1 hour 45mins** **2 Non-fiction Extracts (1 x 19th century)**	**Question 1** Choose **4** statements **which are true** and shade **only these boxes** Double check the wording.	**Question 2** **PEE-C-PEE** **Source A:** Point, Evidence, Explain ***Comparison*** **Source B:** same PEE. Higher marks for detailed inference when explaining/comparing.	**Question 3** **2-3 x PEA** paragraphs • Terminology • Evidence • Analysis Higher marks for rigorous analysis (see overleaf)	**Question 4** **2 x PEA-C-PEA** **Source A:** How (methods) does it convey an idea/perspective? Analyse thoroughly. Compare with how **Source B** conveys an idea/perspective. Analyse.	**Question 5** **Read the question carefully** – highlight the **TAP**: text type, audience, and purpose. **Adopt a clear point of view** – don't sit on the fence. **Plan** your paragraphs: intro; 3 topic paragraphs; conclusion. Each **paragraph has a purpose.** Include **4-5 devices** in each paragraph to add power and credibility to your point. Use **varied sentences** and **powerful vocabulary**!

Analytical verbs and phrases:

The writer's use of this…

- Conveys
- Connotes
- Suggests
- Highlights
- Establishes
- Develops

The…

- Tone
- Pace
- Imagery
- Idea
- Impression
- Characterisation

Extended analysis: higher marks

1 – **Zoom:** In particular, the word '….' shapes the reader's understanding by

2- **Effect of combined techniques:** The writer uses _____coupled with _____ to highlight…

3 – **Extending analysis:** Furthermore, this effect is extended in a different passage: ….

4 – **Alt reading:** However, the reader may alternatively infer that…

Language terms and features:

Simile	A comparison using 'as' or 'like', e.g. he eats like a pig
Metaphor	Using a word non-literally for something else, e.g. he's a pig
Personification	Giving an inanimate object human features, e.g. 'the tree danced in the wind'
Alliteration	Using the same letter sound for closely connected words. Plosive = strong letter sounds, e.g. d, b, p
Sibilance	Alliteration of the 'S' sound
Symbolism	An object or action that represents more than itself
Repetition	The purposeful repeating of a word or phrase for emphasis.
Oxymoron	A self-contradiction, e.g. 'deafening silence'
Pathos	Language that creates a strong feeling of sadness
Imperative	A command phrase
Rhetorical Question	A question that assumes an answer and agreement with it
Tricolon	3 clauses or words in a successive list, e.g. I came, I saw, I conquered.

Structural terms and features:

1. Juxtapositions –a deliberate contrast between ideas to create tension / imagery

2. Dialogue –speech to reveal information about characters

3. Foreshadowing –a hint of what is to happen later to build dramatic tension

4. Narrative perspectives –the viewpoint of the narrator and how this develops and changes

5.Shifts or changes in time, topics, places, tone and focus –changes to signpost new events or ideas to the reader – takes the reader on a journey

Sentence types and sentencing for effect

Minor: An incomplete, short sentence. E.g. 'Yes, indeed.'

Simple: one independent clause that has a subject and a verb and expresses a complete thought.

Compound: two independent clauses that have related ideas joined by a coordinating conjunction (for, and, nor, but, or, yet, so) or by a semicolon,

Complex: A simple sentence + one or more subordinate clause.

Punctuation and its use:

Full Stop	.	Used at the end of a sentence
Comma	,	Separates clauses in a sentence or items in a list
Question Mark	?	Used at the end of a question
Exclamation Mark	!	Adds emphasis or strong emotion at the end of a sentence
Colon	:	Introduces a list/explanation/description
Semi-Colon	;	Separates two linked, complete sentences
Dash	-	Can replace commas or brackets
Apostrophe	'	Used to show possession or omission

Powerful Vocabulary

- Absurd
- Preposterous
- Nightmarish
- Abhorrent
- Sublime
- Sensational
- Stupendous
- Callous
- Brazen
- Connive
- Erudite
- Insatiable
- Infinitesimal
- Maudlin
- Ostentatious
- Quintessential
- Zealous
- Melodic

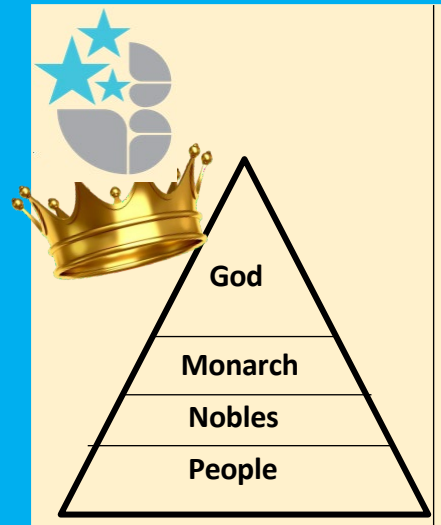
Non-fiction writing features:

Letter: Addresses, Dear…, Yours faithfully / sincerely

Speech: Greet & thank audience

Article: Headline (**leaflet**: add subheadings)

Year 10 English: Shakespeare - Macbeth



Tyrant	Supernatural	Tragedy	Jacobean	Dramatic irony	Soliloquy	Fate
A cruel and oppressive ruler.	Events or things that cannot be explained by nature or science.	The downfall and reversal of fortune of a good person.	Relating to the reign of King James I.	When the audience know something the characters do not.	The act of talking to ones self.	Events outside a persons control.
Juxtaposition	**Toxic masculinity**	**Prophecy**	**Apparition**	**Puns**	**Misogyny**	**In Medias Res**
Two opposing words or phrases side by side.	Cultural pressures for men to behave in a certain way.	Prediction of something to come.	An unusual or expected sight.	A play on words which suggests multiple meanings.	Hatred, contempt, or prejudiced towards women for no reason other than their gender	Starting in the middle of action

Themes

Ambition

Kingship

The Supernatural

Act 1

- Witches plan to meet Macbeth.
- They tell him he will be Thane of Cawdor
- Duncan makes Macbeth Thane.
- Lady Macbeth persuades him to murder Duncan. Macbeth reluctantly agrees to the plan.

Act 2 & 3

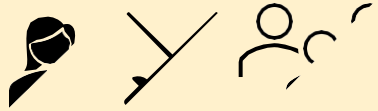
- Lady Macbeth plants the daggers on the servants.
- Macduff discovers the body. Malcolm and Donalbain flee Scotland.
- Noblemen start to become suspicious.
- Macbeth is crowned King & orders the death of Banquo and his son Fleance. Fleance escapes.
- Macbeth hosts feast & sees Banquo's Ghost.
- Macduff creates an army to overthrow Macbeth.

Act 1

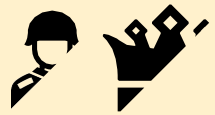
Plotting

Duncan

Act 2



Sons flee to Scotland



Macbeth is King

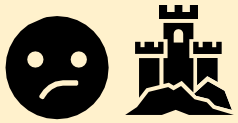
Act 3

Banquo

Thane of Cawdor

Lady Macbeth

Duncan is murdered



Noblemen

Banquo & son

Army

Year 10 English: Shakespeare - Macbeth

Tyrant	Supernatural	Tragedy	Jacobean	Dramatic irony	Soliloquy	Fate
A cruel and oppressive ruler.	Events or things that cannot be explained by nature or science.	The downfall and reversal of fortune of a good person.	Relating to the reign of King James I.	When the audience know something the characters do not.	The act of talking to ones self.	Events outside a persons control.

Juxtaposition	Toxic masculinity	Prophecy	Apparition	Puns	Misogyny	In Medias Res
Two opposing words or phrases side by side.	Cultural pressures for men to behave in a certain way.	Prediction of something to come.	An unusual or expected sight.	A play on words which suggests multiple meanings.	Hatred, contempt, or prejudiced towards women for no reason other than their gender	Starting in the middle of action

Loyalty & betrayal

Good vs. Evil

Fate

Act 4

- Macbeth visits the Witches – they summon 3 apparitions.
- Macduff fled to England.
- An army fights Macbeth.
- Macduff learns Macbeth has killed his family.

Act 5

- Lady Macbeth goes mad with guilt.
- Scottish Lords meet with the English to attack Macbeth.
- Macbeth is not worried.
- Lady Macbeth commits suicide.
- Malcolm is made King of Scotland.

Act 4

Flees to England

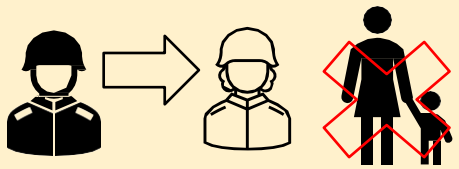
Fights Macbeth

Act 5

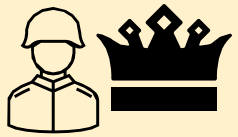
Guilt

Commits suicide

3 apparitions

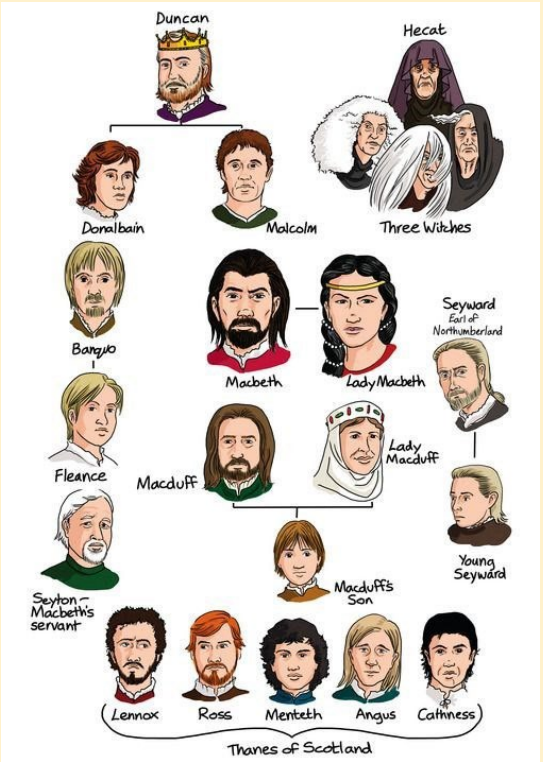


Macduff's wife and children murdered.



Malcolm is King

Characters



Context

- **King James I** – Macbeth was written in 1606, early in the reign of James I, who succeeded to the English throne in 1603 after being King of Scotland. The play pays homage to the king's Scottish lineage and hatred of witches. Additionally, the witches' prophecy that Banquo will found a line of kings is a nod to James' family's claim to have descended from the historical Banquo.
- **The Divine Right of Kings** – the idea that kings got their power from God and not from their subject. James I was a believer in this, and the idea meant that any treasonous activity was a crime against God. Only a century earlier, England had suffered under the massive disorder of the Wars of the Roses, so many supported the idea to avoid civil unrest.
- **Patriarchy** – patriarchal societies are those in which men dominate, and inheritance passes through male heirs.
- **Gender** – Macbeth and Lady Macbeth switch between having masculine and feminine characteristics. In the play, gender is often linked to ambition and a willingness to do anything to achieve power.
- **Women** – Women were expected to follow social expectations with their behaviour towards men. They were meant to obey all men, be faithful and respectful, not be violent and be religious. They would have been regarded as a possession, first owned by the father, then given to and owned by the husband. Women were considered the delicate, 'fairer' sex and they should be quiet and reserved, always respecting the wishes and opinions of the males in their lives. Lady Macbeth subverts these expectations in the play to manipulate Macbeth in getting what she wants.
- **Adam, Eve and the serpent** – in the bible, Adam and Eve live peacefully in the Garden of Eden until Eve is tempted by the serpent and eats the forbidden fruit from the tree of knowledge. She convinces Adam to eat as well, and God curses them and banishes them to Earth. The serpent is frequently alluded to in Macbeth.
- **Witchcraft** – in Shakespeare's time there was no scientific knowledge to explain natural disasters such as earthquakes, floods and droughts. One of the ways they accounted for the unexplained was the idea of witches. In Elizabethan England, hundreds of thousands of women were tortured and executed in Europe because they were accused of witchcraft. The King wrote a book on the subject entitled 'Daemonologie' and appealed to parliament to pass the following act in 1563 which was still a part of English law until 1951. At the time Shakespeare was writing, many people thought that witches were real, so the weird sisters would have seemed believable and frightening to an audience in the 1600s.
- **The 5 Acts**: Macbeth is a typical tragedy. The first part builds up the turning point (Duncan's murder), and the second part deal with the consequences of this, which leads to the main character's downfall.

Key Things to Remember

- The play was written in 1606 but was set in the 11th century (Medieval period).
- In the play, King Duncan was a benevolent king and loved by all. In real life he was a weak king.
- Banquo is intrigued by the prophecies and does have ambitious thoughts, but he does not choose to act on these thoughts.
- There are many similarities between Banquo and Macbeth. They are both soldiers, they are both very patriotic at the start of the play and they are both considered to be brave and noble.
- Shakespeare believed the human nature is prone to evil and that people are greedy. He illustrates this in the Macbeths' desire to become King and Queen. This greed led them to resort to extreme measures such as regicide. In Macbeth's case, his greed led him to kill others, too.
- Macbeth kills Macdonald, Duncan, Duncan's guards and Young Siward himself.
- Macbeth orders the deaths of Lady Macduff, her family and household and Banquo.
- Macbeth is the only Shakespearean play set in Scotland.
- Macbeth's castle is in Inverness. The Royal Palace is in Dunsinane.
- The Gunpowder Plot occurred in 1605, one year before the play was written.

Characters

Macbeth	A loyal warrior who becomes duplicitous as he becomes obsessed with the witches' prophecies of power.
Lady Macbeth	Macbeth's wife who drives his ambition in the beginning but loses her control by the end.
Banquo	Macbeth's close friend and ally who also receives prophecies.
Fleance	Banquo's son who represents innocence and justice.
Duncan	King of Scotland at the beginning of the play - a strong, respected leader.
Malcolm	Duncan's oldest son and next in line to the throne. Joins the English army to defeat Macbeth at the end of the play.
Donalbain	Duncan's youngest son disappears (to Ireland) after Duncan's murder.
Macduff	Macbeth's antagonist: A brave warrior who is loyal to Duncan and is consistently suspicious of Macbeth.

- **Tragic Conventions:** Macbeth is one of Shakespeare's Tragedies and follows specific conventions. The climax must end in a tremendous catastrophe involving the death of the main character; the character's death is caused by their own flaw(s) (hamartia); the character has something the audience can identify with which outweighs their flaws so we care about them.
- **The Real Macbeth:** Macbeth is loosely based on true events in feudal Scotland in the 11th Century and would have been known to King James. King James inherited the throne through his ancestors Banquo and Fleance who appear in the play.

Themes	
Ambition	The witches' prophecies spur Macbeth and Lady Macbeth to fulfil their ambitions, but they never *make* them do anything.
Fate and Free Will	What made it all happen? Fate? The witches? Macbeth's free will?
Good and Evil	Good and evil are hown through contrasts in the play. Evil is illustrated by the witches, Macbeth, Lady Macbeth, the assassins & traitors. Good is shown by Duncan, Malcolm, Banquo, Macduff, Lady Macduff.
The Supernatural	This is shown through the witches & LM calling upon the spirits.
Appearance and Reality	M and LM look innocent but are plotting behind people's backs.
Light and Darkness	Light links to good, life and God. Darkness links to evil and foreboding.
Guilt	Guilt is shown through M (internal conflict) and LM's blood imagery.
Gender	LM challenges and controls M. She subverts the gender stereotypes of the time.

Key Terminology	
Antithesis	Opposite / Contrast
Aside	A remark heard only by the audience.
Dramatic Irony	When the audience knows things that the characters don't.
Iambic Pentameter	A line of verse, with 5 metrical feet, each with one unstressed syllable followed by one stressed syllable.
Juxtaposition	Two things closely placed with contrasting effect.
Monologue	A long speech by one actor.
Motifs	A dominant / recurring idea.
Paradox	A person/thing with contradictory features or qualities.
Semantic field	A group of words, which relate to a common theme or motif.
Soliloquy	Speaking one's thoughts aloud.
Key Vocabulary	
Ambition	Strong desire to achieve something.
Apparitions	A ghost/ghost-like image of a person.
Betrayal	Being disloyal.
Catholics	A person belonging to the Christian church.
Fatal Flaw	A defect / weakness in character.
Hallucination	Apparent vision of something not present.
Invincible	Feeling too powerful to be defeated.
Jacobean	Relating to the reign of King James I.
Kinsman	A relative / blood relation.
Masculinity	Qualities considered to be of a man.
Noble	Belonging to aristocracy.
Protestant	A member of the Western Christian church.

Plot

Act 1

- The 3 witches gather to meet Macbeth and Banquo.
- Duncan hears the Thane of Cawdor has betrayed him.
- Macbeth is seen as a hero.
- Macbeth and Banquo hear the predictions.
- Duncan decides that Malcolm will be heir to the throne.

Act 2

- Macbeth has doubts and sees a vision of a floating dagger.
- He follows through with Duncan's murder.
- LM has to finish the job by wiping blood on the drunk guards.
- Macduff discovers Duncan's body.
- The guards are the likely suspects.
- Macbeth kills the guards.
- Malcolm and Donalbain flee the castle because they are afraid.

Act 3

- Banquo suspects Macbeth for the murder of King Duncan.
- Macbeth sends murderers to kill Banquo. Banquo is murdered but Fleance escapes.
- The ghost of Banquo is at the banquet. Macbeth rants and raves. LM tries to cover up the situation.
- Macduff didn't attend the banquet as he is suspicious of Macbeth.

Key Quotations

Act 1

- "Fair is foul, and foul is fair" (1.1) Witches
- "For brave Macbeth – well he deserves that name" (1.2) The Captain
- "So foul and fair a day I have not seen" (1.3) Macbeth
- "Stars hide your fires, let not light see my black and deep desires" (1.4) Macbeth
- "Come you spirts…unsex me here and fill me from the crown to the toe top full of direst cruelty." (1.5) Lady Macbeth
- "Look like the innocent flower but be the serpent under'it" (1.6) Lady Macbeth
- "When you durst do it, then you were a man" (1.7) Lady Macbeth
- "But screw your courage to the sticking place and we'll not fail." (1.7) Lady Macbeth

Act 2

- "Is this a dagger I see before me, the handle towards my hand?"(2.1) Macbeth
- "Give me the daggers. The sleeping and the dead are but as pictures" (2.2) Lady Macbeth
- "Will all great Neptune's ocean wash this blood clean from my hand?" (2.2) Macbeth
- "A little water clears us of this deed" (2.2) Lady Macbeth
- "Wake Duncan with thy knocking, I would thou couldst." (2.2) Macbeth
- "Oh horror! Horror! Horror! Tongue nor heart cannot conceive, nor name thee" (2.3) Macduff
- "There's daggers in men's smiles" (2.3) Donaldbain

Act 3

- "Thou has it all now, King, Cawdor, Glamis, all, as the weird sisters promised, and I fear though play'st most foully for't." (3.1) Banquo"To be thus is nothing, but to be safely thus. Our fears in Banquo stick deep" (3.1) Macbeth
- "Of full of scorpions is my mind, dear wife" (3.2) Macbeth
- "Be innocent of the knowledge, dearest chuck, till thou applaud the deed" (3.2) Macbeth
- "Thou canst not say I did it; never shake they gory locks at me" (3.4) Macbeth
- " My lord is often thus, and hath been from his youth" (3.4) Lady Macbeth
- "I am in blood stepp'd so far, that, should I wade no more, returning were as tedious as go o'ver" (3.4) Macbeth

Act 4

- Macbeth visits the 3 witches and they show him more visions. He believes he can't be killed by any man.
- Macbeth sends murderers to Macduff's castle to kill his family.
- In England, Macduff begs Malcolm to return to the throne.
- Malcolm tests Macduff's loyalty then agrees to the war against Macbeth.

Act 5

- LM has gone mad with guilt. She sleepwalks and tries to clean blood from her hands. She commits suicide.
- Many of Macbeth's supporters decide to help Malcolm. Macbeth isn't worried as he believes the prophecies.
- Macbeth confronts Macduff and learns that he was not born naturally but by caesarean section.
- Macbeth and Macduff fight and natural order is restored when Macbeth is killed and Malcolm is crowned king.

Act 4

- "Something wicked this way comes" (4.1) Witches
- "Speak, I charge you" (4.1) Macbeth
- "From this moment, the very firstlings of my heart shall be the firstling of my hand" (4.1) Macbeth
- "The castle of Macduff I will surprise; seize upon Fife." (4.1) Macbeth
- "Let grieve convert to anger. Blunt not the heart, enrage it" (4.3) Malcolm
- "Macbeth is ripe for shaking, and the powers above put on their instrument" (4.3) Malcolm

Act 5

- "Out, damned spot! Out, I say!... Will these hand ne'er be clean?" (5.1) Lady Macbeth
- "All the perfumes of Arabia will not sweeten this little hand" (5.1) Lady Macbeth
- "My name's Macbeth" (5.7) Macbeth
- "Turn, hell-hound, turn...I have no words; my sword is my voice" (5.8) Macduff
- "I bear a charmed life which must not yield to one of woman born" (5.8) Macbeth
- "Macduff was from his mother's womb untimely ripp'd" (5.8) Macduff
- "I will to yield to kiss the ground before young Malcolm's feet" (5.8) Macbeth
- "Behold where stands the usurper's head" (5.9) Macduff
- "His fiend-like queen who, as 'tis thought, by self and violent hands took off her life" (5.9) Malcolm.

Regicide	The action of killing a king.
Remorseless	Without guilt or regret.
Scepticism	Doubts the truth of things.
Thane	A man with land granted by the king.
Tragedy	A play with tragic events.
Traitor	A person who betrays someone.
Treason	Betraying one's country.
Virtuous	Having high moral standards.

YEAR 11: A CHRISTMAS CAROL KNOWLEDGE ORGANISER

A CHRISTMAS CAROL

Dickens' Life (Week 1)

1. Charles Dickens was born on February 7, 1812, in Hampshire into a middle-class family.
2. His dad was imprisoned for debt leading to poverty for the family.
3. Charles was put to work at Warren's Blacking Factory.
4. Dickens found employment as an office boy.
5. A Christmas Carol was written in 1843

Charity (Week 1)

1. Industrial revolution led to a gap between the rich and poor with many struggling to survive relying on the generosity of those better off than themselves.
2. Some philanthropists were keen to enhance the lives of the workers. Cadburys tried to provide quality homes and improve lifestyles for workers at their factory in Bournville.

Industrial Revolution (Week 2)

1. From 1780 factory owners in Britain began to use coal-fired steam engines to power the machines in big factories, bringing great fortune.
2. Transition from traditional farming methods to machinery led to Industrial revolution.
3. People flocked from the countryside to the cities. London's population between 1800 and 1900 from 1 million to 6 million people.
4. This led to over-crowding and hunger, disease, and crime. There were no proper drainage / sewage systems. Many families had to share one tap / toilet. Children suffered the most and were exploited by factory owners who forced them to work long hours in dangerous conditions.

Malthus and the Poor Laws (Week 2)

1. Thomas Malthus wrote that the human population would grow faster than food supplies leading to famines and death. Malthus believed poverty was the result of overpopulation.
2. Malthus believed people should families in later life and not have too many children
3. Dickens believed Malthus was wrong. He believed there was plenty of food to go around but only if the rich were more generous. Dickens felt it wrong the poor should suffer because the rich were too selfish to share their wealth.
4. Malthus thought existing poor laws in Britain were too charitable. Poverty relief, he believed, encouraged laziness in the poor and reduced the incentive to work hard and save money.
5. 1834 a new Poor Law was introduced to reduce the financial help available to the poor. It also ruled that all unemployed people would have to enter a workhouse to receive food and shelter. Conditions in workhouses were unpleasant to discourage the poor from relying on society to help them.

Education (Week 3)

1. Dickens believed strongly in the importance of education.
2. As part of his campaign against the treatment of the poor, Dickens worked with a friend called Angela Burdett-Coutts.
3. In 1840s, Dickens and Coutts became involved in the Ragged Schools. The aim was to provide poor children with basic education.
4. Dickens believed that it is through education that one can leave poverty.

Christmas (Week 4)

1. Start of 19th century Christmas was hardly celebrated. By the end of the century, it was the most important celebration of the year.
2. Traditions associated with Christmas became important: cards, crackers, carols, decorations, gifts, and Christmas dinner. Prince Albert in 1840 brought a tree from Germany to Britain for the first time. Christmas Card dates to 1843 when Henry Cole asked an artist to design one for him. They were expensive so children made their own.
3. Christmas celebrations were becoming more secular as feasts and games became a central part of the festivities.

Religion (Week 4)

1. Christianity held a strong influence in Victorian Britain, especially amongst the middle / upper classes.
2. Good Christians believed in a strict moral code – attending church regularly, avoiding alcohol and exercise sexual restraint.
3. Dicken's view on Christianity was different. He believed that to be a good Christian people should seek out opportunities to do good deeds for other people.
4. Sabbatarianism – when people spent Sunday going to church and resting. Dickens was opposed to this
   because it meant that working poorer people were denied any enjoyment on their one day off – everything was shut.
5. Poorer people didn't have ovens at home so often food cooked by bakers. Sabbatarianism meant that many people couldn't get a hot meal on Sundays because the bakers were shut.

Challenge Tasks (Context) Choose one of the tasks below to stretch your learning further:

- Write an article that Dickens might have published outlining his views about Thomas Malthus' beliefs
- Create a revision poster of key points about the context of the novella using the information on your Knowledge Organiser
- Research how
- Imagine you are the young Charles Dickens, working in Warren's Blacking Factory. Write a letter to your younger brother describing the working conditions. You may wish to research this further to develop your writing in depth.
- Write a speech to be presented at the annual CET speech competition in which you argue that it is through education that one can leave poverty.
- Research a Victorian Christmas. Find facts about how the festivities we know developed over time and create a collage poster of these facts and accompanying images.

Features of the form (novella)

Allegory	A story which can be interpreted to reveal a hidden meaning, typically a moral or political one.
Novella	A novella is longer than a short story, but not as long as a traditional novel.
Stave	A set of five parallel lines on any one or between any adjacent two of which a note is written to indicate its pitch.
Omniscient narrator	A narrator that sees everything, including what a character is thinking and feeling.
Protagonist	The leading character in a novel.
Tone	How the narrator or a character speaks; can also be set through description.
Contrast	The differences between two characters or settings etc.
Symbolism	The use of symbols to represent ideas or qualities.
Foreboding	A feeling that something bad will happen.
Repetition	Saying the same thing more than once for emphasis.
Analepsis (flashback)	These are ways in which a narrative's dialogue re-order's a given story by "flashing back" to an earlier point in the story

Features of the form (novella)

Cyclical structure	The reader reaches a sense of closure when the piece finds its way back to the beginning of the narrative.
Parallel structures	Using the same pattern of words to show that two or more ideas have the same level of importance.
Tension and suspense	A building of extreme emotion / anticipation where the outcome is uncertain.
Dramatic Irony	Where the reader knows something that a character(s) is not aware of.
Cliff-hanger	A dramatic and exciting ending to an episode of a serial, leaving the audience in suspense and anxious not to miss the next episode.
Similes	A figure of speech involving the comparison of one thing with another thing of a different kind, used to make a description more emphatic or vivid.
Personification	Attributing a human characteristic to something non-human.
Exaggeration	A statement that represents something as better or worse than it really is.
Dialogue	A discussion or conversation, or simply the words spoken by a character.
Rhetorical questions	A question that is asked to make a point rather than elicit an answer.
Motif	An image that is repeated throughout a text showing the dominance of an idea.

Characters

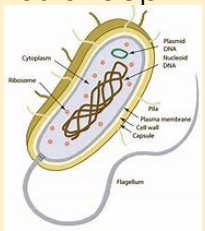
Themes and Key quotes

			key quotes
Ebenezer Scrooge	Miserly, mean, bitter, materialistic, unsympathetic, indifferent, cold, selfish, isolated, cynical, charitable, value driven, generous, happy, sociable, transformed.	**Christmas spirit**	Fred (on Christmas) 'a good time; a kind, forgiving, charitable, pleasant time: when men and women seem by one consent to open their shut up hearts freely' Scrooge: "I am as light as a feather, I am as happy as an angel, I am as merry as a schoolboy. I am as giddy as a drunken man.'
Marley's Ghost	Materialistic, self-centred, terrifying, haunting, exhausted, direct, reformed, regretful, hopeful, selfless, wise	**Redemption**	Scrooge: 'Tell me I may sponge away the writing on this stone!' Scrooge: "I will honour Christmas in my heart. I will live in the Past, the Present, and the Future. I will not shut out the lessons that they teach."
Bob Cratchit	Uncomplaining, tolerant, courteous, deferential, patient, civil, eager, pleasurable, good-humoured, playful, caring, tender, cheerful, loving, forgiving.	**Poverty and Social Responsibility**	Scrooge: Scrooge: 'If they had rather die, they better do it and decrease the surplus population' Scrooge: 'What reason have you to be merry? You're poor enough!' Scrooge: 'I can't afford to make idle people merry.' "Many thousands are in want of common necessities"
Fred	Warm-hearted, empathetic, cheerful, optimistic, even-tempered, insightful, determined, generous, forgiving, jovial, enthusiastic, caring	**Supernatural**	Describing the Ghost of Christmas Past: "It was a strange figure-like a child: yet not so like a child as like an old man" Describing the Ghost of Christmas Yet to Come "It was shrouded in a deep black garment which concealed its head, its face, its form and left nothing visible except one outstretched hand"
Ghost of Christmas Past	Contradictory, strong, gentle, quiet, forceful, questioning, mysterious Ephemeral	**Family**	"There's another fellow, my clerk with fifteen shillings a week, and a wife and family, talking about a merry Christmas. I'll retire to Bedlam" Tiny Tim: 'God bless us everyone'
Ghost of Christmas Present	Compassionate, abundant, generous, cheerful, jolly, friendly, severe, sympathetic Prophetic	**Loneliness and isolation**	Describing Scrooge: 'Solitary as an oyster' Describing Scrooge as a child: 'A solitary child, neglected by his friends'
Ghost of Christmas Future	Mysterious, silent, ominous, intimidating, frightening, resolute	**Time**	Belle: 'Our contract was an old one. It was made when we were both poor and content to be so.' Ghost of Christmas Present: 'The child will die'
Tiny Tim	Frail, ill, good, religious,	**Greed**	"'What shall I put you down for?' 'Nothing!' Scrooge replied." Belle: 'Another idol has displaced me. A golden one.' Belle: 'Gain engrosses you'

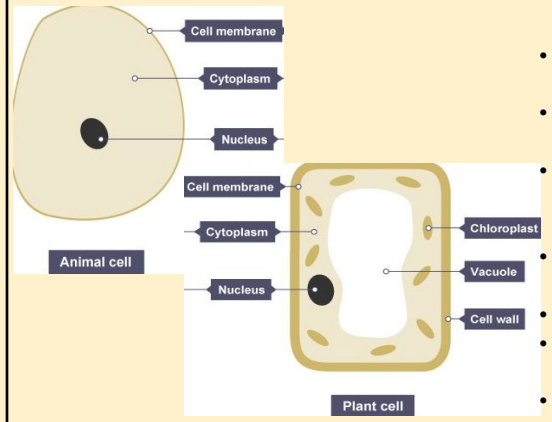
B1 Knowledge Organiser – 4.1.1/4.1.2 - Cell Biology

Prokaryotic cells 1

- Bacterial cells
- Have cytoplasm, cell membrane and cell wall
- Do not have a nucleus
- DNA found as a loop - plasmid



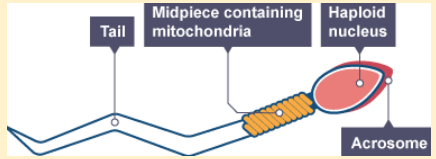
Eukaryotic cells 2



- **Nucleus**: contains genetic information. Controls the activities of the cell.
- **Cell membrane:** Controls what goes in/out of the cell.
- **Cytoplasm:** where chemical reactions happen.
- **Chloroplasts:** absorbs light energy so the plant can make food.
- **Permanent Vacuole:** contains liquid to keep the cell rigid.
- **Cell wall:** strengthens the cell.
- **Mitochondria** – Releases energy from respiration
- **Ribosome** – Makes protein

Cell specialisation 3

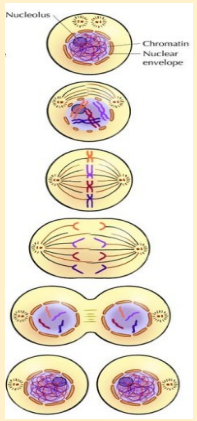
- Specialised cells have a particular function
- Identify the **adaptation** and **explain** how it allows the cell to perform its function
- **Sperm cell:** Tail – swim to egg, Lots of mitochondria – requires lots of energy



Cell division – Mitosis – (Growth and repair) 4

Chromosomes are made of DNA and carry a large number of genes. Found in pairs. **23 pairs** in each human cell. **The cell cycle:**

1. Cell **grows** to increase the number of sub-cellular structures, e.g. mitochondria and ribosomes
2. DNA **replicates**
3. Chromosomes line up on the equator
4. Spindle fibres **pull chromosomes apart** so one copy is at each end of the cell
5. **Nucleus divides**
6. Cytoplasm and cell membrane divides to form **two identical cells**



Microscopy – Required Practical 5

Maths skills:

1,000 µm = 1mm

µm → mm divide by 1000

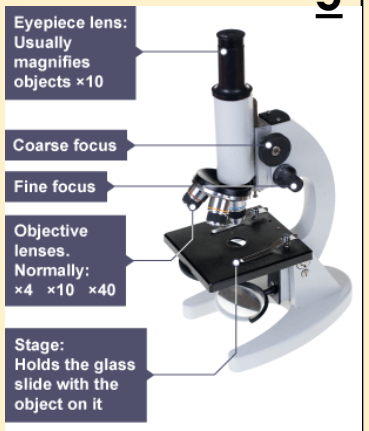
- Increasing magnification makes an image bigger
- Does not "zoom in"

Remember:

A = Actual size

I = Image size

M = Magnification



Stem cells 6

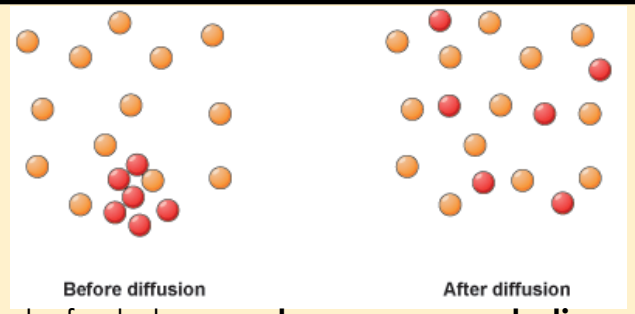
- Stem cells are **undifferentiated cells** which are capable of **differentiating into many types of cell**
- Stem cells from **human embryos** can be cloned and made to differentiate into different types of human cell
- Stem cells from **adult bone marrow** can form blood cells
- Treatment from stem cells may help **paralysis and diabetes**
- **Meristem tissue** in plants can differentiate into any type of plant cell

Stem cell applications 7

- An embryo is produced with the **same genes as the patient**
- Stem cells from the embryo are **not rejected** by the patient's body so may be used for medical treatment
- **Risk of viral infection**
- Stem cells from meristems in plants can be used to produce clones of plants quickly and economically
- Rare plants can be **cloned to protect from extinction**
- Crop plants with **resistance to disease can be produced in large numbers**

B1 Knowledge Organiser – 4.1.3 – Transport in cells

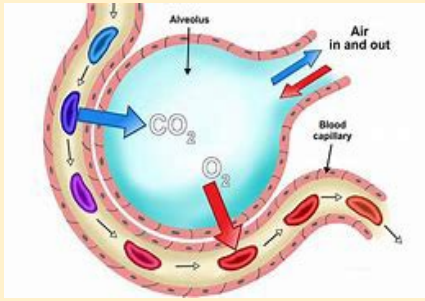
Diffusion 1



- Transport of substances **down a concentration gradient**
- Gases
- Liquids – except water
- **High to Low concentration**
- **Passive process** – No energy required

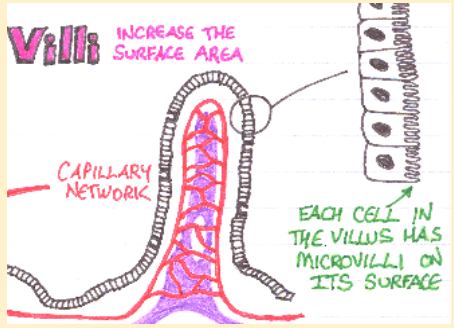
Diffusion - Contexts 2

- Gas exchange
- Digestion
- Respiration



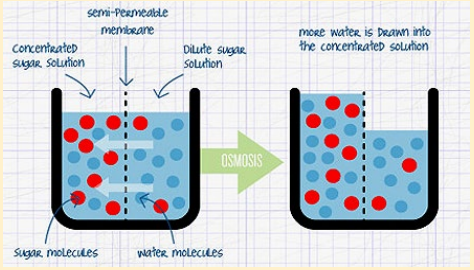
Diffusion - Adaptations 3

- E.g. alveoli/microvilli
- Large surface area
- Short diffusion pathway
- Good blood supply



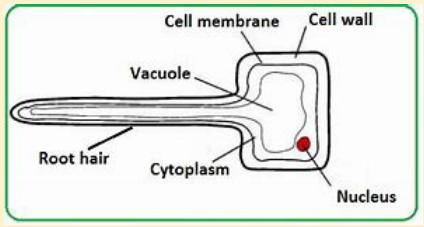
Osmosis 4

- Movement of water molecules from a more dilute to concentrated solution



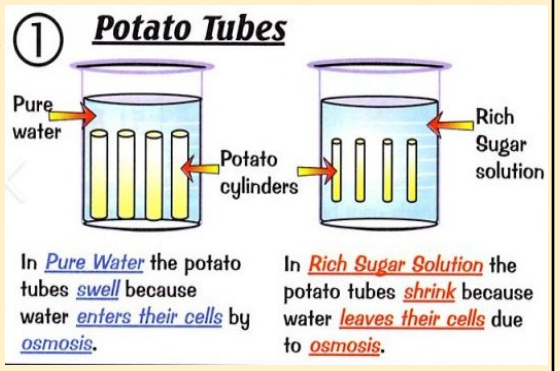
Osmosis - Adaptations 5

- **Root hair cell:** large surface area, absorbs more water



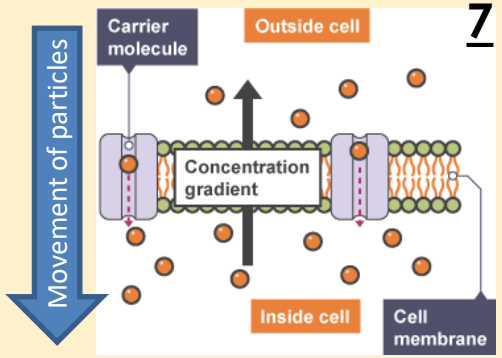
Osmosis – Required practical 6

- **Independent variable** – Concentration of sugar solution
- **Dependent variable** – Change in mass of potato
- **Control variables** – Volume of sugar solution, time in sugar solution

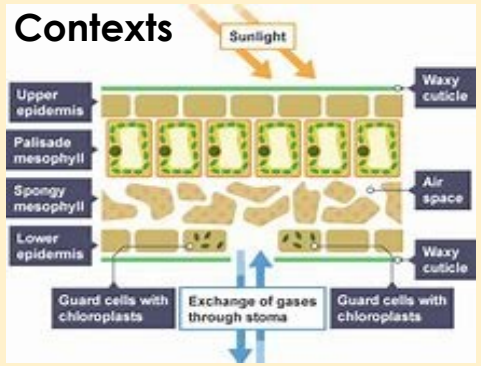


Active transport

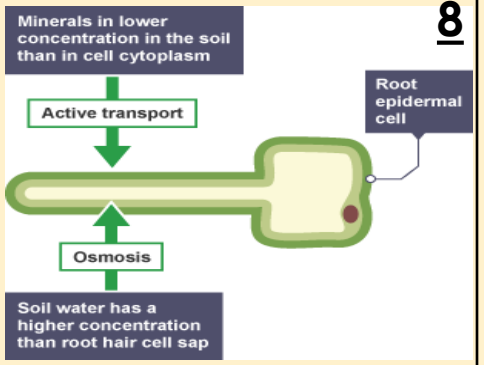
- Transport of substances against a concentration gradient
- **Low to High concentration**
- **Requires energy** released from respiration



Contexts 7



8



B2 Knowledge Organiser – 4.2.2 – Organisation

Enzymes 1

- **Amylase** – Breaks down carbohydrate to starch
- **Lipase** – Breaks down lipids to glycerol and fatty acids
- **Proteases** – Break down protein to amino acids
- **Bile** – Made in the liver. Emulsifies fats to provide larger surface area for enzyme action

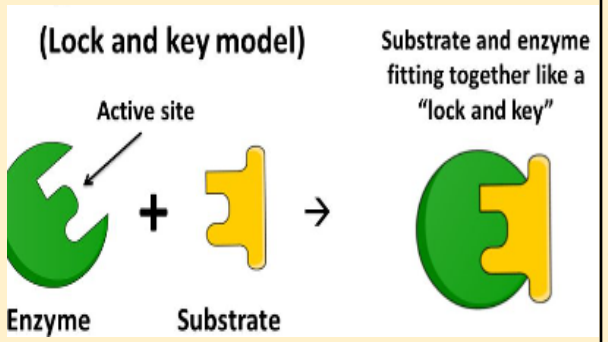
Enzyme action 2

Active site – Where substrate binds.

Complimentary shape

When denatured bonds holding active site break – **changes shape**

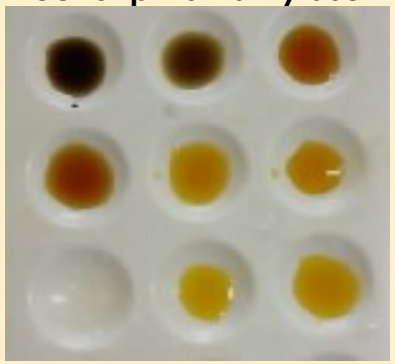
Substrate can longer bind



Food tests – RP 3

- **Test for sugars** – Benedict's solution – **Blue** → **orange/red**
- **Test for protein –** Biuret – **Blue** → **purple**
- **Test for starch –** Iodine – **Yellow** → **blue/black**

Required practical – Effect of pH on amylase 4



Step 1) Place 2 drops of iodine in each dimple within the spotting tile.

Step 2) Select a starch solution to test, and add three drops of amylase to the starch solution. Whilst doing this, start a stop watch.

Step 3) Using a new pipette, collect one drop of starch and amylase solution every 30 seconds and place it in one of the dripping trays.

Step 4) Does the solution turn black or not? If the iodine turns black then amylase hasn't completely broken up the starch, if the iodine stays the same colour then the amylase has completed its reaction.

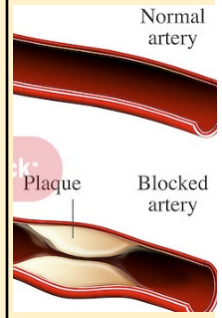
Health issues – risk factors 5

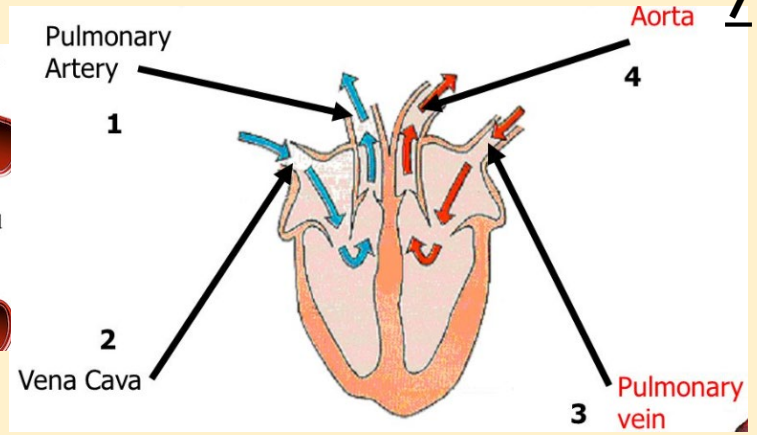
- Diet
- Smoking
- Lack of exercise
- Obesity
- Alcohol
- Carcinogens – cause cancer
- **Cancer** – changes in cells that cause uncontrollable growth and division

Coronary Heart Disease 6

- Build of fatty material in artery leads to **narrowing**
- **Reduces blood flow** to heart
- **Lack of oxygen** for heart muscles to respire
- **Treatment –**
- **Statins** – lower cholesterol
- **Stents** – keep artery open

The heart 7



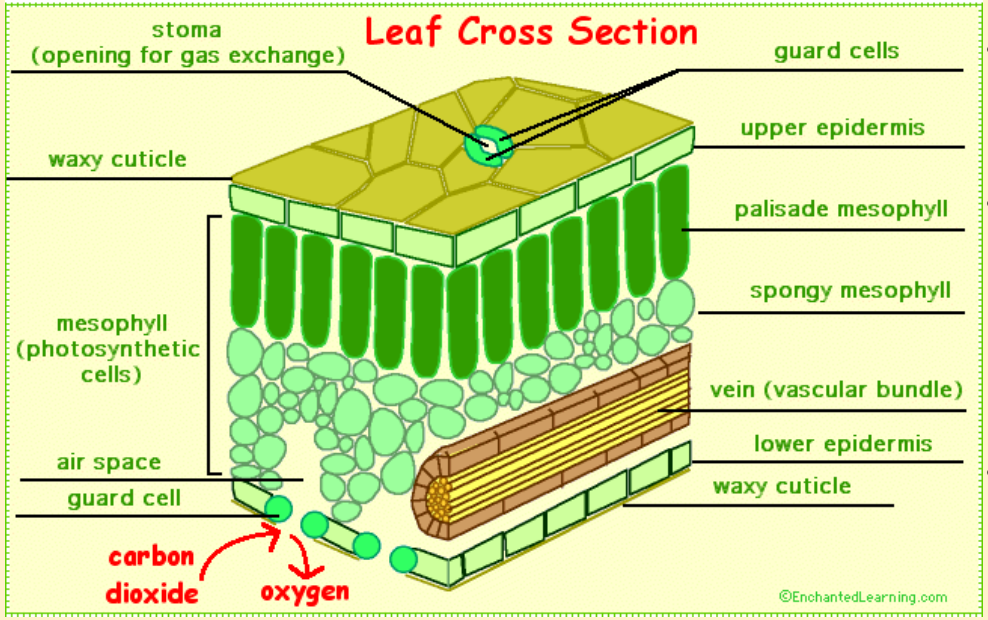


8

Blood vessel	Artery	Vein	Capillary
Direction of blood flow	Away from heart	To the heart	
Lumen size	Small lumen	Large lumen	Very small
Muscle thickness	Thick layer of muscle – high pressure	Thin layer of muscle – low pressure	No muscle layer
Outer wall	Thick outer wall	Thin outer wall	Single layer of cells

B2 Knowledge Organiser – 4.2.3 – Plant tissues and systems

Plant tissues



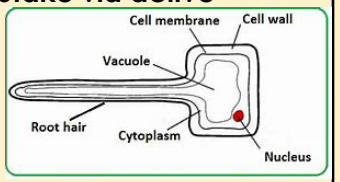
- **Xylem** – transports water and minerals up the plant stem – strengthened by lignin
- **Phloem** – transports sugars (sucrose) produced by photosynthesis around the plant for growth
- **Meristem tissue** – Found at root and shoot tips for growth

1

- **Epidermal tissue** – Waxy cuticle – prevents water loss
- **Palisade mesophyll** – Adapted to absorb light – lots of chloroplasts containing chlorophyll, cells packed tightly together
- **Spongy mesophyll** – Cells packed loosely for efficient gas exchange, cells covered in thin layer of water for gases to dissolve in and they move into and out of cells

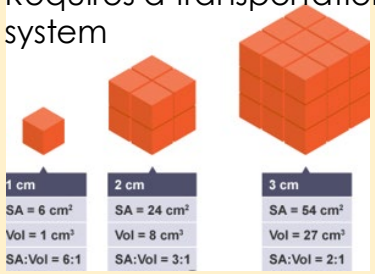
Root hair cells 2

Large surface area - absorb more water via osmosis
Thin cell wall – short diffusion pathway
No chloroplasts
Mineral uptake via active transport



SA:Vol ratio 3

- Larger organisms have a smaller SA:Vol ratio
- Requires a transportation system



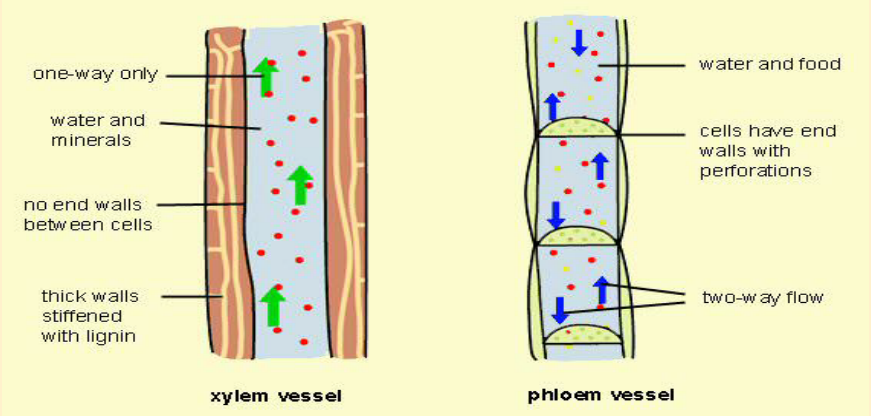
Transpiration 4

- **Water diffuses out of the leaf via the stomata**
- Water is drawn from the xylem to replace this water, this is the **Transpiration stream**
- Xylem are hollow tubes **strengthened by lignin**
- **Rate decreased by humidity**
- **Rate increased by temperature, air movement and light intensity**

Translocation 5

- Glucose produced from photosynthesis is **converted to sucrose**
- Transported in phloem vessels
- **Transported to leafs and roots for growth**
- Sucrose moves through elongated cells through holes in the end walls

Structure of xylem, phloem and stomata 6



B3 Knowledge Organiser – 4.3 Infection and response

Communicable diseases 1

Pathogens are microorganisms that cause infectious disease.

Pathogens may be viruses, bacteria, protists or fungi.

They may infect plants or animals and can be spread by direct contact, by water or by air.

How to prevent the spread

Being hygienic- *washing hands thoroughly*
Killing vectors – *killing vectors by using insecticides or destroying the habitat*
Isolation- *isolating an infected person will prevent the spread*
Vaccination- *people cannot develop the i it on*

Viral diseases 2

Measles symptoms include fever & a red skin rash and can be fatal if complications arise. For this reason most young children are vaccinated against measles. The measles virus is spread by inhalation of droplets from sneezes and coughs.

HIV initially causes a flu-like illness. Unless successfully controlled with antiretroviral drugs the virus attacks the body's immune cells. Late stage HIV infection, or AIDS, occurs when the body's immune system becomes so badly damaged it can no longer deal with other infections or cancers. HIV is spread by sexual contact or exchange of body fluids such as blood which occurs when drug users share needles.

Tobacco mosaic virus (TMV) is a widespread plant pathogen. It gives a distinctive 'mosaic' pattern of discolouration on the leaves which affects the growth of the plant due to lack of photosynthesis.

Bacterial diseases 3

Salmonella (food poisoning)
Symptoms include fever, abdominal cramps, vomiting and diarrhoea. The salmonella bacteria is spread in food, or on food prepared in unhygienic conditions. In the UK, poultry are vaccinated against Salmonella to control the spread.

Gonorrhoea is a sexually transmitted disease (STD) with symptoms of a thick yellow or green discharge from the vagina or penis and pain on urinating. It easily treated with the antibiotic penicillin until many resistant strains appeared. Gonorrhoea is spread by sexual contact. The spread can be controlled by treatment with antibiotics or the use of a barrier method of contraception such as a condom.

Fungal & protists diseases 4

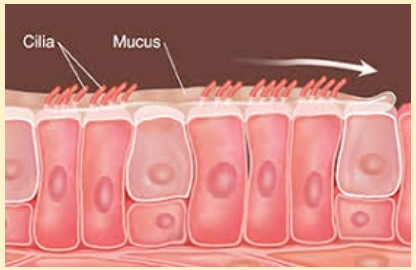
Rose black spot is a fungal disease where purple or black spots develop on leaves, which often turn yellow and drop early. It affects the growth of the plant as photosynthesis is reduced. It is spread in the environment by water or wind. Rose black spot can be treated by using fungicides and/or removing and destroying the affected leaves

The pathogens that cause malaria are protists. The malarial protist has a life cycle that includes the mosquito. Malaria causes recurrent episodes of fever and can be fatal. The spread of malaria is controlled by preventing the vectors, mosquitos, from breeding and by using mosquito nets to avoid being bitten.

B3 Knowledge Organiser – 4.3 Infection and response

Human Defence System 1

The non-specific defence systems of the human body against pathogens, including the: ***Skin. Nose, trachea, bronchi & stomach.***



Role of the immune system

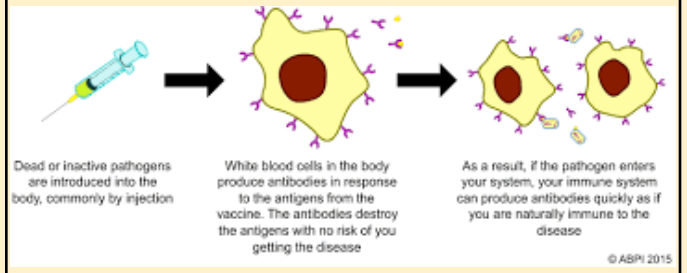
If pathogens pass the non-specific first line of defence they will cause an infection. However, the body has a second line of defence to stop or minimise this infection. This is called the immune system.

Phagocytes surround any pathogens in the blood and engulf them. They are attracted to pathogens and bind to them.

Lymphocytes recognise proteins on the surface of pathogens called **antigens**. Lymphocytes detect that these are foreign not naturally occurring within your body and produce **antibodies**. The antibodies cause pathogens to stick together and make it easier for phagocytes to engulf them.

Lymphocytes can also produce antitoxins to neutralise toxins.

Vaccinations 2



Fighting disease – drugs 3

Antibiotics cannot kill viral pathogens. It is difficult to develop drugs that kill viruses without also damaging the body's tissues

Painkillers and other medicines are used to treat the symptoms of disease but do not kill pathogens..

Discovery of drugs 4

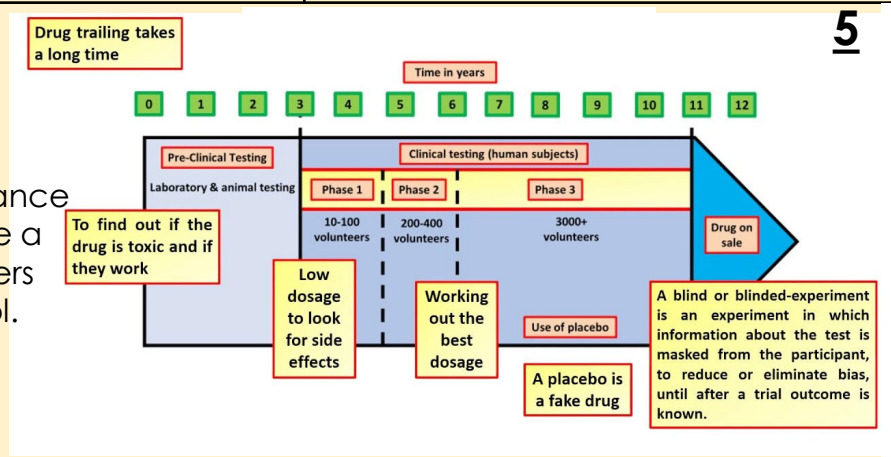
Traditionally drugs were extracted from plants & microorganisms.

- The heart drug **digitalis** originates from foxgloves.
- The painkiller **aspirin** originates from willow.
- **Penicillin** was discovered by Alexander Fleming from the Penicillium mould.

Development of drugs

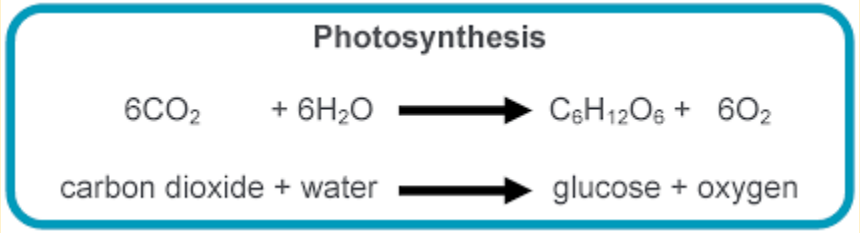
Placebo =
An inactive substance made to resemble a drug for researchers to use as a control.

5



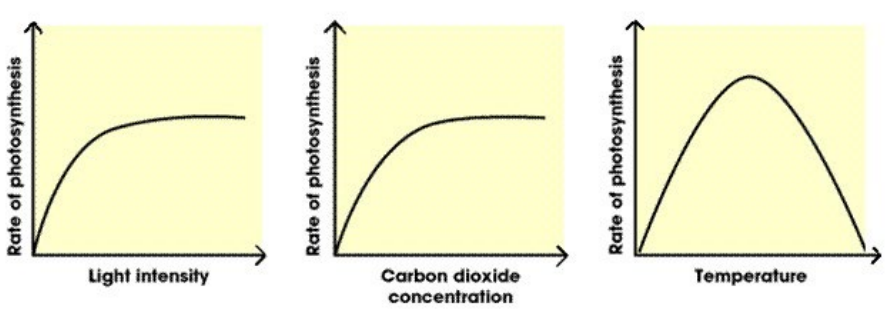
B4 Knowledge Organiser – 4.4.1 –Photosynthesis

Photosynthesis reaction 1



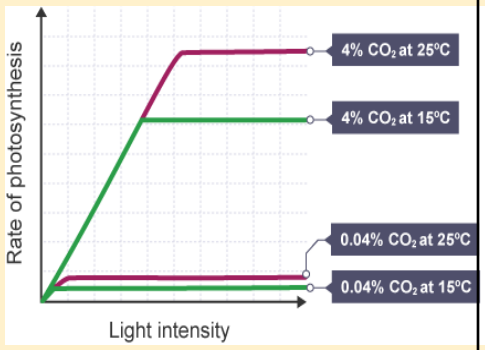
Photosynthesis is an endothermic reaction. Energy is transferred from the environment to the chloroplasts by light.

Rate of photosynthesis 2



Chlorophyll also affects the rate. More chlorophyll = faster rate.

Factors affecting rate 3



Inverse square law for light 4

The intensity of the light from a source is inversely proportional to the square of distance from the source.

$$\text{INTENSITY} \propto \frac{1}{\text{DISTANCE}^2}$$

Greenhouses 5

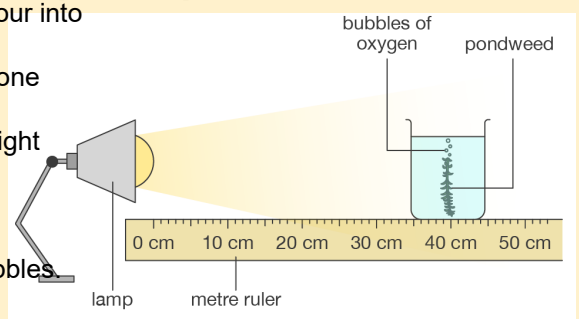
Light, temperature and CO_2 can all be controlled to get the maximum photosynthesis rate. But yields need to be balanced against increased costs.

Plants using glucose from photosynthesis 6

- used for respiration
- converted into insoluble starch for storage
- used to produce fat or oil for storage
- used to produce cellulose
- Combined with nitrates to produce amino acids

Required practical – light intensity and rate of photosynthesis 7

1. Measure 20cm^3 of sodium hydrogen carbonate solution and pour into a boiling tube.
2. Collect a 10cm piece of pond weed and attach a paper clip to one end.
3. Clamp the boiling tube, ensuring you will be able to shine the light onto the pond weed.
4. Place a meter ruler next to the pond weed.
5. Place the lamp 10cm away from the pondweed.
6. Wait 2 minutes until the pond weed has started to produce bubbles.
7. Using a stopwatch count the number of bubbles produced in a minute.
8. Repeat stages 5-7, moving the lamp 10cm further away from the



Independent variable = light intensity
Dependent variable = amount of bubbles produced. To be more accurate instead of counting bubbles collect gas in a pas syringe.
Control variables = time and length of pond weed. Bench lamp used to control light intensity and a thermometer in the in the pond weed water controls the temperature.

B4 Knowledge Organiser – 4.4.2 – Respiration

Respiration 1

Occurs continuously in all living cells.
It is an **exothermic** reaction.
The energy transferred supplies all the energy needed for living processes.
Organisms need energy for:

- chemical reactions to build larger molecules
- movement
- keeping warm.

Aerobic respiration

glucose + oxygen → carbon dioxide + water + energy

$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + ATP$

Aerobic respiration produced a lot more energy than anaerobic respiration.

Anaerobic respiration 2

As the oxidation of glucose is incomplete in anaerobic respiration much less energy is transferred than in aerobic respiration.

glucose → lactic acid + energy

$C_6H_{12}O_6 \rightarrow 2C_3H_6O_3 + 2ATP$

Anaerobic respiration in plant and yeast cells (fermentation) is used to manufacture bread and alcoholic drinks.

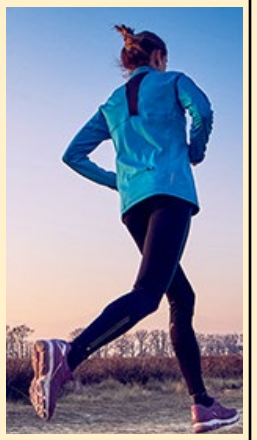
glucose → ethanol + carbon dioxide

$C_6H_{12}O_6 \rightarrow 2C_2H_5OH + 2CO_2$

Response to exercise 3

During exercise the body needs more energy so the respiration rates increase.
The heart rate, breathing rate and breath volume increase during exercise to supply the muscles with more oxygenated blood.

If insufficient oxygen then anaerobic respiration takes place in muscles, this causes lactic acid to build up. During long periods of vigorous activity muscles become fatigued and stop contracting efficiently.
Blood flowing through the muscles transports the lactic acid to the liver where it is converted back into glucose. Oxygen debt is the amount of extra oxygen the body needs after exercise to react with the accumulated lactic acid and remove it from the cells.



Metabolism 4

Metabolism is the sum of all the reactions in a cell or the body.

The energy transferred by respiration in cells is used by the organism for the continual enzyme controlled processes of metabolism that synthesise new molecules.

Metabolism includes:

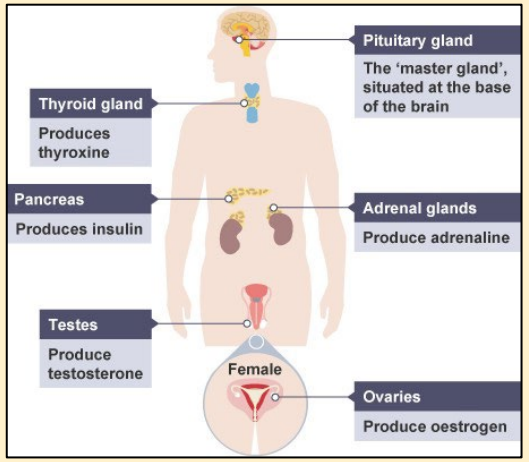
- conversion of glucose to starch, glycogen and cellulose
- the formation of lipid molecules from a molecule of glycerol and three molecules of fatty acids
- the use of glucose and nitrate ions to form amino acids which in turn are used to synthesise proteins
- respiration
- breakdown of excess proteins to form urea for excretion.

Year 10 Science: B5 Homeostasis – Hormones 1

- The endocrine system is composed of glands which secrete chemicals called hormones.
- Glucose and Blood Water levels are maintained by hormones as part of homeostasis.

Hormones → Glucose Levels & Diabetes → Water Balance

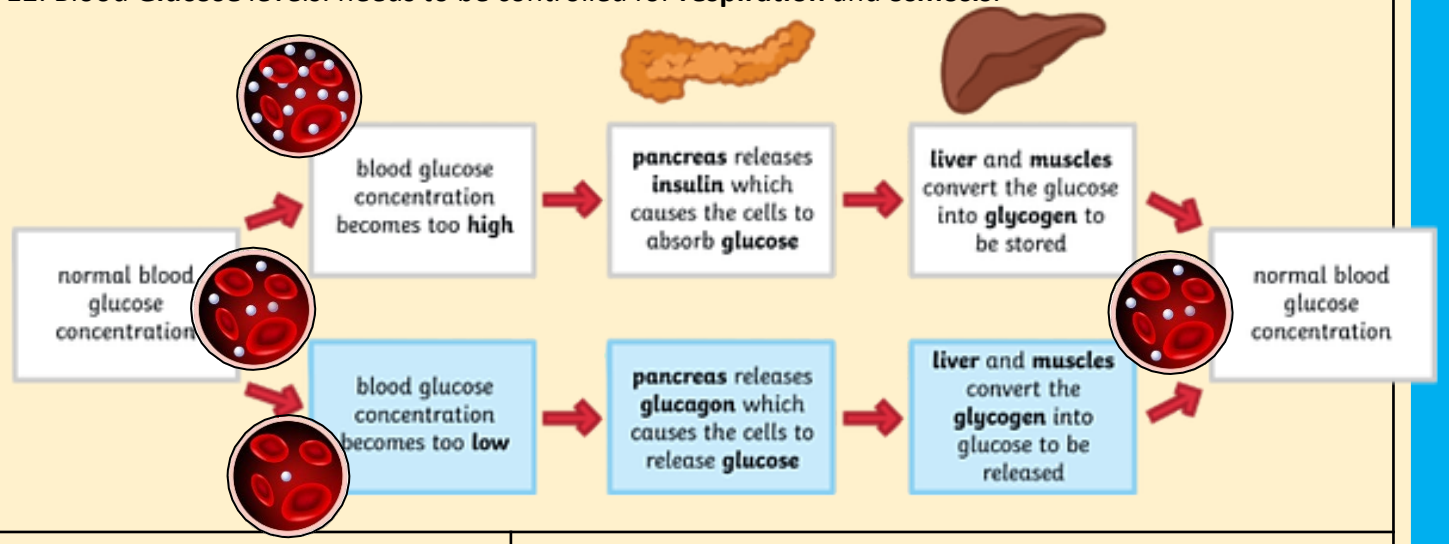
10. Endocrine **glands**: release chemicals called **hormones** into the **blood**.



11. Comparing the **nervous** system and the **endocrine** system:

NERVOUS SYSTEM	ENDOCRINE SYSTEM
NERVES (NEURONES), BRAIN, SPINAL CORD	GLANDS
ELECTRICAL IMPULSE	CHEMICAL HORMONE
VERY FAST	SLOWER
SHORT – UNTIL NERVE IMPULSES STOP	LONGER – UNTIL HORMONE IS BROKEN DOWN

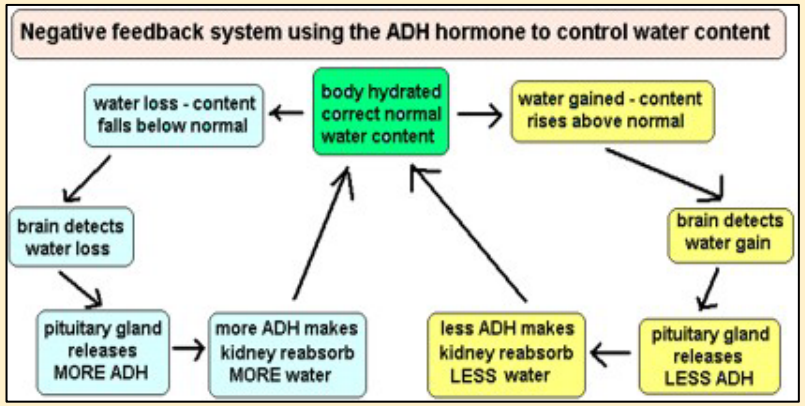
12. Blood **Glucose** levels: needs to be controlled for **respiration** and **osmosis**:



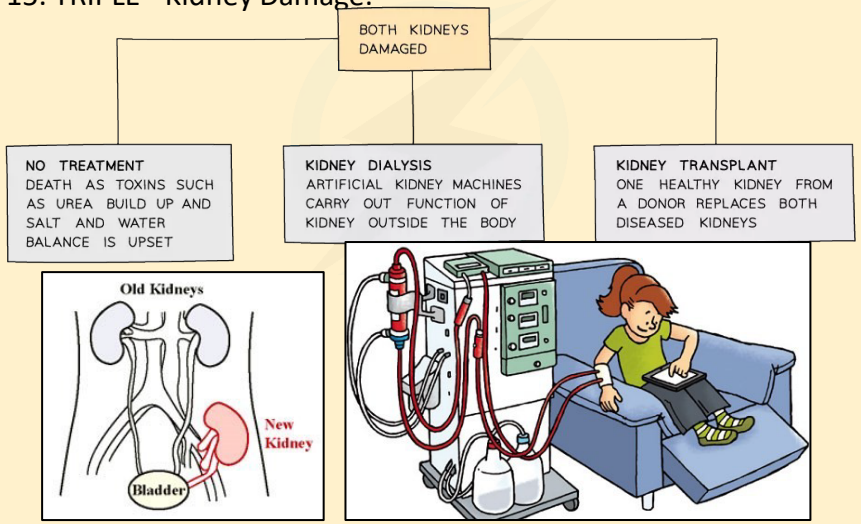
13. **Diabetes** – inability to control glucose levels:

Type 1	Type 2
Inability of pancreas to produce insulin	Cells of the body become resistant to insulin or insufficient insulin produced by the pancreas
Monitoring blood glucose levels and injecting human insulin throughout the day (particularly after meals consumed)	Maintain a low–carbohydrate diet and regular exercise to reduce need for insulin

14. TRIPLE - Control of **Water** levels: needs to be controlled to maintain osmosis.
Antidiuretic Hormone [**ADH**].



15. TRIPLE - Kidney Damage:

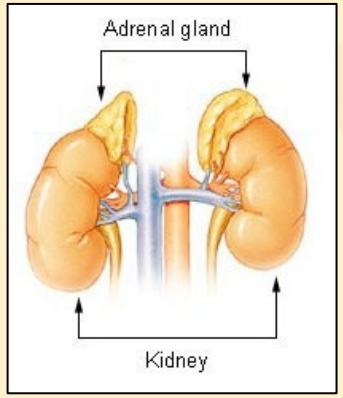


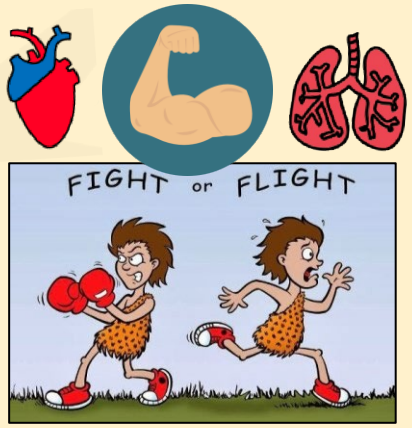
Year 10 Science: B5 Homeostasis – Hormones 2

- During puberty reproductive hormones cause secondary sex characteristics to develop.
- Plants also produce hormones which control growth and can be used in agriculture.

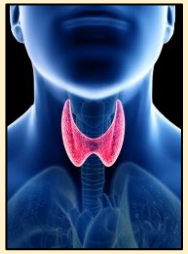
Thyroxine & Adrenaline → Reproductive Hormones → Plant Hormones

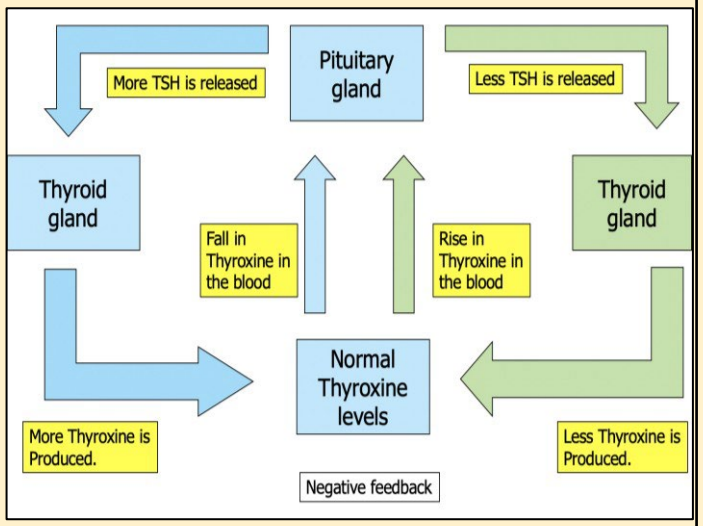
16.TRIPLE - **Adrenaline**: secreted by the **adrenal** glands when the body detects danger – increases **heart** rate and **breathing** to supply **muscles** with **oxygen** for energy:



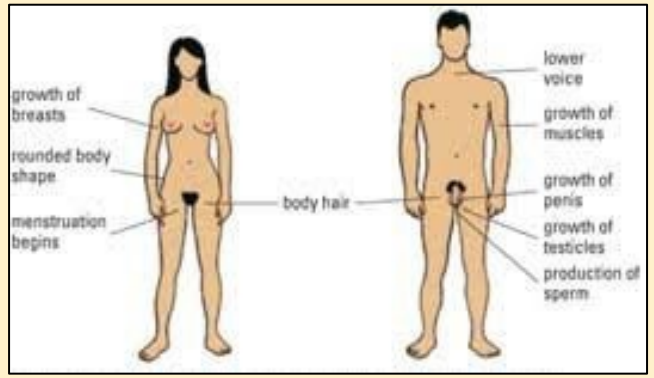


17.TRIPLE- **Thyroxine** controls metabolic rate and plays an important role in growth and development:



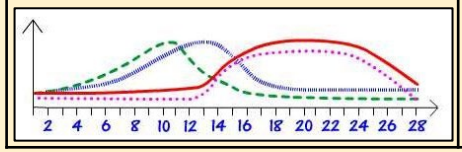


18. **Reproductive** Hormones: **Testosterone** produced in testes. **Oestrogen** produced in the ovaries. Control secondary sexual characteristics during puberty.

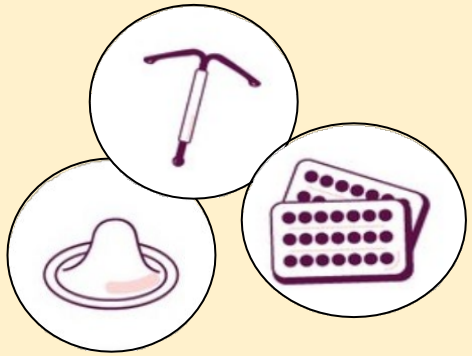


19. The **Menstrual** Cycle:

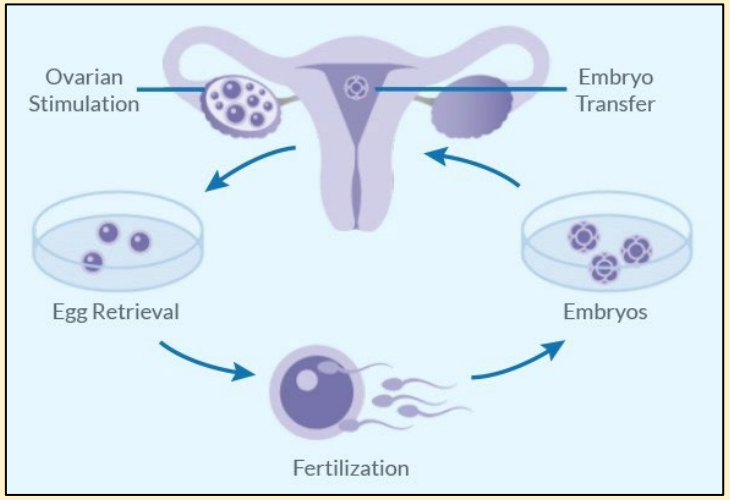
- **FSH** – causes maturation of an egg in the ovary
- **LH** – stimulates release of an egg
- **Oestrogen** / **Progesterone** – maintains uterus lining. High levels of oestrogen and progesterone inhibit the release of LH and FSH



20. **Contraception**:
Hormonal: Pill / patch / IUD
Chemical: Spermicide / copper IUD
Barrier: Condom / diaphragm
Surgical: Sterilisation



21. Treating **Infertility**: In Vitro Fertilisation [**IVF**]:



22. TRIPLE - Plant Hormones: control growth
Auxins – weed killer / rooting powders / plant growth
Gibberellins – promote flowering / increase fruit size

Stimulus	Name of response	Definition	Positive response	Negative response
Gravity	Gravitropism (sometimes called geotropism)	Growth towards or away from gravitational pull	Growth towards gravity (eg. roots)	Growth away from gravity (eg. shoots)
Light	Phototropism	Growth towards or away from source of light	Growth towards light (eg. shoots)	Growth away from light (eg. roots)

B7 Knowledge Organiser – 4.7.1 – Ecology

Biotic factors 1

Biotic (living) factors which can affect a community are:

- availability of food
- new predators arriving
- new pathogens
- one species outcompeting another so the numbers are no longer sufficient to breed.

Abiotic factors 2

Abiotic (non-living) factors which can affect a community are:

- light intensity
- temperature
- moisture levels
- soil pH and mineral content
- wind intensity and direction
- carbon dioxide levels for plants
- oxygen levels for aquatic animals.

Adaptations 3

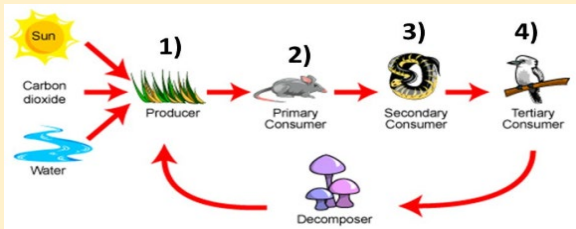
- Features that enable them to survive in the conditions in which they normally live.
- **These adaptations may be structural, behavioural or functional.**
- Some organisms live in environments that are very extreme, such as at high temperature, pressure, or salt concentration.
- **These organisms are called extremophiles.**

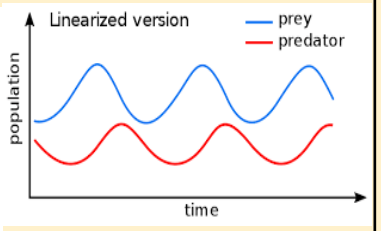
Land use/deforestation 4

- The destruction of peat bogs, and other areas of peat to produce garden compost, reduces the area of this habitat and thus the variety species that live there (biodiversity).
- **The decay or burning of the peat releases carbon dioxide into the atmosphere.**
- **Deforestation means less carbon dioxide can be absorbed**

Levels of organisation 5

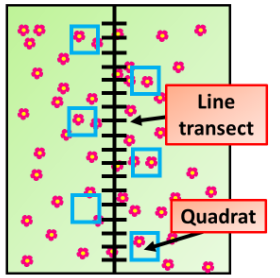
All food chains begin with a producer which synthesises molecules. This is usually a green plant or algae which photosynthesise.



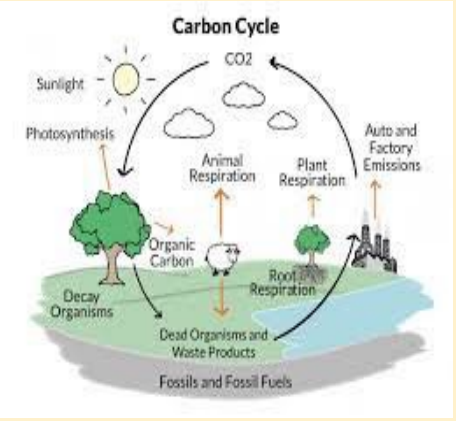


Population size (Required practical) 6

1. Divide the sample area into a grid, or use a transect line
2. use random numbers to generate a set of coordinates to place your first quadrat, or place your quadrat down every 10m if using a transect
3. count the number of different plant species within this quadrat
4. Repeat steps two and three a further 14 times using different random numbers



Carbon cycle 7



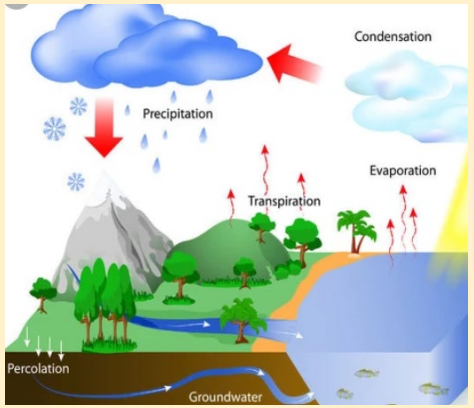
Waste management 8

Unless waste and chemical materials are properly handled, more pollution will be caused.
Pollution can occur:

- in water, from sewage, fertiliser or toxic chemicals
- in air, from smoke and acidic gases
- on land, from landfill and from toxic chemicals.

Pollution kills plants and animals which can reduce biodiversity.

Water cycle 9



Maintaining biodiversity

programmes to reduce the negative effects of humans on ecosystems and biodiversity.

- **breeding programmes** for endangered species
- **protection and regeneration of rare habitats**
- reintroduction of field margins and **hedgerows in agricultural areas** where farmers grow only one type of crop
- **reduction of deforestation and carbon dioxide emissions** by some governments • **recycling resources** rather than dumping waste in landfill.

B7 Knowledge Organiser – 4.7.1 – Ecology (Biology only)

Food production 1

Biological factors which are threatening food security include:

- the **increasing birth rate** has threatened food security in some countries
- **changing diets** in developed countries means scarce food resources are transported around the world
- **new pests and pathogens** that affect farming
- environmental changes that affect food production, such as **widespread famine** occurring in some countries if rains fail
- the **cost** of agricultural inputs
- conflicts that have arisen in some parts of the world which affect the availability of water or food. **Sustainable methods must be found to feed all people on Earth**

Decomposition 2

- **Temperature, water and availability of oxygen affect the rate of decay of biological material.**
- Gardeners and farmers try to provide optimum conditions for rapid decay of waste biological material.
- **The compost produced is used as a natural fertiliser for growing garden plants or crops.**
- Anaerobic decay produces methane gas. Biogas generators can be used to produce methane gas as a fuel.

Farming/Sustainable fisheries 3

The efficiency of food production can be improved by restricting energy transfer from food animals to the environment.

This can be done by limiting their movement and by controlling the temperature of their surroundings. Some animals are fed high protein foods to increase growth.

Fish stocks in the oceans are declining. It is important to maintain fish stocks at a level where breeding continues or certain species may disappear altogether in some areas.

Control of net size and the introduction of fishing quotas play important roles in conservation of fish stocks at a sustainable level.

Trophic levels 4

Trophic levels can be represented by numbers, starting at level 1 with plants and algae.

Level 1: Plants and algae make their own food and are called producers.

Level 2: Herbivores eat plants/algae and are called primary consumers.

Level 3: Carnivores that eat herbivores are called secondary consumers.

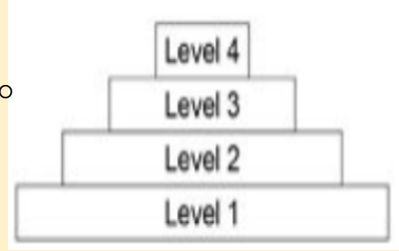
Level 4: Carnivores that eat other carnivores are called tertiary consumers.

Pyramids of biomass/Transfer of biomass 5

Pyramids of biomass can be constructed to represent the relative amount of biomass in each level of a food chain. **Trophic level 1 is at the bottom of the pyramid.**

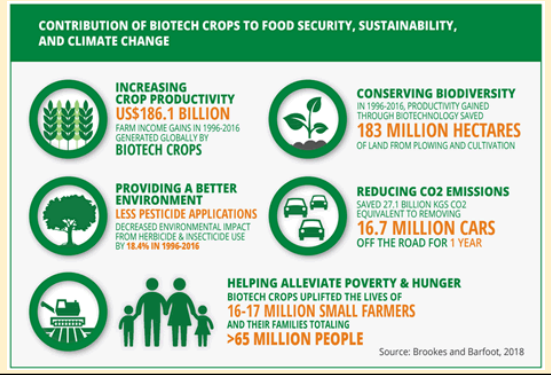
Producers are mostly plants and algae which transfer about 1% of the energy from light for photosynthesis. Only approximately 10% of the biomass from each trophic level is transferred to the level above it.

Losses of biomass are due to: • not all the ingested material is absorbed, some is egested as faeces • some absorbed material is lost as waste, such as carbon dioxide and water in respiration and water and urea in urine. Large amounts of glucose are used in respiration.



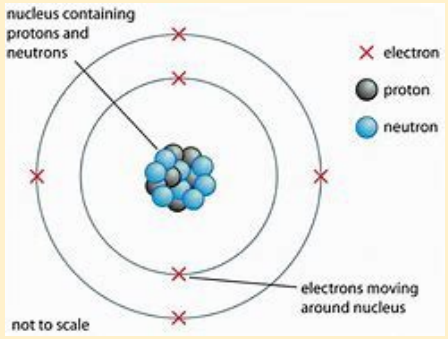
Role of biotechnology in food production 6

- Some possible biotechnical and agricultural solutions to , including genetic modification, to the demands of the growing human population. Modern biotechnology techniques enable large quantities of microorganisms to be cultured for food.
- The fungus Fusarium is useful for producing mycoprotein, a protein-rich food suitable for vegetarians.
- The fungus is grown on glucose syrup, in aerobic conditions, and the biomass is harvested and purified.
- A genetically modified bacterium produces human insulin. When harvested and purified this is used to treat people with diabetes.
- GM crops could provide more food or food with an improved nutritional value such as golden rice.



C1 Knowledge Organiser – 4.1.1 - Atomic structure

The atom 1



- Very small – $x10^{-10}$m.

Elements 2

- **Mass number** – Protons + neutrons
- **Atomic number** – Protons and electrons always balance – no overall charge

Sub-atomic particles 3

Particle	Symbol	Charge	Relative Mass
Electron	e^-	1-	0
Proton	p^+	1+	1
Neutron	n	0	1

Properties of metals 4

- High melting point
- Shiny
- Malleable
- Hard (high density)
- Conduct electricity
- Conduct heat

NON-METALS ARE THE OPPOSITE

Relative Atomic Mass 5

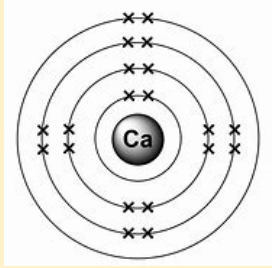
- RAM = The average value for the mass of an element
- Takes into account the abundance of the isotopes of each element

$$A_r = \frac{(mass\ 1 \times abundance\ 1) + (mass\ 2 \times abundance\ 2)}{100}$$

Electron configurations 6

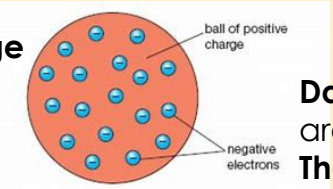
- First shell = 2
- Second shell = 8 max
- Third shell = 8 max
- Calcium = 2, 8, 8, 2

Group number = number of electrons on outer shell

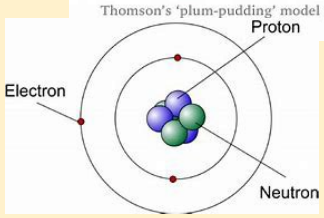


Development of the atomic model – key diagrams 7

Plum pudding –
P – ball of positive charge
E – Randomly scattered
N – No neutrons
N – No nucleus

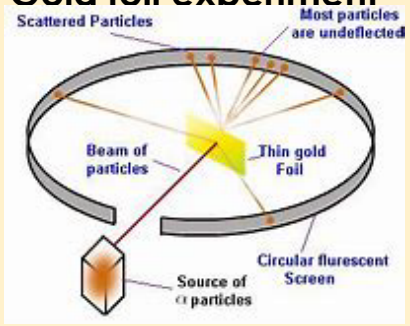


Nuclear Model –
P – In the nucleus
E – Orbit in shells
N – In the nucleus
N - Has a nucleus



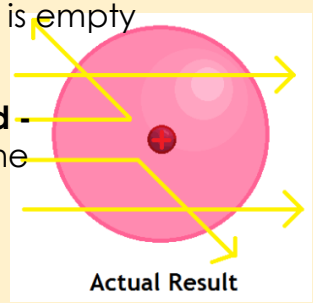
Dalton – atoms are small balls.
Thomson – plum pudding model.
Rutherford – atoms are like the solar system.
Bohr – electrons orbit atoms.

Gold foil experiment 8



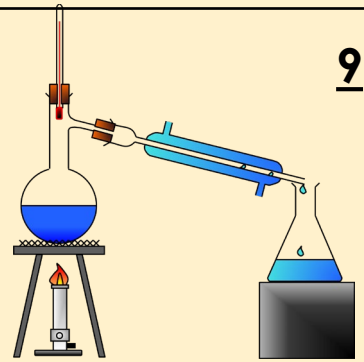
Un-deflected - Most of the atom is empty space

Deflected - Mass in the nucleus which is positive



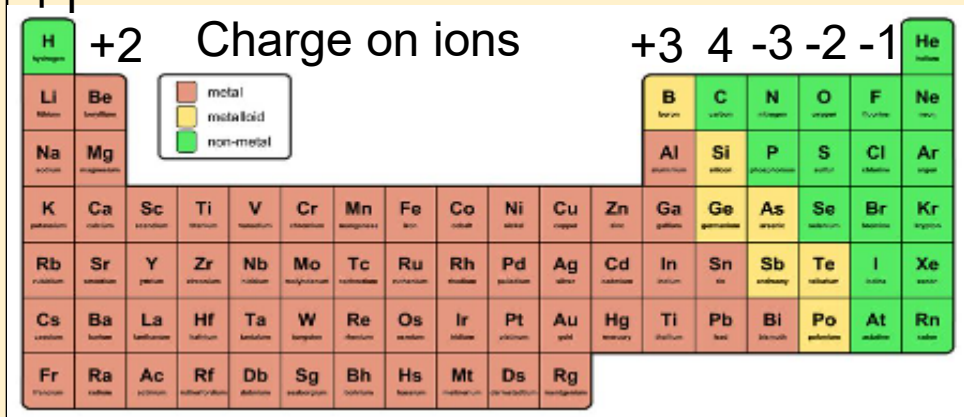
Separating mixtures. 9

- **Filtration** – insoluble solid and liquid.
- **Crystallisation** – evaporate water forms crystalline solid.
- **Distillation** – 2 liquids based on boiling point.
- **Chromatography** – pigments.



C1 Knowledge Organiser – 4.1.2 – The Periodic table

The Periodic table 1



Modern periodic table 2

- Arranged in order of atomic number
- **Group** – Column of elements that have similar chemical properties
- **Group number = number of electrons in the outer shell**
- **Period** – Row in the periodic table
- **Period = Number of shells**

Group 0 3

- Noble gases
- Unreactive / inert
- Stable arrangement of electrons
- Full outer shell
- Used in light bulbs – will not reactive with the metal filament
- Boiling point increases down the group

Group 1 5

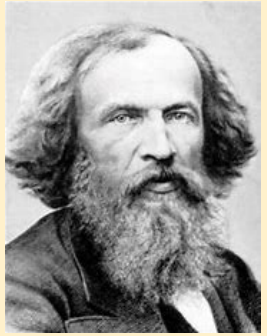
- Alkali metals,
- 1 electron in outer shell
- **More reactive as you go down the group**
- **More shielding, easier to lose outer electron**
- react with water, producing hydroxides and hydrogen gas

Group 7 6

- Halogens
- 7 electrons in outer shell
- their molecules each contain two atoms (they are diatomic)
- **Less reactive as you go down the group**
- **More shielding, harder to gain an electron**

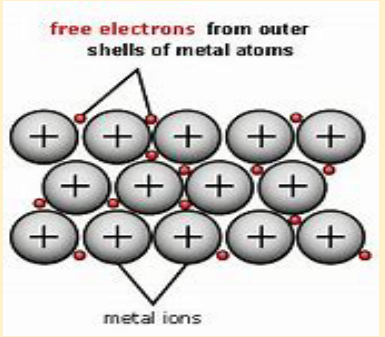
Development of the periodic table 7

- Early Periodic Table arranged by atomic weight
- **Newland** – Law of Octaves – every 8th element placed in the same group – had metals and on-metals together
- **Mendeleev** – Left gaps for undiscovered elements



Metals 8

- High melting point
- Shiny
- Malleable
- Hard (high density)
- Conduct electricity
- Conduct heat



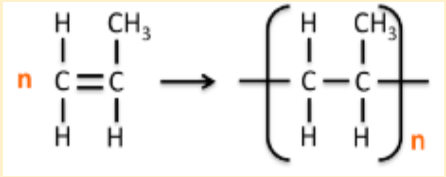
Properties of transition metals (TRIPLE ONLY) 9

- Good conductors
- High melting points
- High densities
- Very malleable and ductile
- Hard, strong
- Coloured compounds
- Used as catalysts
- Used for wires – conduct, ductile
- Used for pipes – Do not react with water

C2 Knowledge Organiser – 4.2.1 – Bonding and properties

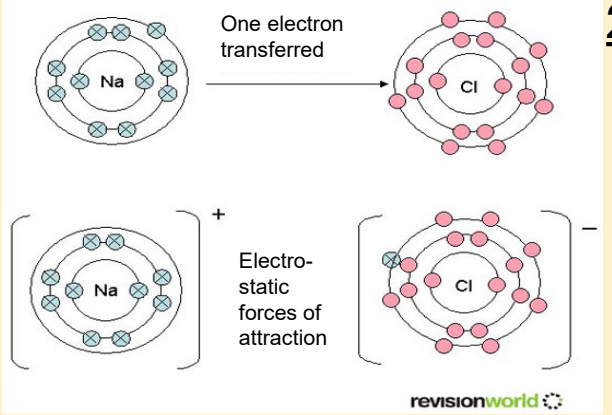
Polymers 1

- Covalent bonding
- **Monomer** – Single unit
- **Polymer** – lots of monomers joined together



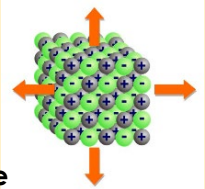
Ionic bonding 2

- Metal and non-metal
- **Transfer of electrons**
- Metal → Loses electrons forms positive ion
- Non-metal → Gains electrons forms negative ion
- **Electrostatic forces of attraction**



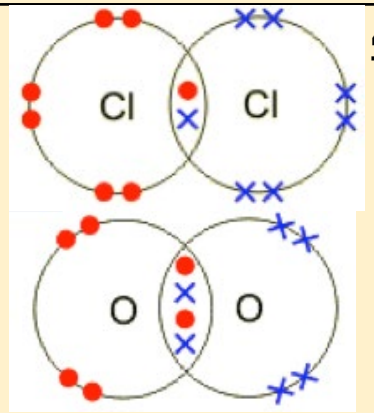
Ionic compounds 3

- Ionic lattice
- **Strong electrostatic forces** of attraction between oppositely charged ions
- **High melting point**
- Lots of **energy** to break bonds
- **Conducts when molten** or dissolved
- **Ions free to move**



Covalent structures 4

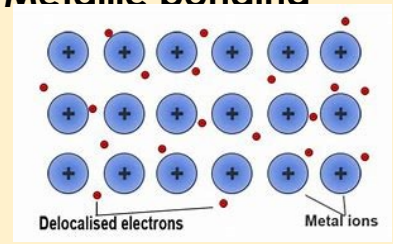
- 2 non-metals
- **Share electrons**
- **Venn diagram – dot and cross in the overlap**
- One shared pair = single bond
- Two shared pairs = Double bond
- Number of dots/crosses must add up to the group number



Covalent compounds 5

- Simple molecule
- **Weak intermolecular forces** of attraction between molecules
- **Low boiling point**
- **Little energy required to break**
- **Doesn't conduct electricity**
- No free electrons

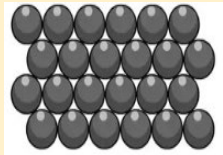
Metallic bonding 6



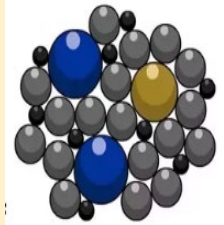
- **Delocalised electrons**
- **Free to carry a charge**
- Conducts thermal energy transferred by free electrons

Alloys 7

- **Pure metal**
- layers
- slide



- **Alloys** – 2 metals
- Layers distorted
- Can't slide



Nanoparticles 8

- Tiny particles **(1-100nm).**
- Able to penetrate biological tissues.
- **High surface area to volume ration so are good catalysts.**
- Concern about safety because not much is known about effects on body.

Diamond	Graphite	Graphene	Fullerene
4 strong covalent bonds	3 strong covalent bonds	One layer of graphite	Hexagonal ring of carbon atoms
High melting point – lots of energy to break	Lubricant – Layers of atoms slide over each other	3 strong covalent bonds	Buckminster-fullerene (C_{60})
Very hard - Used for drill bits	Delocalised electron – carries a charge	Delocalised electron – carries a charge	Carbon nanotubes - cylindrical
Does not conduct electricity	Conducts electricity	Conducts electricity	Used for nanotechnology

C3 Knowledge Organiser – Quantitative Chemistry COMBINED

Conservation of Mass 1

- ***No atoms are lost or made during a chemical reaction:*** **Mass of the products equals the mass of the reactants.**
- **Mass changes when a reactant or product is a gas:**

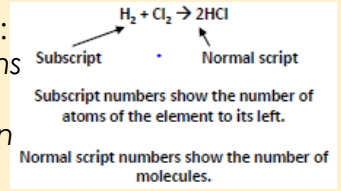
Mass appears to increase during a reaction	*One of the reactants is a gas*	Magnesium + oxygen → magnesium oxide
Mass appears to decrease during a reaction	*One of the products is a gas and has escaped*	Calcium carbonate → carbon dioxide + calcium oxide

Relative Formula Mass, M_r 2

The sum of the relative atomic masses of the atoms in the numbers shown in the formula

2Mg + O2 → 2MgO
48g + 32g = 80g
80g = 80g

Balancing symbol equations: *Represent chemical reactions and have the same number of atoms of each element on both sides of the equation*



Uncertainty 3

Whenever a measurement is taken, there is always some uncertainty about the result obtained.

1.Calculate the mean
2.Calculate the range of the results
3.Estimate of uncertainty in mean would be half the range.

Does the mean value fall within the range of uncertainty of the result?

Moles HT 4

Chemical amounts are measured in moles (mol).

Mass of one mole of a substance in grams = relative formula mass.

e.g. One mole of H_2O = 18g (1 + 1+ 16), One mole of Mg = 24g

Avogadro's Constant: 6.02 x 10^{23}

'One mole of any substance will contain the same number of particles, atoms, molecules or ions.'

6.02 x 10^{23} per mole:

One mole of H_2O will contain 6.02 x 10^{23} molecules of water
One mole of NaCl will contain 6.02 x 10^{23} Na^+ ions.

Calculating number of moles: $\text{Number of moles} = \frac{\text{mass (g)}}{A_r}$ or $\frac{\text{mass (g)}}{M_r}$

Amounts of substances in equations HT 5

Chemical reactions show the number of moles reacting and the number of moles made.

e.g.

Mg + 2HCl → $MgCl_2$+ H_2

One mole of magnesium reacts with two moles of hydrochloric acid to make one mole of magnesium chloride and one mole of hydrogen

Calculating amounts of substances in equations HT 6

If you have a 60g of Mg, what mass of HCl do you need to convert it to $MgCl_2$?

A_r : Mg =24 so mass of 1 mole of Mg = 24g
M_r : HCl (1 + 35.5) so mass of 1 mole of HCl = 36.5g

So 60g of Mg is 60/24 = 2.5 moles

Balanced symbol equation tells us that for every one mole of Mg, you need two moles of HCl to react with it.

So you need 2.5x2 = 5 moles of HCl

You will need 5 x 36.5g of HCl= 182.5g

Limiting Reactants HT 7

In a reaction with 2 reactants, it is common to use an **excess** of one reactant to make sure that **all** of the other reactant is used up. This reactant that is completely used up is called the **limiting reactant**, as it **limits the amount of the products** that can be made.

You can **calculate the moles or mass of the products formed**.

Concentration HT 8

- The concentration of a solution (aq) can be measured in **g/dm³** (mass/volume)

Concentration = mass ÷ volume

- The concentration of the **solution** depends on the mass of the **solute** and the volume of the **solvent**. Increasing mass increases concentration, increasing volume decreases concentration.

Using Moles to balance equations HT 9

Remember: moles = mass ÷ M_r

- If you calculate the number of moles of each reactant and product in a reaction it will give you the **ratio of reactants and products**, so you can write the **balanced equation**.

e.g 48g of Mg reacts with 32g of O_2 to produce 80g of MgO

so: 48÷24 = **2mol of Mg**; 32÷(2x16)= **1mol of O_2**; 80÷(24+16)= **2mol of MgO**

this is a **ratio** of **2:1:2** (Mg: O_2: MgO):

2Mg + O_2 —> **2**MgO (**Balanced)**

C3 Knowledge Organiser – Quantitative Chemistry CHEM ONLY

Atom Economy 1

A measure of the amount of starting materials that end up as useful product.

$$\text{Atom economy} = \frac{\text{Relative formula mass of desired product from equation}}{\text{Sum of relative formula mass of all reactants from equation}} \times 100$$

High atom economy is important for sustainable development and economic reasons.

Calculate the atom economy for making hydrogen by reacting zinc with hydrochloric acid:

$Zn + 2HCl \rightarrow ZnCl2 + H2$

Mr of H_2 = 1 + 1 = 2

Mr of $Zn + 2HCl$ = 65 + 1 + 1 + 35.5 + 35.5 = 138

Atom economy = 2/138 ×100

= 2/138×100 = 1.45%

This method is unlikely to be chosen as it has a low atom economy.

Percentage Yield 2

$$\%\ \text{Yield} = \frac{\text{Mass of product made}}{\text{Max. theoretical mass}} \times 100$$

Percentage yield is comparing the amount of product obtained as a percentage of the maximum theoretical amount.

It is not always possible to obtain the calculated amount of a product because:

-The reaction may not go to completion because it is reversible.

-Some of the product may be lost when it is separated from the reaction mixture.

-Some of the reactants may react in ways different to the expected reaction.

HT ONLY:

200g of calcium carbonate is heated. It decomposes to make calcium oxide and carbon dioxide. *Calculate the theoretical mass of calcium oxide made:*

$CaCO_3 \rightarrow CaO + CO_2$

M_r of $CaCO_3$ = 40 + 12 + (16x3) = 100

M_r of CaO = 40 + 16 = 56

100g of $CaCO_3$ would make 56 g of CaO

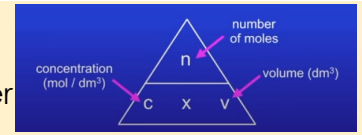
So 200g would make 112g

Using Concentration of solutions HT 3

Concentration of a solution is the amount of solute per volume of solution.

$$\text{Concentration (mol/dm}^3\text{)} = \frac{\text{amount (mol)}}{\text{volume (dm}^3\text{)}}$$

If the volumes of two solutions that react completely are known and the concentrations of one solution is known, the concentration of the other solution can be calculated. E.g.



A solution of sodium nitrate has a concentration of 0.8 mol/dm³. Calculate the mass of sodium nitrate in 0.5dm³. Mr $NaNO_3$ = 85.

1. Calculate the moles using the equation:
number of moles = concentration (mol/dm³) x volume (dm³).
2. Calculate mass using the equation:
mass (g) = number of moles x M_r

1) Number of moles = 0.8 x 0.5 = **0.4 moles**
2) Mass = 0.4 x 85 = **34g of sodium nitrate in the solution**

Use of amount of substance in relation to volumes of gases HT 4

Equal amounts of moles or gases occupy the same volume under the same conditions of temperature and pressure.

Molar volume of gas:

'The volume of one mole of any gas at room temperature and pressure (20°C and 1 atmospheric pressure) is 24 dm³'

$$\text{No. of moles of gas} = \frac{\text{vol of gas (dm}^3\text{)}}{24\text{dm}^3}$$

What is the volume of 11.6 g of butane (C_4H_{10}) gas at RTP?

M_r: (4 x 12) + (10 x 1) = 58

11.6/58 = 0.20 mol

Volume = 0.20 x 24 = 4.8 dm³

6g of a hydrocarbon gas had a volume of 4.8 dm³. Calculate its molecular mass.

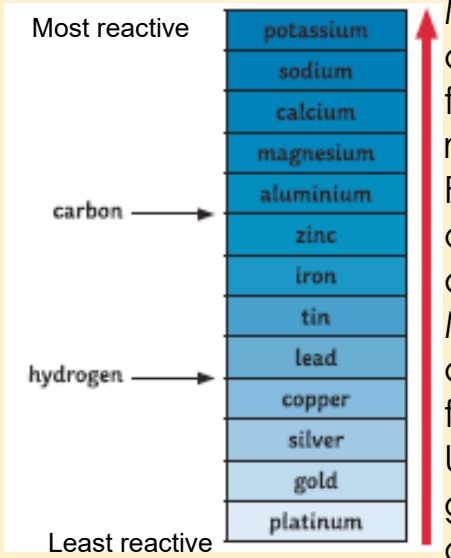
1 mole = 24 dm³, so 4.8/24 = 0.2 mol

M_r = 6 / 0.2 = 30

If 6g = 0.2 mol, 1 mol equals 30 g

C4 Knowledge Organiser – Chemical Changes

Reactivity Series 1



Metals less reactive than carbon can be extracted from their oxides by reduction.
For example: zinc oxide + carbon → zinc + carbon dioxide.
Metals more reactive than carbon require electrolysis for extraction.
Unreactive metals, such as gold, are found in the Earth as the metal itself. They can be mined from the ground.

Reactions of metals with water: 2

Metal + Water → Metal Hydroxide + Hydrogen

Reactions of metals with dilute acid:
Metal + Acid → Salt + Hydrogen

Ores 3

Rock containing enough mineral or metal for extraction.
There must be enough mineral or metal to make a profit. Metals are usually in the form of compounds within the ore (typically metal oxides).

More Important Reactions: 4

Metal + Oxygen → Metal oxide

Thermal decomposition: breakdown of compounds using heat:
$CaCO_3$ → $CaO + CO_2$

Recycling Metals 5

Recycling is used to conserves ores, reduce energy required for extraction and minimise pollution. It also reduces the use of landfill and the destruction of habitats. Some metals cannot be reused because of damage, need for paint removal, rusting/corrosion, metal fatigue.

Displacement reactions 6

A less reactive metal is displaced from its compound by a more reactive metal.
e.g.
Tin oxide + Sodium → Sodium oxide + Tin

Extracting metals using electrolysis 7

Metals can be extracted from molten compounds using electrolysis.
This process is used when the metal is too reactive to be extracted by reduction with carbon.
The process is expensive due to large amounts of energy needed to produce the electrical current.
Example: aluminium is extracted in this way.

C4 Knowledge Organiser – Chemical Changes

Redox Reactions and Ionic Half Equations (H Tier) 1

Oxidation **I**s L**oss** (of electrons)
Reduction **I**s **G**ain (of electrons)
The ionic equation for the reaction between iron and copper (II) ions is:
$Fe + Cu^{2+} \rightarrow Fe^{2+} + Cu$
The half-equation for iron (II) is:
$Fe \rightarrow Fe^{2+} + 2e^-$
The half-equation for copper (II) ions is:
$Cu^{2+} + 2e^- \rightarrow Cu$

More Acid Reactions 2

Neutralisation reactions: Acid + Alkali → Salt + Water
Acid + BASE → Salt + Water
Acid + Carbonate → Salt + Water + Carbon Dioxide
Base = insoluble alkalis e.g. insoluble metal oxides and hydroxides

pH Scale 3

Acids	*Acids produce hydrogen ions (H^+) in aqueous solutions.*
Alkalis	*Aqueous solutions of alkalis contain hydroxide ions (OH^-).*

You can use universal indicator or a pH probe to measure the acidity or alkalinity of a solution against the pH scale.

In neutralisation reactions, hydrogen ions react with hydroxide ions to produce water:
$H^+ + OH^- \rightarrow H_2O$

Strong and weak acids (H Tier) 4

Strong acids	*Completely ionised in aqueous solutions e.g. hydrochloric, nitric and sulfuric acids.*
Weak acids	*Only partially ionised in aqueous solutions e.g. ethanoic acid, citric acid.*
Hydrogen ion concentration	*As the pH decreases by one unit (becoming a stronger acid), the hydrogen ion concentration increases by a factor of 10.*

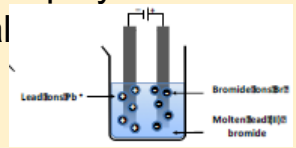
Naming salts 5

Acid Used	Salt Produced
hydrochloric	chloride
nitric	nitrate
sulfuric	sulfate

First part comes from the metal in the compound, second from which acid it reacted with.

Half equations (H tier) 6

You can display what is happening at each electrode using hal
At the cathode: Pb2+ + 2e-→Pb
At the anode: 2Br-→Br2+ 2e-



Basic electrolysis 7

Positive
Anode
Negative
Is
Cathode

Process of electrolysis	*Splitting up using electricity*	When an ionic compound is melted or dissolved in water, the ions are free to move. These are then able to conduct electricity and are called electrolytes. Passing an electric current though electrolytes causes the ions to move to the electrodes.
Electrode	*Anode Cathode*	The positive electrode is called the anode. The negative electrode is called the cathode.
Where do the ions go?	*Cations Anions*	Cations are positive ions and they move to the negative cathode. Anions are negative ions and they move to the positive anode.

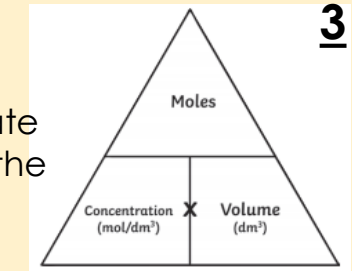
C4 Knowledge Organiser –Chemical Changes

Making Soluble Salts RP. 1

1. Make a saturated solution by stirring copper oxide into the sulfuric acid until no more will dissolve.
2. Filter the solution to remove the excess copper oxide solid.
3. Half fill a beaker with water and set this over a Bunsen burner to heat the water. Place an evaporating dish on top of the beaker.
4. Add some of the solution to the evaporating basin and heat until crystals begin to form.
5. Once cooled, pour the remaining liquid into a crystallising dish and leave to cool for 24 hours.
6. Remove the crystals with a spatula and pat dry between paper towels

Titration RP (Chem only). 3

Using the results from a titration experiment, it is possible to calculate the concentration of a solution or the volume of solution required to neutralise an acid or alkali.



Calculating the chemical quantities in titrations involving concentrations in mol/dm³ and in g/dm³ (HT ONLY):

$2NaOH(aq) + H_2SO_4(aq) \rightarrow Na_2SO_4(aq) + 2H_2O(l)$

It takes 12.20cm³ of sulfuric acid to neutralise 24.00cm³ of sodium hydroxide solution, which has a concentration of 0.50mol/dm³.

Calculate the concentration of the sulfuric acid in g/dm³

0.5 mol/dm³ x (24/1000) dm³ = 0.012 mol of NaOH

The equation shows that 2 mol of NaOH reacts with 1 mol of H_2SO_4, so the number of moles in 12.20cm³ of sulfuric acid is (0.012/2) = 0.006 mol of sulfuric acid

Calculate the concentration of sulfuric acid in mol/ dm³

0.006 mol x (1000/12.2) dm³ =0.49mol/dm³

Calculate the concentration of sulfuric acid in g/ dm³

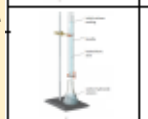
H_2SO_4 = (2x1) + 32 + (4x16) = 98g

0.49 x 98g = 48.2g/dm³

Titration RP (Chem only). 2

Titrations are used to work out the precise volumes of acid and alkali solutions that react with each other.

1. Use the pipette to add 25 cm³ of alkali to a conical flask and add a few drops of indicator.
Indicator: methyl orange. Turns from orange to red upon neutralisation



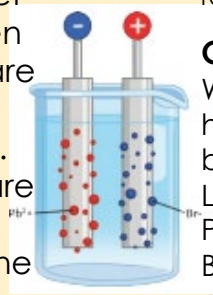
2. Fill the burette with acid and note the starting volume. Slowly add the acid from the burette to the alkali in the conical flask, swirling to mix.

3. Stop adding the acid when the end-point is reached (the appropriate colour change in the indicator happens). Note the final volume reading. Repeat steps 1 to 3 until you get consistent readings.

Electrolysis of aqueous solutions and molten ionic compounds. 4

At the negative electrode	Metal will be produced on the electrode if it is less reactive than hydrogen. Hydrogen will be produced if the metal is more reactive than hydrogen.
At the positive electrode	Oxygen is formed at positive electrode. If you have a halide ion (Cl^-, I^-, Br^-) then you will get chlorine, bromine or iodine formed at that electrode.

Lead bromide is an ionic compound. Ionic compounds, when solid, are not able to conduct electricity. When molten or in solution, the ions are free to move and are able to carry a charge. The positive lead ions are attracted toward the negative cathode at the same time as the negative bromide ions are attracted toward the positive anode.



The ions discharged when an aqueous solution is electrolysed using inert electrodes depend on the relative reactivity of the elements involved.

Aluminium is manufactured by electrolysis from aluminium oxide which has a very high melting point. It takes large amount of energy and money to turn it molten. Therefore CRYOLITE is added to aluminium oxide to lower the melting point and reduce cost.

OIL RIG (Higher Tier Only).

We represent what is happening at the electrodes by using half equations.

Lead ions reduced (gain e-):

$Pb^2 + 2e \rightarrow Pb$

Bromide ions reduced (lose e-):

$2Br\ Br_2 + 2e$

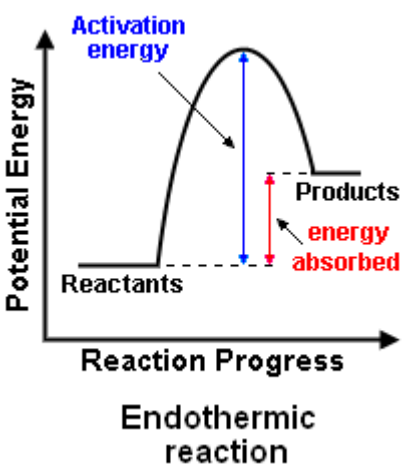
Oxidation Is Loss (OIL)

Reduction Is Gain (RIG)

C4 Knowledge Organiser – 5.4.1-3 – Chemical Changes

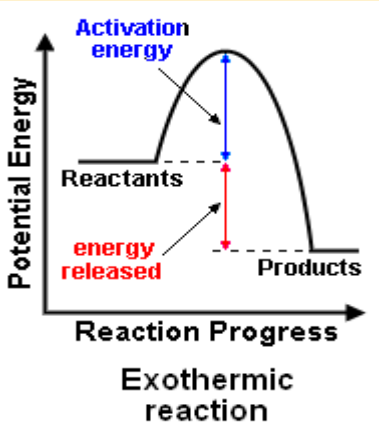
Endothermic reactions 1

- Takes in energy from the surroundings
- **Temperature of the surroundings decreases**
- Examples:
- Thermal decomposition
- Citric acid + Sodium hydrogencarbonate
- Sports injury packs



Exothermic reactions 2

- Transfers energy to the surroundings
- **Temperature of the surroundings increases**
- Examples:
- Combustion
- Oxidation reactions
- Neutralisation reactions
- Hand warmers



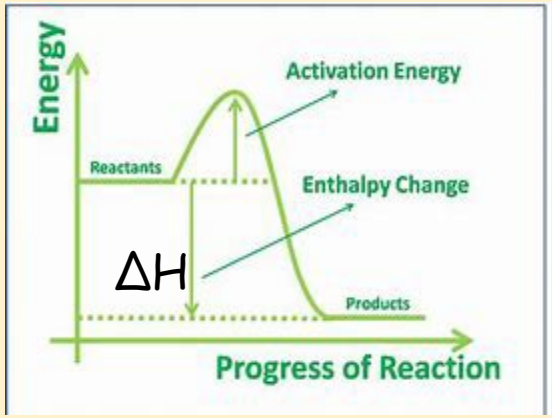
Reaction profiles 3

Activation energy – The minimum amount of energy that particles require to react

ΔH – Overall energy change

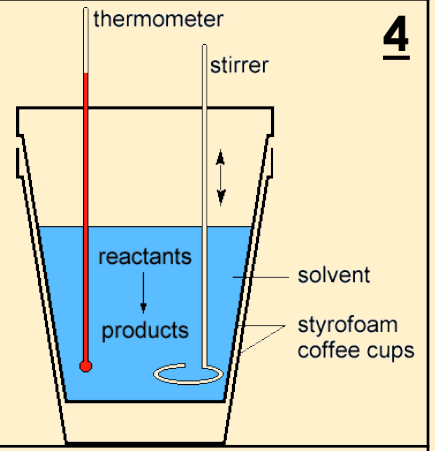
+ ΔH = Endothermic

- ΔH = Exothermic



Required practical 4

- Styrofoam cup reduces energy transfer
- **Independent – Reactants**
- **Dependent – Temperature change**
- **Improvements** – add a lid to reduce energy loss
- Add a stirrer to ensure reactants fully mixed



Bond enthalpy calculations (HT only) 5

Example: Calculate the enthalpy change when water is formed from H_2 and O_2.

STEP 1 Bonds Broken

2 x (H-H) = 2 x 436 = 872

1 x (O=O) = 498

Total = 872 + 498 = 1370

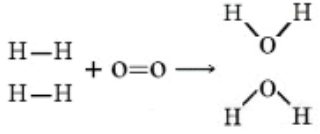
STEP 2 Bonds Made

4 x (O-H) = 4 x 464 = 1856

STEP 3

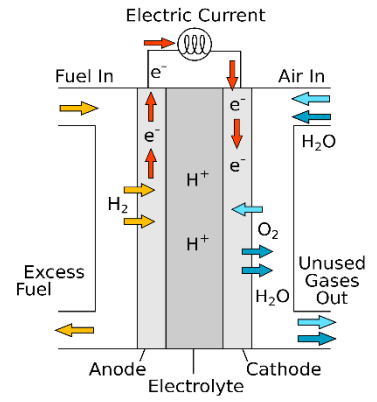
Enthalpy change = bonds broken – bonds made

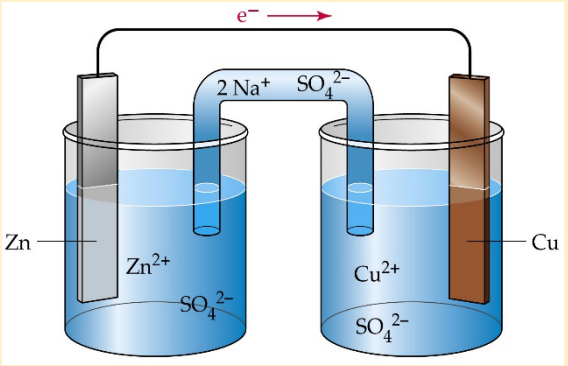
= 1370 – 1856 = -486



Bond	Bond Enthalpy
H-H	436
H-O	464
O=O	498

Chemical and Fuel cells (Chemistry only) 6





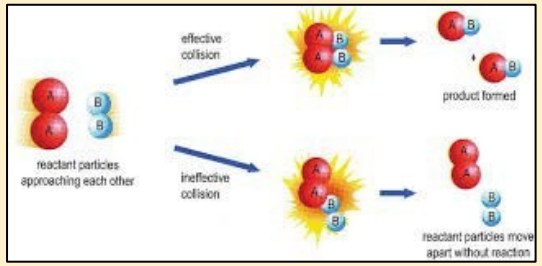
Year 10 Science: C6: Rates and Equilibrium

- Rate means speed.
- The speed of a reaction can be affected by changing the way the particles move.
- Increasing the amount of successful collisions increases rate.

Collision theory → factors that affect rate → Reversible reactions → Le Chatelier

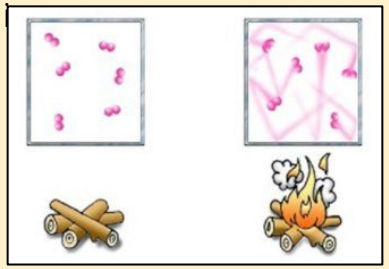
1. Collision Theory

For a chemical reaction to occur, the reactant molecules must collide with enough energy. The minimum kinetic energy required for a reaction to occur is called the activation energy (E_A).



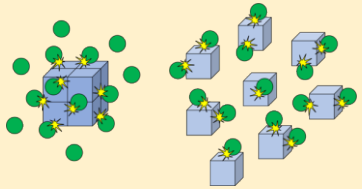
2. Temperature

Increase the temperature = reactant particles move more quickly therefore more frequent collisions.



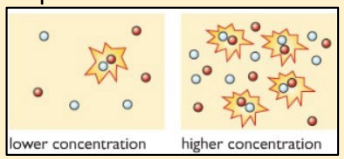
3. Surface area

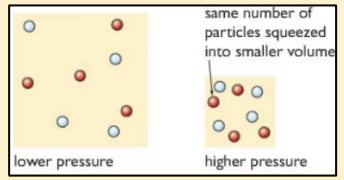
Increasing the **surface area means** more **reactant particles** are exposed so frequency of collisions increases.



4. Concentration

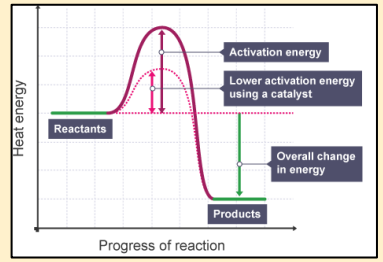
Increasing **concentration or pressure** = the **reactant particles** are closer together so more frequent collisions.





5. Catalysts

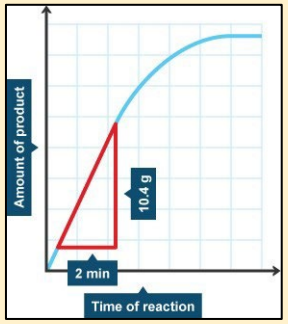
A catalyst provides an alternative **reaction pathway** that has a lower **activation energy** than the uncatalysed reaction.
energy.



6. Rate Calculations

$$\text{Average rate} = \frac{\text{Change in measurable quantity}}{\text{Change in time}}$$

Change in measurable quantity: Concentration or mass or volume of reactants or products



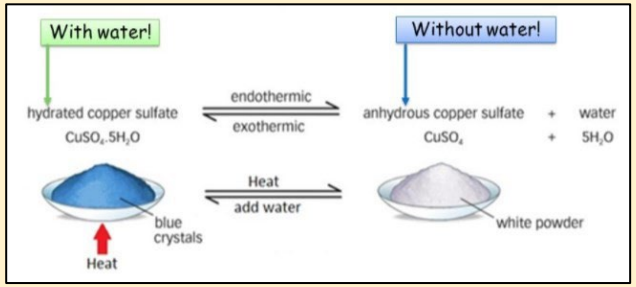
$$\frac{10.4\text{g}}{2\text{ min}} = 5.2\ \textbf{g/min}$$

7. Reversible reactions and Equilibrium

In some chemical reactions, they can be reversed,

$$A + B \rightleftharpoons C + D$$

The symbol ⇌ has two half arrowheads, one pointing in each direction.
Equilibrium happens when the products are being made at the same **rate** as the reactants.



8. Le Chatelier (Higher tier only)

The equilibrium position can be changed by altering the reaction conditions, such as by:

Change	Equilibrium
Pressure increased	Position moves towards the fewer molecules of gas
Concentration of a reactant increased	Position moves away from that reactant
Temperature increased	Position moves in the direction of the endothermic reaction

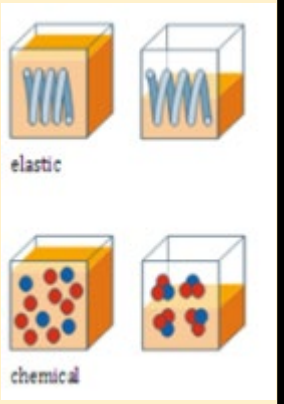
P1 Knowledge Organiser – 4.1.1 – Energy

Energy Stores

- Gravitational potential
- Magnetic
- Internal thermal
- Chemical
- Kinetic
- Electrostatic
- Elastic potential
- Nuclear
- As one store empties, another store is filled by the same amount
- **Conservation of energy**
- **Energy usually wasted as thermal energy**

Energy pathways

- Mechanical
- Internal thermal
- Radiation
- Electrostatic



Energy Transfers in a System

- Energy can be **transferred usefully, stored or dissipated**, but cannot be created or destroyed
- **Dissipation is reduced by lubrication or Insulation**
- Rate of cooling of a building is affected by the thickness and thermal conductivity of the walls

Power

Power is the rate at which energy is transferred or the rate at which work is done

Power = Energy Transferred / Time
Power = Work Done / Time

Efficiency

Is a measure of useful energy output of a system

Efficiency = useful output energy / total input energy
Efficiency = useful power output / total power input

Kinetic Energy

Kinetic energy stores describe the energy that an object has because it is moving. It is calculated using the formula:

Kinetic Energy = 0.5 x mass x (speed)^2

Elastic Potential Energy

Elastic potential energy stores describe the energy that is stored in a spring when you squash or stretch it. **Elastic Potential Energy = 0.5 x spring constant x (extension)^2**

Assuming the limit of proportionality has not been exceeded.

Gravitational Potential Energy

Gravitational potential energy stores describe the energy that is stored in an object because of its position above the ground

g.p.e = Mass x Gravitational Field Strength x Height

Objects with mass have weight due to gravitational field strength.

Weight = Mass x Gravitational Field Strength

This means that: **g.p.e = Weight x Height**

Change in Thermal Energy

Thermal energy stores describe the energy a substance has because of its temperature

Change in Thermal Energy = Mass x Specific Heat Capacity x Temperature Change

The specific heat capacity of a substance is the amount of energy required to raise the temperature of 1kg of the substance by 1°C.

Quantity	Symbol	Unit
Kinetic Energy	E_k	J
Elastic Potential Energy	E_e	J
Gravitational Potential Energy	E_p	J
Change in Thermal Energy	ΔE	J
Energy Transferred	E	J
Work Done	W	J
Mass	m	Kg
Speed	v	m/s
Spring Constant	k	N/m
Extension	e	m
Height	h	m
Gravitational Field Strength	g	N/kg
Weight	w	N
Specific Heat Capacity	c	J/kg°C
Temperature Change	$\Delta\theta$	°C
Power	P	W
Time	t	s

Energy source	Renewable	Non-renewable
Advantages		
Disadvantages		

P1 Knowledge Organiser – 4.1.1 – Energy

Renewable Energy: Resources that are replenished at the same rate as they are used.

Non Renewable Energy: Resources that are replenished slower than the rate as which they are used.

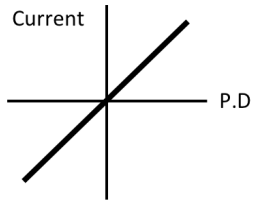
Energy Resource	Description	Renewable/ Non Renewable	Way Used	Reliability	Environmental Impact
Fossil Fuel	Coal, oil and natural gas that are extracted from the Earth and burned.	Non-Renewable	Transport, electricity generation and heating.	Reliable	Produce greenhouse gases.
Nuclear Fuel	Energy from atoms. Uranium is a nuclear fuel and transfers energy when the nucleus splits in two.	Non-Renewable	Electricity generation.	Reliable	No greenhouse gases, but radioactive waste is made.
Biofuel	A fuel taken from living or recently living things. An example of a biofuel is animal waste.	Renewable	Transport, electricity generation and heating.	Reliable	It is carbon neutral.
Wind	The force of wind turns blades and a generator at the top of a narrow tower.	Renewable	Electricity generation.	Unreliable as when there is no wind they don't work.	Unsightly and make a noise. Don't produce greenhouse gases.
Hydroelectricity	Can be generated when rainwater collects behind a reservoir and flows downhill. This turns a turbine.	Renewable	Electricity generation.	Affected by droughts if the reservoirs dry up.	Large reservoirs of water needed and habitats can be flooded to do this. Don't produce greenhouse gases.
Geothermal	Water is pumped under the Earth and turns to steam. This turns a turbine to turn a generator.	Renewable	Electricity generation and heating.	Reliable	Doesn't produce greenhouse gases.
Tidal	Water is trapped from high tide behind a barrage and then released into the sea through turbines.	Renewable	Electricity generation.	Reliable	Affect river estuaries and the habitats of animals. Don't produce greenhouse gases.
Solar	Transfers energy from the Sun using solar panels. They can be used to generate electricity or heat water.	Renewable	Electricity generation and heating.	No energy produced at night and affected by windy weather.	Cover large areas to generate enough power. Don't produce greenhouse gases.
Water Waves	The waves make a floating generator move up and down to generate electricity.	Renewable	Electricity generation.	Affected by storms and don't make a constant supply of electricity.	Can spoil the coastline and affect habitats. Don't produce greenhouse gases.

P2 Knowledge Organiser – 4.2.1 – Electricity

Component	Symbol	Component	Symbol
Open Switch		LED	
Closed Switch		Lamp	
Cell		Fuse	
Battery		Voltmeter	
Diode		Ammeter	
Resistor		Thermistor	
Variable Resistor		LDR	

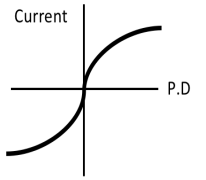
Resistors

- The current through an ohmic conductor (at a constant temperature) is **directly proportional** to the potential difference across the resistor.



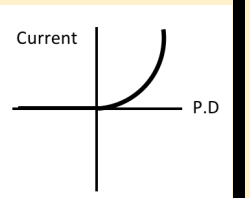
Filament Lamp

The resistance increases as the temperature increases.



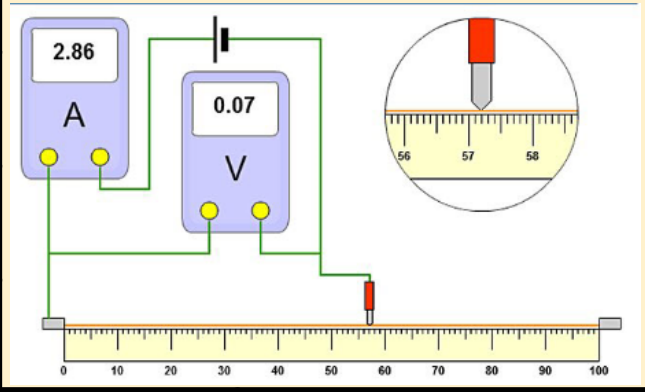
Diode

The **current flows in one direction only**. The diode has a very high resistance in the reverse direction.



Required practical

- **Independent variable** – Length of wire
- **Dependent variable** – current and PD to calculate resistance
- **Control variable** – Width of wire/ type of metal



Current, Resistance and Potential Difference

- **The current depends on the resistance and the potential difference**
- The greater the resistance of the component the smaller the current for a given potential difference

Potential Difference = Current x Resistance

V=IR

Series Circuits

- **Current is the same** at any point in the circuit
- The total **potential difference of the power supply is shared** between the components.
- Total resistance is the **sum of the resistance of each component**:

***R* total = *R*1 + *R*2**

Parallel Circuits

- The **potential difference is the same**
- **Current is shared** between each branch
- Total resistance of two resistors is less than the resistance of the smallest individual resistor.

Thermistors and Light Dependent Resistors

- Resistance of a thermistor **decreases as the temperature increases**.
- The resistance of an LDR **decreases as light intensity increases.**

Electrical Charge and Current

- Circuit must include a source of potential difference.
- Electric current is a flow of electrical charge.
- **The size of the electric current is the rate of flow of electrical charge.**

Charge Flow = Current × Time

Quantity	Symbol	Unit
Charge	*Q*	C
Current	*I*	A
Time	*t*	s
Potential Difference	*V*	V
Resistance	*R*	Ω

P2 Knowledge Organiser – 4.2.1 – Electricity

Direct and Alternating Potential Difference

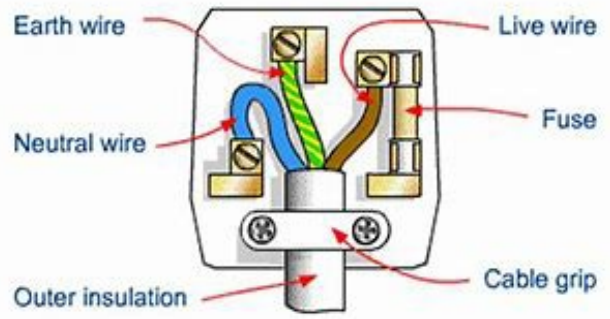
Mains electricity is an ac supply. In the United Kingdom the domestic electricity supply has a frequency of 50 Hz and is about 230 V.

Mains electricity

Most electrical appliances are connected to the mains using three-core cable. The insulation covering each wire is colour coded for easy identification:

- **Live Wire – Brown – Carries current**
- **Neutral Wire – Blue – Completes the circuit**
- **Earth Wire – Green and Yellow Stripes - safety wire to stop the appliance becoming live.**

The earth wire is at 0 V, it only carries a current if there is a fault.



Energy Transfers in Everyday Appliances

The amount of energy an appliance transfers depends on how long the appliance is switched on for and the power output of the appliance.

Energy Transferred = Power x Time

Energy Transferred = Charge x Potential Difference

Often the power of a domestic appliance is measured in kW. There are 1000W in 1kW.

Quantity	Symbol	Unit
Energy Transferred	*E*	J
Power	*P*	W
Charge	Q	C
Potential Difference	*V*	V
Current	*I*	A
Resistance	*R*	Ω

Power

The rate of energy transfer (power) in any circuit is related to the potential difference across the circuit and the current through it.

Power = Potential Difference x Current

Power = (Current)^2 x Resistance

National Grid

- A system of cables and transformers that links power stations to consumers
- **Step-up transformers increase the potential difference** from the power station before reaching the cables.
- **Increasing the potential difference decreases the current, meaning less energy is wasted as heat**
- The transmission **cables have a low resistance**, meaning less energy is wasted as heat.
- **This increases the efficiency** of the National Grid.
- **Step-down transformers decrease the potential difference.** This must happen before the supply reaches consumer for safety.
- **For domestic homes the potential difference is decreased to 230V**.

Static electricity (TRIPLE)

- When insulating materials are rubbed together they become electrically charged
- **Negatively charged electrons are rubbed off one material onto another**
- The material that lost electrons becomes positively charged
- The material that gains electrons becomes negatively charged

P3 Knowledge Organiser – 4.3.1 – Particle model

Quantity	Symbol	Unit
Density	ρ	kg/m^3
Mass	m	kg
Volume	V	m^3
Change in Thermal Energy	ΔE	J
Specific Heat Capacity	c	J/kg°C
Temperature Change	$\Delta\theta$	°C
Energy	E	J
Specific Latent Heat	L	J/kg
Pressure	p	Pa
Volume	V	m^3
Constant	*constant*	

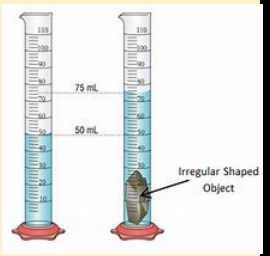
Pressure in gases (TRIPLE)
Increasing the volume of a gas, at a constant temperature, leads to a decrease in pressure

Constant = Pressure x Volume

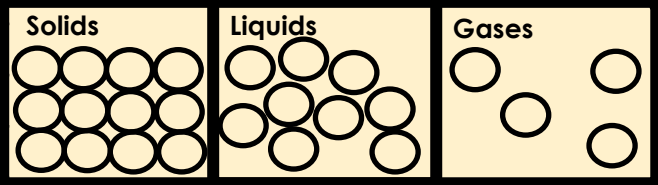
Density
Density is the measure of the mass per unit volume of a substance.

Density = Mass/Volume

Measuring the Density of a Solid Object
For an irregular shaped object lower it into a measuring cylinder partly filled with water and record the displacement. This is the volume.



Internal Energy
- Is the energy that is **stored inside a system**.
- Internal energy is the **total kinetic and potential energy** of all the particles
- When heated, the energy stored by the particles increases.
- This will **raise the temperature of the system or will cause a change in state.**



Particle Motion in Gases
- The **temperature of the gas is related to the average kinetic energy** of the molecules.
- Changing the temperature of a gas, changes the pressure exerted by the gas.
- The **pressure of a gas on a solid surface is caused by the impact** of the gas particles with the surface.
- When a **gas is heated the particles gain kinetic energy** and so pressure increases.

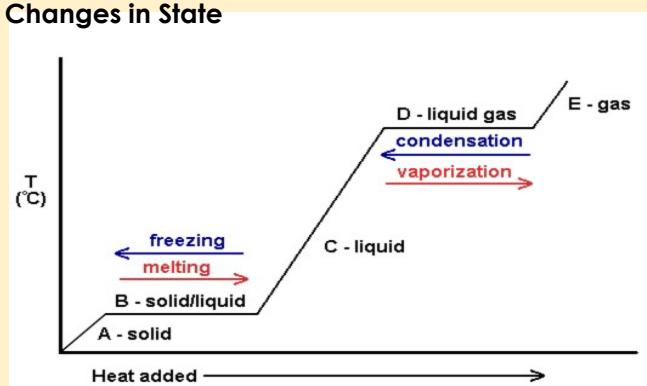
Particles in a Liquid
- **Weaker forces of attraction** between the particles
- Not held together in a regular structure,
- **When heated**, particles obtain enough energy to **break forces of attraction and become a gas**.

Particles in a Solid
- Particles are arranged in a **regular structure**.
- There are **strong forces of attraction** between the particles and they **vibrate about fixed positions.**
- When heated, **particles energy increases and vibrate more.**
- If the solid is heated up enough, it will melt.

Temperature Change
The specific heat capacity of a substance is the amount of energy required to raise the temperature of 1kg of the substance by 1°C

Change in Thermal Energy = Mass x Specific Heat Capacity x Temperature Change

Changes in State



Changes of Heat and Specific Latent Heat
- The specific latent heat of a substance is the amount of **energy required to change the state of one kilogram of the substance** with no change in temperature

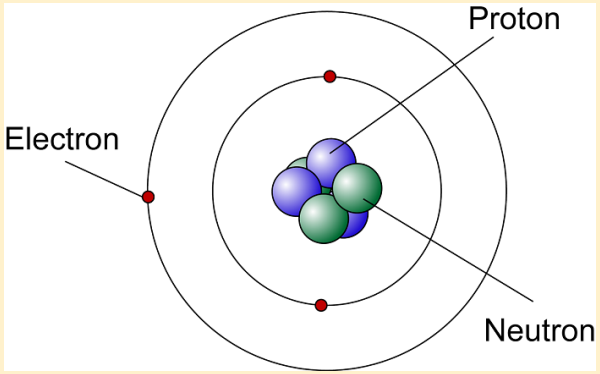
energy for a change of state = mass × specific latent heat
- **Specific latent heat of fusion is the change of state from solid to liquid**
- **Specific latent heat of vaporisation is the change of state from liquid to vapour.**

Increasing the Pressure of Gases (TRIPLE)
Doing work on a gas increases internal energy of the gas and causes an increase in temperature. E.G. if a tyre is inflated with a pump there would be work done so the internal energy of the gas increases which causes an increase of the temperature of the gas.

P4 Knowledge Organiser – 4.4.1 – Atomic structure

The Structure of an Atom

Atoms have a radius of about 1×10^{-10}m.



- In an atom the number of electrons is equal to the number of protons in the nucleus and atoms have no overall electrical charge.

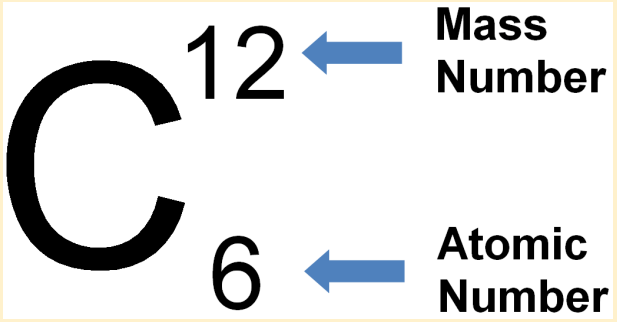
Particle	Mass (amu)	Charge
Proton	1	+1
Neutron	1	0
Electron	0	-1

Development of the Model of the Atom

- Dalton suggested that atoms were tiny spheres that could not be divided.
- JJ Thompson then discovered the electron. He also suggested the Plum Pudding Model.
- Then due to results from the alpha particle scattering experiment the nuclear model of the atom was suggested.
- Niels Bohr suggested that electrons orbit the nucleus at specific distances and then James Chadwick proved the existence of neutrons.

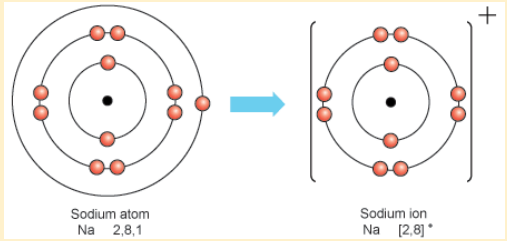
Mass Number and Atomic Number

- The atomic mass is the total number of protons and number of neutrons.
- Atomic number is the number of protons in an atom



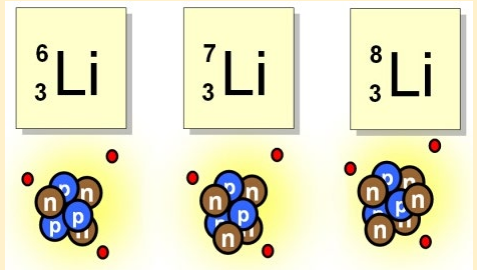
Ions

A positive ion can be created is an atom loses one or more electrons.



Isotopes

An isotope is an atom of the same element with a different number of neutrons.

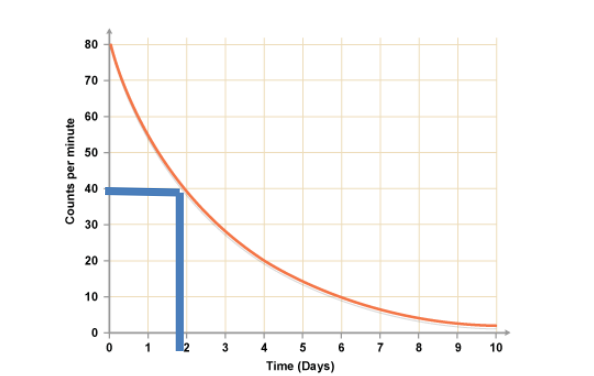


Nuclear model	Plum pudding
Protons in nucleus	Positive ball of charge
Electrons in shells	Electrons randomly scattered
Neutrons in nucleus	No neutrons
Nucleus present	No Nucleus

P4 Knowledge Organiser – 4.4.1 – Atomic structure

Half-Life

The time it takes for the number of nuclei of the isotope in a sample to halve, or the time it takes for the count rate to fall to half its start level.



Radioactive Decay and Nuclear Radiation

- Some atomic nuclei are unstable.
- A nucleus can give out radiation in order to become more stable.
- This is a random process called radioactive decay.
- The nuclear radiation emitted can be in the form of alpha, beta or gamma radiation.

Gamma Decay

The emission of a gamma ray does not cause the mass or the charge of the nucleus to change.

Contamination

Contamination is the unwanted presence of materials containing radioactive atoms ending up on other materials.

Irradiation

Irradiation is the process of exposing an object to nuclear radiation. The irradiated object does not become radioactive.

Alpha Decay

An alpha particle (helium nucleus) is emitted from the nucleus.

$$^{219}_{86}\text{radon} \longrightarrow {}^{215}_{84}\text{polonium} + {}^{4}_{2}\text{He}$$

The $^{4}_{2}\text{He}$ is the symbol for the alpha particle. Notice that the mass number and atomic number are balanced on each side.

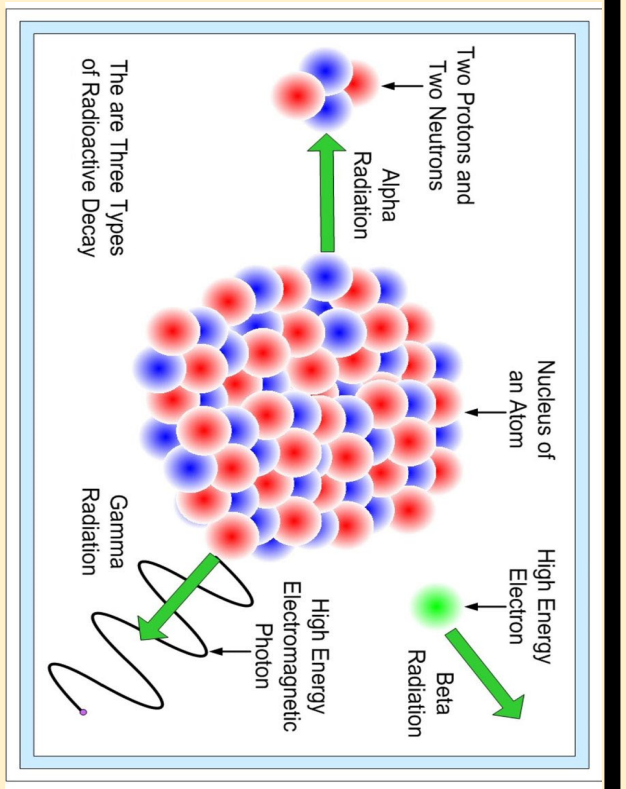
Beta Decay

A beta particle (electron) is emitted from the nucleus when a neutron turns into a proton.

$$^{14}_{6}\text{carbon} \longrightarrow {}^{14}_{7}\text{nitrogen} + {}^{0}_{-1}\text{e}$$

The $^{0}_{-1}\text{e}$ is the symbol for the beta particle. Notice that the mass number and atomic number are balanced on each side. The element has mutated because it now has an extra proton.

Radiation	Symbol	Consists of..	Blocked By..	Range in Air	Ionising Power
Alpha	α	2 neutrons and 2 protons	Paper	5cm	High
Beta	β	High speed electron	Thin Aluminium	1m	Medium
Gamma	γ	Electromagnetic Radiation	Thick Lead/ Concrete	Infinite	Low



P5 Knowledge Organiser – 4.5.1/4.5.2 – Forces and interactions

Contact forces	Non-contact forces
Friction	Gravitational
Air resistance	Electrostatic
Tension	Magnetic

Friction
A force that acts in the opposite direction of a moving object. Examples include air resistance and water resistance. Work done against frictional forces acting on an object causes a rise in temperature

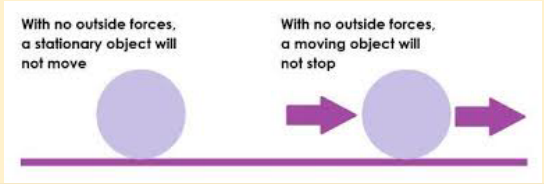
Gravity
Weight is a force acting on an object due to gravity. The force of gravity close to the Earth is due to the gravitational field around the Earth. The weight of an object depends on the gravitational field strength at the point where the object is

Work done and energy transfer
When a force causes an object to move through a distance work is done on the object. So a force does work on an object when the force causes a displacement of the object, E.g. 1J of work is done when a force of 1N causes a displacement of 1 m. 1J = 1 Newton-metre

Work done (J) = Force (N) x Distance (m)

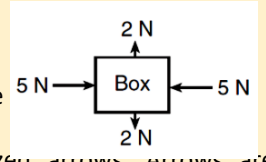
Scalar and Vector Quantities
Scalar quantities have magnitude only while vector quantities have magnitude and an associated direction. Scalars include time and speed while vectors include velocity. A vector quantity may be represented by an arrow. The length of the arrow represents the magnitude, and the direction of the arrow the direction of the vector.

Newtons First Law
If the resultant force acting on an object is zero and the object is stationary, the object will stay stationary. However, if the object is moving, the object continues to move at the same speed and in the same direction. This means the object continues to move at the same velocity. The velocity of an object will only change if there is a resultant force acting on the object. **The tendency of objects to continue in their state of rest or of uniform motion is called inertia.**



Newtons Third Law
Whenever two objects interact, the forces they exert on each other are equal and opposite. For example a man pushes on a wall with 100N and experiences a force of 100N in the opposite direction from the wall.

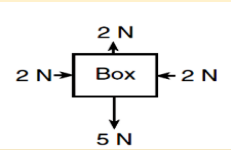
Free Body diagrams
Arrows represent the forces acting on an object. The bigger the arrow, the bigger the force. Balanced forces are represented by the same sized arrows. Arrows are always in pairs and act in opposite directions



Distance
Distance is how far an object moves. Distance does not involve direction. **Distance is a scalar quantity.**

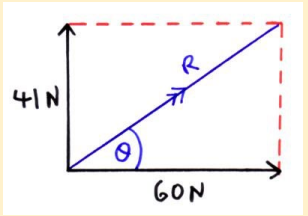
Displacement
Displacement includes both the distance an object moves, measured in a straight line from the start point to the finish point and the direction of that straight line. **Displacement is a vector quantity.**

Resultant Force
A single force that has the same effect as all the forces acting on the object.
For example if there is a force of 100N to the right and 50N to the left then overall there will be a resultant force of 50N to the right. If forces are acting in the same direction add them together, if they are acting in opposite directions subtract them from each other.



Resultant forces = 5-2= 3N

Resolution of Forces
You need to be able to draw vector diagrams to illustrate resolution of forces and determine the magnitude and direction of this force. You will need a protractor and a ruler. Use a ruler to draw the forces to scale and use a protractor to measure the accurately the angle between these forces. Draw the resolving force line to complete the diagram. This should make a triangle. Measure the size of this line to measure the magnitude of this force.



P5 Knowledge Organiser – 4.5.6 – Forces and motion

Newtons Second Law
This is the rule that the acceleration of an object is proportional to the resultant force acting on an object, and inversely proportional to the mass of the object. The equation for this is:

Resultant Force = Mass x Acceleration

Inertial mass is a measure of how difficult it is to change the velocity of an object and is defined as the ration of force over acceleration.

Changing Speed
The velocity of an object increases if the resultant force is in the same direction as the velocity while an object will slow down if the resultant force acts in the opposite direction to its velocity.

Terminal Velocity
An object falling through a fluid initially accelerates due to the force of gravity. Eventually the resultant force will be zero and the object will move at its terminal velocity.

Quantity	Symbol	Unit
Resultant Force	F	N
Mass	m	kg
Acceleration	*a*	m/s^2
Weight	W	N
Gravitational Field Strength	g	N/kg
Velocity	v	m/s
Momentum	p	Kg m/s
Spring Constant	k	N/m
Extension	e	m

Stopping Distance
The stopping distance of a vehicle is **the sum of the distance the vehicle travels during the driver's reaction time (thinking distance) and the distance it travels under the braking force (braking distance).** For a given braking force the greater the speed of the vehicle, the greater the stopping distance.

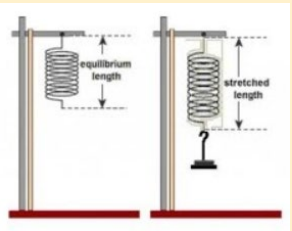
Momentum
Momentum can be calculated using the equation:

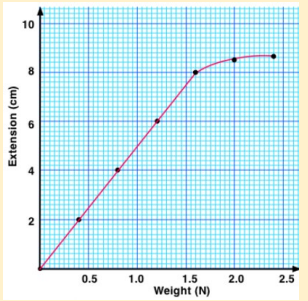
Momentum = Mass x Velocity

In a closed system, the total momentum before an event is equal to the total momentum after the event. This is called conservation of momentum.

Hooke's law Required practical
The extension of a spring is directly proportional to the force applied as long as the limit of proportionality is not exceeded.

Force Applied = Spring Constant x Extension

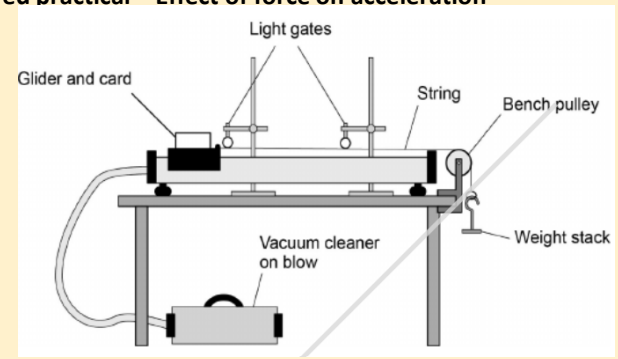




Forces and Elasticity
To change the shape of an object (by stretching, bending or compressing), more than one force has to be applied. If an object is elastic it will return to its original shape when the forces deforming it re removed.

Elastic potential energy = 0.5 x spring constant x (extension)^2

Required practical – Effect of force on acceleration



Braking distance
Is affected by the road and weather conditions, e.g. wet or icy conditions. The greater the speed of a vehicle the greater the braking force needed to stop the vehicle in a certain distance. The greater the braking force the greater the deceleration of the vehicle. Large decelerations may lead to brakes overheating and/or loss of control.

Weight
The weight of an object can be calculated using the equation:

Weight = mass x gravitational field strength

The weight of an object and the mass o an object are directly proportional and weight is measured using a calibrated spring-balance otherwise known as a newtonmeter.

P5 Knowledge Organiser – 4.5.6 – Forces and motion

Speed

Speed is a **scalar quantity** as it does not involve direction. The speed of a moving object is normally changing and so is rarely constant. The speed a person travels at can depend on their age, terrain (is it hilly or flat) fitness and distance travelled. Typically people travel at 1.5m/s when walking, 3m/s when running and 6m/s when cycling. The speed of sound and of the wind may change also. Sound typically travels at 330m/s. The formula to calculate the speed of an object is:

Speed = Distance / Time

Velocity

The velocity of an object is its speed in a particular direction. This means velocity is a vector quantity.

If you are travelling around a roundabout (in a circle) your speed may be constant, but the velocity will be changing as you are constantly changing direction.

Quantity	Symbol	Unit
Speed	*v*	m/s
Distance	*s*	m
Time	*t*	s
Change in Velocity	Δv	m/s
Initial Velocity	*u*	m/s
Final Velocity	*v*	m/s
Acceleration	*a*	m/s^2

Acceleration

This is a measurement of the rate in which an objects velocity changes. If an object is slowing down than it is said to be decelerating. It can be calculated using the equation:

Acceleration = change in velocity / time taken.

Be careful when calculating change in velocity. For example if you are told an object from standing accelerates to 12m/s then the change in velocity is 12m/s. However if you are told that the object was moving at 5m/s and accelerates to 12m/s the change in velocity is now 7m/s.

Uniform Acceleration

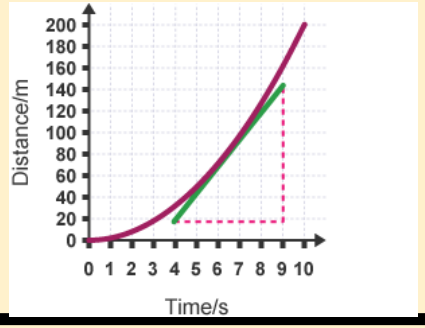
The following equation applies to uniform acceleration (you are given this one on your data sheet):

$(\text{final velocity})^2 - (\text{initial velocity})^2 = 2 \times \text{acceleration} \times \text{distance}$

Near the Earth's surface any object falling freely under gravity has an acceleration of about $9.8 m/s^2$

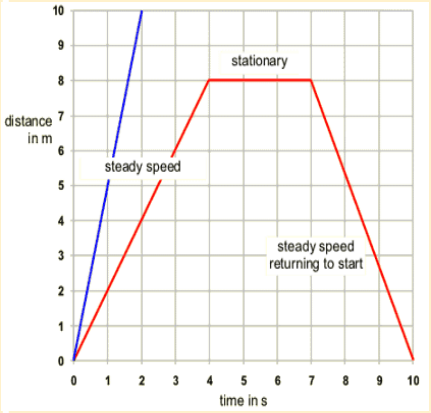
An object falling through a fluid initially accelerates due to the force of gravity. Eventually the resultant force will be zero and the object will move at its terminal velocity.

Drawing a Tangent on a Point of Acceleration



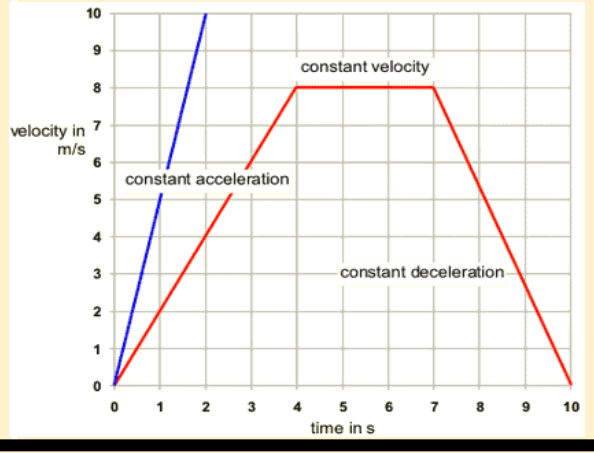
Distance Time Graphs

If an object moves along a straight line, the distance travelled can be represented by a distance–time graph. The speed of an object can be calculated from the gradient of its distance–time graph. If an object is accelerating, its speed at any particular time can be determined by drawing a tangent and measuring the gradient of the distance–time graph at that time.



Velocity Time Graphs

The acceleration of an object can be calculated from the gradient of a velocity–time graph. The distance travelled by the object can be calculated by measuring the area underneath the line of a velocity time graph.



P5 Knowledge Organiser – 4.5.5 – Pressure in fluids (Physics only)

Pressure in a Fluid

A fluid can either be a liquid or a gas and the pressure in fluids causes a force normal (at right angles) to any surface. The pressure of a fluid can be calculating using the equation:

Pressure = Force / Area

The pressure due to a column of liquid can be calculated using the equation:

Pressure = Height of Column x Density of Liquid x Gravitational Field Strength

Pressure of a Liquid Column

The pressure due to a column of liquid can be calculated using the equation:

Pressure = Height of Column x Density of Liquid x Gravitational Field Strength

This equation shows that the pressure of a liquid depends on depth and also depends on the density of the liquid. The greater the height of fluid above a point the greater the pressure. This is because there is a greater mass of fluid above which means that there will be a greater weight of fluid exerting a force on that point. The greater the density of the fluid above a point the greater the pressure. This is because there is more mass per unit volume of fluid.

Upthrust

A partially submerged object experiences a greater pressure on the bottom surface than on the top. This creases a resultant force acting upwards. This resultant force is called upthrust. This is also the case for objects that are fully submerged underwater.

Floating

An object floats when its weight acting downwards is equal to the upthrust acting upwards. If you have a floating object loaded with additional mass it will float lower and lower in the water. More water will be displaced and so the upthrust will increase. The upthrust and weight will still be of equal sizes acting in opposite directions.

Quantity	Symbol	Unit
Pressure	p	Pa
Force	F	N
Area	A	m^2
Height of Column	h	m
Density	ρ	kg/m^3
Gravitational Field Strength	g	N/kg

Atmospheric Pressure

The atmosphere is a thin layer or air around the Earth and it gets less dense with increasing altitude. Atmospheric pressure occurs because air molecules collide with a surface. As the distance from the ground increases the number of air molecules decreases. This means that at a higher height there is always less air above a surface than there is at a lower height. This explains where atmospheric pressure decreases with an increase in height.

Sinking

An object skins when its weight is greater than the upthrust. If you have a floating object and load on too much extra weight it will sink. This occurs because the object has displaced as much water as it cam and the upthrust can no longer support the total weight.

P5 Knowledge Organiser – 4.5.4 – Moments, levers and gears (Physics only)

Moments

A force of a system of forces which may cause an object to rotate. The turning effect of a force is called the moment force and it can be calculated using the equation below:

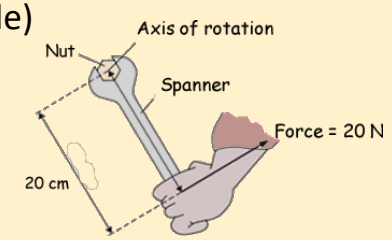
Moment of Force = Force x Distance

Distance is the distance from the pivot to the line of action of the force.

Quantity	Symbol	Unit
Moment of Force	*M*	N/m
Force	*F*	N
Distance	*d*	m

Levers

A simple lever and a simple gear system can both be used to transmit the rotational effects of forces. A spanner is an example of a lever. It can be used to produce a turning effect and unscrew a bolt. The weight of the object is called the load and the force that the person applies is called the effort. The point at which the object turns is called the pivot. To increase the moment of the force you could increase the size of the force or increase the distance between the effort and the pivot (use a spanner with a longer handle)



Gears

Gears are like levers as they can multiply the effect of a turning force. When a car is in low gear a small gear wheel turns a larger gear wheel multiplying the turning effect of the engine force producing a bigger turning effect on the car wheels.

Low Gear = Low Speed and a High Turning Effect

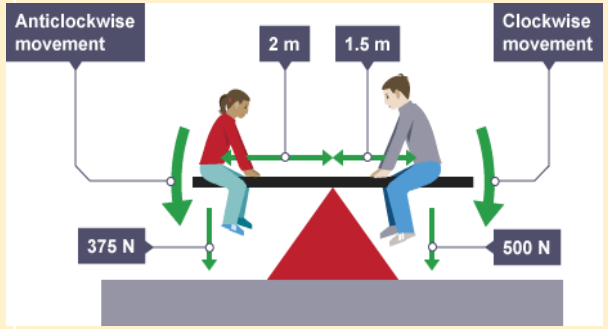
When a car is in a high gear a large gear wheel turns a smaller gear wheel on the output shaft. This causes the output shaft to spin faster causing a higher speeds but the turning effect is lower.

High Gear = High Speed and a Low Turning Effect.

Balanced Moments

If an object is balanced the total clockwise moment about a pivot equals the total anticlockwise moment about the pivot.

This means that:
The sum of all of the clockwise moments about any point = the sum of all the anticlockwise moments about the point.



Year 10 – Geography - Challenge of Natural Hazards

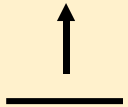
What is global atmospheric circulation?

Latitude

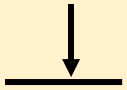
At the equator there is more concentrated sunlight meaning temperatures are higher. Places further from the equator will have lower temperatures.

What is air pressure?

- Air pressure is the weight of the air above pressing down on the Earth.
- Low pressure means the air is rising. Less force being pushed down on Earth.



- High air pressure means the air is sinking. More pressure pushing down on Earth.



How does air circulate globally?

- Winds are large scale movements of air caused by differences in air pressure.
- Winds move from the areas of high pressure to the areas of low pressure.
- Equator – air rises forming a low pressure belt.
- 30º north & south of the equator – air falls and makes a high pressure area
- 30º to 60º –air rise and areas of low pressure are formed.
- 90º – at the poles air falls and areas o high pressure are formed.

Location	Weather
Equator	Heavy rainfall
30º north or south of the equator	Cloudless skies, low rainfall
30 – 60º north or south of the equator	Heavy rainfall
90º north or south of the equator.	Cloudless skies, low rainfall.

Where are tropical storms distributed?

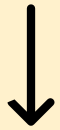
- Tropical storms are located between 5 and 30 degrees north or south of the equator.
- Tropical storms are very powerful low pressure weather systems.
- Cyclones are in the Indian Ocean, Typhoons in the Western Pacific and Hurricanes in the Atlantic and Eastern Pacific.

Why do tropical storms form?

- They form over the oceans, where water provides moisture.
- Ocean temperature needs to be over 27ºC.
- Water vapour will rapidly evaporate from the ocean under low pressure conditions,
- The air then cools, condenses and forms storm clouds (cumulonimbus clouds)
- The rising air draws up more air bringing large volumes of moisture from the ocean, developing the storm further.
- The Coriolis effect (spinning movement of the Earth) causes the air to spin upwards.
- With low wind shear, there is no tilting of the structure of the storm so no heat or moisture is lost.

Why do tropical storms have a seasonal pattern?

They occur in late summer/autumn when sea temperatures are highest down to a depth of at least 50 metres.



Why do tropical storms lose energy?

Tropical storms lose energy when they cross land as they lose their source of moisture and have friction with the land surface.

What are the features of a tropical storm?

- Centre is called the eye - light wind & no rain.
- Eyewall has the highest wind speed.
- Weather –strong winds, heavy rainfall and large cumulonimbus rain clouds.
- They are measured on the Saffir Simpson Scale in 5 categories. Category 5 is the worst.
- Usually last for 7 – 14 days.

What is the link between tropical storms & climate change?

- **Distribution** – Will happen further from the equator, as more oceans will be over 27ºc.
- **Frequency** - If oceans stay over 27 ºc for longer, there will be more storms per year.
- **Intensity** – With higher sea temperatures, more evaporation will occur, causing the storms to be more powerful.

How can we manage tropical storms?

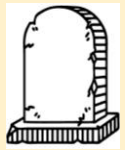
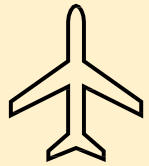
- **Prediction –** Satellites monitor the storm location. Computer models can then calculate the predicted path.
- **Planning** Plan evacuation routes, train emergency services and move future developments away from the coast.
- **Protection -** Flood defences can be built along rivers, buildings placed on stilts, so safe from floodwater.

Year 10 – Geography - Challenge of Natural Hazards

Case Study - What were the effects of Typhoon Haiyan?

Typhoon Haiyan hit the Philippines in November 2013. It was a category 5 storm with winds over 195mph. The worst hit island was Eastern Visayas, where the city of Tacloban is located.

Primary Effects

- 6,200 people died.
- 29,000 injured.
- 905 of the city of Tacloban was destroyed.
- Tacloban airport was badly damaged.
- Over 1 million homes were destroyed.
- 1.1. million tonnes of crops were destroyed.
- Water supply got contaminated.

Secondary Effects

- Over 4 million people homeless.
- People suffered from cholera due to contaminated water supplies.
- 6 million workers lost income.
- 33 million coconut trees damaged affecting farmers income.
- Flooding led to landslides meaning roads were blocked, which stopped aid getting through.

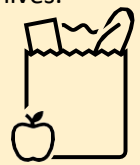
Environmental effects

- Oil tanker ran aground causing an oil leak, which affected the mangrove swamps.
- Oil leak affected the biodiversity in the mangrove swamps.
- Trees damaged by strong winds damaging habitats.
- Sewage leaks into rivers affecting food chains.
- Coastal habitats damaged by strong winds and the storm surge.

What were the responses to Typhoon Haiyan?

Immediate responses

These are given straight away. The aim is to reduce secondary effects and save lives.


- Medical aid sent.
- 45,000 hygiene kits sent in 2 weeks.
- 1,200 evacuation centres set up.
- 250,000 litres of water sent in 2 weeks.
- One million food packs sent in 2 weeks.

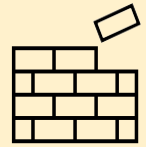
Remember these responses were partially successful.

- **Evacuation** – over 1 million people were evacuated.
  However, some people fled to Tacloban Stadium and died when it flooded.

- **Aid** – all of the help sent over helped people.
  However, there were delays due to the airport being damaged and the roads being blocked due to landslides.

Long term responses

These happen in the months and years after the event. The aim is to rebuild the area and get society back to normal.



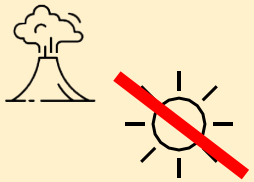
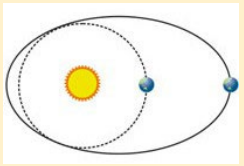
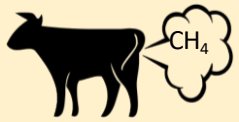

- No build zone in Eastern Visayas.
- Build back betterscheme - cost £6.2 billion.
- Mangrove trees were replanted.
- New storm surge warninggives 48 hours notice.

Remember these responses were partially successful.

- **Build back better scheme** – meant many homes were updated and built back stronger.
  However, the scheme cost a lot of money so after 3 years many people not had homes improved.

Year 10 – Geography - Challenge of Natural Hazards

What are the causes of climate change?

Natural Cause – Volcanic eruptions Release CO_2 into the atmosphere, increasing temperatures. However, the ash that goes into the atmosphere can reduce temperatures on a temporary basis.	
Natural Cause – Orbital Change On a circular orbit the earth is closer to the sun increasing temperatures. On an elliptical orbit the earth is further from the sun decreasing temperatures.	
Human Cause – Deforestation Removal of trees causes less carbon to be absorbed as the carbon sink is removed. When burnt stored carbon is also released.	
Human Cause – Burning Fossil Fuels We burn coal oil and gas to generate electricity. This produces CO_2,	
Human Cause - Agriculture Keeping animals in large quantities for meat production or dairy products produces a lot of methane.	

What causes the temperature to increase?

- Increase in greenhouse gases in the atmosphere.
- More solar radiation (sun's heat) is trapped in the atmosphere by the thicker layer of greenhouse gases.
- As less heat escapes into space, this leads to an increase in global temperatures.

What are the effects of climate change?

- Melting ice caps.
- Sea level rise – flooding.
- Loss of tourism businesses.
- Loss of habitats.
- Less biodiversity.
- Droughts.
- Reduced crop yields.
- More extreme weather.



Evidence

Short term	Long term
• Sea levels rise. • Ice caps melting. • More extreme weather. • Increase in global temperatures. • Higher CO2 concentration in the atmosphere.	• Pollen analysis. • Tree rings.

Episode 11: What strategies can be used to manage climate change?

Mitigation

Aims to reduce the cause of climate change. The strategies are alternative energy, planting trees, carbon capture & international agreements.

Adaptation

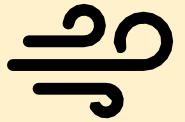
Aims to help us cope with the effects of climate change. The strategies include coping with rising sea levels, drought resistant crops & managing water supply.

Is the weather in the UK getting more extreme?

- Extreme weather is weather that is unexpected, unusual, severe, unseasonal or abnormal for a particular area.
- It is a weather event that can cause a threat to life or can cause damage to property.
- Heatwaves, heavy snow and thunderstorms are examples of extreme weather in the UK.

Evidence

- The 10 hottest years have been since 1990.
- The hottest recorded temperature was recorded in 2022 (40.3°C).
- December 2010 was the coldest month for over 100 years.
- December 2015 was the wettest ever recorded month
- Flooding events are becoming more frequent.



How does extreme weather affect the UK?

Case study – UK Heatwave 2022

Cause: High pressure from the Azores High moved further north than normal and settled over the UK. This was mixed with below average rainfall for several months previously.

Social impacts: 5 deaths (water incidents), 8000 properties with electricity in Yorkshire, flights cancelled from Luton airport.

Economic Impacts: homes and farmland damaged or destroyed due to wildfires, people told to stay at home so business closed / lack of people working.

Environmental impacts: wildfires, Aysgarth waterfall, Yorkshire, dried up completely.

Management: Met Office issues a Red Weather warning for extreme heat, roads sprayed with water to stop tarmac melting, railways reduced speed / cancelled trains.

Year 10 – Geography – Living World

What interactions are found in small scale ecosystems?

An ecosystem is a natural system. It is the interaction of living (biotic) and non-living (abiotic) components.

Food Webs

Producer is a plant that gains its energy from the sun through photosynthesis.
Primary consumers are creatures that eat producers.
Secondary consumers are creatures that eat primary consumers
Decomposers break down dead plants and animals and return the nutrients to the soil.

Nutrient Cycle

- Within an ecosystem there is a continuous movement of nutrients in a cycle.
- The plants take nutrients from the soil to grow by their roots.
- When the animals or plants die nutrients move to the litter layer.
- Decomposers return the nutrients to the soil for the plants.
- However, some nutrients are lost by surface run off or leaching.

What is biomass?

Biomass is the total quantity or weight of organisms in a given area.

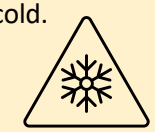
Why will the amount biomass change?

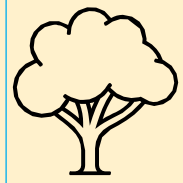
- The entire organism is not digested e.g. parts such as roots, bones, or feathers aren't eaten.
- Loss of energy through movement or respiration.

What are the characteristics of global ecosystems?

1. Tundra

- High latitudes where rainfall is low.
- Summers are short, and winters are long and cold.
- The ground is generally frozen (permafrost)
- Plants include Arctic moss and bearberry





2. Deciduous forest

- 40-60° north and south of the equator.
- Up to 1500 mm of rain per year.
- Warm summers and cool winters.
- Deciduous trees will shed their leaves.

3. Coniferous Forest

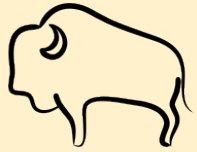
- 60° north of the equator.
- Long, cold winters (-20°C) & short, mild summer.
- Less than 500mm per year.
- Trees do not shed leaves.

4. Tropical / Savanna grassland

- Between 5°-15° north & south of the equator.
- 800 – 900mm of rainfall per year.
- Hot with a wet and dry season.
- Animals – lions, elephant & giraffe.

5. Temperate grassland

- 40-60° north and south of the equator.
- 250-500mm of rainfall each year.
- Hot summers & very cold winters.

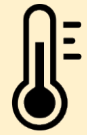


6. Mediterranean

- 30-40° north & south of the equator on west coasts.
- Hot, dry summers & warm, wet winters.
- Mainly scrub vegetation.

What are the characteristics of tropical rainforests

Climate



- Average temperature 28 – 30°C.
- Temperature range is small - 2 °C.
- Rainfall – over 2000 mm of rain per year.
- The weather is similar all year - no seasons.
- The climate is due to the latitude they are located at – 23.5° north and south of the equator.

Soil

The soil is infertile, because some nutrients are washed away by the heavy rainfall and the majority of the rest are taken by the roots of the plants to help them grow.

How is the rainforest interdependent?

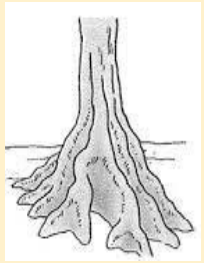
Interdependent means when things rely on each other.
The animals rely on the plants for habitats and food sources.
The plants rely on the climate to help them grow.

How have plants & animals adapted to tropical rainforest conditions?

Layers of the Rainforest	
Emergent	Highest layer with trees growing between 30 - 50 metres tall, Have a wider base.
Canopy	Continuous layer of leaves and branches 15 – 30 metres high.
Under Canopy	Consists of trees that reach 10 -15 metres high.
Forest floor	Lowest layer with small trees that have adapted to living in the shade.

Year 10 – Geography – Living World

How have plants & animals adapted to tropical rainforest conditions?



Plant adaptations
- Buttress roots – help support emergent trees.
- Drip tips - pointed tips to remove water quickly.

Animal adaptations
- Toucan – long beak.
- Poisoned dart frog – brightly coloured skin.
- Sloth – slow moving & camouflaged.

Rainforests have high biodiversity because:
- They have high temperatures and high rainfall , which means that plants grow rapidly.
- The different layers provide a range of habitats and food sources for animals.

What are the causes and effects of deforestation in Malaysia?

Deforestation is the chopping down and removal of trees to clear an area of forest.

Causes

Logging – In 1980s, Malaysia was world's largest exporter of wood, often due to clear felling. Now largely replaced by selective logging of mature trees only.

Mineral extraction – tin mining and associated smelting works. Oil and gas drilling has recently started.

Commercial farming - Largest exporter of palm oil where natural rainforest is cut down, often through slash and burn, and replaced with palm tree plantations. Ten-year tax incentives have encouraged more deforestation for plantations.

Energy – HEP projects boost Malaysia's electricity supplies.

Road building – roads constructed to provide access to logging and mining areas, new settlements and energy projects.

Effects of deforestation
- **Soil Erosion -** They erode as the roots no longer hold them in place.
- **Soil becomes less fertile -** They become less fertile as more nutrients are washed away by heavy rainfall.
- **Climate Change** – Trees are a carbon sink as they absorb CO_2 from the atmosphere. With fewer trees more CO_2 stays in the atmosphere.
- **Economic Development -** Countries make money from exporting products and the industries also employ a lot of people.

How can tropical rainforests be managed sustainably?

Why are tropical rainforest valuable?
- Biodiversity – over 50% of the world's plants and animals are found in tropical rainforests.
- They act as carbon sinks and absorb large amounts of CO_2, reducing global warming.
- Medicine – 25% of all medicines come from rainforest plants.
- Indigenous tribes live in the rainforest.
- Reduces soil erosion, as the roots of the trees bind the soil together.

Strategies
- **Selective logging** = removal of the most valuable or mature trees and leaving the rest to grow.
- **Ecotourism** – small scale tourism, which educates the visitors and uses the tribes as guides.
- **Debt reduction** – reduce debt of a LIC, in exchange for them not cutting down the rainforest.
- **International agreements - T**he International Tropical Timber agreement ensures that wood from tropical areas is legally sourced.

What are the characteristics of hot deserts?
- Hot deserts located between 30 N and 30 S.
- Very low rainfall - less than 250mm a year
- Extreme temperature range – lack of cloud cover allows high daytime temperatures but very cold night.
- Soils tend to be sandy or stony. Limited leafy vegetation means little organic matter and fertility.
- Soils are saline (salty) and often covered in a white layer due to evaporation of moisture drawing salts to the surface.
- Wide diversity of plants, animals and birds find ways to survive.
- People living in deserts grow few crops near natural water sources, usually in the desert fringes.
- Indigenous people are often nomadic.

Interdependence
- Biotic and abiotic components are all closely related and dependant on each other.
- Salty soils due to high evaporation rates results in limited plant life.
- Vegetation is sparse so there's limited food for animals and limited nutrients returned to the soil.

How have plants and animals adapted to survive in hot deserts?

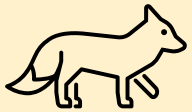
Hot deserts have low biodiversity because:
- Very few plant species survive there. This is due to low precipitation levels and the extreme cold makes nutrient cycling difficult.
- Due to the lack of plants, there are fewer animals as there are less food sources available.

Year 10 – Geography – Living World

How have plants and animals adapted to survive in Hot deserts?

Fennec Foxes

Large ears are full of blood vessels that allow excess heat to leave their body in the day. Their fur keeps them warm during the cold nights.



Camel

1. Store fat in their hump to sustain them when food and water are scares.
2. Long eyelashes protect against sandstorms.

Sidewinders

Their distinctive movement helps them travel along loose, sandy surfaces and minimises bodily contact with the hot sand.

Plant adaptations

Succulents

- Cacti and aloe can store water in their fleshy leaves or stems. Their small, waxy leaves help to minimise water loss through transpiration. Some may have toxins and sharp spines to deter thirsty animals.

Roots

- Plant roots are either long and deep to reach underground water supplies, or short and shallow to collect surface water when it rains

Desert Primrose

- An ephemeral which only germinates when it rains. They complete their life cycle rapidly; they grow, flower and produce seeds within a matter of weeks before dying and scattering seeds.

How do hot deserts provide opportunities and challenges?

Thar Desert lies partly in north-western India and eastern Pakistan and covers 200,000km². Highest population density of any desert with over 30 million people living there.

Opportunities	Challenges
• **Mineral extraction –** Gypsum, limestone and white marble are valuable building materials, and kaolin can be used to manufacture paper. • **Tourism –** Exotic location and vibrant village culture attracts a growing number of tourists. Locals can earn money from selling souvenirs, acting as tour guides and offering camel rides. • **Farming –** Indira Ghandhi Canal provide irrigation for commercial crops such as wheat, cotton and pulses. • **Energy –** Wind power, Jaisalmer has the largest wind farm in India.	• **Extreme temperature** - Average daytime temperature of around 46°C makes outdoor work difficult. Rainfall very low and high evapotranspiration rates leave toxic salt in the soil. • **Inaccessibility** – Road building limited as tarmac melts and little money invested in the areas. Public transport is poor and overloaded. Some areas only accessible by camel. • **Water supplies** – Rainfall is low and unpredictable, and rivers don't flow all the time. Groundwater is the main source of water but often saline.

How does desertification impact the desert-fringe?

Desertification involves degradation of arable dryland ecosystems into deserts It occurs mainly in semi-arid areas that border hot deserts.

What are the causes of desertification

- **Climate change:** amount and frequency of rainfall is decreasing, increasing the drought length and intensity, which leads to drier soils, plants dying and soil erosion.
- Rising temperatures due to global warming also result in increased evaporation.
- **Overgrazing:** grazing animals strip the land of its vegetation quicker than it can grow back. Without roots holding the soil together it erodes.
- **Overcultivation:** Replanting crops in the same area robs the soil of vital nutrients. Crops cannot grow and the soil becomes exposed and vulnerable to erosion.
- **Removal of fuelwood:** Trees are cut down for fuelwood for cooking, leaving the soil exposed and vulnerable to erosion.

How can desertification be managed?

The risk of desertification can be reduced by using a variety of management strategies.

- **Water and soil management:** Drip irrigation, rock walls (bunds) and terraces cut into slopes can help reduce water run-off and soil erosion. Crop rotation and the use of compost can help ensure soil is fertile and rich in nutrients. Drought-resistant plants, such as pigeon peas, are suitable to grow in deserts.
- **Tree planting:** Trees help bind and stabilise soil to protect it from the wind and reduce erosion. They also provide shade, and decomposing roots add nutrients to soil.
- **Use of appropriate technology**: Affordable and sustainable technologies such as solar cookers to reduce fuelwood.

Year 10 – Geography – Coastal Landscapes

How do waves shape the coastline?

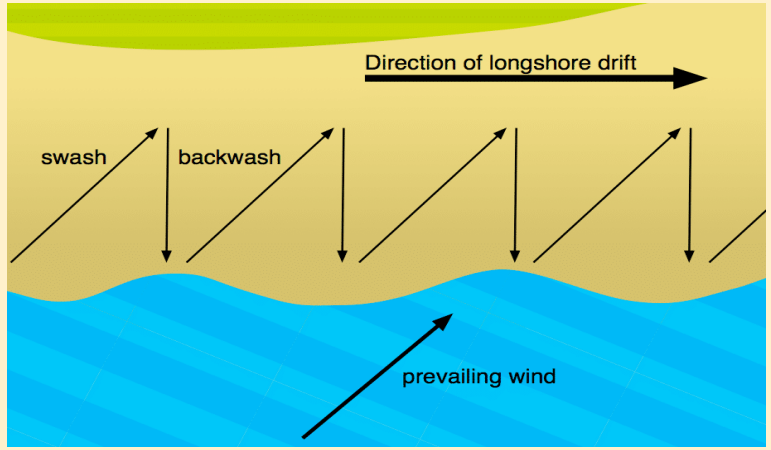
waves have higher energy and are steeper and higher. Their backwash is stronger than their swash. This results in erosion.

Constructive Waves have lower energy and are lower in height. Their swash is stronger than their backwash so they deposit material and build up beaches.

Erosion processes

- Abrasion – sediment hurled against the coastline.
- Attrition – pebbles collide and break into smaller pieces.
- Hydraulic power – force of the water traps air in cracks and get compressed. The resulting pressure widens the cracks.

Longshore drift



- Swash - water moves up the beach at 45° due to the wind.
- Backwash – water moves down the beach at 90° due to gravity

Deposition

Happens when the waves slows down, loses energy and drops eroded material.

What physical processes affect the coast?

Freeze thaw weathering

Water enters cracks, freezes and expands putting pressure on the rock. The ice thaws, releasing the pressure. Process repeats and the rock breaks.

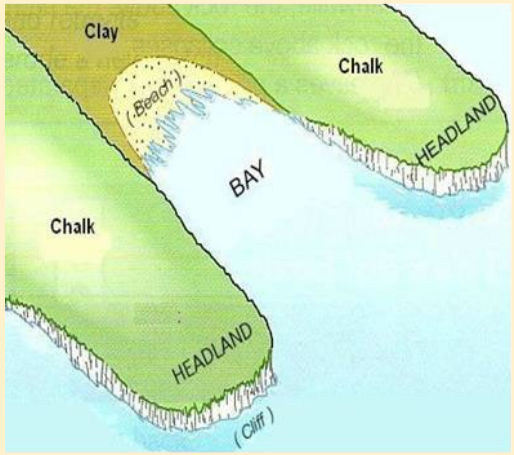
Mass Movement

The downward movement of rock, mud or soil due to gravity.

Sliding where cliffs fall in a straight line.

Slumping where cliffs fall in a curved line.

Rockfalls Pieces of rock fall down a cliff.



How does geology affect the coastline?

Headland and Bays

- Formed where alternating bands of hard rock and soft rock.
- Hard rock erodes more slowly as it is more resistant. An example is chalk.
- Cliffs of hard rock stick out forming a headland.
- The softer rock erodes more quickly as it is less resistant. An example is clay.
- It curves inwards and creates a bay.

How does erosion create coastal landforms?

Cave, arch, stack and stump

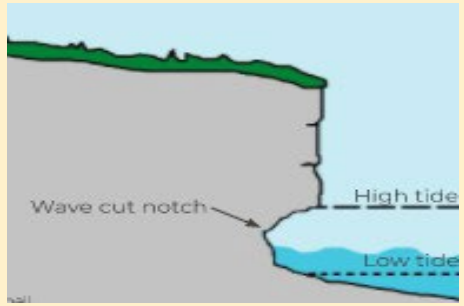
- These features are created in the headland.
- **Crack – cave** is formed by hydraulic power
- **Cave- Arch** is formed by hydraulic power & abrasion, caves deepen, erode through back of cave, breaking through the headland
- **Arch – Stack:** weathering weakens the top of the arch, waves attack and erode arch sides weakening its structure, roof collapses due to gravity as no support.

Where are they located in the UK?

- **Headland:** Flamborough Head, Yorkshire
- **Bay:** Bridlington, Yorkshire
- **Arch:** Durdle Door in Dorset
- **Stack:** Old Harry in Dorset

Wave Cut Platforms

- Waves and rocks crash against
- the foot of the cliff face.
- The base of the cliff is eroded
- away, leaving a wave-cut notch.
- The unstable cliff collapses.
- With repeated erosion, the cliff retreats to form a wave-cut platform.

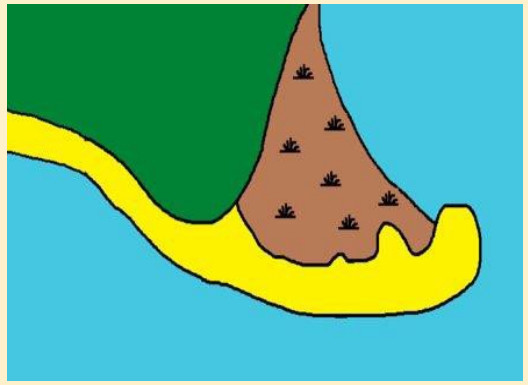


Year 10 – Geography – Coastal Landscapes

How does deposition create coastal landforms?

Spits are long narrow stretches of sand or shingle that extend from the land.

- The sand is transported by longshore drift past the point where the land ends.
- The waves lose energy, and the material is deposited.
- This builds up to form a spit.
- The spit can sometimes have a curved end which is formed because of strong cross winds.
- The area behind the spit is sheltered and so deposition occurs. A salt marsh may form.



Bars form when a spit joins two headlands together, trapping water in a lagoon behind it.

Beaches

- A sandy beach usually forms in a sheltered bay.
- Low energy constructive waves transport material to the shore.
- As the swash is stronger than the backwash, material is moved onto the shore.
- This process repeats itself and the sediment (sand) builds up.

Sand Dunes

These are small ridges of sand found at the top of the beach.

- To form they need a large supply of sand, a large flat beach, onshore wind and an obstacle for the dune to form against.
- Wind transports sand across the beach via saltation (bouncing of particles by the wind).
- Deposition occurs around obstacles such as rocks or sea weed.
- Over time the sand build up creating small dunes.
- These dunes are stabilised by vegetation such as marram grass and the long roots bind the soil together.

How does hard engineering protect the coast?

Sea Wall: curved concrete wall to reflect the wave energy. They will last a long time but it is expensive to build.

Rock Armour: large granite boulders placed at the base of a cliff to absorb wave energy. They will last a long time, but are very expensive as rocks need importing from Scandinavia.

Gabions: pebbles placed in metal cages that are then placed on the cliff to absorb wave energy. These are cheap to build, but the metal cages will rust and break, meaning more rocks are there which can lead to abrasion.

Groynes: wooden or rock structures built at right angles down the beach. These stop longshore drift and build up a beach. These create large beaches to attract tourists, but increase erosion further along the coast.

How does soft engineering protect the coast?

Beach nourishment: addition of sediment onto the beach, which is dredged from the seabed. This creates a wider beach, but can damage habitats on the seabed.

Beach reprofiling: moving sediment from the lower part of the beach to the upper part to make it steeper. This reduces wave energy but needs repeating regularly.

Dune regeneration: action taken to build up the sand dune. Areas can be fenced off and additional marram grass planted. This process can take a long time, but is cheap and maintains bird habitats.

Managed retreat: remove current defences and allow the land to flood behind it. This can create a saltmarsh providing habitats and a buffer against erosion. However, compensation needs paying to the landowner.

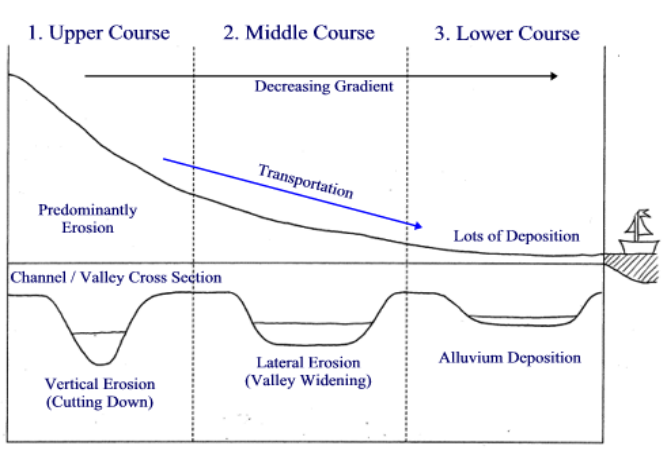
How is the Holderness coast managed?

- The Holderness coast is in the north east of England.
- It is the fastest eroding coastline in Europe, with an average erosion rate of 2 metres per year.
- Mappleton is a small village on the coast.
- It needs protecting due to the Seaside caravan park losing land, large areas of farmland being lost, houses are close to collapse and the main road (B1242) that links places along the coast.
- They built rock armour and two rock groynes at a cost of £2million.
- The defences worked at Mappleton as the erosion rate reduced.
- However, the groynes led to erosion increasing south of Mappleton to 10 metres per year.

How do rivers change downstream?

A long profile shows a river's gradient from source to mouth. A river is steepest at its source (start) and becomes gentler as it approaches its mouth (where it meets the sea).

The cross profile shows a simple cross-section of the river at certain points along its course; namely its upper, middle and lower course.



- Upper course – the river flows downhill due to gravity. This creates friction and results in vertical erosion. The river channel is narrow and shallow. The valley is v-shaped with steep sides.
- Middle Course – Lateral erosion increases as the river becomes less steep. The river channel is wide and deep. The valley is v-shaped with shallow sides.
- Lower course – A lot of lateral erosion occurs. The river channel is very wide and deep. The valley sides are wide and almost flat. Deposition is most evident here.

Why does a river's velocity increase downstream despite its gradient getting shallower?

In the upper course, a river carries a small amount of water and has a narrow, shallow and rough channel. This results in lots of friction and slows the flow of the water.

Downstream as tributaries join the river, the volume of water increases. This combined with the wider, deeper and smoother channel, creates less friction and increases the river's velocity.

Fluvial eerosional processes

Hydraulic Action – the force of the river compresses air trapped in cracks in the banks. The increased pressure weakens and gradually wears away the banks.

Abrasion – rocks carried by the river rub and scrape along the river bed and banks, wearing them down.

Solution – where water is slightly acidic, it dissolves certain types of rock on the river bed and banks.

Attrition – rocks are carried by the river and collide with each other, breaking them into smaller, more rounded pieces.

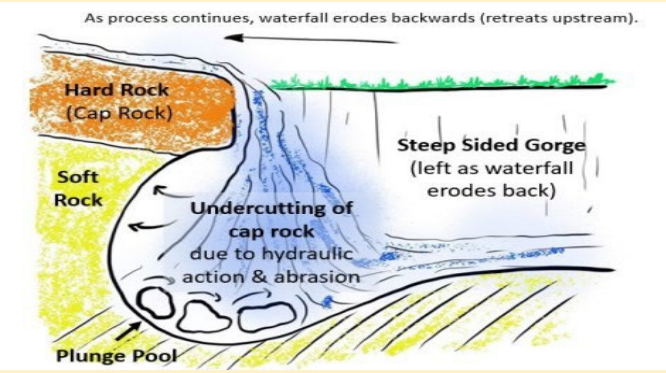
What landforms are created by erosion?

V-shaped valleys are created in the upper course of the river when the water erodes into the land vertically.

Interlocking spurs are created as the river is not powerful enough to erode laterally through areas of hard rock, so it winds and bends around these rocks.
The winding path of the river creates a winding valley of interlocking spurs.

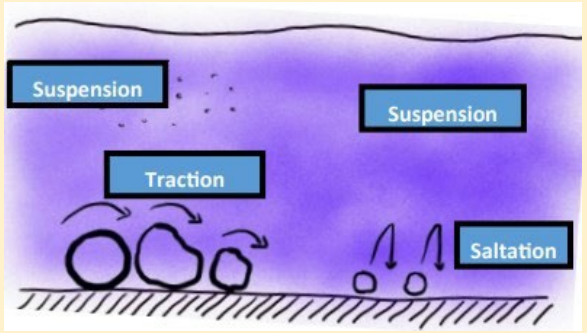
Waterfall and gorges

1. River flows over areas of hard rock and soft rock
2. The softer rock is eroded faster by hydraulic action and abrasion and cuts down into the channel.
3. Over time, the soft rock continues to erode the soft and a plunge pool develops at the base of the waterfall.
4. The overlying hard rock is undercut and left unsupported until it eventually collapses.
5. The falling hard rock causes further erosion through abrasion, and deepens the plunge pool.
6. As erosion continues, the waterfall retreats upstream, leaving a steep sided valley. This is known as a gorge.



Fluvial Transportation Processes

Traction – large rocks and boulders roll along the river bed
Saltation – smaller rocks and boulders bounce along the river bed
Suspension – finer, lighter material light enough to be carried by the water
Solution – minerals dissolve and are carried along by the water



Deposition

Deposition occurs when a river loses energy and drops eroded material. A river will deposit its load along its course wherever its energy drops.

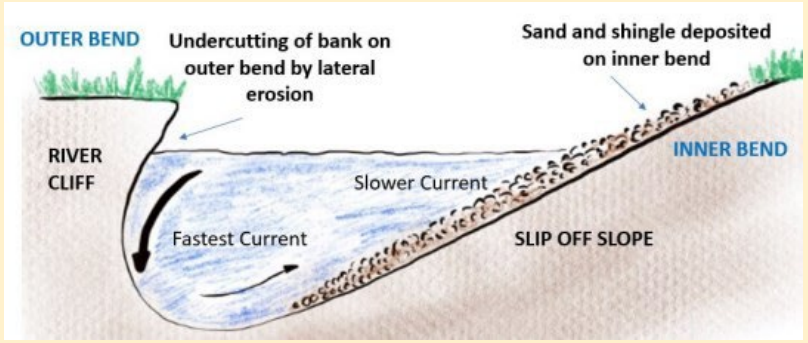
For example, on the inside bend of a meander, in areas of shallow water and at the mouth of rivers. When a river loses energy, the heaviest rocks are deposited first and the lightest materials are deposited last.

What landforms area created by processes of transpiration?

Meanders

In the middle course of a river large bends called meanders develop as lateral erosion occurs.
Different processes occur on either side of a meander.

1. Erosion happens on the outside bend of a meander, as the water is fastest. This forms a river cliff
2. Deposition happens on the inside bend of a meander as water flows slowly forming a slip off slope.



Ox bow lakes

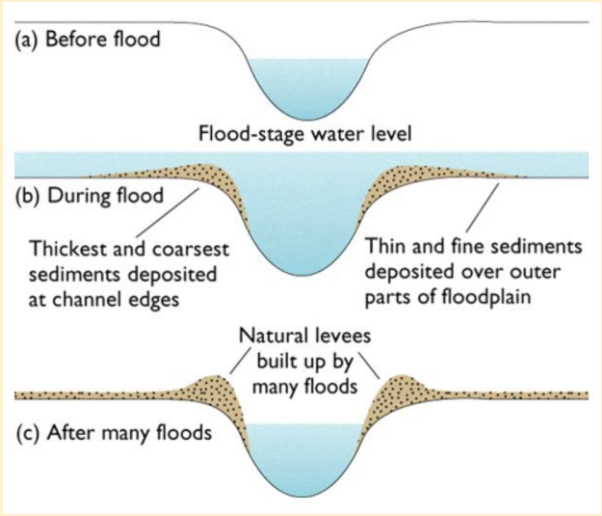
1. Erosion on the outside bends causes the neck of the meander to become narrower
2. The neck of the meander continues to narrow as erosion occurs on the outside bends.
3. Eventually the river breaks through to form a new river channel (usually when in flood)
3 – The river now flows along the shortest course, bypassing the loop of the meander.
4- As sediment is deposited on the riverbanks, the meander becomes sealed off.
5 – An oxbow lake forms

What landforms are created by deposition?

Floodplains

These are wide, flat areas of land found on either side of a river. When a river floods, material being carried by the river is deposited on the floodplain. Over time, this raises the height of the floodplain. Floodplains are also made wider due to the migration of meanders.

Levees



Estuaries

These are found where the mouth of a river meets the sea. At high tide, the incoming tide meets the outflowing river and reduces its velocity. This causes the river to deposit its sediment over the floor of the river valley. When the sea goes out at low tide, the layers of sediment are left exposed, and mudflats are created.

Year 10 – Geography – River Landscapes

What is river flooding?

A flood occurs when a river bursts its banks and the water spills onto the **floodplain.**

Factors which increase flooding

Physical causes

- Precipitation – Prolonged rainfall can saturate soil, increasing surface run-off.

- Relief – Areas with steep slopes have high levels of surface run-off because precipitation cannot soak into the soil quickly enough.

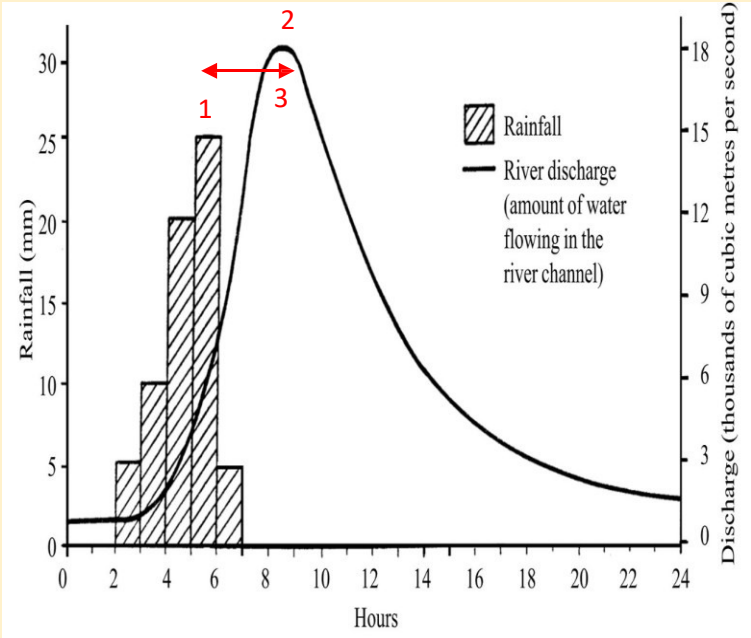
Human causes

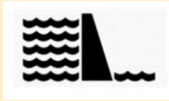
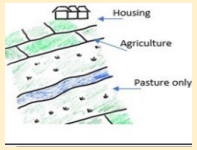
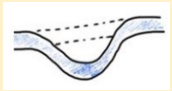
- Urbanisation – an increase in impermeable surfaces (concrete, tarmac) increases surface run off and river discharge.

- Deforestation – trees intercept water so without them, there is more surface run-off and an increase in river discharge.

Flood Hydrograph

Peak Rainfall 1	The highest amount of rainfall (the highest bar on the hydrograph).
Peak Discharge 2	When river discharge is at its highest, within the given timeframe
Lag time 3	The time delay between the peak rainfall and peak discharge



Hard Engineering (involves the use of man-made structures)	**Soft Engineering** (works with the natural environment)
Dams and reservoirs  Dams are walls built across rivers to trap water, forming an artificial lake (reservoir)	**Flood plain zoning**  Restricts building on flood plains and areas at risk from flooding. High value property further away from the river.
Embankments  Artificially raised banks built alongside rivers.	**Planting trees**  Increases interception of rainwater and reduces surface run-off. Roots also absorb rainfall.
River straightening  Cutting out meanders to create wider straighter and deeper channels.	**Flood warnings and preparation**  People can plan and prepare for flooding as told in advance of the flooding

Boscastle Flooding (2004)

- **Why did it flood:** Wet summer saturated the ground, 200mm rain fell in a 24-hour period, steep slopes mainly impermeable rock, deforestation on the slopes, building near the river, tree debris blocked under the bridge,
- **Effects:** 25 businesses damaged. Main visitor centre damaged, loss of tourist trade, main road (B3263) blocked, 115 cars damaged
- **Management:** raised riverbanks, river has been widened and deepened by 0.75m, replaced bridge making it higher, nearby car park is raised and given a permeable surface
- **Impacts of the management:** economically it cost £4 million. Environmentally it initially disrupted wildlife due to the noise, but biodiversity in the area has increased now the scheme was completed. Socially the scheme took a few years to build so caused disruption, but the area is now safer.

Year 10 Geography: Paper 3 – Unfamiliar fieldwork skills

Types of Data

- **Primary data** – collected by you.
- **Secondary data** – collected by someone else e.g. the government.
- **Quantitative data** – measures amounts.
- .
- **Qualitative data** – measures opinions

Advantages and disadvantages of data

Primary
Advantage – know how reliable the data is.
Disadvantage – limited sample size, time consuming.

Secondary
Advantage – Large sample size – increasing accuracy.
Disadvantage – unsure of reliability, can be out of date.

Quantitative
Advantage – can be analysed statistically, comparisons can be made.
Disadvantage – can lack important detail and be too generalised.

Qualitative
Advantage – produce in depth results.
Disadvantage – hard to analyse.

Types of Graph

Bar charts
- Show discrete data.
- Discrete data means each value is separate and different.
- Example: the results of a traffic count.

Line graph
- Show changes over time (continuous data).
- Example: CO_2 levels in the atmosphere.

Pie charts
- Show a quantity that can be divided into parts.
- Show amounts or percentages.
- Example: How long people are staying on holiday?

Scatter graph
- Show relationship (links) between two pieces of related data.
- A line of best-fit should be drawn on the graph.
- The line will indicate the correlation between the two data sets.
- Example a graphs sowing life expectancy versus income

Dispersion graph
- Easy to compare sets of data.
- Ask your Geography teacher to show you one.

Positive correlation
As one variable increases, so does the other variable.

Negative correlation
As one variable increases, the other decrease.

No correlation
There is no relationship between the two variables.

Using unfamiliar techniques

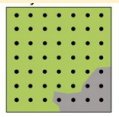
In the exam it is highly likely that you will have questions on techniques you have never seen before. There are some common advantages and disadvantages you can apply to these questions.

Advantages	Disadvantages
• Easy to understand. • No specialist equipment is needed. • No specialist skills are needed. • Quantitative – data can be easily compared. • Qualitative – in depth analysis.	• Subjective – as based on opinions or perceptions. • Be more accurate if equipment was used to measure it e.g. noise. • Unclear what the categories mean.

Year 10 Geography: Paper 3 – Unfamiliar fieldwork skills

Types of Sampling

Random Sampling
Sample taken from anywhere or anyone in an area.



Systematic Sampling
Samples chosen in a regular way e.g. every 5th person or every 10m along the river.

Stratified Sampling
Dividing samples into groups e.g. five people from each age group or three sites from each stage of a river.

Advantages and disadvantages of types of sampling

Random
Advantage – avoids bias, used with large sample sizes.
Disadvantage – can lead to a poor representation of the population.

Systematic
Advantage – simple, better coverage of the study area.
Disadvantage – has bias as not all areas have an equal chance of being covered.

Stratified
Advantage – produces a representative sample as all areas/groups looked at.
Disadvantage – hard to stratify some questionnaire data e.g. knowing people's age.

Remember systematic sampling may not always be possible as sites maybe difficult to get to or can be too dangerous.

Statistical Methods

Mode
This is the most common number found in a set of data.

Mean
All numbers are added together then divided by the total number.

Median
All of the numbers are placed in rank order (lowest to highest), the median is the middle number.
If there are an even number of figures the middle two are selected and the average is calculated.

Range
Difference between the highest and lowest number.

Inter quartile Range
Ask your Geography teacher how to work this out.

Percentages
Percentage can be calculated by dividing the value by the total value, and then multiplying the result by 100.

Percentage increase or decrease
You may be asked to work out a percentage increase or decrease. Use the method given to you by your Maths teacher or ask your Geography teacher for help.

Describing patterns

- What is the main pattern shown?
- Add data from the information given to back up your point.

Suggesting reasons for patterns

- Look at the map, graph or diagram carefully.
- What is the main pattern shown?
- Identify sensible and logical reasons for the pattern.

Unfamiliar questionnaire data

- You may be asked how surveys can be improved or what is another question that can be asked?
- On these questions apply logic.
- Read the question.
- Identify what has been asked already or any problems with the questionnaire data.
- Think of a sensible answer that fits the question.

Risks linked to carrying out fieldwork

You may be asked what the risks would be in different locations. These could by physical fieldwork or human fieldwork locations.
Examples of risks are shown in the table below.

Physical Fieldwork (coasts and rivers)	Human fieldwork (urban areas)
• Uneven ground. • Unstable cliff face. • River current was fast. • Tide could come in quickly. • Poor weather conditions. • Water temperature was too cold.	• Uneven surfaces. • Danger completing surveys near the road, as traffic is busy.

Crime and Punishment Medieval 1000-1500

Anglo-Saxon

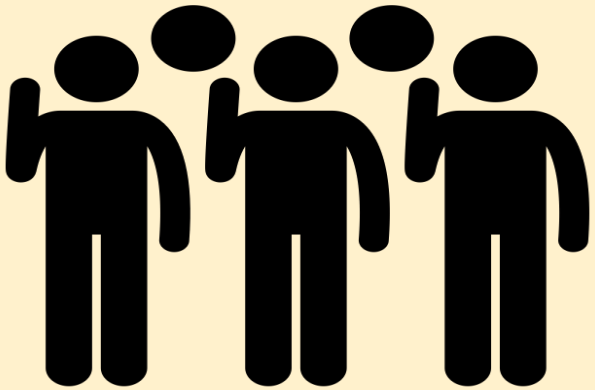
Crime

Crimes against the person: murder, assault, public disorder.

Crimes against property: theft, arson, counterfeiting coins.

Crimes against authority: social structure Feudal system: treason, betraying your lord.

Moral crimes: (Church/Religion) crimes that don't match up to society's views on decent behaviour e.g., drunkenness, adultery, etc.



Created by Gan Khoon Lay
from Noun Project

Law Enforcement

King and nobility made the law Feudal system helped to keep control. Church also influenced ideas justice concerned with giving criminals opportunities to save their soul.

Based around local village communities.

Tithing – all males over 12 in a group of 10 – responsible for each other's behaviour. If one of them broke the law, the other members of the tithing had to bring him to court or pay a fine. Hundremen- in charge of the hundred (10 tithings)- more serious crime.

Hue and Cry- crime-victim or witness expected to raise the alarm and village expected to chase suspect; fines if failed to do so:

Constable- for each village, chosen for a year. performed his duties in spare time, at night walking the streets. Ineffective because not paid.

Taking Oaths- Justice relied on religion. Played an important part in proving a person's innocence. Hearings took place in public, and the accused could swear their innocence under oath, swearing before God. In most cases, the accused walked free.

Trial by Ordeal-Tested whether God judged the accused as innocent or guilty. Included trial by hot iron/hot water. Heat used to burn the accused's hands which was then bandaged; if the burn healed well, this was seen as a sign God judged the person to be innocent. Trial by cold water Accused was thrown into water with arms tied; if floated judged guilty, if sank judged innocent.

Trial by local jury- Made up of men from village who knew both the accuser and the accused. They both would give their version of events and jury decided who was telling the truth. If no clear evidence such as an eyewitness to the crime, the jury decided guilt or innocence based on their knowledge of the people. The jury swore an oath.

Punishment

Based on Deterrence and retribution

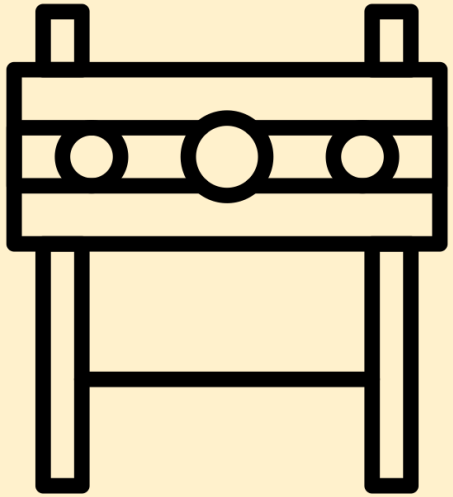
Corporal punishment - stocks, pillory, whipping, maiming for lesser crimes.

Capital punishment – hanging, serious crimes treason arson.

Retribution – severity of punishment matched crime (treason – death; repeat offences maiming, etc.

Deterrent – painful / humiliating public punishment in front of community.

Wergild 'man price'- murder- fines money, paid to victims' family.



Created by Graphixs_Art
from Noun Project

Crime and Punishment Medieval 1000-1500

Normans

Crime

William generally retained Edward the Confessor's laws; William wanted to show he was Edward's legitimate successor.

Poaching: hunting animals in William's forest became a new crime. 'Social Crime': against the law but which most people in society do not disapprove of.

Outlaws- men aged over 14 who tried to avoid trial and punishment by running away from community-

Moral crimes: William encouraged establishment Church Courts offered criminals a chance to reform and save their souls. Maiming was seen as better than execution.

Feudal System: Peasants were legally bound to work for their lord and were not allowed to leave their village. Running away was a crime – if anyone tried, they would be hunted down and severely punished.

Law Enforcement

Power of the Church and king increased
Laws and punishments became centralised

Castles: Designed to intimidate and keep a watch on communities reminding those who lived outside of their place in society..

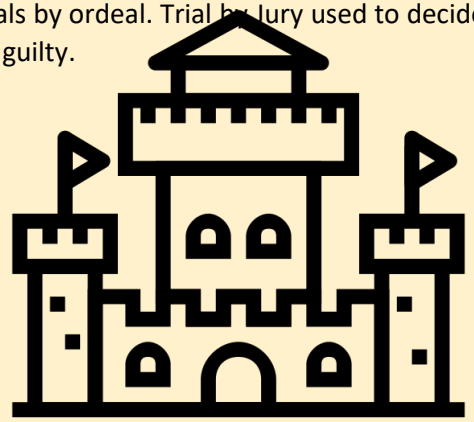
Murdrum Fines: If a Norman was murdered by an Anglo-Saxon and the murderer was not captured and executed then village would have to pay a large sum of money.

Tithing, Hue and Cry: local collective responsibility for preventing crime and apprehending suspects continued under the Normans.

Forest laws- common land previously peasants had the right to graze animals, or catch wild animals now controlled by king. Poaching hunting animals became a new crime. Foresters patrolled area and punished people with hanging, blinding etc.

Trial by Combat: The two people involved in the dispute (money or land, wealthy people) would fight using swords, or large sticks. The two combatants fought to the death-or until one gave in.

Trial by Jury- 1215, Pope ordered priests should stop helping to organise trials by ordeal. Trial by Jury used to decide if someone was innocent or guilty.



Punishment

Increase in crimes punishable by death or mutilation.

William ordered extreme punishments for those who rebelled, (East Anglia, York) farmlands were destroyed, and animals were killed. 100,000 died of starvation due food shortages.(Harrying of the North)

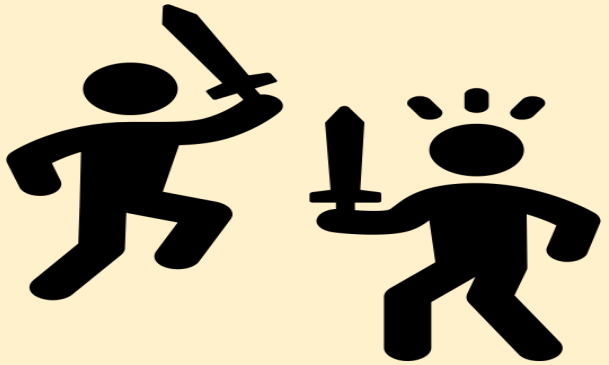
Punishments for poaching included hanging, castration and blinding to deter others from poaching.

Outlaws: lost the protection of the law and could be killed no legal consequences for the person responsible.

Reason for change: Norman harshness and need for deterrent as a small minority. William intended to boost his power and authority to unite newly conquered land under his control.

Retribution and deterrent overwhelmingly main purposes

Wergild- ended by Normans, instead the fines were paid to the king's officials instead of to victims' families.



Crime and Punishment Medieval 1000-1500

Late Middle Ages

Crime

Theft was the main crime (73.5% or all crimes) followed by Murder (18.2% of all crimes)

Statute of Labourers: Made it a crime to ask for higher wages. After the Black Death killed 1/3 of the population more worker but fewer workers. Peasants demanded higher wages. Land owning classes wanted to protect their status and money, worried that if the peasants were too wealthy, they would gain more power.

Heresy Laws: from 1382 made it a crime to disagree with the teachings of the church. The clergy felt threatened by those questioning the Christian Church and wanting religious reforms e.g. Bible translated into English and gained the Kings support to introduce new heresy laws.

Law Enforcement

Increased role of king's government (Key individuals: King Henry II & King Richard I) and centralised control of the laws and legal system.

Assizes of Clarendon: 1166: Henry II reorganised courts, set up prisons for people who were waiting for trials. Ordered his own royal judges to visit each county of England twice a year to make decisions serious criminal cases. Standardised (the same) written instructions were issued to local sheriffs (Shire Reeves). Laws were officially recorded in writing meaning they were the same across the country.

Community enforcement continues: Hue and Cry, villagers and townspeople expected play part in catching criminals and towns subdivided into wards.

Growth of towns e.g., London, York increased crime rates. More formal system developed crime dealt with by **government officials** under direct control king and Parliament.

Coroner: Role introduced by King Richard I to deal with a suspicious death.

Justices of the Peace: Helped enforce the law and given orders directly from the king. Power to arrest suspected heretics.

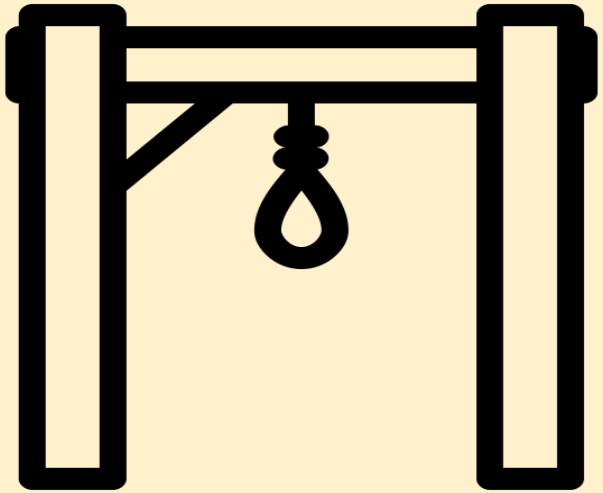
Constable: local officials previously known as Tithingmen, became more formal and official.

Punishment

Mixture of fines, stocks, pillories, corporal punishments- maiming and the capital punishment of execution by hanging.

Heresy: burned at the stake. Powerful deterrent to those challenging the authority of the Church.

High Treason: A person plotting to kill or betray the king would be sentenced to be 'hanged, drawn and quartered'. Powerful deterrent to those considering challenging the power of the king.



Crime and Punishment Early Modern 1500-1700

Reformation

Crime

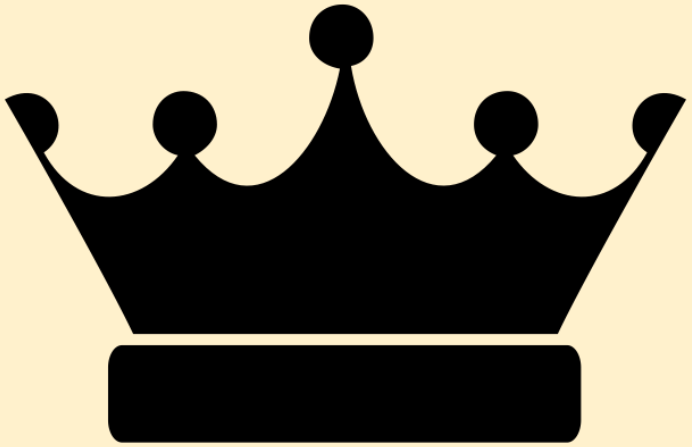
Crimes connected with religious changes. Reformation (Martin Luther, 1517) growth of Protestantism believed Catholic Church needed reform.

Changing religious situation in England, change of ruler makes the religious activities of Protestants and Catholics into criminal acts.

Heresy: Religious crime against God and the Church.

Treason: Crime against the King- this became connected to heresy when Henry VIII created the Church of England.

Recusant: Crime for refusing to attend Church of England services and swearing loyalty to the monarch.



Created by kareemov1000
from Noun Project

Law Enforcement

Henry VIII-1509-1547: Protestant. Catholics were executed for treason as they would not take the **Oath of Supremacy** acknowledging him as head of the **Church of England which he** declared himself in 1534.

Mary I: 1553-58: Catholic Tried to make England Catholic again and install the Pope as the head of the English Church.

Elizabeth I : 1558-1603: Protestant. Tried to find a 'middle way', to create a Protestant Church which English Catholics would be comfortable to join the Church of England and have her as the head.

The Act of Uniformity (1559): said everyone had to go to Church on holy days (every Sunday) or pay a fine. Those who did not attend were labelled 'recusants.

1558-Act of Supremacy reintroduced Oath of Supremacy.

Repealed the harsh heresy laws of Mary in 1569.

James I: 1603-25. Protestant Tolerant towards Catholics at first. Gunpowder Plot in 1605 changed his attitude. Introduced strict anti-Catholic laws. The **1605 Popish Recusants Act** forced Catholics to swear loyalty to the King and pay heavy fines for not attending church.

Punishment

Henry VIII: 1509-1547.
Both Protestants and Catholics were punished as criminals. Protestants were executed for heresy. 81 executions for crimes of heresy

Edward VI: 1547-53

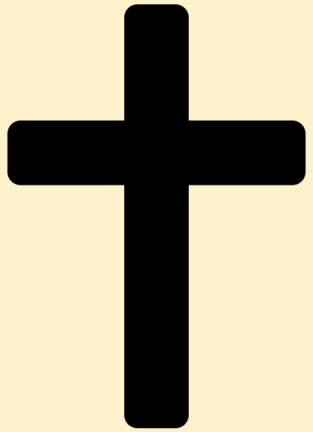
Some Catholic bishops were sent to the Tower of London. Two people were executed for crimes of heresy

Mary I: 1553-5

283 people were executed as heretics for refusing to convert to Catholicism

Elizabeth I: 1558-1603.

Excommunicated by the Pope in 1570. Catholic uprising North England caused more Catholics to be prosecuted for recusancy and hundreds of rebels were executed. Five people executed for heresy.



Created by Nuricon

Crime and Punishment
Early Modern 1500-1700

Crime

Vagrancy Act 1547: Crime to be a vagrant a person who arrived in a new village and town and did not find a job. A growing population, failed harvests- lower wages and higher food prices caused huge increase in poverty and crime as people became vagabonds roaming the country looking for food and work.

1542 Witchcraft Act : witchcraft punishable by death. Accusations of witchcraft increased due to political social and economic problems of the 16th century-English Civil War, failed harvests, rise of vagabonds increased tensions between people small communities.

Smuggling: Crime of illegally importing goods from abroad and not paying 'import tax'. They mostly smuggled alcohol and luxury goods like tea, fruits and silk. Smugglers Could make a profit (more money) by easily selling goods cheaply to those who wanted them. Poverty meant that there was a growing demand for cheaper, smuggled goods from both rich and poor

Puritan Crimes: Strict religious rules on behaviour. This meant that many activities that were previously ordinary were banned and became criminal acts. For example, Sports on Sunday, Gambling, Theatre, drinking alcohol, feasting, and having large gathering at Christmas.

Poaching: illegally hunting or collecting resources on land not owned by yourself. Land which the poor had been able to access for hunting and gathering food was enclosed by rich landlords. Poaching Increased in rural areas due to population growth, lack of work and poverty.

Created by iconsmind.com from Noun Project

Law Enforcement

1547 Vagrancy Act: 1597 Act for Relief of the Poor, 1601 Poor Law Act The upper classes believed if you were poor, you were lazy, labelled them criminals. They put pressure on the government to introduce new laws.

1542 Witchcraft Act: Henry VIII, **1563 Acts against Conjurations:** Elizabeth I, **1604 Witchcraft and Conjuration Act :** James I, **1735 Witchcraft Act**: George II .After 1538 Henry VIII became the head of the church witchcraft moved from a religious crime to a crime against the state.

Smuggling: Government created new laws against smuggling to ensure they gained money from import duties. However, difficult law to enforce as smugglers were hard to catch, the local community helped them. Many people benefitted from it and did not think it was that serious both rich and poor- 'Social Crime'. They did not report them to authorities.

Puritan Crimes: After victory in the English Civil War, he closed Parliament and became England's Lord Protector ruling as a military leader who made all the decisions. Cromwell was a radical Protestant, a Puritan who believed in strict religious rules on behaviour. He thought people should focus on religion and strive to have 'pure souls. Cromwell brought in a range of 'Moral Crimes' demonstrating the role government and religion can play in deciding what is classed as a crime.

The Game Act (1671): This law banned anyone who was not a landowner from hunting or fishing. Wealthy landowners had power and influence over laws. Saw poachers as trespassers and thieves. Many poor people thought the law was unfair and did not report a poacher for something they did not see as a serious crime- 'Social Crime'. This made it harder for the authorities to stamp out poaching.

Punishment

Vagrancy Act 1547: if without work in new area for more than 3 days would be branded with V and sold as slave for two years. **Act for the relief of the Poor 1547:** whipping and burning the ear using a hot iron **Poor Law Act 1601:** some money for 'deserving poor', 'undeserving poor' sent to House of Correction.

1542 Witchcraft Act- witchcraft punishable by death (1,000 executed) by hanging. **1563 Acts against Conjurations**, Enchantments and Witchcraft- Witchcraft tried in common court, not Church court-common court penalties more severe. Death penalty will be issued when harm caused to another person. **1735 Witchcraft Act-**Witches seen as tricksters and punished with fines and imprisonment.

Smuggling: The punishment for smuggling was the death penalty as the government needed import duties as their main source of income and thus saw it as a serious crime.

Puritan Crimes: Women caught doing unnecessary work on Sunday could be put in stocks. Boys caught playing football on Sunday could be whipped. People were no longer seen as criminals and forced to pay a fine if they did not attend church every Sunday. This is an action that was illegal being 'decriminalised'.

Created by Oliver Gomez from Noun Project

Crime and Punishment
Early Modern 1500-1700

Crime

Increase in population 1500-1700. More people moved from the country and lived in urban areas. With no way of supporting themselves turned to crime. Crimes like theft and fraud more common in towns as people did not know each other as in villages and more valuable goods to steal.

The 1723 Waltham: act added **50** new capital crimes. By 1800 there were around 200 crimes punishable by execution. Crimes punishable by death included some that seem minor today like poaching rabbits or fish to eat. This harsh attitude to law making is known as the “Bloody Code. Its purpose was to create a strong deterrent.

Created by Jolan Soens
from Noun Project

Law Enforcement

The role of town constables and night watchmen grew to cope with increase in crime rate due to growth of population and cities.

Night watchman: Work is overseen by town constable. All male householders are expected to serve as night watchmen. Took turns to patrol the local area between 10pm and dawn. Carries a lamp to help with patrolling when it is dark. Watchmen are unpaid volunteers

Town Constable: Employed by the town authorities. Appointed by local people with a good standing in the community, including merchants.. Has some powers to arrest suspects, without the need for a warrant from a JP. Helps with local issues like collecting payments for road cleaning. Expected to stop suspected criminals, break up fights and round up beggars. Expected to turn in serious criminals to the courts

Thief Takers: Constables and watchmen were not effective at hunting down criminals so resorted to using thief takers. Paid a reward for catching a criminal and delivering them to the law.

Law enforcement was still left to local initiatives and not nationally organised. This meant standards varied across towns and regions. In some richer areas they would hire guards to protect them and their property. These were early steps towards a professional paid police force.

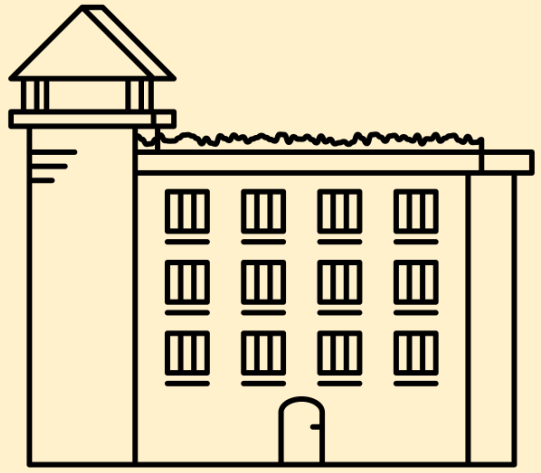
Transportation to America:
Favoured by authorities- better than building prisons in England. Allowed England to colonise America. Decreased repeat offenders in England. Form of rehabilitation after sentences allowed prisoners change their way of life in a new country.

Punishment

Bloody Code: As the penalties were so severe executions not always carried out as juries felt sorry for them.

Prisons: In 1556 a new prison (House of Correction) was opened in Bridewell Palace, London. It was used to punish poor people, house poor children- homeless. Prisoners at Bridewell, were made to do hard work (like stone breaking) to encourage habits of hard work as a form of rehabilitation.

Transportation to America sent in place of execution faced a 14-year sentence, whilst those sent for smaller crimes faced 7 years.



Created by Tom Fricker
from Noun Project

Crime and Punishment Industrial, 1700-1900
Extended 18th Century 1700 - 1820

Crime

Causes of crime:
- ✓ Huge population increase 16m 1800 to 42m in 1900
- ✓ High taxation because of increased warfare in this period
- ✓ Increase in customs duties (led to smuggling) e.g. 70% of the cost of Tea was taxation
- ✓ Societal and economic changes during the Industrial Revolution led to a growth in social and political protest between 1790-1850 e.g. Peterloo Massacre 1819, Chartist Movement 1829-48

Generally, crime was as before:
- ✓ Treason – still most serious crime.

New crimes:

Smuggling:
- ✓ Generally, luxury goods, e.g. tea, wine, spirits, silk which government important duties made very expensive. Import duties main source of government income.
- ✓ Thousands of smugglers and some violent organised gangs (Hawkhurst Gang).
- ✓ Seen as 'social crime' with cross-class participation.
- ✓ Hard for government to combat due to ineffective customs force, long coast-line, support / alibis for smugglers.
- ✓ Decreased after William Pitt (1780s) and Robert Peel, etc. reduced import duties.

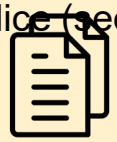
Highway robbery:
- ✓ Rise in late 17th/18th century: most common in this period: linked to increased wealth and solitary travel, ineffective banking, availability of horses and guns, poverty; demobilised soldiers.
- ✓ Image: dashing gentlemen who robbed rich (e.g. Dick Turpin): but poor main victims.
- ✓ Fall in early 19th century: stagecoaches often with armed guards; increase in travel; growth of towns; controls on inns; mounted patrols around London; effective banking.

Crimes associated with urbanisation:
- ✓ As Britain became more urban there was a growth of crimes such as pickpocketing

Law Enforcement

Initially as before:
- ✓ Community-based, unpaid.
- ✓ Villages – hue and cry.
- ✓ Town Constables and Town Watch. Some towns paid these people but many were unpaid and ineffective.

Developments:
- ✓ Continued decline in the effectiveness of community-based
- ✓ methods due to growth of towns and cities.
- ✓ Bow Street Runners, 1748 – early
- ✓ 1800s. Henry and John Fielding's small London-based Bow Street police force. Sought to deter by increased likelihood of detection. Collected and shared evidence. After 1785 Runners paid by government. Similar methods used by other
- ✓ forces in the London / Middlesex
- ✓ area. Attitudes towards a professional police force: many people saw police as expensive and a dangerous government intrusion in people's freedoms.
- ✓ 1829, creation of Metropolitan police (see next page)



Punishment

Initially as before:
- ✓ Fines; corporal punishment - stocks, pillory, whipping, maiming; capital punishment – hanging. Transportation to America until c.1776, later Australia; Houses of Correction, etc. - NOT prison initially.

Developments:

Transportation to America, c.1620-1776:
- ✓ Old punishment but increasingly an alternative to death.
- ✓ After American Independence, 1776, new location needed.

Transportation to Australia, 1787-1868:
- ✓ Transportation old punishment but increasingly used as
- ✓ alternative to death. 160,000 transported (1/6 women).
- ✓ Purpose: Initially a strong deterrent due to separation from homeland, use of hulks, long / dangerous voyage and hard / primitive conditions in Australia. Also, a more humane alternative to death; removal of criminals; population of new colonies; elements of rehabilitation through new chance.
- ✓ Sentences usually 7/14 years: convicts earned 'ticket of leave'.

Prisons:

Developments to 1820s:
- ✓ John Howard's 1770s investigations and writings (State of Prisons, 1777) regarding conditions, corruption; emphasis on rehabilitation.
- ✓ Elizabeth Fry: Quaker; work with women and children prisoners; emphasis on Christian teaching, humane treatment and conditions, useful work, etc.
- ✓ Both Howard and Fry believed that prisoners were reformable.

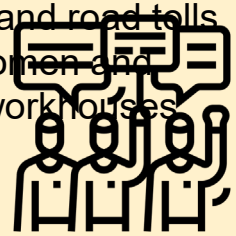
Purpose of punishment:
- ✓ Retribution: severity of punishment partly matched crime. Although 225 capital crimes under Bloody Code, most sentences were commuted unless major crime.
- ✓ Deterrent: harsh / painful / humiliating public punishment but Bloody Code arguably ineffective. Transportation / early prison conditions very unpleasant.
- ✓ Removal: transportation; increasing use of prisons
- ✓ Reform / rehabilitation: to an extent in transportation and, also to

Crime and Punishment Industrial, 1700-1900
Shortened 19th Century 1820 - 1900

Crime

General Crimes:
Same as the previous page

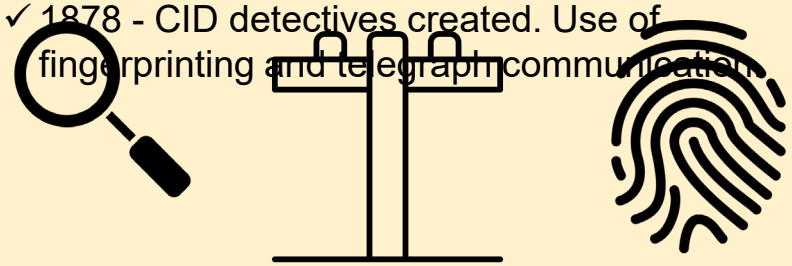
Changes:
- ✓ Political challenge to the ruling classes, e.g. Peterloo Massacre 1819, Chartist Movement 1829-48 and the Tolpuddle Martyrs, 1834:
- ✓ Linked to social / economic and political divisions between rich and poor. ; poverty and unemployment after French / Napoleonic Wars (1792-1815); desire of rich to safeguard their property.
- ✓ Political: ruling elite fear of repeat of French Revolution (1789-) in Britain; ruling classes desire to exclude workers from political involvement. Desire of working classes to have a political voice when only 8% of men had vote.
- ✓ Events: Rebecca Riots 1839-42 – farmers angry about rent increases and road tolls disguised themselves as women and attacked the tollgates and workhouses.



Law Enforcement

Policing developments after 1820:
- ✓ Metropolitan Police Act, 1829.Robert Peel, Home Secretary, persuaded parliament it was necessary: rising crime, controls on police powers, fear of radical protestors.
- ✓ Characteristics / equipment. Initially a small force wearing non-military blue uniform. Limited equipment including whistle and truncheon. Decentralised – each town / county had own force – this stressed it wasn't central government control. Initially some public opinion hostile.

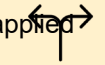
Developments:
- ✓ 1842 – first detectives.
- ✓ 1856 – towns / counties had to have police force.
- ✓ 1869 - first National Crime Records.
- ✓ 1878 - CID detectives created. Use of fingerprinting and telegraph communication.



Punishment

Transportation to Australia, from c.1840s-1868:
Decline: hostility in Australia due to links to crime and demeaning nature; cost: c.£500,000 a year; improved conditions / 1851 Gold Rush made Australia desirable location.

Prisons – developments after c.1820.
Influence of Howard / Fry (see above) on government especially Robert Peel (Home Secretary in 1820s) leading to Gaols Act, 1823. Gaols Act, 1823. Work of Robert Peel influenced by Howard and Fry.
Improved prison conditions; paid warders; separated types of criminal;
Christian instruction; visits by Prison Inspectors. (But only applied to 130
biggest prisons and sometimes ignored.)



Pentonville Prison, 1842: Separate System, c.1842-1860s/70s.
Separate System prison – model for 90 others built 1842-77.
- ✓ Generally: belief that criminals reformable but also desire to deter; e.g. to put reform ideas into effect but in a tough way, e.g. teaching, useful work and sanitary conditions with solitary confinement.
- ✓ Deterrent – loss of liberty; solitary confinement, etc.
- ✓ Reform / rehabilitation through Christian teaching and opportunity for reflection; useful work – learning skills; healthy / sanitary conditions; separation from negative influences.
- ✓ Influenced by reformers (Howard / Fry) regarding conditions, Christian teaching and useful work but Fry criticised the total separation.

- ✓ Each prisoner had own cell including hammock, toilet and basin, often loom. Kept always separate from other prisoners – masks worn in exercise yard / chapel. Some prisoners went mad due to separation.

Silent System, c.1860s-1902/1922.
- ✓ Total silence always; 'Hard board, hard labour, hard fare'. Strict conditions, dull / monotonous food and useless monotonous work e.g. crank and treadmill.
- ✓ Cost of Separate System; fears of crime – influence of press, garrotting scares in 1860s; growth of beliefs in separate - less evolved –criminal class which could not be reformed /

Crime and Punishment
Modern, 1900 – Present

Crime

Causes:
- ✓ Development of a more multicultural society following mass immigration to the UK post World War II (1945 onwards) – led to more race related crime
- ✓ Rise in mass-car ownership / use; number of accidents
- ✓ Development of computers – led to new ways to commit fraud
- ✓ Less respect for authority from the 1950s onwards

Race
- ✓ Race Relations Act, 1968 made it illegal to refuse work / housing, etc. on racial grounds; Criminal Justice Act, 2005 stated that racial hatred made another crime worse; Racial and Religious Hatred Act added crime of spreading hatred.
- ✓ Reasons for change: hope for tolerant multi-cultural society; more liberal social attitudes.

Driving offences – speeding / drunk driving:
- ✓ In past considered a 'social crime' and ignored / laughed at.
- ✓ Post-1967 limits on alcohol in blood plus government campaigns against drunk driving; old speeding laws much more vigorously enforced.
- ✓ 1983 seatbelts compulsory, 2003 mobile phone use in cars banned

Drugs:
- ✓ In past legal but relatively little used; made illegal 1971 Misuse of Drugs Act.
- ✓ Reasons for change: increased use in 1960s; harder / more dangerous drugs such as LSD, etc.
- ✓ Modern debate about freedom to take drugs which don't harm others.

Modern versions of old crimes:
- ✓ Cybercrime: use of internet, etc. technology in crime:
- ✓ Fraud – pretending to be another to get bank details / money, etc. Existed in past, now on-line.
- ✓ Copyright theft – stealing rights of artist / writer. In past included photocopying, etc. now downloads, etc.
- ✓ Extortion – using threats / blackmail to make victim pay. Now often refers to online images / data.
- ✓ Terrorism: Increased threat (though earlier examples include 1605 Gunpowder Plot). Initial threat in the 20th Century – IRA, 1960s onwards e.g. 1996 bombing of Arndale Centre on Manchester, 200 people injured. Good Friday Agreement (political agreement about N Ireland's future) led to decrease in IRA terrorism. More recently terrorism linked to Islamist

Law Enforcement

Developments in policing:

Organisation:
- ✓ Now a small number of large police forces.

Role of women:
- ✓ First WPCs in 1920s

Training:
- ✓ 1947, Police Training College.

Equipment / transport:
- ✓ Police bicycles, 1909
- ✓ Police cars, 1920s/30s
- ✓ Two-way radio, 1930s
- ✓ 999 introduced

Technological support:

- ✓ Fingerprint Branch, 1901.
- ✓ National Fingerprint System.
- ✓ Blood types discovered, 1901.
- ✓ Progress in forensic science
- ✓ First police computers, 1960s
- ✓ Breathalysers, speed cameras
- ✓ Police National Computer, 1980 with 25 million records
- ✓ First DNA conviction, 1988
- ✓ Automatic fingerprint Identification, 1995
- ✓ National DNA database
- ✓ CCTV / mass surveillance video
- ✓ Biometric screening

Specialist units:

- ✓ Fraud Squad
- ✓ Specialist drugs units
- ✓ Dog handling units
- ✓ Special Branch

Crime Prevention:
- ✓ 1980s- Neighbourhood Watch
- ✓ Similarities - old community-based policing
- ✓ Differences – not compulsory; not a national system; only a help to professional police

Punishment

Prison developments:
- ✓ 1922 End of Silent System;
- ✓ 1933 Open Prisons, e.g. New Hall, Wakefield. Rehabilitation - to prepare prisoners for normal life after prison.
- ✓ 1967 Parole – good behaviour led to reduced sentence.
- ✓ Category A – D prisons – D being 'open prison' and used for non-violent offenders
- ✓ Reasons for change: return of reform / rehabilitation ideas

Alternatives to prison:

- ✓ 1907 Probation Officers
- ✓ 1967 Suspended Sentences and Parole introduced
- ✓ 1972 Community Service Orders
- ✓ 1990s / 2000s Electronic tagging; drug and alcohol treatment programmes; ASBOs; restorative justice.
- ✓ Reasons: cost of prison; belief that prison could have a negative impact on inmates which might make a life of crime more likely

Treatment of young offenders:

- ✓ 19th century young offenders kept in normal prisons.
- ✓ 1902 first Borstal
- ✓ Borstals – 1902- 1982, reform schools for juvenile offenders),
- ✓ 1982 Youth Custody Centres replaced Borstals
- ✓ Reasons for changes: focus on rehabilitation; avoid negative impact of
- ✓ prison; view that many young offenders' victims of negative domestic and
- ✓ social influences; young needed help not punishment; care for drug
- ✓ abusers, etc.

Death Penalty developments:
- ✓ In 1900 death penalty available for 4 crimes.
- ✓ 1908 / 1933 hanging of under 16s/18s ended.
- ✓ Miscarriages of justice / controversial executions: 1950 Timothy Evans; 1953 Derek Bentley; 1956 Ruth Ellis.
- ✓ 1957 Homicide Act restrictions
- ✓ 1965 Murder Act + 1969 Amendment ends use of death penalty; 1998 final abolition.
- ✓ Reasons for change: influence of government – changes to the law; changing public opinion linked to Miscarriages of justice / controversial executions
- ✓ Purpose of punishment: Reform / rehabilitation increasingly seen by government / liberal public opinion as most important purpose.

Crime and Punishment
Whitechapel

Living Conditions

Generally: Whitechapel, in the East-End of London, was one of its poorest districts; 30,000 people lived there (176,000 lived in the bigger police Whitechapel H-Division area). Middle classes. Although Whitechapel was marked by poverty, there were businesses and richer inhabitants as well. Usually they lived and traded along the larger roads such as Whitechapel Road and Commercial Road.
Pollution and poor sanitation: London suffered from terrible pollution from coal and gas fumes and industries (e.g. the London Smog was a soot-laden fog that severely restricted visibility and caused death from impeded respiration / breathing);
Sewerage and sanitation was poor and healthy drinking water unreliable, both causing diseases such as typhus and cholera.

Work: Much of the work in Whitechapel was casual or sweated labour: casual labour – such as in the docks or in construction – meant that workers were employed a day at a time: no job or income security; o sweated labour meant work in cramped, dusty and unhealthy "sweatshops" for low wages in "sweated trades", e.g. tailoring, dress and shoe making. The Board of Trade was

Housing

Bad housing: Typical conditions: much of Whitechapel contained slum housing (also known as "rookeries"), i.e. overcrowded, poor structural condition, poor sanitation, etc.
Overcrowded housing: houses were often divided into several apartments sometimes with 30 people in each house; o in 1881, Whitechapel's 30,709 people lived in 4,069 houses - on average 7.5 in each; o Whitechapel's population density was 189 per acre compared to 45 in London as a whole.

Homelessness: there were "lodging houses" where homeless people could sleep in 8-hour shifts: terrible unhygienic conditions including heat, rats and shared beds (dirty, unhygienic bedding, etc.); 200 lodging houses catering for 8,000 people.

Key example: Flower and Dean Street: 1871 census: 902 lodgers in 31 doss houses; 1871 Board of Works Report: 38 houses, 143 rooms, 298 people including evidence of overcrowding and buildings in dilapidated condition; narrow yards, dilapidated houses, very cramped rooms, poor sewerage; terrible reputation for prostitution, thieves and violent crime

Model housing – the Peabody Estate: the Artisan's Dwellings Act, 1875, encouraged slum clearance; 1881, George Peabody funded slum clearance and the creation of 286 flats in the Peabody Estate; rents were from 3 to 6 shillings a week for 1- and 3-room flats respectively (average labourer weekly income was 22 shillings).

The Workhouse: Workhouses were set up in the early C.19th to offer food and shelter to those who were too poor; there was a stigma (social disgrace) about using the Workhouse. As a rule, people avoided going to the workhouse as long as possible but then found it hard to leave; The poor were considered lazy and a

Immigration and revolutionary politics

Irish immigration:
Irish immigration expanded rapidly from the 1840s; the Irish community was frequently engaged in low-skill manual labour such as being "navvies" on roads and railways or as dockers;
An Irish terrorist group, **the Fenians**, were involved in a series of incidents from the 1860s to the 1880s and gained for the Irish a further reputation as violent fanatics

Eastern European Jewish immigration:
massive Jewish immigration from Russia to Whitechapel occurred in the 1880s. Jewish immigrants had a reputation for being a separate, un-British, and unintegrated community. This was based on language, religion, culture, clothing, and the fact that they tended to live in their own **separate communities**;
o Jewish immigrants were unpopular for their business success and alleged bad business practices

Politics:
Anarchism:
Anarchists wanted a revolution in which all laws and authority would be swept away.
o They committed some prominent political assassinations in Europe and America in the late C.19th; o there was concern that anarchist groups might commit crimes in Britain.
Socialism:
Socialists wanted to bring down the existing capitalist system and redistribute the property of the rich to create equality; in "Bloody Sunday" 1887, a working-class /

Crime and Punishment
Whitechapel

Policing in Whitechapel

Policing.
H Division: 1 officer for 300 people in Whitechapel
Criminal Investigation Department (CID): the Metropolitan Police also had a detective force, the Criminal Investigation Department (CID), with 294 detectives in 1883; the CID was set up in 1878
Commissioner Charles Warren: was appointed Commissioner of the Metropolitan Police in 1886; he gained a bad reputation for using the army to boost police numbers and for using vigorous policing methods against working-class political demonstrations (such as "Bloody Sunday" in 1887
Warren wrote to the press to blame much of the failure of the Ripper investigation on weak political leadership

Crime in Whitechapel:
There was a lot of crime in Whitechapel due to poverty and immigration.

1. **Protection Rackets**: Used by gangs to get money from businesses by forcing them to pay them to protect their shop
2. **Prostitution**: Was impossible to police
3. **Alcohol:** was cheap and caused issues of violence
4. **The environment of Whitechapel** made committing crime easier e.g. dark

The Ripper investigation:

People:
H-Division police officers and detectives;
Assisted by CID Inspector Frederick Abberline.
Methods:
Post-mortum and coroners evidence: cuts suggested murderer had some knowledge of anatomy and possibly of dissection;
so the police questioned 76 butchers and slaughtermen.
Follow up leads from journalists:
press identified murderer as "Leather Apron", a local Jewish man called John Pizer. Police arrested him but he had alibis for the murder dates / times.
press created or sent 300 letters to the police. Some of them appeared more convincing and the police created posters to try to follow up their evidence.
Witnesses:
eye-witnesses were critical for crime detection, police could not find reliable witnesses or stories did not add up
Other methods:

- posters and 80,000 handbills (leaflets).
- house-to-house searches.
- questioning 2000 lodging house reside
- police in disguise.
- bloodhounds – did not get anywhere.

Problems faced by the police:

The police and the media: 300 letters and postcards sent to police or newspapers by men claiming to be the murderer. Most famously, "Dear Boss"; hostility towards police
Police rivalry:
Catherine Eddowes was murdered in the City of London Police area, not that of the Metropolitan Police; a message reading "The Juwes are not the men that will not be blamed for nothing"; was washed off the wall

Vigilance Committee:
George Lusk, a local builder, believed that the police were not doing enough and set up his vigilance committee with local businessmen, patrolled the streets at night- meant murderer could not be caught in the act
Reliance on witnesses: The lack of forensic techniques (meant that the police were forced to rely on eyewitnesses; eye-witness evidence was vague

Lack of forensic techniques: Fingerprinting: only used after 1900. DNA evidence only used from late C.20th. Scientists could not tell difference between human and animal blood, let alone blood groups.

Crime and Punishment
Exam Structure

SECTION A: Whitechapel

1. ***Describe two features*** of (4 marks= two lines for each feature) 5 mins

2 a) ***How useful*** are sources A and B… (8 marks= 2 paragraphs) 15 mins
Content, Nature, Origin, Purpose, Contextual knowledge

2 b) ***How could you follow up*** Source B to find out more about..? (4 marks) 5 mins

- You are given a table (couple of lines) to fill out. Make sure you pick a specific source

SECTION B: Crime and Punishment

3. ***Explain one way***… (4 marks= one paragraph) 5 mins

- Often a comparison of time periods.

4. ***Explain why***… (12 marks= 3 paragraphs) 15 mins

- Given two prompts and add own point

- 5. ***How far do you agree***…? (16 marks +4 SPAG=3 paragraphs and conclusion) 30 mins
  - Given two options for questions, pick one
  - The statement can be about: consequence, cause, significance, similarity and difference
  - Use both sides of the argument 30 mins

How useful are Sources A and B for an enquiry into the difficulties of pol Whitechapel area, c1870–c1900?
Explain your answer, using Sources A and B and your knowledge of the historical context

Sources for use with Section A.

Source A: From a report in the *East London Observer* newspaper, June 1888. The newspaper published a weekly account of trials held in the local court.

Throwing stones at a Police Constable

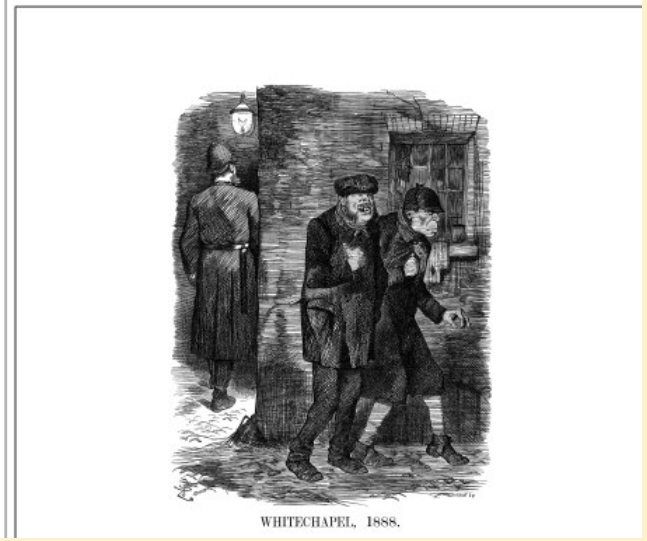
John Canavan, aged 20, was charged with being drunk and disorderly and also assaulting a policeman. On Sunday night, Canavan, who was drunk, was with some others and they were singing a rude song.

When the Police Constable tried to arrest Canavan for being drunk and disorderly, Canavan hit the Police Constable and pulled himself free from the constable's grip. Canavan and seventeen others then proceeded to throw stones at the constable, who was on his own.

The men ran away when another Police Constable arrived but Canavan was caught.

He was found guilty of all the charges and was sentenced to pay a fine of a week's wages or do a month's hard labour in prison.

Source B: A cartoon published in *Punch* magazine, 1888. The cartoon had a caption at the bottom giving details of the conversation between the two criminals in the drawing. The criminals agreed that the police were a 'Fine body of men' but they also agreed that, luckily for the two of them, there were very few policemen in Whitechapel.



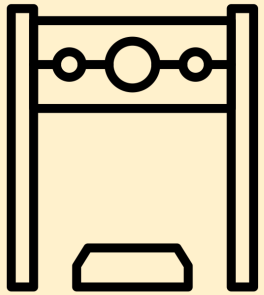
WHITECHAPEL, 1888.

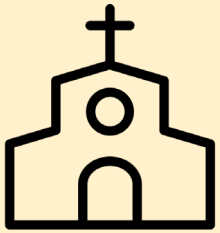
Crime and Punishment
Practice Questions

GENERAL TYPE OF SOURCE	VERY SPECIFIC SOURCE FOR Q2b
Photograph	Photograph of _____
Building	Mary Kelly's lodging house at 13 Miller's Court where she was murdered
Newspaper	The Illustrated Police News, The Graphic, East London Observer
Census	London census record e.g. 1881, 1891
Map	Map of Whitechapel showing different social classes by colour code (e.g. Charles Booth's poverty survey)
Drawing	Sketch of the ripper or body of Catherine Eddowes by police surgeon
Book	The Modern Jew by Arnold White published in 1899
Cartoon	Bull' Eye a cartoon published in Punch magazine in 1877
Court record/Old Bailey Record	Thames Police Court January 1887- December 1887
Police records	Details from PC William Shorts entry in H Divisional register

Crime and Punishment
Practice Questions

Whitechapel 4 mark features questions
Give two features of housing in Whitechapel.
Give two features of the workhouses in Whitechapel.
Give two features of the difficulties of policing Whitechapel.
Give two features of immigration to Whitechapel.
Give two features of extreme political beliefs in Whitechapel.
Give two features of the policing in Whitechapel.
Give two features of the police's failures to catch Jack the Ripper.
Give two features of the public reaction to the Ripper murders





Crime and Punishment 4 mark similarities/differences question
Explain one way in which trials were similar between medieval times and early modern England.
Explain one way in which policing was different between early modern England and 19th century Britain.
Explain one way in which prisons were different in 19th century Britain and 20th century Britain.
Explain one way in which punishments were similar in medieval times and 20th century Britain.
Explain one way in which the role of communities in law enforcement was similar in medieval times and 20th century Britain.
Explain one way in which smuggling was similar/different in 18th century Britain and 20th century Britain.
Explain one way in which the purpose of punishment was different between early modern England and 20th century Britain

12 mark explanation question
Explain how the justice system changed following the Norman Conquest of 1066. Explain why the Church hindered justice in the early thirteenth century.
Explain why there was an increase in witchcraft accusations during the early modern period.
Explain why the Metropolitan Police was set up.
Explain why the death penalty was abolished.
Explain why the nature of crime had changed by the 20th century.
Explain why the nature of prisons had changed by the 19th century.
Explain how the police force changed within the 20th century.

16 mark agree/disagree question [statement] How far do you agree? Explain your answer.
'The role of the King was the most important factor in law enforcement by the early 13th century'
'The role of local communities was the most important factor in law enforcement before the Norman Conquest'
'The Church hindered justice in the early thirteenth century'
'The main purpose of punishment in medieval England was deterrence'
'The importance of the king in law enforcement increased in early modern England'
'The English Civil War was the most important reason why witchcraft accusations increased in early modern England' 'The main reason for the increase in highway robbery was the cheaper price of horses'
'The main reason why the Met was set up was the work of Robert Peel'
'The main reason why prisons were reformed was the work of Elizabeth Fry and John Howard'
'Capital punishment was an important part of the penal system from c.1500-c.1900'
'The main reason why the definitions of crime changed in the 20th century was immigration' '

Year 10 History: Anglo-Saxon England c.1060-66

Anglo-Saxon society

- **The King** was the most important man in the country. His job was to look after foreign policy and defence, to sort out disputes between the earls and to maintain law and order. The king did not have absolute power.
- **Earls** were at the top of the Anglo-Saxon aristocracy and had their own land called earldoms.
- **Thegns** - they were lords who held land directly from the king, in return for military service in time of war. There were approx. 5,000 in 1060.
- **Ceorls** still had to carry out some services for their local lord, in return for the right to farm the land.
- **Peasants** and their families did a set amount of work for the local lord. Most people were peasants.
- 10% of the Anglo-Saxon population were **slaves**. Slaves could be bought and sold.

Anglo-Saxon Economy

- England was very wealthy with well-organised farming and land that was easy to farm (e.g. over 6000 mills for grinding grain into flour).
- Silver coins used which were valuable and bought from Germany. England must have had enough to sell to Germany in exchange for the silver.
- **Geld tax**: A tax on land, originally to pay off the Vikings (**Danegald**). It went to the king.
- Towns were not structured in the same way as rural estates were. The major towns such as London, York, Winchester and Oxford were **fortified** against enemy attack. These fortifications were called **Buhrs.**

Church

- Everyone was Christian.
- Archbishops were the most important men in the Church. There were two Archbishops for the north (York) and one for the south (Canterbury). Both were equal and could coronate the monarch.
- Next came, Bishops controlled the churches in a large area.
- Archbishops and bishops advised the King as part of the Witan.
- Priests were often very poor. They were usually married, which went against the reforms of the church that required priests to be celibate

Anglo-Saxon Government

Witan

- The King made the laws; Earls and thegns made sure it was carried out.
- The Witan was a group of lords and bishops (leaders of the church).
- Helped to choose the new King and advise the king on important matters, for example during invasions.
- However, the King did not have to listen to the Witan and decided who was included and when they me.

Local Government

- Earldoms were divided into shires. Each shire had its own law court for trying cases and giving punishments.
- The shire reeve (or sheriff) would run this court, to make sure the king's laws were followed.
- The shire reeve also helped to raise the fyrd army if the king needed it.
- Each shire also had at least one burh (fortified town) as its main trading centre, and also for protection – people could go to the burh in case they were attacked.

Danelaw:

This was the name for part of England that had been under Viking rule and they had slightly different laws and reduced taxes from fighting off the Scots and Vikings,

The House of Godwin

- By the mid-1060s, the Godwins were the most powerful family in the kingdom of England after Kind Edward the Confessor.
- They controlled most of the Earldoms – Harold, Earl of Wessex, Tostig, Earl of Northumberland, Gyrth – Earl of East Anglia and Leofwine – Earl of Kent.
- Together, they earned £8,500 per year, while King Edward only earned £6,500 from his land! They were also lord to many hundreds of thegns, housecarls and fyrd, making them powerful war-leaders.
- Their sister Edith was Queen: This gave them power as Edith could persuade Edward to do things that would help the Godwins.

Harold Godwinson's embassy to Normandy 1064

Harold travelled to France to give William an unknown message from Edward, but was shipwrecked. Harold was taken prisoner by a French lord, but William of Normandy rescued him.
After giving King Edward's message to William, Harold made an oath (promise) to William, on relics. William claimed that this was an oath of allegiance that Harold had promised to help him become the next king of England (Harold would later deny this!)

Year 10 History: Anglo-Saxon England c.1060-66

The Rising against Tostig and his exile.

Tostig Godwinson became Earl of Northumbria in 1054.and upset the Northumbrians in several ways:

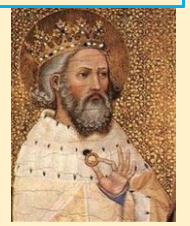
- too heavy taxes.
- being friends with the King of Scotland, so he didn't defend Northumbria from Scottish attacks.
- he imposed new laws

In 1064, Tostig murdered two followers of a thegn called Gospatric. Gospatric was killed on the way to visit Edward to complain about it.

This led to an uprising in 1065, with rebels marching on York, the city from which Northumbria was governed. There, the rebels killed those loyal to Tostig and declared him an outlaw. They invited Morcar to be their Earl, the Earls agreed to this, and sent Harold Godwinson north to agreed to the rebels demands. Tostig was exiled and Morcar became the new Earl.

Death of Edward the Confessor: He had no children with his wife, Edith of Wessex, daughter of Earl Godwin. So when he died on 5 January 1066, there was a succession crisis.

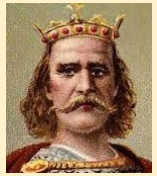
Succession (to the throne) = the process that decided who should be the next king or queen and 'succeed' to the throne.



Contenders for the Throne

Harold Godwinson

- Harold was chosen by the Witan.
- They wanted a Saxon man to be King of England not a foreigner.
- Harold was coronated on 6th January 1066.



Edgar the Atheling

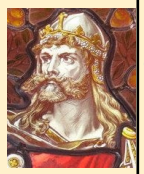
- The nephew of Edward the Confessor, brought over from Hungary by Edward.
- Edgar had the strongest claim to the throne by blood.
- He was only 14 and had little political, economic or military power.

William, Duke of Normandy

- William was a distant cousin of Edward.
- He claimed that Edward had promised him the throne in 1051.
- He claimed that Harold had promised to help him become king in 1064.
- He had a strong Norman army to support him.

Harald Hardrada – King of Norway

- A Viking, who wanted to take England by force.
- He had alarge army and was supported by Tostig.
- His claim came from Magnus, the old king of Norway, who had been promised England by Harthacnut (Cnut's son).



Battle of Fulford Gate

20th September 1066

Fought between:

- Vikings – Harald Hardrada
- Anglo-Saxons – Edwin, Earl of Mercia Morcar, Earl of Northumberland.

Reasons for:

- Hardrada with Tostig invaded with 300 ships
- 10,000 Vikings VS 6,000 Saxons
- Morcar and Edwin decided to meet the Vikings in open battle rather than the fortified York.

Events:

- Vikings win as they outnumbered the Saxons
- Vikings had invaded the northern coast earlier than expected.

Battle of Stamford Bridge

25th September 1066

Fought between:

- Vikings – Harald Hardrada Tostig Godwinson
- Saxons – King Harold Godwinson

Reasons for:

- Saxons march 185 miles in four days
- They surprise the Vikings, who only have 1/3 of soldiers at Stamford Bridge. The rest are resting from Battle of Fulford Gate.

Events:

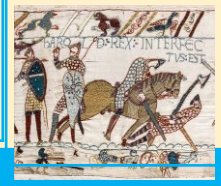
- Viking warrior holds back Saxons on the bridge but is eventually killed and the Saxons attack the main Viking army.
- Harald Hardrada is killed by an arrow to the throat. Tostig is killed.
- Saxons win **but** William lands in England on 28th September.

Battle of Hastings

14th October 1066

Fought between:

- Saxons – King Harold
- Normans – William, Duke of Normandy



Reasons for:

- Saxon army tired and lacking many housecarls from a long march and 2 battles.
- William's men are rested.
- William has archers and cavalry.

Events:

- Saxons begin with a strong shield wall at the top of Senlac Hill.
- William breaks the Saxon shield wall by feigning (pretending) a retreat.
- Saxons chase after them and lose their position. King Harold is killed
- Normans win. William becomes King of England.

Year 10 History: William I in power - securing the kingdom 1066-87

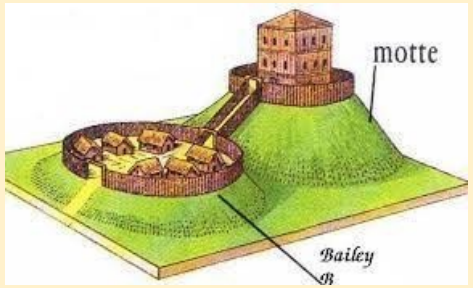
Submission of the Earls 1066 (How William gains control)

1. Goes to Dover and sends for soldiers from Normandy.
2. Burns and destroys homes in order to gain control through fear,
3. Edgar the Aethling, Earls Edwin and Morcar submit to William as Berkhamstead. Edwin and Morcar keep their Earldoms.
4. William was crowned by Archbishop Ealdred of York.

Marcher Earldoms

Wales had been a threat. William wanted to secure the border.

- So he creates 3 new earldoms, called the Marcher Earldoms, based at Hereford, Shrewsbury and Chester.
- They were given to William's most loyal followers: Hugh d'Avranche, Roger de Montgomery, and William FitzOsbern.
- The Marcher earldoms did not have to pay any tax to William.
- They also had the power to build castles, build new burhs, markets and churches



Castle Building

William built over 1,000 castles (Tower of London, built in 1078).
William built castles called Motte and Bailey castles. They were made of wood so were quick to build.
He placed them in important places, such as near cities.
They kept soldiers safe, so they could police the area and stop rebellions happening.

Anglo-Saxon Resistance 1068-71

1.Revolt of Edwin and Morcar – 1068

Edwin and Morcar had lost lots of land when William took over, even though they were still Earls. Edwin and Morcar escaped from William's court and headed to Northumbria and tried to raise an army. William headed north to meet the rebels. When he found Edwin and Morcar they surrendered. They were forgiven.

2. Edgar the Aethling and the Rebellions of the North, 1069.

Revolt 1 (Jan 1069) – Robert Cumin was made Earl of Northumbria after Earl Gospatric had rebelled. Cumin's men burnt homes and stole their goods. People got angry, attacked Cumin and his men and burnt him alive. Revolt 2 (Feb 1069) –Edgar and King Malcolm III (Scotland) against the Norman rulers of York. William went to York destroyed Edgar's army. William built a castle in York, he put FitzOsbern in charge. Revolt 3 (Sep 1069) – King Sweyn of Denmark joined by Edgar and Malcolm . They attacked York; killed the Normans guards and destroyed the Norman castles.

3. Hereward the Wake and the rebellion at Ely, 1070-71

Hereward was a Saxon thegn whose land had been taken by the Normans. Hereward launched attacks against the Normans from the swamps Ely.He joined with King Sweyn of Denmark and they led an attack on the Norman controlled cathedral in Ely. Morcar, also joined the rebellion. Once the Normans had been defeated the Vikings took all the cathedral's valuables and sailed them back to Denmark. The end of the rebellion came when William led his troops in an attack and captured Ely and killed the rebels. Hereward managed to escape. Morcar was captured and imprisoned for life.

Harrying of the North 1069 – 87

- Late 1069 William took his army north to Yorkshire and Lancashire.
- Destroyed houses, burnt land, slaughtered inhabitants.
- Over 100,000 died. (This was still true by the Domesday Survey in 1086).
- The land was so badly destroyed that people couldn't farm it.

Changes to Landownership for Anglo-Saxon to Norman

By 1087 the Normans had replaced the Anglo – Saxons as key landholders in England:

- 50% held by 190 Tenants–in-chief.
- 25% held by the Church.
- 20% held by the King's royal estates
- less than 5% was held by Anglo – Saxons.

William took land from those who rebelled he gave it to his loyal followers such as Odo of Bayeux.

The Anglo – Saxons lost their land in three ways:

- Forfeit: The King owned all of the land in his Kingdom. If anyone acted against the King the lands could be forfeited.
- New Earldoms: William created new earldoms and other blocks of territory. He granted these to his followers.
- Land Grabs: There were thefts and seizures of land from the Anglo – Saxons.

Revolt of the Earls 1075

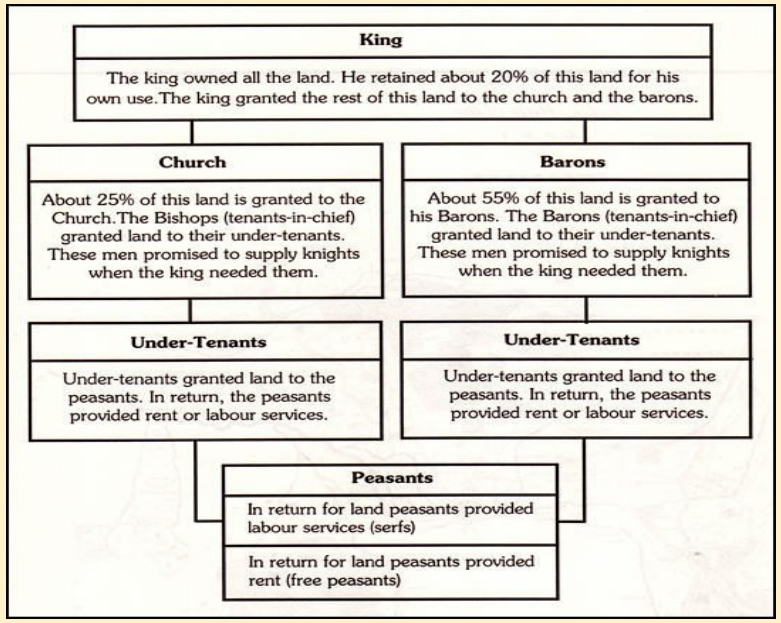
- There were 3 Earls involved in the 1075 Revolt:

Roger de Breteuil, Earl of Hereford
Ralph de Gael, Earl of East Anglia
Waltheof, Saxon Earl of Northumbria (He had support from King Sweyn of Denmark)
Their plan was to overthrow William and split the country three ways between them. They waited until William was in Normandy.
It failed because Waltheof told Archbishop Lanfranc about the plan. Saxons and Normans loyal to William raised an army to stop the rebellion.By the time the Vikings had arrived it was too late. The rebellion had been stopped and William had arrived. 200 Viking boats refused fight.

- Roger de Breteuil was imprisoned for life. Ralph de Gael managed to escape to Brittany. Waltheof was imprisoned and executed the next year.

Year 10 History: Norman England 1066 - 88

Feudal System



Changes to the Church

- At first, William kept Anglo-Saxon church leaders (e.g. **Ealdred, Archbishop of York and Stigand, Archbishop of Canterbury**). Stigand was a close ally of Earl Godwin. He had little control over other bishops.
- **After rebellions of 1068-1070**, William replaced almost all Anglo-Saxon Church leaders with Normans (e.g. Stigand, Archbishop of Canterbury, replaced by Lanfranc) **Lanfranc, was made the Head of the Church of England** and could control other bishops. He was a reformer who wanted the church to be more spiritual and hierarchical. He tried to introduce celibacy, church courts, oversaw trial by ordeal, and built churches in strategic locations to increase control over the country.
- William controlled communication between Church leaders and the Pope.

Social and Economic changes

Changes	Continuities
• **Trade:** reduced to Scandinavia (impacting on north of England) but increased with Normandy (boosting south of England). • **Military**: castles dominated many towns. • **Social Control**: Feudal system meant the king was more powerful. • **Political**: Anglo-Saxons were removed from almost all positions of influence.	• **Geld Tax**: major source of revenue for the King. • **Farming Life:** same as before, although Norman landlords may have been stricter. • **Towns:** William agreed towns could keep their trading rights and privileges.

Norman Government

Changes to government included:

- **Smaller earldoms** (e.g. Wessex and Mercia), power of marcher earldoms reduced
- **Regents** as William had both England and Normandy to run

Lanfranc was regent in 1075. Odo and Fitzosbern both caused problems with their greed when regents.

- **Sheriffs** Normans replaced Anglo-Saxons after some Anglo-Saxon sheriffs rebelled (e.g. Maerleswein)
- William established royal forests. 18% of land was **royal demesne** in 1086, far more than under Edward.

Domesday Book

Purpose: William faced the threat of invasion by the Vikings and wanted to know how much tax he could collect.
Findings: Land in England was owned by about 250 people.
Questions: how many animals, who holds the land, how many ploughs, how many villagers etc.
Outcomes: in 1086 there were 2000 knights in England, 10,000 Norman settlers and the population was around 2 million.

Norman Aristocracy

• **Norman culture:** to show off their wealth, go hunting, chivalry and they were very religious believing they should do penance	**Language**: William and Lanfranc could not speak English. The ruling elite spoke Norman French and wrote in Latin. English was only used by 'common people.'

Bishop of Bayeux

- William's half-brother, and for his support at B.o.H,he made him Earl of Kent.
- Co-regent in 1067 but hated by English due to this.
- 1079, Odo sent to Northumberland to protect area. Odo laid waste to region
- 1082, Odo imprisoned and only freed when William was dying.

William's sons

Robert Curthose (eldest) and William had bad relationship; which led to war after a prank in 1077! In battle in 1079 Robert humiliated William by beating him.

1087 William died

- Robert became Duke of Normandy.
- William wanted favourite second son **William Rufus** to be king but said he would let God choose. Lanfranc supported Rufus' claim
- Henry (youngest) was given £5000

1088: Robert Curthose, led a rebellion against his brother, in order to unite Normandy and England and was supported by Odo and some barons.

Anglo-Saxon and Norman England
Exam Structure

4. ***Describe two features*** of (4 marks= two lines for each feature) 5 mins

5. ***Explain why***… (12 marks= 3 paragraphs) 15 mins
- Given two prompts and add own point

6. ***How far do you agree***? (16 marks = 3 paragraphs and conclusion) 30 mins
  - Given two options for questions, pick one
  - The statement can be about: consequence, cause, significance, similarity and difference
  - Use both sides of the argument

Question 1 – Describe two features of… (4 mark)
1. Describe two features of the role of the king in Anglo-Saxon England. (4 marks)
2. Describe two features of the social system of Anglo-Saxon England. (4 marks)
3. Describe two features of earldoms in Anglo-Saxon England. (4 marks)
4. Describe two features of the power of the Godwin family. (4 marks)
5. Describe two features of the Church in Anglo-Saxon England. (4 marks)
6. Describe two features of the Battle of Stamford Bridge. (4 marks) 13. Describe two features of the Anglo-Saxon army. (4 marks)
7. Describe two features of Norman army at the Battle of Hastings. (4 marks)
8. Describe two features of Norman castles. (4 marks)
9. Describe two features of the role of tenants-in-chief in Norman England. (4 marks)
10. Describe two features of the Normanisation of the Anglo-Saxon Church. (4 marks)

Question 2 – Explain why… (12 mark)
1. Explain why there was a disputed succession to the English throne when Edward the Confessor died.
2. Explain why Harold Godwinson's position as ruler was threatened by September 1066.
3. Explain why Anglo-Saxon monarchs had so much power.
4. Explain why there was an uprising against Earl Tostig in 1065.
5. Explain why William won the Battle of Hastings.
6. Explain why William carried out the 'harrying of the north' in 1069-70.
7. Explain why William created the Marcher earldoms.
8. Explain why changes in landownership made resistance to Norman control less likely after 1071.
9. Explain why there were challenges to William I when he was deciding his succession.
10. Explain why Bishop Odo lost power in 1082

Question 3 – '……' How far do you agree? (16 mark)
1. 'The main reason William of Normandy won the Battle of Hastings was his superior leadership skills.'
2. 'The main reason William was able to keep control of the people of England was his use of regents.'
3. 'The main consequence of the Norman invasion of England was the Normanisation of the Church.'
4. 'The main consequence of Anglo-Saxon resistance 1068-70 was an increase in Norman control of England.'
5. 'William's strategy for ruling England had failed by 1070.'
6. 'The main significance of the Domesday Book was financial.'
7. 'Of all the changes the Normans made in England, the most important was the change to the Church.'

Year 10 RSMS: Islam: Beliefs & Teachings

Sunni & Shi'a Muslims

Islam means submission in Arabic. Allah is the creator and has revealed himself through history to many peoples through prophets. God's final and greatest revelation comes in the form of the Qur'an to Prophet Muhammad. 1.6 billion Muslims worldwide – 2nd largest religion. 4.5% of UK is Muslim.

Sunnis	Shias
Religious guidance only from Qur'an & Hadith. No religious hierarchy – no Imams appointed by God. Caliph should come from companions not relatives	God guided Prophet to appoint Ali. Leadership of Muslim community is continued through 12 Imams – divinely appointed from Prophet's relatives. Last (12th) Imam will appear at end of world as Mahdi (chosen one)

The Ummah is the worldwide community of Muslims. All Muslims are equal, whatever, language, race or nationality. 'All people are equal as the teeth of a comb.' Hadith. 87-90% of Muslims are Sunni. 10-13% are Shi'a (mostly Iran). Sunnis & Shi'a share most beliefs but have some significant differences in understanding, laws and practices.

Split - Shias believe first Caliph (leader) should have been Ali but Sunnis believe it should have been Abu Bakr. Sunnis believe Muhammad said Abu Bakr should be Caliph but Shi'a dispute that since Ali was a relative it should be inherited. Husayn, Ali's Son, should have been next in line but was murdered by Sunni ruler at Battle of Karbala.

Husayn was beheaded and is mourned by the Shi'a.

Six Articles of Faith

1. **Belief in one God (Tawhid)** This means oneness of God. Muslims believe that no being is like Allah.

2. Belief in angels Muslims believe that God's greatness means he cannot communicate directly with humans. Instead, God passed messages, called **risalah**, to his prophets via the angels, who were his first creation and who always obey him.

3.Belief in holy books The holy books of Islam should be respected. This is especially true of the Qur'an, which is the unchanged word of Allah, revealed to the Prophet **Muhammad**.

4.Belief in the prophets Allah is believed to have communicated with the prophets, through the angels. Muslims believe the prophets should be respected but never worshipped.

5.Belief in the Day of Judgement and the afterlife (Akhirah) Muslims believe that life on Earth is a test and that, after they die, they will be judged by God and sent to either Paradise or Hell.

6.Belief in predestination (Al-Qadr) This means that everything in the universe follows Allah's masterplan – Muslims believe that Allah has decided everything that happens. This shows the importance of God's will.

Five Roots of Usul ad-Din

Principles that underpin belief

The Ten Obligatory Acts

If a Muslim accepts them all, then they are Shi'a.

Tawhid – oneness of God

Resurrection – The Day of Juedgement

Adalat – Justice "Indeed Allah Commands you towards Justice"

Imamate - Leadership Shi'a believe the 12 imams would succeed Muhammad.

Prophethood – Shi'a's believe Allah sent messengers to guide people to the right path – a peaceful way of life.

Nature of Allah

- **Transcendent** – Allah is above and beyond anything that exists in the world.
- **Fair and just** - Allah judges everyone equally.
- **Immanent** - Allah is close to every human and within all things on Earth.
- **Omnipotent** - Allah is all-powerful.
- **Beneficent** - Allah is all-loving.
- **Merciful** - Allah shows compassion and **mercy**, and he forgives people.

Risalah

Risalah, meaning prophethood or the belief in prophets, is a basic **article of faith** for Muslims.

"Say, [O believers], "We have believed in Allah and what has been revealed to us and what has been revealed to Abraham and Ishmael and Isaac and Jacob and the Descendants and what was given to Moses and Jesus and what was given to the prophets from their Lord. We make no distinction between any of them, and we are Muslims [in submission] to Him." (Qur'an 2)

Muhammad - Seal of the prophets. Last and Greatest of the prophets. Only miracle that he performed was receiving Qur'an.

Adam - Father of the human race. Formed from handfuls of different colour soil. Represents diversity of humanity. Adam disobeyed God by being tempted by devil to eat fruit. Banished to earth but Adam confessed, was forgiven, made prophet. Adam was 1st man to build the Ka'ba.

Ibrahim (Abraham) - A hanif and one of the greatest prophets. Born to family of polytheist but rejected it and became a Muslim. Two sons – Ishma'il – ancestor of Prophet Muhammad – and Ishaq (Isaac)

Musa (Moses) - Teachings of Ibrahim were lost so new prophet had to be sent. Musa led Israelites out of slavery in Egypt.

Dawud (David) - One of Israel's greatest Kings, made Jerusalem a holy place for Muslims. He received God's word (Zabur) as hymns of praise.

Isa (Jesus) - 2nd most important prophet. Miracle of virgin birth accepted. Miracles of Jesus recognised and holy book of Injil recognised. Isa not Son of God and Muslims reject Trinity, Jesus didn't die.

Year 10 RSMS: Islam: Beliefs & Teachings

Prophets

Muhammad: Role model for Muslims, performed no miracles but is the perfect example of a human being.
Mecca: Muhammad born in Mecca in 570CE. Age 6 became an orphan. Worked as a shepherd (emulated Ibrahim/Dawud/Musa). Twenties – met Khadija whilst working for her. Khadijah proposed to him. Had 4 daughters and 2 sons. Prophet became troubled by corruption and polytheism of Mecca.
Laylat-ul-Qadr – Night of Power
Muhammad spent time alone in prayer and one night in 610CE –he was praying in a cave near Makkah – had an experience that would change his life. Angel Jibril appeared to him and ordered him to recite. 1st revelation of the Qur'an, revelations would continue for next 23 years until Muhammad's death.
The message Muhammad brought to Mecca was that there was only one God who needed to be worshipped because of judgement. Message was not received well and he was ridiculed. Faced a lot of opposition.
Medina - Hijrah
Muhammad and the early Muslims moved to Medina in a migration called the Hijrah.
Muhammad fought many battles versus Meccans including Battle of Uhud/Trench.
Adam: The first human, 'Father of mankind', Allah "blew life into his soul", Angels were ordered to bow to him. Given Hawwa (Eve) as a companion but they ate the fruit and were banished to earth. He built the first Ka'ba.
Ibrahim: Devout man to preached against the worship of idols. He did not bur when he was set on fire. Was prepared to sacrifice his son. Rebuilt the Ka'ba with Ismail.

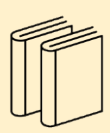
Holy Books

Most important source of authority for Muslims. Complete and perfect book of guidance for all humans. Revealed by God to Prophet Muhammad through Angel Jibril. Written in Arabic and final compilation by Caliph Uthman shortly after Prophet's death (632AD). Unchanged and literal word of God.
Qur'an is known as Umm-ul-Kitab 'Mother of Books'. Qur'an is a sacred and holy text which is free from distortion unlike other holy books. Qur'an has always existed and was written in Arabic on tablet of stone in heaven. Qur'an is guide for life, teaches everything, learn by heart in Arabic.

Sunnah is the inspiration of the life of the Prophet. His life is an example and a guide for all Muslims. 2nd most important source of authority. Muslims know about Sunnah largely through the Hadith. Hadith are many books containing the sayings and actions of the Prophet recorded by family and companions.

Shariah uses Islamic sources of authority (Qur'an, Hadith). Sets out moral and religious rules that Muslims must follow. Shariah is incorporated in the law in many Muslim majority countries. Shariah defines what is halal and what is haram. Shariah covers many everyday issues –food, clothing, crime, money, sex and relationships.
E.g. It is Haram to murder, drink alcohol, cohabit. It is Halal to eat chicken (halal) and vegetables.
Kutub – four other holy books from Jewish and Christian traditions. Originally true revelations from God but have been corrupted over time because not properly written down. Can't be trusted, nothing like Qur'an in terms of authority.

a) Sahifah (Scrolls of Ibrahim) lost
b) Tawrat (Torah)
c) Zabur (Psalms
d) Injil (Gospels)




Angels

Most Muslims believe that angels were created before humans with the purpose of following the orders of Allah and communicating with humans.
Angels are **immortal**, are made of light and have wings. They are pure and cannot sin. They obey and serve Allah at all times.

"They exalt him night and day and do not slacken" **Qur'an 21:20**

The role of angels
- They act as messengers to the **prophets**.
- They take care of people.
- They record everything a person does, and this information is used on the **Day of Judgement**.
- **Izrail**, the Angel of Death, takes people's souls to God when they die.
- They welcome Muslims into Paradise and also supervise the pits of Hell.

- **Angel Jibril** (known in Christianity as the Angel Gabriel) always brings good news. He is mentioned in both the Qur'an and the **Hadith**. He revealed Allah's words (the Qur'an) to **Muhammad** on the **Night of Power** so he is known as the **Angel of Revelation**. He played a vital role in communicating the final version of Islam to humanity.

Kiraman & Katibeen | Nakir & Munkir | Israfil | Mika'il | Jibril





Akhirah

Akhirah is everlasting life after death. Muslims regard life on Earth as a test from Allah, to prepare them for eternal life. Importantly, though, Muslims believe that Allah will not test them beyond their limits. This encourages Muslims to take responsibility for their actions.
On Day of Judgement, the dead will be **resurrected** for judgement by God. All people will receive God's reward or punishment according to their beliefs and actions. The good will be rewarded with eternal life in Paradise, or Jannah, while the bad will be punished by going to a Hell of fire and torment, called **Jahannam**.
Muslims believe they can enter Paradise by living according to the teachings of the Qur'an. Therefore, obeying the rules set by Allah is of ultimate importance for Muslims. Most Muslims believe that, as Allah is forgiving and merciful, he will pardon those who are truly sorry for their sins if they have done some good in their lives. However, many Muslims believe that some sins, such as **shirk**, are unforgivable.

Jannam & Jahannam
After death, most Muslims believe that the soul will enter Barzakh, a state of waiting, until the Day of Judgement.
- When a person dies, their soul is taken by Azra'il, the Angel of Death.
- God sends to angels to question the waiting soul. They ask: Who is your Lord? What was your life like? Who is your prophet?

Year 10 RSMS: Christian Practices

"No one can enter the kingdom of God unless they are born of water and the Spirit." (John)

Forms of Worship

There are four main types of worship that Christians can engage in:

- **Liturgical worship**
- **Non-liturgical worship**
- Informal worship
- Private worship

Christians can be involved in all four of these forms of worship.

Examples of activities that may take place at some or all of these forms of worship are readings from the **Holy Bible**, prayers and the **Eucharist**.

Sunday is regarded by Christians as the **Sabbath** because Jesus' resurrection happened on a Sunday. It is also a reminder to Christians that God rested on the seventh day of creation. Most churches have their main service on a Sunday morning

Liturgical worship

Liturgical worship is a church service that follows a set pattern of prayers and readings, usually found in a printed book.

Christians who participate in liturgical services may feel connected to other worshippers as they are following the same traditions.

As a **congregation**, Christians often participate together, repeating key information and singing hymns.

Non-liturgical worship

Non-liturgical worship is more informal and has less structure, and the elements can be tailored to different types of services. For example, the **sermon** could be on a topical theme, and prayers could be in the service leader's own words rather than those written in a book.

Informal worship

Informal worship focuses on the adoration of God and is not always carried out in a church. Often, large **auditoriums** are used.

Frequently the music used during informal worship is popular and modern in style, and instruments are commonly used.

Charismatic worship is a kind of informal worship. Although Charismatic services have recognisable Christian features, such as prayers and readings, they are very free-flowing services.

Prayer

Prayer is how Christians communicate with God, through both talking and listening and being open to the guidance of the **Holy Spirit**. It is a two-way method of communication that gives Christians comfort as they feel that God is listening and may send messages back.

Jesus spoke often about the importance of prayer, as he felt it deepened a person's relationship with God. Similarly, many Christians believe that prayer can bring them closer to God.

Christians often use formal written prayers, which are often memorised in order to be recited both publicly and privately. An example of this is the **Lord's Prayer**, which was the prayer that Jesus taught his followers when they asked him to pray. This can be found in the Anglican Book of Common Prayer.

Christians also use informal prayers, which are personal and allow individuals to connect with God.

- **A**doration - Praising God, eg "Dear God, I know that you are all-loving…"
- **C**onfession - Saying sorry, eg "Please forgive me for the horrible things I have said about…"
- **T**hanksgiving - Thanking God, eg "Thank you for the amazing weather this week…"
- **S**upplication - Asking for something, eg "Give me strength to…"

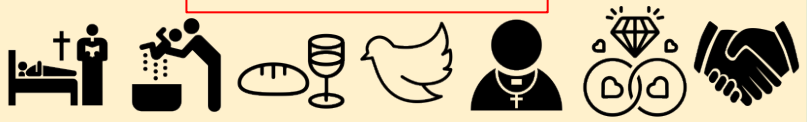
A fifth common component is intercession:

- Intercession - Praying for someone who may be ill, eg "Please remember my cousin, who is ill, and help them to heal after their operation."

The Lord's Prayer

"Our Father, which art in heaven, Hallowed be thy Name. Thy Kingdom come. Thy will be done in earth, As it is in heaven. Give us this day our daily bread. And forgive us our trespasses, As we forgive them that trespass against us. And lead us not into temptation, But deliver us from evil. For thine is the kingdom, The power, and the glory, For ever and ever. Amen."

The Sacraments



Anointing, Baptism, Communion, Confirmation, Holy Orders, Marriage, Reconciliation

Infant Baptism

Some Christians believe baptism makes a Christian a member of God's family. In many denominations babies are baptised, and this is known as infant baptism.

For **Orthodox Christians**, infant baptism involves **total immersion**. However, other denominations make the sign of the cross on the baby's head using oil and use **holy water** on the forehead.

"Jesus' instructions were to "baptise in the name of the Father, Son and Holy Spirit", so these words are said during a baptism." (Matthew)

Believers Baptism

Baptists and **Pentecostals** believe baptism should only occur once somebody is an adult, as it is then that the individual can accept Christianity for themselves. This type of baptism is called believers' baptism.

It is done using total immersion, where the person being baptised walks down into a pool and is fully submerged three times before walking out into their new life.

Some Christians prefer believers' baptism because Jesus was baptised as an adult and because, as an adult, you are able to make decisions for yourself.

Evangelism involves converting people to Christianity. It often goes hand in hand with the activities of missionaries. Some Christians feel that they should take on this role as they believe that they can help people to discover their real purpose in life.

While some evangelists tell people directly about God, others try to show God's love through their actions. For example, Gideons International, an association of evangelical Christians, donates copies of the Bible to hotels and hospitals in the UK and around the world.

Year 10 RSMS: Christian Practices

Eucharist

The **Eucharist**, also known as **Holy Communion**, is a sacrament that commemorates the **Last Supper**. Not all Christians celebrate this sacrament. The most important element of the Eucharist is the bread and the wine, but there are varying beliefs about the roles of these items.

- **Belief 1** - **Catholics** believe that the bread and the wine become the actual flesh and blood of Jesus Christ. This belief is known as **transubstantiation**.
- **Belief 2** - Some Christians believe that the Holy Communion is a re-enactment or commemoration of the Last Supper. The bread and wine are seen as symbolic of Jesus' death.
- **Belief 3** - **Baptists** believe the bread and wine are symbols that can be used to bring people together as a community. They use non-alcoholic wine and the bread is offered from person to person.
- **Belief 4** - **Orthodox Christians** believe that Jesus is mystically present in the bread and wine.
- **Belief 5** - **Church of England** Christians believe that the bread and wine hold the spiritual presence of the body and blood of Jesus but do not become it.

Pilgrimage

A pilgrimage is a journey that has religious or spiritual significance. The journey is usually taken to an important religious place. There are many sites of Christian pilgrimage, several of which are mentioned in Bible stories about the life of Jesus, including **Jerusalem**.

Lourdes

Lourdes is a famous pilgrimage site in France where the waters are believed to have healing powers.

In 1858, Bernadette Soubirous, a young local girl, was said to have seen the **Virgin Mary** at Lourdes and her friend was said to have been healed in the waters. Bernadette was made a saint by Pope Pius XI in 1933.

Often the water is taken home by pilgrims, and there have been many more stories of healings.

Iona

Iona is a quiet island in Scotland where a **monastery** was built by Columba, a **monk**. It is often visited by pilgrims.

Christians go there to study the Bible and pray, which may lead to spiritual growth. People often feel that they benefit from having their lives redirected or feel that they learn something about themselves while in Iona. This can allow Christians to face the challenges of life back at home in a different way.

Christmas

Christmas celebrates the birth of Jesus, as told in the **Gospel** of Matthew and the Gospel of Luke. The festival of Christmas does not fall on Jesus' actual birthday, and different **denominations** celebrate it on different dates. **Protestant** and **Catholic** Christians celebrate Christmas on 25 December, while **Orthodox Christians** celebrate it on 6 January.

Easter

Easter begins with Lent, which is the name given to a period of 40 days leading up to the day of **resurrection**.

The week leading up to the resurrection is known as **Holy Week** and there are special services held in Christian churches across the week:

- **Palm Sunday** - On this day, the four gospels state that Jesus entered Jerusalem on a donkey. The people were overjoyed to see him, and they showed their love for him by waving palm branches as he passed by. Palm crosses are given out during Christian services as a symbol of this event.
- **Maundy Thursday** - On this day, Jesus hosted the **Last Supper**, which was followed by his arrest in the **Garden of Gethsemane**. This day marks the beginning of a time of sadness and reflection for Christians.
- **Good Friday** - Jesus' **crucifixion** and death. Traditionally, some Christians commemorated this with a day of fasting or by ending the Lent fast and eating **hot cross buns**. Today, many churches hold services during the afternoon at a similar time to when Jesus died (3pm). Some Catholics may hold a procession called the Stations of the Cross, which re-enacts the final journey of Jesus when he carried his cross to his crucifixion. There is a series of 14 stops, all of which remind Catholics of the events that happened during Jesus' final day.
- **Easter Sunday** - Jesus' resurrection. Some churches hold a **vigil** on the Saturday evening before a service on the Sunday. For Christians, Easter Sunday is a day of joy to celebrate what God has done for humanity. Cards are swapped and in the UK, chocolate Easter eggs are given and eaten by Christians. The eggs symbolise new life and, for some Christians, they remind people of the shape of the boulder that rolled away from the entrance of Jesus' tomb. People of other faiths and those who do not hold religious beliefs may also enjoy exchanging chocolate eggs because they are freely available in shops.

Role of the Church

Charity

The following charities are three examples of Christian organisations that spread Christianity's key messages through international action. They provide both emergency short-term and long-term aid locally and globally. These charities each fundraise within the UK and internationally, and use the media to highlight their campaigns. There are many other Christian charities around the world.

CAFOD

The **Catholic Agency for Overseas Development** (CAFOD) works to fight poverty and injustice around the world. It works through churches in places that have suffered natural disasters, aiming to give people the skills to help themselves.

Christian Aid

Christian Aid was set up after **World War Two** to help refugees in Europe. It now works in disaster zones around the world.

Every year, during Christian Aid Week, the organisation asks each household in the UK to give money to help continue its work to end poverty throughout the world. Christian Aid projects often use the skills of local people to improve life for the community.

Tearfund

Tearfund is an **evangelical** organisation that aims to help to end hunger all over the world. It cares for **refugees** in particular.

Often young people from within the congregation are encouraged to spend time overseas helping on projects. Various kinds of aid are supplied, but there is a large focus on spiritual need, not just physical, and Tearful has set up over 67,000 churches.

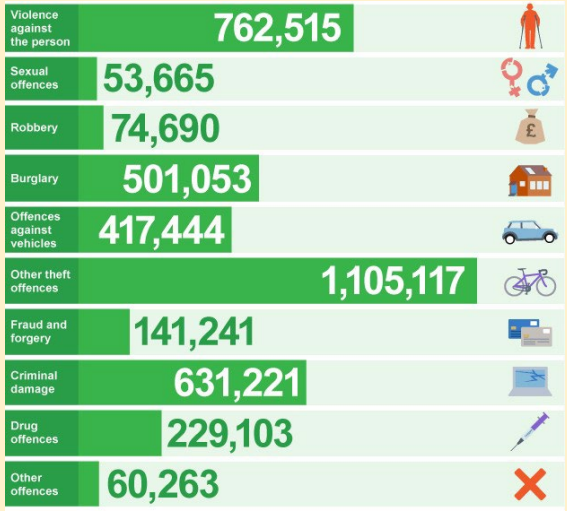
Mission

According to the **Gospel** of Matthew, Jesus told his disciples that they should spread his message throughout the world and should try to **convert** people to Christianity.

Missionaries spread the Christian message abroad, not necessarily only through **preaching**, but through their actions too - for example, helping with development projects. This is how Christianity as it is known today has spread across the globe.

Year 10 RSMS: Religion, Crime and Punishment

Reasons for Crime



There are many theories to explain why people commit crime, but there is general agreement on how people become criminals. **Criminal behaviour** fits into one, or more than one, of these categories:

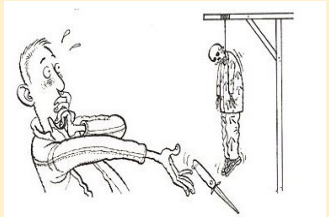
- criminal behaviour can be caused by a person's free choice
- criminal behaviour can be caused by a person's **environment**, eg a broken home or failure at school could be a **catalyst** for the change to becoming a criminal
- criminal behaviour can seem like the only option for a person if they are unable to conform to society
- criminal behaviour can develop through being associated with other criminals

Aims of Punishment

People are punished for a purpose. Often the aims of a punishment overlap, e.g. the death penalty acts to **deter** people from committing similar crimes and it aims to protect the public from the individual who is guilty of the crime.

There are six recognised aims of punishment:

- **deterrence** - punishment should put people off committing crime
- **protection** - punishment should protect society from the criminal and the criminal from themselves
- **reformation** - punishment should **reform** the criminal
- **retribution** - punishment should make the criminal pay for what they have done wrong
- **reparation** - punishment should **compensate** the victim(s) of a crime
- **vindication** - the punishment makes sure that the law is respected



Deterrence

Retribution

Reformation

Protection

Year 10 RSMS: Religion, Crime and Punishment

Christian Forgiveness

Christianity teaches that:
•People should be treated fairly.
•God wants the world to be ruled justly.
Many crimes treat people unfairly. Punishments ensure that **justice** is done.
Christians do not believe in taking **revenge** when they have been wronged. They believe that they should forgive the sins of others, in the same way that they believe God forgives them for their sins.
Christians look to the example of Jesus, who taught the importance of forgiveness:

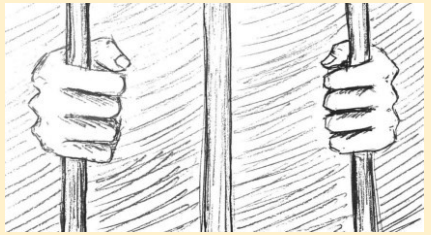
"Then Peter came to Jesus and asked, "Lord, how many times shall I forgive my brother or sister who sins against me? Up to seven times?" Jesus answered, "I tell you, not seven times, but seventy-seven times" (Matthew 18)

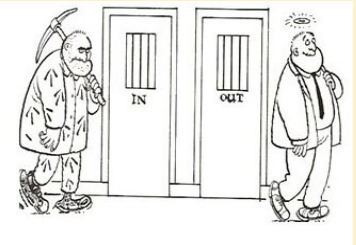
What does Christianity say about how criminals should be treated?
Christians believe in **justice** and therefore Christians believe that criminals should be treated justly. They follow the example of Jesus, who taught that Christians should **reform** sinners and not be **judgemental** in their attitude:

"Why do you see the speck that is in your brother's eye, but do not notice the log that is in your own eye?" (Matt 7)

As well as reform, some Christians would consider protection and **deterrence** to be important aims of punishment. These help to ensure safety in society. They would also believe criminals should be treated justly while in prison, and be given the opportunity to reform.

Effectiveness of Prison





Prison reformers set out to improve the prison system. Their aim is to create a fair and **humane** justice system that not only punishes those who have committed crime, but also helps with reform. The Prison Reform Trust works across the UK to try and initiate change. Their main goals are to:
•reduce unnecessary imprisonment and promote community solutions to crime
•improve treatment and conditions for prisoners and their families
•promote equality and human rights in the justice system
Reoffending rates in the UK are high and reformers argue that the prison system does not do enough to educate and train inmates so they do not reoffend.
Education is one of the key steps that reformers believe will help offenders. They also believe that prison should only be used for those who should not be allowed into society as they may cause harm to others. Other alternatives should be considered for those who do not fall into this bracket.

In 1813 Elizabeth Fry made her first visit to Newgate prison where she observed women and children in terrible conditions. ... In the 1820s she inspected prison conditions, advocated reform and established more groups to campaign for reform. In **1823** prison reform legislation was finally introduced in Parliament.

Effectiveness of Capital Punishment

Christian arguments in favour of capital punishment

Some Christians argue that **capital punishment** helps to maintain order and protection in society. They would say this because:
•The **Bible** sets down the death penalty for some crimes, so it must be acceptable to God. This is often seen as **retribution**.
•**St Thomas Aquinas** argued that peace in society was more important than reforming the sinner. He reflects the **Roman Catholic** Church's teaching that the protection of the whole of society is more important than the individual.

Christian arguments against capital punishment

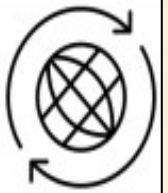
Some Christians would argue that capital punishment can never be justified. They would say this because:
•They believe Jesus Christ came to Earth to reform sinners, as he did with the woman caught in **adultery** in **John** 8:1-11.
•Jesus amended the Old Testament teaching on retribution in **Matthew** 5:38-39 when he said: You have heard that it was said, 'Eye for eye, and tooth for tooth.' But I tell you, do not resist an evil person. If anyone slaps you on the right cheek, turn to them the other cheek also.
•Christians believe in the sanctity of life, that life is holy and belongs to God and therefore only God has the power to take life. In **Romans** 12:17-19 it states: Do not repay anyone evil for evil. Be careful to do what is right in the eyes of everybody ... Do not take revenge, my friends, but leave room for God's wrath, for it is written: 'It is mine to revenge; I will repay, says the Lord'.

What is the current UK law about capital punishment?
Capital punishment is illegal in the UK. It was abolished for murder in 1965 and abolished for all crimes in 1998. In 2004 the UK agreed not to restore the death penalty for as long as it is part of the **European Convention**.

Year 10 French: Un Oeil Sur le Monde

I can describe different global issues

Les problèmes globaux	*Global problems*
Je m'inquiète pour	*I'm worried about*
Le plus grand problème global est...	*The greatest global problem is*



la guerre *war*

la pauvreté *poverty*

le chômage *unemployment*

la faim *hunger*

le déboisement *deforestation*

les catastrophes naturelles *natural disasters*

la manque d'eau potable *lack of drinking water*

la faim dans le monde *world hunger*

les droits *(m)* de l'homme *human rights*

les SDF/ les sans-abri *the homeless*

la toxicomanie *drug addiction*

la santé *health*

l'obésité *(f)* *obesity*

la crise économique *economic crisis*

les ni-ni *no studies, no work*

can describe environmental problems

L'environnement	*The environment*
Les problèmes environnementaux	*Environmental problems*
Le problème le plus sérieux/grave	*The most serious problem*

la destruction de la forêt tropicale *destruction of the rainforest*

la destruction de la couche d'ozone *destruction of ozone layer*

le changement climatique *climate change*

le réchauffement de la planète *global warming*

les déchets *(m)* *rubbish*

les tremblements *(m)* de terre *earthquakes*

la planète *the planet*

les inondations *(f)* *flooding*

la pollution *pollution*

l'augmentation de sécheresses *increase in droughts*

les espèces *(f)* en voie d'extinction *species in danger of extinction*

la manque de ressources naturelles *lack of natural resources*

la contamination des océans *(m)* *pollution of the oceans*

I can describe ways how to help the environment

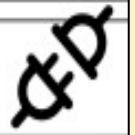
Pour protéger l'environnement **Pour prendre soin de l'environnement**	*To protect the environment* *To look after the environment*
On doit / il faut	*You/we must*
On ne doit pas / il ne faut pas	*You/we must not*
On devrait	*You/we should*
On ne devrait pas	*You/we should not*

éteindre la lumière *turn off the light*

prendre une douche au lieu d'un bain *shower instead of bath*

trier les déchets *separate the rubbish*

recycler le plastique et le verre *recycle plastic and glass*



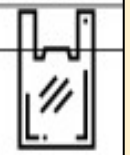
débrancher les appareils électroniques *unplug electric appliances*

économiser de l'énergie *save energy*

fermer le robinet *turn off the tap*

faire tout possible *do everything possible*

gâcher/gaspiller l'eau *waste water*



utiliser les sacs plastiques *use plastic bags*

utiliser les transports en commun *use public*

acheter des produits écologiques *buy green*

fermer la fenêtre *close the window*

fermer la porte *close the door*

utiliser des produits écologiques *use green*

Year 10 French: Un Oeil Sur le Monde Spring

I can describe local efforts to change the environment

Dans ma ville	*In my town/city*
Il y a trop de...	*There is/are too many/much*
...déchets dans les rues	*rubbish in the streets*
...gens sans-abri	*people with nowhere to live*
...déboisement (m)	*destruction of the forests*
...pollution des mers et rivières	*pollution of the seas and rivers*

Pour *In order to*	**nettoyer les rues** *clean the streets*	**réduire la pollution** *reduce pollution*
	protéger l'environnement (m) *protect the environment*	**lutter contre le réchauffement de la planète** *fight against global warming*

Commands – use the imperative to give instructions and commands in French
Use the 'vous' form in the present tense, and drop the 'vous'

Ne coupez pas autant d'arbres *Don't cut down so many trees*	**Ne voyagez pas partout en voiture** *Don't go by car everywhere*	**Plantez plus de bois et de forêts** *Plant more woods and forests*	**Introduisez des lois plus sévères** *Introduce stricter laws*
Ne jetez pas de déchets à terre *Don't throw rubbish on the ground*	**Ne gaspillez pas de l'énergie** *Don't waste energy*	**Réduisez le gaz d'échappement** *Reduce exhaust fumes*	**Utilisez l'énergie renouvelable** *Use renewable energy*
Ne construisez pas trop de maisons *Don't build too many houses*	**Ne déversez pas de produits chimiques** *Don't release chemical waste*	**Recyclez le papier et le verre** *Recycle paper and glass*	**Bâtissez des plus petites maisons** Design smaller houses

I can describe the role of volunteering

Le travail bénévole	*Voluntary work*
Un/une bénévole	*A volunteer*
Le bénévolat	*Volunteering*

J'ai travaillé comme bénévole... – *I worked as a volunteer...*
Je me suis devenu(e) bénévole... – *I became a volunteer...*
On a travaillé gratuitement... – *We worked without pay...*

...dans un dispensaire *in a free medical clinic*	**...dans une école** *in a school*	**...dans une maison de retraite** *in an old people's home*
...dans une zone de combat *in a war zone*	**...en plein air** *in the open air*	**...dans un magasin caritatif** *in a charity shop*

Ce type de travail a des avantages	*This type of work has advantages*
On peut apprendre de nouvelles compétences	*You can learn new skills*
On peut gagner de l'expérience	*You can gain experience*
On peut travailler avec les enfants	*You can work with children*
On peut connaître toute sorte de personne	*You can get to know all types of people*
On doit consacrer du temps aux autres	*You should dedicate time to others*

I can describe pros and cons of international sporting events

Les avantages sont...	*The advantages are...*
Une avantage est...	*An advantage is...*
Je crois que les événements sont bénéfiques parce que...	*I believe that the events are beneficial because...*

...il y a une ambiance spéciale *there is a special atmosphere*	**...ils inspirent aux jeunes** *they inspire young people*	**...ils créent des offres d'emploi** *they create job opportunities*	**...ils encouragent le tourisme** *they encourage tourism*	**...ils régénèrent les centres urbains** *they regenerate urban areas*

Les inconvénients sont...	*The disadvantages are...*
Un autre inconvénient est...	*Another disadvantage is...*

...le risque d'attentats terroristes *risk of terrorist attacks*	**...la circulation** *traffic*	**...le dopage** *doping*	**...la dette** *debt*	**...le prix d'organiser la sécurité** *the cost of organising the security*

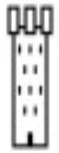
Il y a toujours de très grandes files d'attente pour y entrer	*There are always big queues to get in there*
Le prix pour les organiser est très haut	*They cost a lot to organise*

Year 10 French: De la ville à la campagne

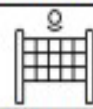
I can name places in a town

Dans ma ville il y a... / Nous avons...	*In my town there is... / We have...*			
				
un hôtel de ville *a town hall*	**un bar** *a bar*	**un château** *a castle*	**un cinéma** *a cinema*	**un marché** *a market*
				
un musée *a museum*	**un parc** *a park*	**un centre sportif** *a sports centre*	**un port** *a port*	**beaucoup de restaurants** *lots of restaurants*
				
un théâtre *a theatre*	**une bibliothèque** *a library*	**un bowling** *a bowling alley*	**une église** *a church*	**une grande place** *a town square*
				
une patinoire *an ice rink*	**un bureau de poste** *a post office*	**un magasin** *a shop*	**beaucoup à faire** *a lot to do*	**rien à faire** *nothing to do*

I can describe activities in a region

	On peut + infinitive / *You/One can + infinitive*			
				
Passer beaucoup de temps en plein air *Spend lots of time in the open air*	**Monter la tour** *Go up the tower*	**Faire un tour en autocar** *Do a bus tour*	**Profiter des vues** *Enjoy the views*	**Profiter de l'ambiance** *Enjoy the atmosphere*
				
Voyager au bord de la TGV *Travel on the high-speed train*	**Aller au lac de canotage** *Go to the boating lake*	**Apprécier la variété de l'architecture** *Appreciate the variety of architecture*	**Profiter du beau temps** *Enjoy the good weather*	**Connaître la culture** *Know the culture*
				
Goûter la cuisine du terroir *Taste the local food*	**Faire des sports nautiques** *Do water sports*	**Voir des bâtiments différents** *See different buildings*	**Louer des vélos** *Hire bikes*	**Faire des randonnées et du cyclisme** *Go hiking and cycling*

I can describe a range of holiday activities

À la campagne / *In the countryside*			
			
Faire de l'équitation/monter à cheval *Do horse riding/Ride a horse*	**Être dehors** *Being outdoors*	**Faire du cyclisme / Faire du vélo** *Do cycling/Ride a bike*	**Faire de l'escalade** *Do rock climbing*
			
Faire des randonnées *Do hiking*	**Faire du canoë-kayak** *Do canoeing/kayaking*	**Explorer** *Explore*	**Faire de la pêche** *Go fishing*
À la plage / *On the beach*			
			
Plonger *To dive*	**Faire des sports nautiques** *Do water sports*	**Faire de la natation / nager dans la mer** *Do swimming/Swim in the sea*	**Apprendre à faire de la voile** *Learn to do sailing*
			
Se faire bronzer *Sunbathe*	**Manger des glaces** *Eat ice creams*	**Faire du surf** *Do surfing*	**Jouer au volley** *Play volleyball*

Year 10 French: De la ville à la campagne

Forming the conditional tense

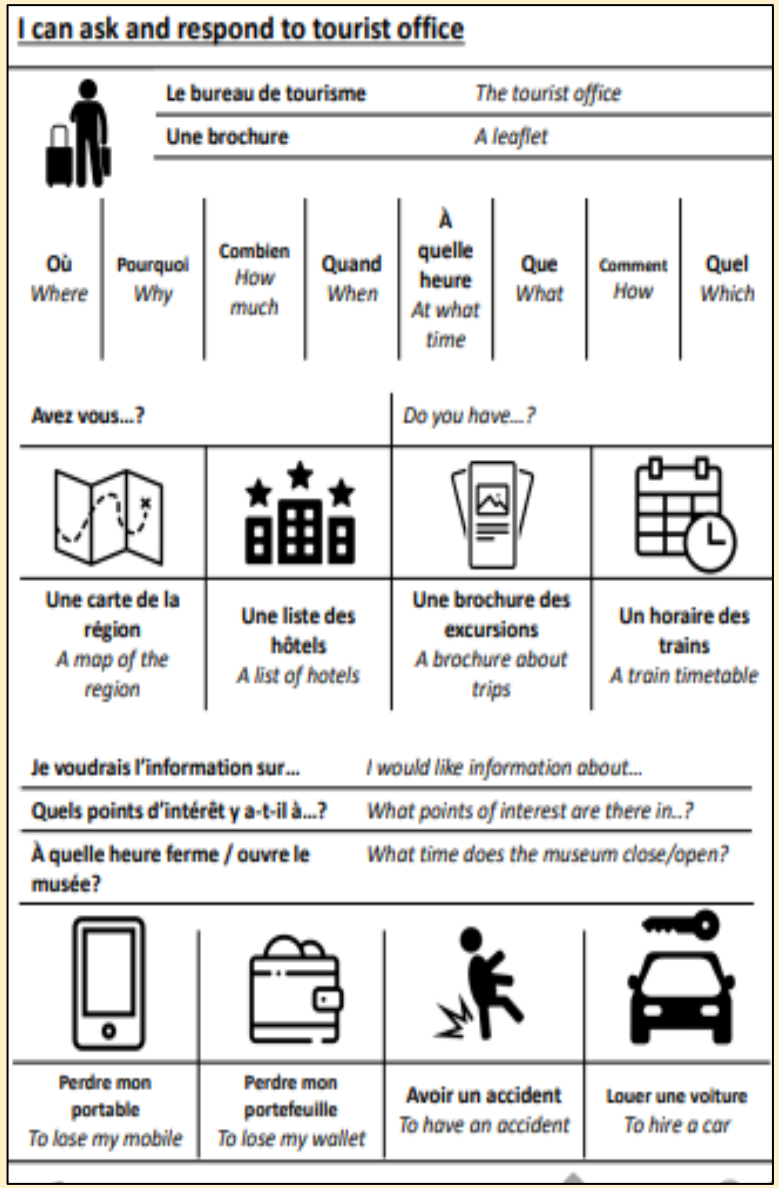
Step one: Choose an infinitive verb

Profiter

Step two: Add the correct pronoun and the correct ending for the pronoun.

Je profiterais

Pronoun	Ending
Je	-ais
Tu	-ais
Il/elle/on	-ait
Nous	-ions
Vous	-iez
Ils/elles	-aient



Using 'y' to express location

Y can mean '***there***' in French.

The use of '**y**' can elevate the quality of your language.

J'**y** vais = I go **there**
On peut **y** + infinitive = You can (action) there

AO phrases
On peut y + (verb)
One can + (verb) there
Si je pouvais, je voudrais...
If I could, I would like to...
Qu'est-ce que vous me recommandez?
What do you recommend?
Je doute que ce soit
I doubt that it's
J'ai peur que ce soit
I'm afraid that it's

Jobs and responsibilities → Future ambitions → Work experience → Applying for a job

Year 10 French: Bon travail!

I can describe different jobs

acteur actrice	pilote	architecte	artiste peintre dessinateur dessinatrice	boulanger boulangère	maçon
boucher bouchère	caissier caissière	fonctionnaire	cuisinier cuisinière	dentiste	
dessinateur dessinatrice	médecin	conducteur conductrice	électricien électricienne	ingénieur ingénieure	agriculteur (fermier) agricultrice (fermière)
pompier pompière	journaliste	mécanicien mécanicienne	infirmier infirmière	pharmacien pharmacienne	
plombier plombière	agent de police policier - policière	professeur enseignant enseignante	technicien technicienne (ouvrier	serveur serveuse	coiffeur coiffeuse

I can describe different part time jobs of when, what and how much

Je livre les journaux *I deliver papers*	Je m'occupe des enfants *I look after children*	Je travaille comme caissier *I work as a cashier*	Je sers de la nourriture et des boissons *I serve food and drink*	Je travaille comme secouriste *I work as a lifeguard*

Je travaille	*I work*
Je fais ça	*I do it*
le dimanche	*on Sundays*
tous les jours	*every day*
en été	*in summer*

avant collège	*before school*
après collège	*after school*
quand j'ai besoin d'argent quand je peux	*when I need money* *when I can*
quand ma mère travaille	*when my mum is working*
quand j'ai le temps quand je suis dispo	*when I have the time* *when I am free*

To use "il/elle/on" – use same endings as for "je" for –ER verbs except:
Je fais = ***il/elle/on fait***
Je sers= ***il/elle/on sert***
Je m'occupe = ***il / elle / on s'occupe***
J'ai = ***il/elle/on a***
Je suis = ***il/elle/on est***
Je peux = ***il/elle/on peut***

je gagne …	*I earn…*
euros/livres	*Euros/pounds*
de l'heure par heure	*An hour*
par semaine	*a week*

Je promène le chien *I walk the dog*	Je suis vendeur / vendeuse Je vends des produits dans un magasin *I am a sales assistant*	Je lave les voiture *I wash the cars*	Je nettoie des jardins *I clean gardens*	J'enseigne des personnes âgées / je donne des cours à des adultes *I teach older people / adults*

I can describe household chores

Je fais du babysitting / je m'occupe des enfants *I do babysitting* *I look after children*	
Je fais la cuisine Je cuisine *I do the cooking*	cuisiner *to cook*
Je fais la vaisselle *I wash the dishes* Je fais le ménage *I do the cleaning*	
Je passe l'aspirateur *I hoover* passer l'aspirateur *to hoover*	
Je fais le repassage *I iron*	
Je mets la table Je débarasse la table *I set the table* *I clear the table*	
Je promène le chien *I walk the dog*	
Je fais du bricolage *I do some DIY*	
Je fais du jardinage Je travaille dans le jardin *I do the garden* *I work in the garden*	

Je fais ça	*I do it…*
avant collège	*before school*
après collège	*after school*
quand j'ai besoin d'argent	*when i need money*
quand j'ai le temps	*when I have the time*
quand je suis libre/dispo	*when I am free*
quand je peux	*when I can*
quand mes parents travaillent	*when my parents work*
le mercredi	*on Wednesdays*
tous les jours	*every day*
une fois par semaine	*once a week*
le week-end	*at the weekend*

To use "il/elle/on" – use same endings as for "je" for –ER verbs except:
Je fais = ***il/elle/on fait***
Je mets = ***il/elle/on met***
Je m'occupe = ***il / elle / on s'occupe***
J'ai = ***il/elle/on a***
Je suis = ***il/elle/on est***
Je peux = ***il/elle/on peut***

Jobs and responsibilities → Future ambitions → Work experience → Applying for a job

Year 10 French: Bon travail!

I can describe future job preferences and give opinions / reasons

Using the future tense

Quand	je serai …	je travaillerai (comme) je vais travailler (comme)
When	*Future tense*	*Simple future* *Near future*

Quand je serai plus âgé(e)
When I am older

Quand je finirai mes études
When I finish education

Quand j'irai à l'université
When I go to university

Plus tard (dans la vie)
Later (in life)

A l' avenir
In the future

Je travaillerai comme	*I'll work as*	**Je serai riche**	*I'll be rich*
Je gagnerai beaucoup d'argent	*I'll earn a lot of money*	**Je voyagerai beaucoup**	*I'll travel a lot*
Je me marierai	*I'll get married*	**J'aurai des enfants**	*I'll have children*

"he / she / we" - il/elle/on ***finira*** …
"we" = ***nous finirons*** …
"they" = ***ils / elles finiront*** …

Il / elle va + infinitive
Nous allons + infinitive
Ils / elles vont + infinitive
→ ***near future***

car / parce que	puisque	étant donné que
because	*as / since*	*given that*
c'est une carrière qui m'intéresse *it's a career which interests me*	**je veux avoir ma propre famille** *I want to have my own family*	**réussir, c'est important pour moi** *success is important to me*
j'adore visiter des nouveaux endroits *I love to visit new places*	**je veux acheter des nouveaux vêtements** *I want to buy new clothes*	**Je veux améliorer mes connaissances** *I want to improve my knowledge*

I can compare past part time jobs and chores
(using 2 past tenses = perfect and imperfect tense)

Hier	*Yesterday*
Hier soir	*Last night*
La semaine dernière	*Last week*
Il y a deux mois	*Two months ago*
Récemment	*Recently*

J'ai nettoyé la maison	*I cleaned the house*
J'ai fait le ménage	*I did the cleaning*
J'ai repassé mes vêtements	*I ironed my clothes*
J'ai lavé la vaisselle	*Wash up the dishes*
J'ai passé l'aspirateur	*I did the hoovering*
J'ai rangé ma chambre	*I tidied my room*

- ***"il/elle/on a …. = il / elle / on a fait / rangé"*** *(he / she / we …)*
- ***Nous avons … = "nous avons fait / passé"*** (we …)
- ***Ils / elles ont … = "ils / elles ont fait / passé"*** (they …)

Avant	*before*
Souvent	*Often*
Toujours	*Always*
Chaque jour / tous les jours	*each day / everyday*

Je travaillais avec des enfants	*I used to work with children*
Je faisais des photocopies	*I used to make photocopies*
Je téléphonais aux clients	*I used to phone clients*
J'aidais mon patron	*I used to help my boss*
J'utilisais l'ordinateur	*I used to use the computer*
Je vendais des choses	*I used to sell things*
Je rangeais les vêtements	*I tidies the clothes*

- ***"il/elle/on a …. = il / elle on faisait / aidait*** *(he / she / we …)*
- ***Nous … = "nous faisions / aidions"*** (we …)
- ***Ils / elles … = "ils / elles faisaient / aidaient"*** (they …)

I can understand different job adverts

une annonce d'emploi	*a job advert*
une offre d'emploi / de poste	*a job advert / job offer*
des offres d'emploi	*job offers*
postuler pour un travail / un boulot	*to apply for a job*

Je cherche	*I am looking for*
On doit …	*We must / we have to …*
J'ai besoin de … / on a besoin de …	*I need / we need ….*
Il faut de l'expérience	*Experience is necessary*

travailler en équipe	*work in a team*
travailler seul / seule	*work alone*
les qualités requises pour le poste	*requirements for the job*
On m'a offert un poste de …	*I have been offered a job as …*

J'ai un permis de conduire	*I have a driving licence*
J'ai ma propre voiture	*I have my own car*
J'ai des connaissances	*I have some knowledge*
J'ai des compétences	*I have skills*

le salaire / la paie	*Salary*
Je suis disponible / libre tout de suite	*I am available / free straight away*
un travail à plein– temps	*Full time*
un travail à mi – temps **un boulot à temps partiel**	*Part time job*

Year 10 Spanish: Mi gente

I can talk about different social networks

Todos los días - *Everyday*	**Una vez a la semana** - *Once a week*
De vez en cuando - *From time to time*	**Dos veces al mes** - *Twice a month*
A menudo - *Often*	**Nunca** - *Never*

uso – *I use...*
usas – *you use...*
usa – *s/he uses...*
usamos – *we use...*
usáis – *you lot use...*
usan – *they use...*

para – *(in order) to...*


ver mis series favoritas *watch my favourite series*


organizar las salidas con mis amigos *organise to go out with my friends*


contactar con mi familia *get in touch with my family*


chatear con mis amigos *chat with my friends*


controlar mi actividad física *monitor my physical activity*

buscar y descargar música	*look for and download music*
sacar / editar / personalizar fotos	*take / edit / personalise photos*
compartir / subir fotos	*share / upload photos*
subir y ver vídeos	*upload and watch videos*
conocer a nueva gente	*meet new people*
mandar mensajes	*send messages*
La tengo desde hace... meses	*I've had it for... months*

I can justify my preference on different social networks

Me *1. I*	**Te** *2. You*	**Le** *3. S/he*	**Nos** *4. We*	**Os** *5. You lot*	**Les** *6. They*


... gusta *...like*


...encanta / mola / chifla *...love*


...apasiona *...am/are/is crazy about*


...interesa *...am/are/is interested in*


1. **Odio**
2. **Odias**
3. **Odia**
4. **Odiamos**
5. **Odiáis**
6. **Odian**

...hate


name of the app

porque - *because* **ya que** - *since* **puesto que** – *given that*

es... *it is*	**no es...** *it isn't*

una aplicación – *an app* **una red social** – *a social network*

un poco - *a bit*	**muy** - *very*	**bastante** - *quite*	**demasiado** - *too*


amplia *extensive*


divertida *fun*


peligrosa *dangerous*


rápida *quick*


cómoda *convenient*

necesaria *necessary*

práctica *practical*

fácil de usar *easy to use*

popular *popular*


útil *useful*


gratis *free*


una pérdida de tiempo - *a waste of time*

Lo único malo es que te engancha - *The only bad thing is that it gets you hooked*

I can make arrangements to meet people

¿Te gustaría ir...
Would you like to go...

al centro comercial? *to the shopping centre?*	**a la cafetería?** *to the café?*	**a la pista de hielo?** *to the ice rink?*	**al parque?** *to the park?*	**al polideportivo?** *to the sports centre?*




¿Te gustaría venir a mi casa? *Would to like come to my house?*

Vale.
Ok.

De acuerdo. – *Alright.*	**Muy bien.** – *Very good.*
¡Genial! – *Great!*	**Sí, me gustaría mucho.** – *Yes, I'd like that very much.*
¡Ni hablar! – *No way!*	**No tengo ganas.** – *I don't feel like it.*

¿Dónde quedamos?
Where do we meet up?

Al lado del / de la – *Next to the...*	**Detrás del / de la** – *Behind de...*
Delante del / de la – *In front of the...*	**Enfrente del / de la** – *Opposite the...*
En tu casa – *At your house*	

¿A qué hora?
At what time?

A la una. – *At one.*	**A las dos / seis / ...** – *At two / six / ...*
A las ... y cuarto – *At quarter past ...*	**A las ... y media** – *At half past ...*
A las ... menos cuarto – *At quarter to ...*	**A las ... menos diez** – *At ten to ...*

Year 10 Spanish: Mi gente

I can make arrangements to meet people

¿Quieres / Te gustaría...
Do you want / Would you like...

salir	*to go out*
ver un partido de fútbol	*to watch a football match*
ir a la bolera / a la playa / de compras	*to go to the bowling alley / to beach / shopping*

hoy? *today?*	**esta noche?** *tonight?*	**esta tarde?** *this afternoon/ evening?*	**mañana?** *tomorrow?*	**mañana por la mañana?** *tomorrow morning?*

Lo siento, no puedo...
I'm sorry, I can't...

porque - *because*
ya que – *since*
puesto que – *given that*

tengo + que + -AR / -ER / - IR
I have to + infinitve

hacer los deberes *do my homework*	**ordenar mi dormitorio** *tidy my room*	**pasear al perro** *walk the dog*	**lavarme el pelo** *wash my hair*
salir con mis padres *go out with my parents*	**cuidar de mi hermano** *look after my brother*	**no quiero** *I don't want to*	**no tengo dinero** *I don't have any money*

I can express my reading preferences

Me gusta leer....
I like reading...

- **la novelas de ciencia ficción** *science fiction novels*
- **los tebeos / cómics** *comics*
- **las revistas** *magazines*
- **los periódicos** *newspapers*
- **los blogs** *blogs*
- **las novelas de amor** *romantic novels*
- **las novelas de fantasía** *fantasy novels*
- **las biografías** *biographies*
- **las poesías** *poems*
- **las historias de vampiros** *vampire stories*
- **las novelas policíacas** *crime stories*

I can give opinions on reading materials

Leo *I have read*	**Lees** *You have read*	**Lee** *s/he has read*	**Leemos** *We have read*	**Leéis** *You lot have read*	**Leen** *They have read*

blogs	**novelas de ciencia ficción**
periódicos	**tebeos**
poesías	**revistas**
novelas de amor	**historias de vampiros**
biografías	**novelas policíacas**

a menudo *often*	**generalmente** *normally*	**de vez en cuando** *from time to time*

una vez a la semana *once a week*	**dos veces al año** *twice a year*	**una vez al mes** *once a month*	**nunca** *never*

porque - *because* **ya que** - *since* **puesto que** - *given that*

son + *they are +*	**un poco** *a bit*	**muy** *very*	**bastante** *quite*	**demasiado** *too*

divertidos/as	*fun*	**interesantes**	*interesting*
emocionantes	*exciting*	**apasionantes**	*addictive*
útiles	*useful*	**aburridos/as**	*boring*
monótonos/as	*monotonous*	**tontos/as**	*silly*

además - *additionally* **también** - *also* **pero** - *but*

me *me*	**te** *you*	**le** *her/him*	**nos** *us*	**os** *you lot*	**les** *them*

...relajan	*they relax...*	**...hacen soñar**	*they make... dream*
...entretienen	*they entertain...*	**...molestan**	*they annoy...*

Year 10 Spanish: Interests and influences

I can describe what I usually do

Los lunes / martes /miércoles / …	*On Mondays / Tuesdays / Wednesdays / …*
Por la mañana / tarde / noche	*In the morning / afternoon / evening*
Después del insti	*After school*
Mientras desayuno / como	*Whilst having breakfast / lunch*
En los ratos libres	*During spare time*

1. suelo *I usually*	**usar el ordenador** *use the computer*	**salir con amigos** *go out with friends*	**escuchar música** *listen to music*
2. sueles *you usually*			
3. suele *s/he usually*	**ver la tele** *watch tv*	**descansar** *rest*	**ir al cine** *go to the cinema*
4. solemos *we usually*			
5. soléis *you lot usually*	**escuchar la radio** *listen to the radio*	**leer libros** *read books*	**hacer deporte** *do sports*
6. suelen *they usually*			

porque - *because* **ya que** - *since* **puesto que** – *given that*

1. soy *I am*	2. eres *you are*	3. es *s/he is*	4. somos *we are*	5. sois *you lot are*	6. son *they are*

creativo/a/os/as *creative*	**sociable/s** *sociable*	**perezoso/a/os/as** *lazy*	**activo/a/os/as** *active*

adicto/a/os/as… a la lectura / a la música / al deporte / a las series
addicted to… reading / music / sport / series

I can describe type of films

…ciencia ficción *…science fiction…*
…amor *…love…*
…terror *horror*
…fantasía *…fantasy…*
…animación *…animated…*
…superhéroes *…superhero…*
…misterio *…mystery…*
…biográficas *…biographical…*
las películas

I can give opinions on free time activities

Me *1. I*	Te *2. You*	Le *3. S/he*	Nos *4. We*	Os *5. You lot*	Les *6. They*

… gusta *…like*	**…encanta / mola / chifla** *…love*	**…apasiona** *…am/are/is crazy about*	**…interesa** *…am/are/is interested in*

1. Odio
2. Odias
3. Odia
4. Odiamos
5. Odiáis
6. Odian
…hate

free time activity in the infinitive form

porque - *because* **ya que** - *since* **puesto que** – *given that*

es… *it is*	**no es…** *it isn't*

un poco - *a bit*	**muy** - *very*	**bastante** - *quite*	**demasiado** - *too*
informativo *informative*	**divertido** *fun*	**sano** *healthy*	**relajante** *relaxing*

Además - *Additionally* **También** - *Also* **Asimismo** - *Similarly*

me ayuda a relajarme / olvidarme de todo	*it helps me relax / forget everything*
me hace reír	*it makes me laugh*
me encanta estar al aire libre	*I love being outdoors*
necesito salir / comunicarme con otros	*I need to go out / interact with others*
mi pasión es la lectura / música / deporte	*my passion is reading / music / sports*

I can describe types of TV shows

las telenovelas *soap operas*	**las comedias** *comedies*	**las series policíacas** *crime series*	**los telediarios / las noticias** *the news*

los concursos *game / quiz shows*	**los programas de deportes** *sports programmes*	**los realitis** *reality tv shows*	**los documentales** *documentaries*

I can compare cinema in versus at home movies

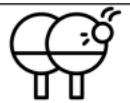
(No) Me gusta ir al cine…	*I (don't) like going to the cinema…*
Prefiero ver las pelis en casa…	*I prefer watching films at home…*

porque - *because* **ya que** - *since* **puesto que** – *given that*

el ambiente es mejor *the atmosphere is better*	**hay demasiadas personas** *there are too many people*	**la imagen es mejor en la gran pantalla** *the picture is better on the big screen*	**las entradas son muy caras** *tickets are very expensive*

Year 10 Spanish: Interests and influences

I can describe sports and hobbies

Antes jugaba	Ayer jugué	Ahora juego	Me gustaría / Quisiera jugar
Before I used to play	*Yesterday I played*	*Now I play*	*I'd like to play*
al baloncesto *basketball*	**al fútbol** *football*	**al rugby** *rugby*	**al bádminton** *badminton*
			
al ping-pong *table tennis*	**al hockey** *hockey*	**al voleibol** *volleyball*	**al tenis** *tennis*
			
Antes hacía	**Ayer hice**	**Ahora hago**	**Me gustaría / Quisiera hacer**
Before I used to do	*Yesterday I did*	*Now I do*	*I'd like to do*
gimnasia *gymnastics*	**atletismo** *athletics*	**equitación** *horseriding*	**natación** *swimming*
			
ciclismo *cycling*	**baile** *dancing*	**jogging** *running*	**piragüismo / remo** *canoeing / rowing*
			

I can describe role models

Mi deportista favorito/a se llama...	*My favourite athlete's name is*
Mi equipo preferido es	*My favourite team is*

porque - *because*	**ya que** - *since*	**puesto que** – *given that*

a pesar de sus problemas...	*despite his / her problems...*
solo piensa en los demás	*s/he only thinks of other people*
siempre sonríe	*s/he always smiles*

		
ha tenido mucho éxito *s/he has had a lot of success*	**ha marcado muchos goles** *s/he scored lots of goals*	**ha superado sus enfermedades** *s/he has overcome her/his illnesses*
		
ha ganado muchos títulos *s/he has won many titles*	**ha creado una organización benéfica** *s/he has funded a charity*	**ha batido varios récords** *s/he has broken several records*

Es una persona...	*S/he is a ... person*
cariñosa	*loving*
amable	*kind*
valiente	*brave*

Admiro a...	*I admire...*
Mi inspiración / ídolo es...	*Mi inspiration / idol is...*
Mi héroe / heroína es...	*My hero / heroine is...*
...es un buen modelo a seguir	*...is a good role model*

Un buen modelo a seguir es alguien que tiene.
A good role model is someone who has...

mucho talento *a lot of talent*	
	**mucho éxito** *a lot of success*
dedicación *dedication*	**perseverancia** *perseverance*
resistencia física y mental *physical and mental resilience*	

	
trabaja en defensa de los animales *works in defence of animals*	**usa su fama para ayudar a los demás** *uses his/her fame to help others*
	
apoya a organizaciones benéficas *supports charities*	**recauda fondos para...** *raises money for...*

lucha por / contra...	*s/he fights for / against...*			
				
la pobreza *poverty*	**la homofobia** *homophobia*	**los derechos de la mujer** *women's rights*	**los derechos de los refugiados** *the right of refugees*	**los niños desfavorecidos** *underprivileged children*

Sin embargo, un mal modelo a seguir...
However, a bad role model...

se emborracha	*gets drunk*
se comporta mal	*behaves badly*
se mete en problemas con la policía	*gets into trouble with the police*

Year 10 Spanish: Town

I can name shops in a town

El banco *The bank*	El estanco *Tobacconist's*	La cafetería *Café*	La carnicería *Butcher's*
La farmacia *Pharmacy*	La frutería *Greengrocer's*	la joyería *Jeweller's*	La librería *Book shop*
La panadería *Bakery*	La papelería *Stationery shop*	La pastelería *Cake shop*	La peluquería *Hairdresser's*
La pescadería *Fishmonger's*	La tienda de ropa *Clothes shop*	La zapatería *Shoe shop*	La ferretería *Hardware store*

Las tiendas	*The shops*
Horario comerical	*Business hours*
Horario de apertura	*Opening hours*
De lunes a viernes	*From Monday to Friday*
Abre a las...	*It opens at...*
Cierra a las...	*It closes at...*

I can describe features in a region

Mi region	*My region*
Mi barrio	*My neighbourhood*
La zona	*The area*
El paisaje	*The scenery*

Está situado/a...		*It is situated...*	
En un valle *In a valley*	Entre el desierto y la sierra *Between the desert and the mountains*	Al lado del río *By the river*	Al lado del mar *By the sea*

Es...		*It is...*	
Acogedor *Welcoming*	Atractivo *Attractive*	Famoso *Famous*	Conocido por *Known for*

Una region muy húmeda	*A very humid region*
Una zona muy montañosa	*A mountainous area*
Una zona pintoresca	*A picturesque area*
Tan fácil desplazarse	*So easy to get around*

I can describe activities in a region

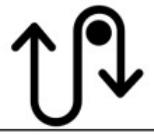
	Se puede + singular noun			*You/One can + singular noun*
Estar mucho tiempo al aire libre *Spend lots of time in the open air*	Subir a la torre *Go up the tower*	Hacer un recorrido en autobús *Do a bus tour*	Disfrutar de las vistas *Enjoy the views*	Disfrutar del ambiente *Enjoy the atmoshphere*
Viajar en al AVE *Travel on the high-speed train*	Pasear por los lagos artficiales *Go boating on the artifical lakes*	Apreciar la arquitectura variada *Appreciate the variety of architecture*	Aprovechar el buen tiempo *Enjoy the good weather*	Conocer la cultura *Know the culture*

Pasear por la calles *Walk along the streets*	Ir de compras *Go shopping*	Hacer turismo *Do sightseeing*	Probar platos típicos *Try local dishes*
Ver un partido *Watch a match*	Visitar el museo *Visit the museum*	Descubrir la historia *Discover the history*	Practicar deportes acuáticos *Do water sports*
Ir de paseo *Go for a walk*	Subir a la torre *Go up the tower*	Ir de excursión *Go on a tour*	

Year 10 Spanish: Town

I can describe pros and cons of a town

Los pros de vivir en la ciudad	*The for of living in the city*
Los contras de vivir en la ciudad	*The against of living in the city*

Lo mejor de vivir en la ciudad es que…		*The best thing of living in the city is that…*	
			
Es tan fácil desplazarse *It's so easy to get around*	**Hay una red de transporte público** *There is a public transport system*	**Hay tantas diversiones** *There are so many things to do*	**Hay muchas posibilidades de trabajo** *There are lots of job opportunities*

Lo peor es que…		*The worst thing is that…*	
			
El centro es tan ruidoso *The centre is so noisy*	**Hay tanto tráfico** *There is so much traffic*	**Se lleva una vida tan frenética** *Life is so frenetic*	**La gente no se conoce** *People don't know each other*

Si pudiera ayudar	*If I could help*
Si fuera alcalde/alcaldesa	*If I were mayor/mayoress*
Si tuviera la oportunidad	*If I had the opportunity*

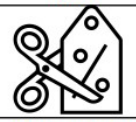
1.	*ía*
2.	*ías*
3.	*ía*
4.	*íamos*
5.	*íais*
6.	*ían*

Some irregulars	
Hacer	***Har…***
Salir	***Saldr..***
Tener	***Tendr…***
Poder	***Podr…***
Decir	***Dir…***

I can describe shopping preferences or in shops

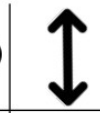
De compras	*Shopping*
Normalmente ir de compras	*Normally to go shopping*
Soler ir de compras	*To usually go shopping*
Comprar	*To buy/shop*
Hacer cola	*To queue*

				
Los centros comerciales *Shopping centres*	**Las cadenas** *Chain stores*	**Los grandes almacenes** *Department stores*	**Las tiendas de diseño** *Designer shops*	**Las tiendas de segunda mano** *Second hand shops*

			
Es más económico *It's cheaper*	**Es más práctico** *It's more practical*	**Es más cómodo** *It's more comfortable*	**Hay más ofertas** *There's lots of offers*
			
Es un buen sitio para pasar la tarde *It's a good place to spend the afternoon*	**Hay más variedad** *There's more variety*	**Hay demasiada gente** *There's lots of people*	**Los precios son más bajos** *The prices are lower*

I can describe faults in clothing

Quejas	*Complaints*
Quiero devolver	*I want to return*
En rebajas	*On sale*

					
Está roto/a *It's broken*	**Es demasiado estrecho/a** *It's too tight*	**Es demasiado largo/a** *It's too long*	**Tiene un agujero** *It has a hole*	**Tiene una mancha** *It has a stain*	**Falta un botón** *It's missing a button*

		
Sellos *Stamps*	**Una postal** *Postcard*	**Un imán** *A magnet*

I can describe souvenirs and present to buy

Los regalos	*Presents*
Los recuerdos	*Souvenirs*
Tienda de recuerdos	*Gift shop*

				
El abanico *Fan*	**El llavero** *Key ring*	**El oso de peluche** *Teddy bear*	**Los pendientes** *Earrings*	**La gorra** *Cap*

				
La taza *Mug*	**Las golosinas** *Sweets*	**Las pegatinas** *Stickers*	**El maquillaje** *Make-up*	**Una pelota** *A ball*

Exploring the Preforming Arts

Year 10 Dance: Component 1

Processes	Style	Purpose
Basic Info to start off my research	samba, capoeira, contemporary	To entertain –have fun!

Theme	Form/structure/Narrative	Response to stimulus
Carnival Relationships between men and women	• A **Linha Curva** means The Curved Line in Portuguese. • Galili wanted to create a celebration the Brazilian way of life and the ability to live in the moment • A **Linha Curva** is essentially an abstract work; It's not telling a story to the audience as such, but what it is, is conveying a sense of fun and celebration to the audience. **Structure**: There are seven sections plus the introductory chant	A celebration of Brazilian life and culture The contradiction between lines and curves

PRODUCTION ELEMENTS		
Techniques	Stage	SET
Basic Info to start off my research	End on stage	Designed by Itzik Galili Four percussionists playing the music live on a raised platform . The empty stage The black-box stage

Lighting	Costume	Music and accompaniment
Designed by Itzik Galili The different coloured and timed lighting creates a chequer-board effect on stage and defines the lines and spacing for the dancers in large ensemble sections of the piece.	Designed by Itzik Galili. Male and female dancers both wear black vests with different coloured Lycra shorts. carnival inspired Enhance the impact of the lighting. Sorts are made out of wet look Lycra and come in ten different colours.	Samba style music Beaty Instruments include: drums, maracas, tambourines, cymbals etc. Energetic Minimalistic at times Vocals used/ natural sounds Tapping of feet and body (body percussion)

Evidence to combine Task 1 & Task 2:

Learners should produce a portfolio of work to cover learning outcomes A and B.

The portfolio may include:

- a written report
- a scrapbook
- a video of a presentation with accompanying slides

Approximate length of combined evidence

8–12 pages of A4 (or equivalent slides for electronic evidence) **and/or** 4–6 minutes of

video/digital footage or audio recordings.

12 hours to complete

Btec Level 2 Tech Award Performing Arts Key Words	
Roles	Various responsibilities within the company
Responsibilities	Having a duty to deal with something or having control over
Choreographer	A person who composes the sequence of steps and moves for a performance of dance
Performer	A person who entertains an audience through various art forms i.e. dance
Purpose	The reason for which something is done or created or for which something exists.
Influences	The capacity to have an effect on the character, development, or behaviour of someone or something, or the effect itself.
Stylistic features	Qualities which define a dance style/practitioner.
Theme	The overall subject matter/narrative
Choreographic Intention	What the choreographer wants to communicate through the piece.
Choreographic process	The process in which the choreographer creates the choreography.
Dance style	A specific genre of dance each with its own stylistic features.
Stimulus	The starting point for a dance piece.
Rehearsal process	Utilising time in order to refine choreography.
Motif	A 16-24 count phrase that communicates the chosen stimuli. Can be repeated or developed.
Choreographic devices	Climax, highlight, repetition, canon, unison, contrast, motif and motif development.

Year 10 Dance: Exploring the Preforming Art

Stage 1 – Researching / collecting ideas from research and/or stimuli.

Stage 2 – Planning the overview of the work / beginning to set tasks for dancers, collaborating artists.

Stage 3 – Improvisation and movement generation, beginning to create motifs and sections of movement for the dance work.

Stage 4 – Selecting, rejecting and refining – assessing the dance work in it's current form and making adaptations, manipulations and/or additions.

Stage 5 – Developing and structuring – shaping the dance work into the intended structure or form, it is like piecing the parts of a jigsaw together, showing the main theme.

Stage 6 – Final refining and synthesising – condensing material into the final dance work ready for rehearsal process.

Role	
Director	Has a responsibility for the practical and creative interpretation of a script/musical score. They are involved in the whole process from pre-production through to the final performance. They work closely with creative, production teams and performers
Choreographer	Creates original dance movements or develop interpretations of existing dances for performances and productions. They work closely with the producer, director, dancers and production team.
Dancer	Uses movement , gesture and body language to portray a character, story, situation or abstract concept to an audience, usually to music. They will work closely with the choreographer and will interact with members of the costume, sound and lighting teams as well as backstage crew.
Lighting Designer	Defines the way in which the audience see live performance. They work with the director and lighting technicians to create visuals for lighting, lasers, strobes, spots and sometimes video screens for performance.
Music Composer	Write and direct original music used to produce various types of media entertainment. Composers will spend time meeting with directors and choreographers to discuss their requirements. Their creation must suit the project and convey the appropriate mood and tone.
Set Designer	In charge of designing and creating sets for theatre. Rough drawings and ideas from the production team are turned into realistic builds that include scenery, draperies, furniture and props. They often work with directors, producers and costume designers.
Costume Designer	Responsible for designing costumes for a production, making sure they match the time period, style and director/choreographers vision, as well as being practical for the performer.

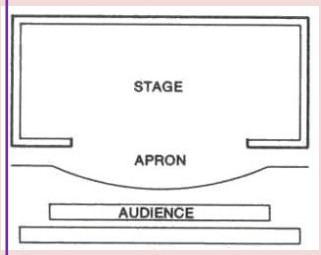
General Revision - Staging Types

In Component 1, Section A you could be asked questions about different staging configurations. You may also find it useful when creating your Component 2 & 3 performances to experiment with staging types.

Components 1, 2 & 3

Proscenium Arch: Common in large theatres and opera houses. The proscenium refers to the frame around the stage; the area in front of the arch is called the apron. The audience faces one side of the stage directly and may sit at a lower height or on tiered seating.

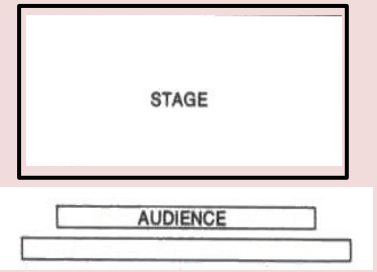
Advantages:
- Stage pictures are easy to create, as the audience look roughly at the same angle.
- Backdrops and large scenery can be used without blocking sightlines.
- There is usually fly space and wings for storing scenery.
- The frame around the stage adds to the effect of a fourth wall; creating a self-contained world.



Disadvantages:
- Some audience members may feel distant from the stage.
- The auditorium could feel formal and rigid.
- Audience interaction may be more difficult.

End On: This is similar to proscenium arch, as the audience faces one side of the stage directly and may sit at a lower height or on tiered seating. However, it doesn't have the large proscenium or apron. Our studio is set up as end on.

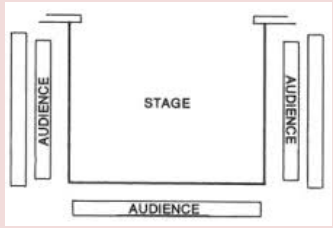
Advantages:
- The audience all have a similar view.
- Stage pictures are easy to create.
- Large backdrops or projections may be used.



Disadvantages:
- Audience members in the back rows may feel distant from the stage.
- It doesn't have the proscenium frame, which can enhance some types of staging.
- It may not have wings or a fly area.

Thrust: When the stage in front of the proscenium protrudes into the auditorium, so that the audience are sitting on three sides. This is one of the oldest types of staging; Greek amphitheatres and Elizabethan theatres like Shakespeare's Globe are both types of thrust stages

Advantages:
- As there is no audience on one side of the stage, backdrops, flats and large scenery can be used.
- The audience might feel closer to the stage – there are 3 front rows.
- Fourth wall can be achieved while having the audience close to the action.



Disadvantages:
- Audience members in the back rows may feel distant from the stage.
- It doesn't have the proscenium frame, which can enhance some types of staging.
- It may not have wings or a fly area.

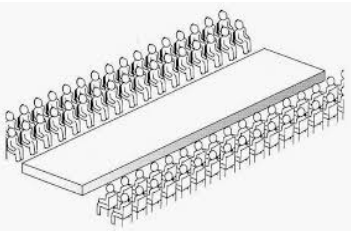
General Revision - Staging Types

In Component 1, Section A you could be asked questions about different staging configurations. You may also find it useful when creating your Component 2 & 3 performances to experiment with staging types.

Components 1, 2 & 3

Traverse: The acting area is a long central space and the audience sits on two sides facing each other. This type of staging can feel like a catwalk show.

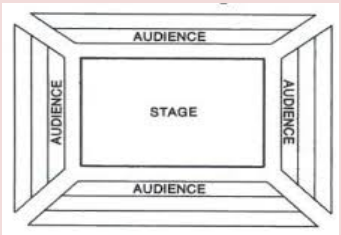
Advantages:
- The audience feel very close to the stage as there are two long front rows.
- Audience members can see the reactions of the other side of the audience.
- The extreme ends of the stage can be used to create extra acting areas.



Disadvantages:
- Big pieces of scenery, backdrops or set can block sightlines
- The acting area is long and thin, which can make some blocking challenging.
- Actors must be aware of making themselves visible to both sides of the audience.

In the Round: The stage is positioned in the centre of the audience and the audience are seated around all areas of the stage. The stage/audience can either be curved (creating a circle), or more like a square or rectangle. There are usually several 'tunnel-like' entrances, these are called vomitories.

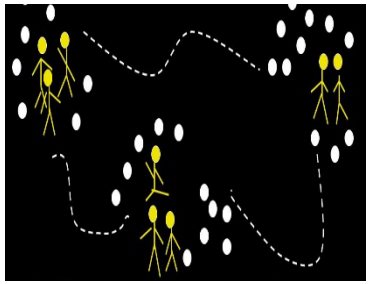
Advantages:
- The audience is close to the stage as there is an extended first row.
- The actors enter and exit through the audience which can make them feel more engaged.
- There is no easily achieved fourth wall separating the audience from the actors – it is easy to interact with them.



Disadvantages:
- Designers cannot use backdrops or flats as they would obscure the view of the audience.
- Stage furniture has to be chosen carefully so that audience sightlines aren't blocked.
- Actors must continually move around so that the audience can see them and critical interactions.

Promenade: The performance areas are set in various locations in a venue. Promenade means 'to walk' and the audience follows the action on foot, moving from one performance area to another. Promenade staging is often used in site specific performances (a performance in a location that is not a conventional theatre, e.g. a street, a warehouse)

Advantages:
- Interactive style of theatre where the audience feels involved.
- No set changes or need for movement of big bulky items.
- Enables audience to be more engaged as they move from one piece of action to the next.



Disadvantages:
- The audience may find moving around the space difficult or might get tired.
- Actors and or crew need to be skilled at moving the audience around and controlling their focus.
- There can be health and safety risks

General Revision - Performance Skills

For the GCSE course you are required to have a thorough knowledge of a wide range of performance skills, so that you can write about how they can/have been used as well as being able to use them yourself.

Components

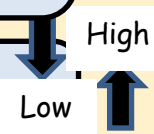
1, 2 & 3

Vocal & Physical Skills

Projection
An actor uses projection to make sure they can be heard by the audience.

Volume
How loud or quiet a character speaks on stage. This can show how they feel through being loud or quiet

Pitch
How high or low you speak. Low = angry or menacing. High = excited or afraid



Pace
is the speed at which a character speaks on stage. Fast pace = excited.
Slow pace = bored or angry

Tone
Is the expression in your voice to show how the character feels e.g. angry/ happy/sad

Emphasis
The use of emphasis/ stress on certain words in a line to create meaning

Pause
A gap or silence between characters talking or during a line a character is speaking

Intonation
The rise and fall of the voice. E.g asking a question makes the voice rise

Articulation
Using consonants and speaking clearly within speech

Accent
Distinctive sound in voice to place character from a region or place

Facial Expressions
Showing how a character feels on your face by use eyebrows/ mouth/ eye contact.

Body Language
Showing how your character feels through the way they position their body.

Gesture
A movement you do to share information e.g. shake your head to say no/ nod your head to say yes/ point to tell someone where to go

Gait/ Movement
the way a character moves on stage e.g stomping across the floor = angry. Fidgeting in a seat = nervous

Action
A movement where you mime out an action such as eating a sandwich/ throwing a ball

Stance and Posture
The way you stand or sit can show authority/ age/ reaction to an event or the character's situation

Stillness
A character's lack of movement, could show their reaction to a situation e.g. can't move through shock

Contact
Whether and how a character interacts with those around them physically

Eye-Contact
Eye contact with others. Do characters make eye contact or avoid it e.g. the character might be hiding something

Levels
Shows your power/ status. You could be above other characters (high status) or equal or Below (low status)

Proxemics
the distance between characters can show the audience their relationship (e.g. close = friends/ distance= enemies)

Dig Deeper Questions

How could you use vocal or physical skills to communicate subtle changes to a character's emotions?

Which do you think is the most important vocal and physical skill? Why?

COMPONENT 1 – THEATRE ROLES AND RESPONSIBILITIES

For Component 1, Section A, you need to be able to answer multiple choice questions about how a theatre works, identifying theatre roles and the responsibilities of different theatre makers.

Component 1 Section A

THEATRE CREATORS

Playwright

- Writes the script of the play, including dialogue and stage directions.

BEFORE REHEARSALS
- Prepares the script

Performer

- Appears in a production, e.g. as an actor, dancer, singer.
- Creates a performance or assumes a role on stage in front of an audience.

DURING REHEARSALS
- Learns lines and blocking

IN PERFORMANCE
- Appears before an audience and performs their role(s).

Understudy

- Learns a part, including lines and movements.
- Takes over a role if there is a planned or unexpected absence.

DURING REHEARSALS
- Learns the role(s) they are covering.

IN PERFORMANCE
- Is prepared to 'go on' in case of an absence.

Director

- Oversees the creative aspects of the production.
- Develops the 'concept' for the production.
- Liaises with designers & stage manager.
- Rehearses the performers – gives notes and agrees blocking.

BEFORE REHEARSALS
- Reads and studies the play – decides concept.
- Casts performers.

DURING REHEARSALS
- Rehearses performers.

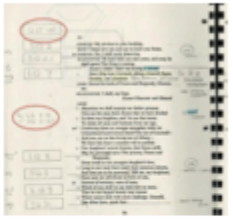
CREW

Stage Manager

- Runs the backstage elements of the play and supervises the backstage crew.
- Organises the rehearsal schedule.
- Keeps a list of props and other technical needs.
- Creates a prompt book.
- Calls the cues for the performance.

DURING REHEARSALS
- Creates rehearsal schedules and props list.
- Notes blocking and creates prompt book.

IN PERFORMANCE
- Ensures the smooth running of the show.
- 'Calls' the show by announcing cues to cast and technicians.



Technician

- Operates the technical equipment, e.g. lighting and sound boards, during a performance.

DURING REHEARSALS
- Run the technical elements during technical and dress rehearsals.

IN PERFORMANCE
- Operates the technical equipment, e.g. sound board.

DESIGNERS

Set Designer

- Designs the set of the play and the set dressing (objects placed on the stage).
- Provides sketches and other design materials.
- Oversees the creation of the set.

BEFORE REHEARSALS
- Researches the play/context.
- Develops set design ideas.

DURING REHEARSALS
- Ensures the set is built and operates correctly.

Costume Designer

- Designs what the performers wear on stage.
- Makes sure that costumes are appropriate for the style and period of the piece.
- Ensures the costumes fit the performers.

BEFORE REHEARSALS
- Researches the play/context.
- Develops costume design ideas.

DURING REHEARSALS
- Organises costume fittings for performers.

Sound Designer

- Designs the sound required for the performance, this might include music and sound effects.
- Considers if amplification e.g. microphones are needed.
- Creates the sound plot.

BEFORE REHEARSALS
- Researches the play/context.
- Develops sound design ideas.

DURING REHEARSALS
- Creates plot sheets and cues for the sound.

Lighting Designer

- Designs the lighting effects and states that will be used.
- Understands the technical capabilities of the theatre.
- Creates the lighting plot.

BEFORE REHEARSALS
- Researches the play/context.
- Develops lighting design ideas.

DURING REHEARSALS
- Creates plot sheets and cues for the lighting.

Puppet Designer

- Designs the puppets for a production.
- Considers the style of the puppets and how they will be operated.

BEFORE REHEARSALS
- Researches the play/context.
- Develops puppet design ideas.

DURING REHEARSALS
- Makes and provides puppets for rehearsals.

THEATRE STAFF

Theatre Manager

- Runs the theatre building, including overseeing the Front of House staff.

IN PERFORMANCE
- Oversees the operation of Front of House and box office.

Front of House Staff

- Box Office: where audience members can buy/collect their tickets.
- Ushers: look after the audience inside the auditorium.

IN PERFORMANCE
- Sell programmes and show memorabilia.
- Show audience members to their seats.
- Assist audience members with any problems.

Component 1- Set Text – Blood Brothers

For Component 1, Section b, you need to show understanding of the play Blood Brothers through Performance and design skills

Component 1 Section B

Plot

Act 1: before birth

The play starts with the narrator talking about a 'story about the Johnstone twins' and two men laid dead on the stage. We go back in time where we learn Mrs Johnstone's husband has just left her; she is very poor and already has 7 children. She starts a new job cleaning Mrs Lyons' house and finds out she's expecting twins. She strikes up a deal with Mrs L as she can't afford to keep both so Mrs L convinces Mrs J to give her one of the babies as her husband is currently away on business and she can't have a child of her own. The babies are born and Mrs J begrudgingly hands one of the babies over for Mrs L to later fire her. The narrator states that one day the devil will punish the two women.

Act 1- 7 years old

Mickey and Eddie meet for the first time by chance at the park and become 'blood brothers' when they find out they share the same birthday. When Mrs J realise the two have met, she is horrified and sends Edward home. Mrs L reacts more violently and slaps Edward when he swears at her. She even contemplates uprooting her entire family in order to escape. Despite their mothers' disapproval, the boys continue to see each other and play lots of children's games with their friend, Linda. They play various pranks and end up getting caught by the police who threatens Mrs J but flatters Mr L. Mrs L decides they should move, before Edward leaves Mrs J gives him a locket with a picture of herself and Mickey. The Johnstones also find out they are being relocated.

Act 2- 14 years old

Both boys have become interested in girls but feel awkward. Edward attends boarding school. Mickey and Linda have romantic feelings for each other but Mickey's lack of confidence is getting in the way. Sammy attempts to rob a bus by holding the driver at knife point. Mickey and Eddie both struggle at school- Mickey insults a teacher and Edward refuses to take off the locket. When Mrs L finds out, she's appalled but is more upset when she sees the content of the locket. The narrator returns to remind the audience that the devil will come. Mickey and Edward meet, by circumstance again- Mickey takes Edward back to his but they are not aware that Mrs L is following them. Once the boys leave the house, Mrs L attacks Mrs J with a knife and curses her, calling her a witch. The boys meet with Linda and spend the summer together- an idyllic sequence follows as the trio age from 14 to 18.

Act 2- 18 years old

At 18 in the sequence, the narrator warns that soon, both their joy and childhood will end. Edward has developed feelings for Linda and is at university whilst Mickey works in a factory. Edward self-sacrifices his feelings and encourages Mickey to ask Linda to be his girlfriend and she accepts. In October, Mickey tells his mum that Linda is pregnant and the two will be getting married. Their wedding coincides with a huge economic downturn resulting in Mickey getting paid off. When Edward returns from Christmas, Mickey is downtrodden and claims 'blood brothers' is childish. Edward confesses his love to Linda but she tells him she is married and pregnant. A desperate Mickey participates in a burglary with Sammy that goes wrong resulting in Sammy killing a man. They are both sentenced to prison and Mickey becomes depressed and is prescribed antidepressants which he becomes addicted to, even after he's been released.

Act 2- the end

Mickey continues to take the pills despite Mrs J & Linda's pleas. Linda, desperate, asks Edward, now a city councilman, to find them an apartment and getting Mickey a job. Mickey is angry about this and a devastated Linda seeks comfort with Edward and begins an affair with him. The affair continues and Mickey stops taking his pills for Linda's sake. Mrs Lyons reveals Linda and Edward's affair to Mickey. Enraged, he takes Sammy's gun out of the floorboards and confronts Edward, with a distraught Mrs J and Linda trying to get him to stop. The narrator warns the devil has arrived. Mickey finds and confronts Edward at the town hall about the affair, as well as whether Mickey's daughter is actually his. Edward denies fathering Mickey's child. The police surround the area and Mrs J bursts in and tells the boys they are twins separated at birth. Mickey asks why he couldn't have been Edward and then accidentally pulls the trigger of the gun, shooting and immediately killing Edward, the police then shoot Mickey. The play ends with the boys led on the stage and the narrator wonders what really killed the twins: superstition or the class system?

Component 1- Set Text – Blood Brothers

For Component 1, Section b, you need to show understanding of the play Blood Brothers through Performance and design skills

Component 1 Section B

Characters	
Mickey Johnstone	The lower-class twin. He is honest, sincere and goodhearted. He impregnates Linda, gets laid off, is arrested for Sammy's crime and ends up in prison and addicted to anti-depressants. His rage at Linda & Edward for having an affair drives the play's finale.
Edward Lyons	Is also good-natured but the higher-class twin. His sheltered upbringing makes him innocent but because of class he gets good opportunities e.g. university and a good job. His good-natured manner leads to the play's final scene.
Mrs Johnstone	Biological mother of the twins and a horde of other children. Left by her husband she gets a job as a cleaner. She is the moral centre of the play; is tortured by guilt and regret.
Mrs Lyons	Opposite of Mrs J whom she employs as a cleaner. She adopts Edward as her own child. Is haunted by the original act of a mother giving up her child. The guilt turns into suspicion and paranoia. She announces the affair and contributes to the murder of her adopted son.
Linda	Begins as a tomboyish young girl but both twins have a crush on her from an early stage. She only has eyes for Mickey as a teenager but later turns to Edward for comfort and support, which turns into an affair. Despite this, she loves both twins and is a sympathetic character.
Narrator	All-knowing and always slightly menacing - takes many roles throughout the play. Narrator constantly reminds the audience of the terrible choice that began this chain of events. Frequent mentions of fate and superstition but the Narrator claims it was class, not fate.
Sammy	When they are younger, Mickey just wants to be like Sammy. Quickly becomes a juvenile delinquent; even attempting to rob a bus as a teenager - he ends up in prison with Mickey.
Mr Lyons	Married to Mrs Lyons – works away which is how Mrs Lyons can adopt Edward without him guessing. Grows increasingly concerned about his wife's mental health and wellbeing.

Context	
Marilyn Monroe	Famous and glamorous Hollywood movie star who Mrs J is compared to. Mickey is also compared to the actress as Mickey becomes addicted to antidepressants mirroring Monroe's own addiction struggles.
Margaret Thatcher	First female Prime Minister- responsible for lots of working class people (including miners) losing their jobs. During her time in power, unemployment rates were raised higher than ever before.
Single Parents	Single mothers were looked down upon in this era. Society expected people to marry before they had children and thought badly of those who didn't. Women were expected to give up work and look after the children.
Russell's Intentions	Russell was brought up in a working class family in Liverpool where his Dad had various jobs with one being a miner and was an alcoholic. Russell was interested in class as his mother aspired to be of a higher class. Russell feared he would end up like his father but felt saved by his in-laws who nurtured him, hence his interest of nature vs nurture.

Themes	
Education	Due to class, education is offered differently to the two boys- with Edward being in a private, boarding school and Mickey a comprehensive school where Mickey is poorly educated.
Superstition	The audience is constantly reminded of this, as well as the superstition Mrs Lyons creates. The narrator also refers to other superstitions throughout the various songs in the play.
Violence	The children play with toy guns and violent games out in the street. This foreshadows the violent path Mickey takes and the ultimate violent ending to the boys' lives.
Money	Mrs J can't afford to feed an extra two children and ends up getting her furnishings on the catalogue being taken away whilst pregnant. The children have broken toys which compares to Mrs L who can afford all of the luxuries when Edward is born.
Class	Mickey has less opportunities, poor education and an unsecure job- he is involved in drugs, depression and crime because of his poverty. Edward has all the opportunities: a good education, university and a good job. Both boys are also treated differently by society and authoritative figures.
Nature vs Nurture	Focuses on the idea of what will happen if a person's character is determined by their genetics or upbringing. In this case, it is their upbringing- Mickey wishes to have had Edward's life at the end of the play.
Fate	The idea that because of class, the boys' fate was always decided and instead it was fate, not superstition that caused their death.
Friendship	There are close friendships between the boys as well as Linda which strengthens and suffers at different times, specifically as the boys get older as one gets everything he wants and the other does not due to their social classes.

Movement

Gait – the way you walk.
Posture – the position you hold your body when standing or sitting.
Stance – the way you stand.
Body language – how you express your emotions through your body.

Expression

Facial expression – showing your character's emotion by using your face.

When describing, focus on the eyes, eyebrows and mouth.

Gesture

A movement, using the hand, that expresses an idea or communicates meaning.
When describing, describe in detail e.g. "I used a gesture where I outstretched my hand to show I wanted to ignore the other character"

Interaction

Eye contact (or lack of).

Proxemics – the distance between the characters that communicates their relationship/situation.

Voice

Pitch – how high or low your voice is.
Pace – how quickly you speak.
Volume – how loud you speak.
Use of pause – pausing before a line of speech.
Tone – showing your character's emotions through your voice.

Audience

What effect does this have on the audience?
What do you want the audience to see/feel?
How do you know your performance was successful? How did the audience react?

Component 1- Set Text – Blood Brothers

For Component 1, Section b, you need to show understanding of the play Blood Brothers through Performance and design skills

Component 1 Section B

Section B Study of Set Text – *Blood Brothers*
Total marks – 44
An extract from the play is printed in the question paper and you can have a copy of Blood Brothers during the exam.

You will answer **four** questions to answer in Section B. These will link to the extract and at times the whole text (read the question carefully to check for this.)

Question 6:1 (4 marks) - Compulsory
Design question – this could be on either Lighting, Sound, Set or Costume. It is focused on the extract given in the exam. You need to answer about the design element and your ideas. This needs to reflect the context of Liverpool from the 1960's-1980's.

Question 6:2 (8 marks) - Compulsory
Given line question – this question gives you a line from the extract to focus on and a set character. You need to answer this question by stating what performance skills you would use to play the part and the reasoning behind your choices

Question 6:3 (12 marks) - Compulsory
Interaction question – this question gives you a set area of the extract to focus on (the shaded section) and a set character. You needs to say how the stated character would interact with another character in the extract. You can discuss the stage relationship they would have with each other. You should also discuss the Vocal and Physical skills that let the characters interact with each other

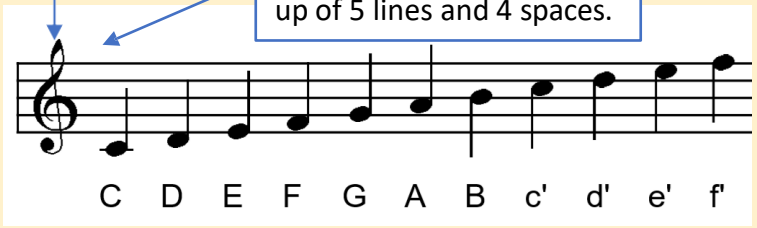
Choice of two questions – pick one
Question 6:4 (20 marks) – Choice 1
Interpretation question – you are given a set character to interpret based on the extract. You should describe the acting skills you would use to play the character and explain how these ideas are appropriate for the extract. You must also show your understanding of the whole play by discussing how your interpretation of the character could be used elsewhere in the play.
OR
Question 6:5 (20 marks) – Choice 2
Design skills question – you must choose **one** area of design (set, lighting, sound, costume) and describe how you would use this design area to support the action of the extract. You should also discuss how your design ideas are appropriate for the play as a whole. This could be a comparison to another moment in the play and the design used there.

Musical Notation

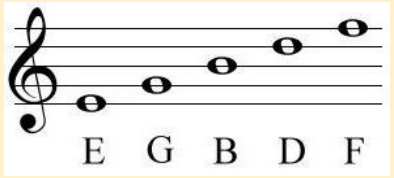
A STAVE or STAFF is the name given to the five lines where musical notes are written. The position of note son the stave or staff shows their pitch (how high or low a note is). The TREBLE CLEF is a symbol used to show high-pitched notes on the stave and is usually used for the right hand on a piano or keyboard to play the melody and also used by high pitched instruments such as the flute and violin. The '#' symbol means a SHARP which raises the notes by a semitone and the '*b*' symbol means a FLAT which lowers the pitch by a semitone.

Treble clef

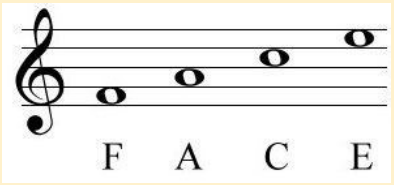
The stave or staff is made up of 5 lines and 4 spaces.



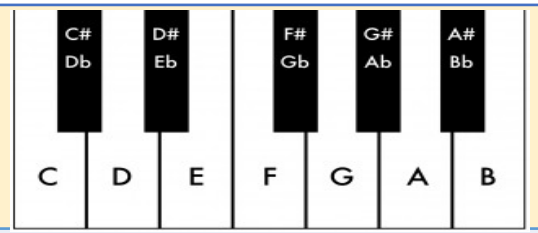
Every Green Bus Drives Fast



Notes in the spaces spell "FACE"



Each black key has 2 names e.g. C# is the same as Db!



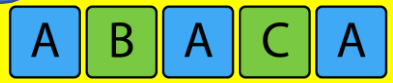
Different Sections

- intro
- verse
- pre-chorus
- chorus
- bridge
- outro
- middle 8
- refrain
- coda
- breakdown
- drop
- riser

Make sure you can describe the difference between each of these!

Binary Form

Ternary Form

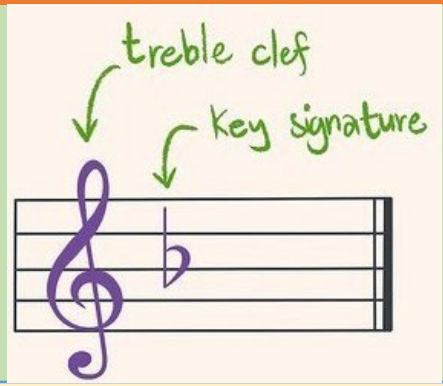


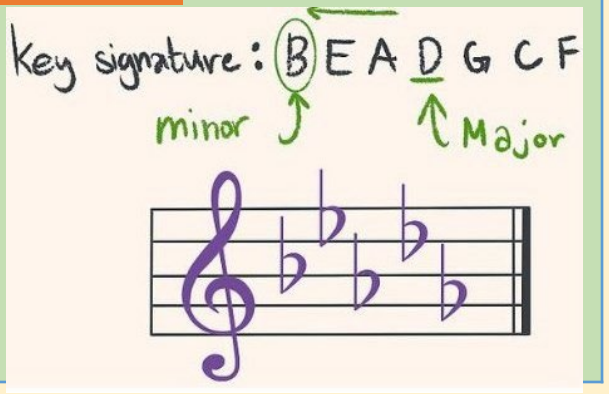
Rondo

Melody

T = TONE (two keys on a piano)
S = SEMITONE (one key on a piano)

Major (T, T, S, T, T, T, S)
Natural Minor (T, S, T, T, S, T, T)
Harmonic Minor (T, S, T, T, S, T+S, S)
Minor Pentatonic (T+S, T, T, T+S, T)
Major Pentatonic (T, T, T+S, T, T+S)





Musical Genres

Britpop

- **Instruments** – Vocals, acoustic guitar, lead guitar, bass guitar, piano, drums
- **Structure –** traditional verse/chorus structure (e.g. Verse, Chorus, Verse, Chorus, Bridge Chorus), sometimes with intros, outros and solos
- **Melody** – focus on "catchy" melody hooks in the vocals, sometimes with guitar riffs
- **Harmony** – Simple harmony, generally with diatonic chords
- **Rhythm –** mostly in 4/4 with simple pop rhythms

- **Notable Artists –** Oasis, Blur, Stone Roses

Blues

- **Instruments** – Vocals, acoustic guitar, lead guitar, bass guitar, piano, drums
- **Structure –** 12 Bar Blues, one lyric repeated 3 times, often with a solo
- **Melody** – often one line repeated, sometimes with call and response
- **Harmony** – Dominant Chords (7th chords) - Chord I, Chord IV and Chord V
- **Rhythm –** mostly in 4/4 or 12/8, generally swung rhythm

- **Notable Artists –** Robert Johnson, BB King, Stevie Ray Vaughan

Reggae

- **Instruments** – Vocals, electric guitar, bass guitar, piano, drums
- **Structure –** traditional verse/chorus structure
- **Melody** – simple, often "catchy" melodies, generally short motifs, riffs often on guitar or organ
- **Harmony** – Simple harmony, generally with diatonic chords
- **Rhythm –** mostly in 4/4 with simple pop rhythms, generally swung, accents on beats 2 and 4

- **Notable Artists –** Bob Marley, Desmond Dekker, Jimmy Smith

Minimalism

- **Instruments** – Often unusual combinations of instruments, many layers
- **Structure –** additive/subtractive structure, sometimes through-composed, very repetitive
- **Melody** – short, repeated motifs that can gradually change
- **Harmony** – Harmony often implied by interweaving melodies
- **Rhythm –** complex rhythms with lots of syncopation and cross-rhythms

- **Notable Artists –** Steve Reich, Philip Glass, Mike Oldfield

Hip Hop

- **Instruments** – Vocals (often rap), bass, drums and samples
- **Structure –** often the instrumental section is looped, however there is often a rap (verse) and a hook (chorus)
- **Melody** – mostly rapped (little range in pitch), but sometimes a "catchy" vocal hook
- **Harmony** – Simple harmony, very few chord changes
- **Rhythm –** mostly in 4/4 with simple pop rhythms, little variety throughout song

- **Notable Artists –** Eminem, Dr Dre, Kanye West

Jazz

- **Instruments** – Drums, double bass, piano, guitar, saxophone, trumpet, vocals
- **Structure –** often AABA, most jazz standards are 32 bars
- **Melody** – often a simple "head", but more complex melodies are improvised
- **Harmony** – Extended harmony, chord substitutions
- **Rhythm –** mostly in 4/4, generally swung, lots of syncopation

- **Notable Artists –** Miles Davis, Charlie Parker, Ella Fitzgerald

Y10 BTEC Music: Music Technology

Overview

Most commonly, remixes are a subset of audio mixing in music and song recordings. Songs may be remixed for a large variety of reasons, to:

- adapt or revise a song for radio or nightclub play
- create a stereo or surround sound version of a song where none was previously available
- improve the fidelity of an older song for which the original master has been lost or degraded
- alter a song to suit a specific music genre or radio format
- use some of the original song's materials in a new context, allowing the original song to reach a different audience
- alter a song for artistic purposes
- provide additional versions of a song for use as bonus tracks or for a B-side, for example, in times when a CD single might carry a total of 4 tracks
- create a connection between a smaller artist and a more successful one, as was the case with Fatboy Slim's remix of "Brimful of Asha" by Cornershop
- improve the first or demo mix of the song, generally to ensure a professional product.
- improve a song from its original state

Remember when you hit a creative block that DAWS are FULL of weird effects to get you thinking again!
Have you tried the following on your samples?:
-Automating your plug-in parameters?
-Reversing an audio file – try adding reverb to this and then turning back the correct way again!
-How about a Paulstretch in Audacity?
-If your music is really busy how about a breakdown section where everything mellows out again?

DAW = Digital Audio Workstation (e.g. Bandlab/Logic Pro)

MIDI Musical Instrument Digital Interface

Data recorded using a MIDI Keyboard

MIDI data read by a **SOFTWARE INSTRUMENT**

psst... Software instruments can also be called Synthesisers

The sound selected is called a **VOICE**

Remember! MIDI has no sound it is only DATA

You are not a robot so make sure any music you play on the keyboard is put perfectly in time by using QUANTIZE

There are different types of track

-Audio
-Software instrument

Keywords

Loop: These can be MIDI or Audio and repeat without being rec-recorded or played again by the musician.

Sample: Small piece of audio used from something already existing

Stereo: Two output tracks – left & right

Mono: The same output whether there is more than one or not

Panning: Separating sounds so that they play more out of one stereo channel – for example panning the cymbals to the left

Everything created on a computer is **DIGITAL** the opposite of this is **ANALOGUE** (things created using real life objects like guitars and effects pedals!)

DANCE Music:

Influenced by **MUSIC TECHNOLOGY:** samplers, synthesisers, sequencers and drum machines.
Various genres: House, Techno, Drum and Bass, Garage, Trance, Ambient. Dancing in individual and **IMPROVISED.**
Use of **ELECTRONIC SOUNDS.**
A **STRONG BEAT** emphasised by the **DRUM** and **STRONG BASS LINES.**
SHORT PHRASES and **REPETITIVE SECTIONS.**
FAST TEMPO

Composer – Someone who writes music
DJ – Short for 'Disc Jockey' - can be someone who plays music using turntables mixing songs together in a live setting. Can also compose their own dance tracks.
Arranger – someone who takes existing music and recreates it in another way e.g., creating a string version of a pop song.
Technician – Someone who maintains and prepares equipment.

Reverb
The Wonder Plug-in

Reverb is the natural process by which sounds bounce around the spaces they are in. When we create music digitally we need also to create a 'space' for these sounds to exist in.
A long, big reverb can sound like you are in a cave or a cathedral whereas short reverb sound can make a sound much more natural.
Look out for the words DRY and WET. These refer to the original sound (dry) and how much reverb is put onto it (wet) - and ALWAYS experiment!

FOUR-ON-THE-FLOOR is a common rhythm in **DISCO** and more modern dance music:

Keyboard Shortcuts in Bandlab: Copy – ctrl+c : **Paste** – ctrl+v : **Cut** – ctrl+x : **Undo** – ctrl+z

Year 10 Sports Science: Unit R181 Principles of Training

When planning consider:
- Facilities/equipment
- Safety/risk assessments
- Athlete's aims/goals/objectives
- Athlete's current fitness levels/injuries
- Organisation
- Environment
- Skills to be improved

Set SMART goals:
- Specific
- Measurable
- Achievable
- Realistic
- Time-bound

Consider the athlete's:
- Weight
- Age
- Physical activity levels
- Access to facilities
- Injuries/health issues
- Training preferences

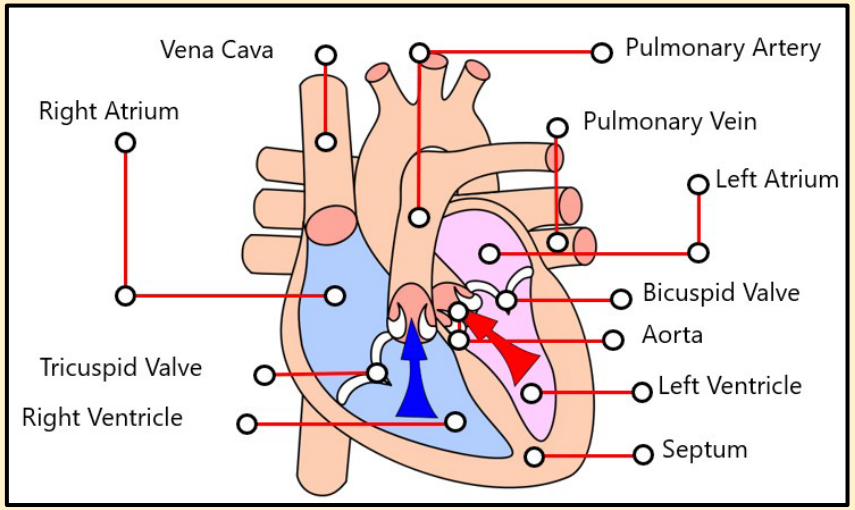
A training session should include:
- Suitable warm up/cool down
- Activities/main content
- Duration of session
- Equipment and facilities
- Coaching points
- Adaption of the programme and mid-term testing

Evaluating a training programme:
- Has the programme been a success or not as effective?
- Were there particular elements of the programme that went well?
- Was the intensity appropriate?
- Was training frequent enough and allowed for rest?
- Was the athlete sufficiently motivated?

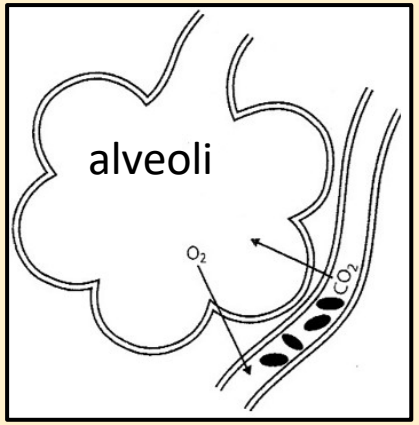
	Continuous training	Weight Training	Circuit Training
Week 1	20mins cycle at level 13 on exercise bike	8kg bicep curls 6 reps x3 sets	30 secs on each station 15 sec rest; Press ups, star jumps, box jumps, skipping, tricep dips, sit ups, lunge jumps
Week 2	22mins cycle at level 13 on exercise bike	8kg bicep curls 7 reps x3 sets	35 secs on each station 15 sec rest; Press ups, star jumps, box jumps, skipping, tricep dips, sit ups, lunge jumps
Week 3	25mins cycle at level 13 on exercise bike	8kg bicep curls 8 reps x3 sets	40 secs on each station 15 sec rest; Press ups, star jumps, box jumps, skipping, tricep dips, sit ups, lunge jumps
Week 4	20mins cycle at level 14 on exercise bike	9kg bicep curls 6 reps x3 sets	40 secs on each station 10 sec rest; Press ups, star jumps, box jumps, skipping, tricep dips, sit ups, lunge jumps
Week 5	22mins cycle at level 14 on exercise bike	9kg bicep curls 7 reps x3 sets	40 secs on each station 10 sec rest; Press ups, star jumps, box jumps, skipping, tricep dips, sit ups, lunge jumps
Week 6	25mins cycle at level 14 on exercise bike	9kg bicep curls 8 reps x3 sets	40 secs on each station 10 sec rest; Press ups, star jumps, box jumps, skipping, tricep dips, sit ups with 2kg, lunge jumps with 5kg

Year 10 Sports Science Unit: R182 The Body's Response to Physical Activity

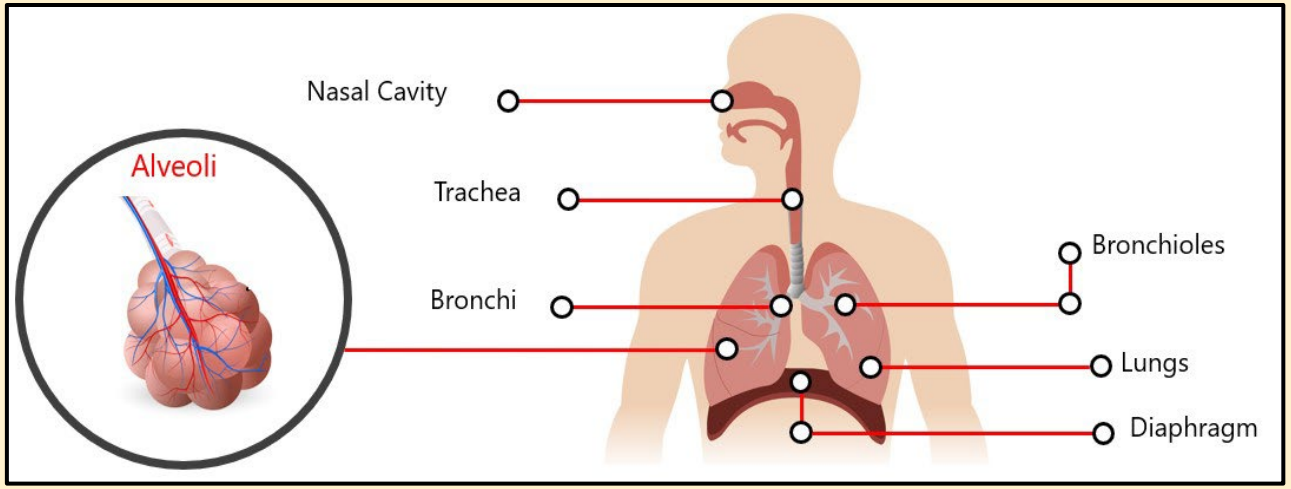
Picture A The Structure of the heart



Picture B Gaseous exchange between the alveoli and the blood



Picture C The passage of air through the respiratory system



Keyword	Definition
Cardio	Related to the heart
Vascular	Related to the blood vessels
Respiratory	Related to the lungs
Oxygenated	Blood that is carrying oxygen
Deoxygenated	Blood that is not carrying oxygen
Heart rate	The number of times the heart contracts in one minute
Stroke volume	The amount of blood ejected from the left ventricle in one contraction
Cardiac output	The amount of blood ejected from the left ventricle in one minute
Blood pressure	The pressure the blood puts on the ventricle walls
Inspiration	Process of air coming into the lungs
Expiration	Process of air moving out of the lungs
Aerobic	Producing energy using oxygen
Anaerobic	Producing energy without using oxygen
Vascular Shunt	Redirection of blood away from the organs and towards the muscles
Physiological	Related to the body
Psychological	Related to the mind

Year 10 Art and Design

Workshops

Observational Drawing

Observational drawing means observing and drawing directly from an image or real-life object. You will need to demonstrate you can execute good quality drawing in a range if media including:

- ❑ Pencil/graphite
- ❑ Charcoal
- ❑ Pencil crayon
- ❑ biro

Print-Making

Print=making in Art is transferring ink or paint from a design onto a surface. These can be used for different results including fine art, textiles and advertising. Print-making methods include:

- ❑ Screen-Printing
- ❑ Lino Printing
- ❑ Mono-Printing

Painting Skills

You will continue to build on the painting skills acquired in ks3 and develop watercolour skills with more accuracy before moving into acrylic. You will experiment with painting with palette knives and techniques such as:

- ❑ Impasto
- ❑ Dry brush
- ❑ Blending

Textiles

Textiles experiments with the production of outcomes on fabric. You will combine textiles with printmaking and demonstrate embellishment skills such as

- ❑ **Embroidery (stitch) such as French knot, running/back stitch**
- ❑ **Machine and hand sewing**
- ❑ **Applique**

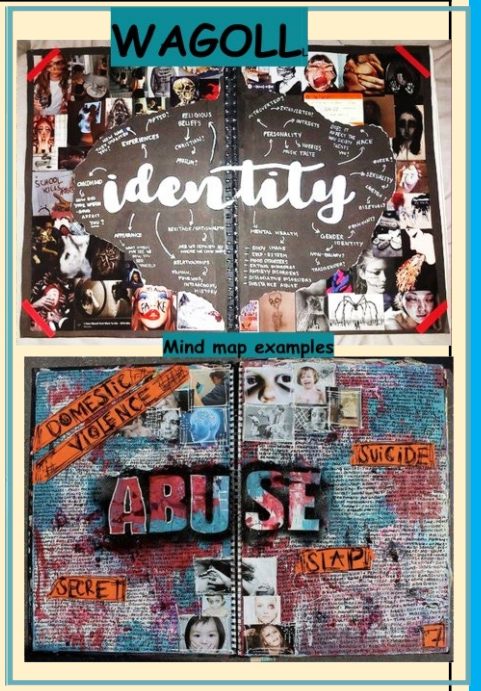
Mood board/mind map

What is a mind map?

Mind map creator Tony Buzan coined the term 'mind map' to refer to a diagram that has a branch or root-like structure radiating from a central image on the page, and which uses lines and colour to show relationships, groupings and connections between words, ideas and images. A mind map helps students think clearly and ensures that a range of possibilities are considered, encouraging thinking outside-the-box.

How to make a mind map?

Starting with a central image to represent your topic or theme; using curving lines to add main branches to the centre and then connecting these to smaller branches; using single words and images; and adding colours for aesthetic and organizational purposes.



AO1 Artists Research How to?

ARTIST RESEARCH: You will need to thoroughly be able to research the Artist Edward Weston and present your findings both as an artist research page and a Form, Content, Process, Mood Page.

Artist research Page includes:

- ❑ Title
- ❑ Generic information about the artist, their background and an overview of their artwork.
- ❑ 2-4 artist images

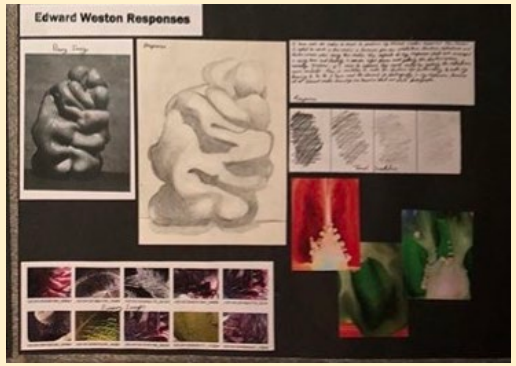
Form, Content, Process, Mood includes

- ❑ Title
- ❑ 1 artist Images
- ❑ In-depth analysis of the artist work talking about and referring directly to the 1 image . This will include your interpretation as well as information.

Portfolio expectations

Mounting and presenting:

- ❑ Cut outcomes/imagery on a guillotine
- ❑ Test your layout before gluing down
- ❑ Neat, cleat title either in white pen or printed
- ❑ Neatly written and thorough annotations
- ❑ Work on black paper
- ❑ Fill the space
- ❑ Stick things straight with space between each item
- ❑ Annotations written in white pen or typed font size 16 maximum

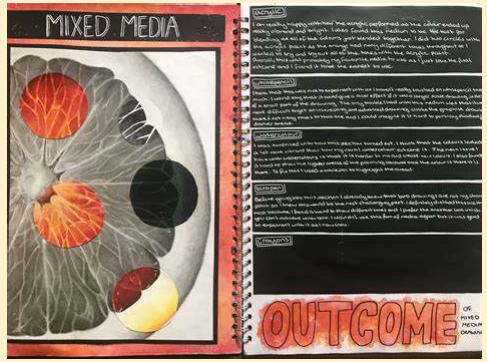


Year 10 Art and Design

AO2 – Evidence Required

- Watercolour
- Acrylic
- Photography
- Oil Pastel
- Charcoal
- Biro Pen
- Mono Printing
- Pencil
- Charcoal
- Collage
- Mixed Media

EXPERIMENTING WITH MEDIA: You now need to think about developing your ideas and experimenting with a range of media.



Think & Talk Like An Artist…

Talking like an artist is important, can you describe analyse and show an in-depth understanding of your own work and that of others.

FORM

What colours are used? Any texture? Where can you see the formal elements of art? Colour, line, tone, texture, pattern, shape.

CONTENT

What is it? What is it about? What is happening? What is the subject matter? What do you see? What is the theme?

PROCESS

What materials, processes, skills and techniques have been used to create the art work?Has it been digitally edited? Where was it done?

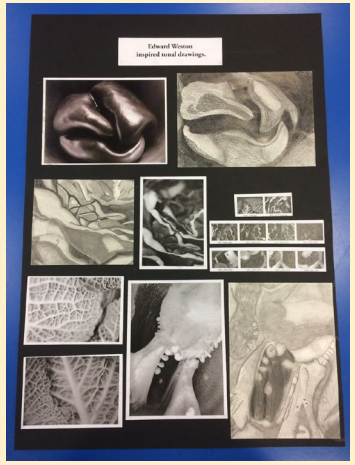
Mood

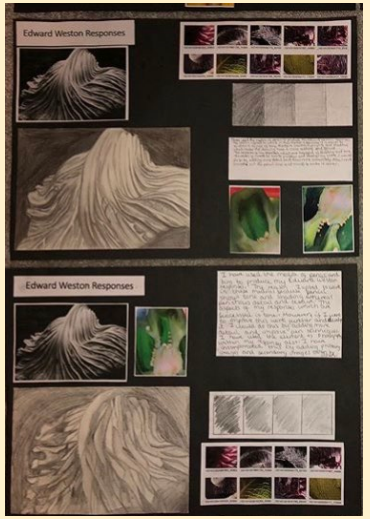
What is the message in the work? How does it make you feel? Does it capture a feeling? What is your opinion of the art?

AO3 - Recording

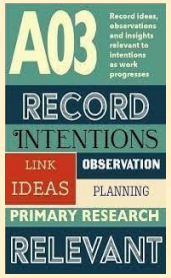
RECORDING: You will need to record your ideas through primary and secondary observations. You must have detailed, refined pencil drawings, photographs and written annotations, which support the development of your work?

As well as using sketches, paintings and drawings etc. you can evidence your ideas through notes. Alongside your artwork you should make sure that you are providing notes to help explain your thoughts and ideas.





Observation, accurate outline, tonal values, gradated tone, surface textures, modelling of 3D forms.



Key Terminology

LINE	COLOUR	TEXTURE	SPACE	TONE
Straight	Primary	Actual	Positive	Tint
Curve	Secondary	Implied	Negative	Shade
Linear	Vibrant	Smooth	Distance	Contrast
Broken	Strong	Rough	Empty	Shadow
Jagged	Hue	Shinny	Deep	Highlight
Wavey	Soft	Jagged	Shallow	Dramatic
Thick	Harsh	Reflective	Open	Intense
Contour	Warm	Shandy	Hollow	Ombre
	Cool	Grainy	Atmosphere	

Composition — Refine - Mixed Media – Thumbnail Sketch

Year 10 Graphics

Workshops

Adobe Basics

Adobe basics introduces you to Photoshop and the basics of using the software. You cover a range of different techniques, including:

- ❑ Saving/exporting
- ❑ Quick selection tool
- ❑ Shortcuts
- ❑ Printing work

Barbara Kruger

The Barbara Kruger project introduces students to screen printing and digital methods combing both. These methods include:

- ❑ Screen-Printing
- ❑ Digital techniques
- ❑ Use of craft knife

Surrealism

The surrealism project introduces students to creating a mini project and artist references. They use techniques like the following to create multiple outcomes:

- ❑ Physical collage
- ❑ Digital collage
- ❑ Marquee tool
- ❑ Layer masks

David Carson

The David Carson project introduces students to applying what they know about artist references and collage to their work. They include methods like:

- ❑ Collage
- ❑ Line drawings
- ❑ Scan in and digitalise

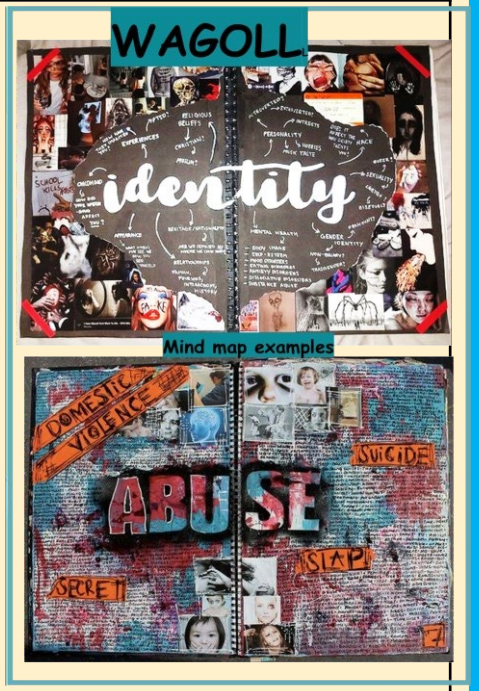
Mood board/mind map

What is a mind map?

Mind map creator Tony Buzan coined the term 'mind map' to refer to a diagram that has a branch or root-like structure radiating from a central image on the page, and which uses lines and colour to show relationships, groupings and connections between words, ideas and images. A mind map helps students think clearly and ensures that a range of possibilities are considered, encouraging thinking outside-the-box.

How to make a mind map?

Starting with a central image to represent your topic or theme; using curving lines to add main branches to the centre and then connecting these to smaller branches; using single words and images; and adding colours for aesthetic and organizational purposes.



AO1 Artists Research How to?

ARTIST RESEARCH: You will need to thoroughly be able to research the Artists Annette Von Stahl, Barbara Kruger and David Carson and present your findings both as an artist research page and a Form, Content, Process, Mood Page.

Artist research Page includes:

- ❑ Title
- ❑ Generic information about the artist, their background and an overview of their artwork.
- ❑ 2-4 artist images

Form, Content, Process, Mood includes

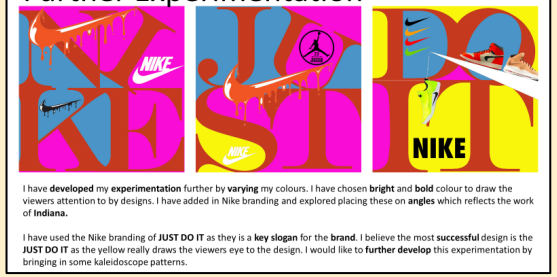
- ❑ Title
- ❑ 1 artist Images
- ❑ In-depth analysis of the artist work talking about and referring directly to the 1 image . This will include your interpretation as well as information.

Portfolio expectations

Mounting and presenting:

- ❑ Outcomes created on Powerpoint
- ❑ Test your layout before printing
- ❑ Clear title
- ❑ Annotations follow the format expected
- ❑ Print A3, one sided, in colour
- ❑ Fill the space
- ❑ Put outcome pages into folder in the correct order
- ❑ Max font size 16

Further Experimentation

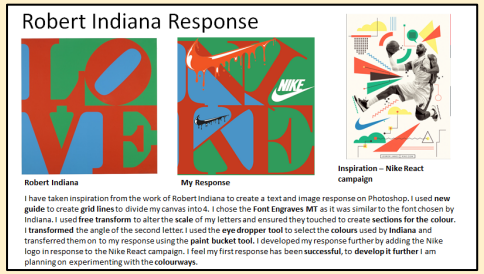


Year 10 Graphics

AO2 – Evidence Required

- Photoshop
- Printing
- Adobe
- Powerpoint
- Screen print
- Collage
- Craft knife
- Research
- Line drawings
- Outcomes
- Mixed Media

EXPERIMENTING WITH MEDIA:
You now need to think about developing your ideas and experimenting with a range of media and different techniques.



Think & Talk Like An Artist…

Talking like an artist is important, can you describe analyse and show an in-depth understanding of your own work and that of others.

FORM
What colours are used? Any texture? Where can you see the formal elements of art? Colour, line, tone, texture, pattern, shape.

CONTENT
What is it? What is it about? What is happening? What is the subject matter? What do you see? What is the theme?

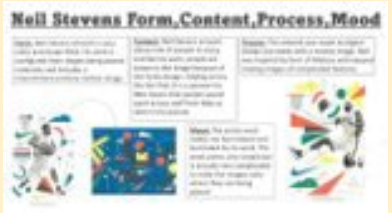
PROCESS
What materials, processes, skills and techniques have been used to create the art work?Has it been digitally edited? Where was it done?

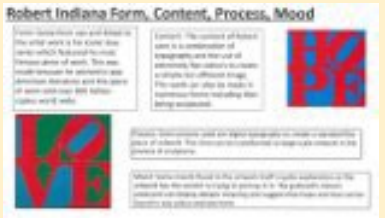
Mood
What is the message in the work? How does it make you feel? Does it capture a feeling? What is your opinion of the art?

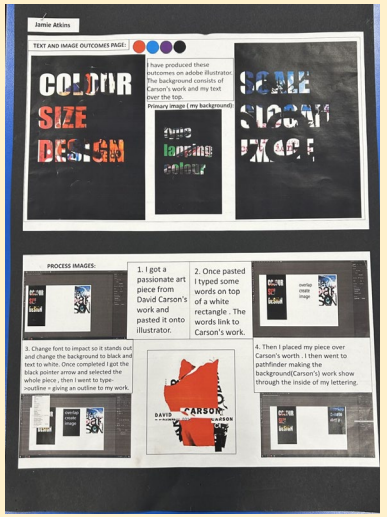
AO3 - Recording

RECORDING: You will need to record your ideas through primary and secondary observations. You must have detailed annotations and clear proof of experimentation linking to your artist/theme

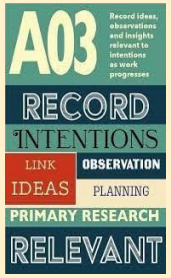
As well as using artist references, you will use the F,C,P,M format to annotate key aspects of a project.
These will be printed A3 and all outcome pages will go into your folder.







Observation, digital techniques, line drawings, digital and physical collage, primary images, artist research.

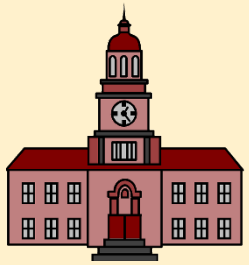


Key Terminology

LINE	COLOUR	TEXTURE	SPACE	TONE
Straight	Primary	Actual	Positive	Tint
Curve	Secondary	Implied	Negative	Shade
Linear	Vibrant	Smooth	Distance	Contrast
Broken	Strong	Rough	Empty	Shadow
Jagged	Hue	Shinny	Deep	Highlight
Wavey	Soft	Jagged	Shallow	Dramatic
Thick	Harsh	Reflective	Open	Intense
Contour	Warm	Shandy	Hollow	Ombre
Outline	Cool	Grainy	Atmosphere	

Composition — Refine - Mixed Media – Digital and Physical

TYPES OF NETWORK



LAN (Local Area Network)

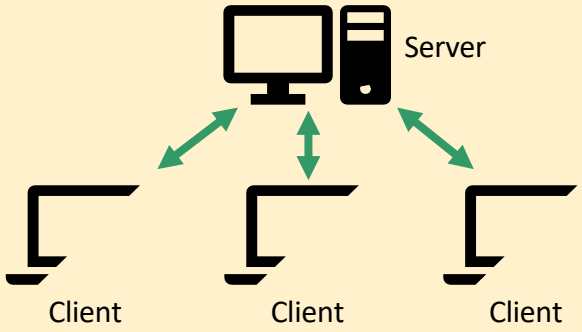
A **network** that covers a *small geographical area* such as a home, school or office. **Hardware** is owned by the LAN users.

WAN (Wide Area Network)

A **network** that covers a *wide geographical area* such as a city, a country or the world. It connects together many LANs. **Hardware** is leased from telecommunications companies.

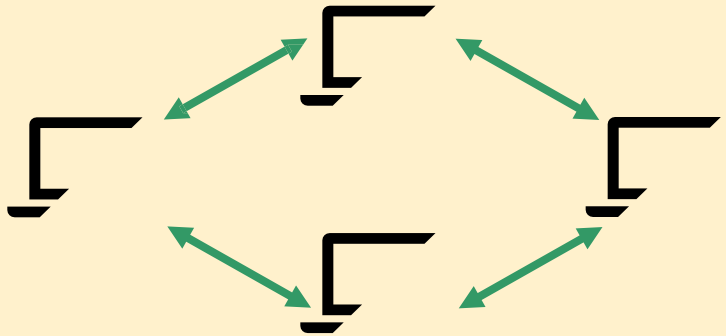
CLIENT-SERVER AND PEER-TO-PEER NETWORKS

Client-Server Network



A central server provides services and resources to the clients. Requires additional hardware and is more complex to set up.

Peer-to-Peer Network



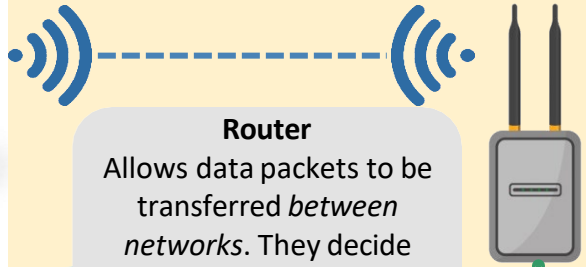
All devices in the network are *equal*, sharing services and resources with each other. No additional hardware required.

Benefits of Networks

- Allows users to share files and work collaboratively.
- Allows users the share peripheral devices such as printers.
- Centralised administration and updates - you can install and update software on all computers rather than one-by-one.
- Allows easy communication between users e.g. instant messaging.

Year 10 Computer Science: 1.3 Networks & Topologies

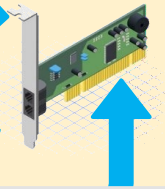
NETWORK HARDWARE



Router
Allows data packets to be transferred *between networks*. They decide where to send data and which route to use.

Wireless Access Point (WAP)
Allows wireless-enabled devices to connect to a LAN or WAN.

Switch
Enables devices to be connected to a **LAN**. Switches direct data to devices within the network.



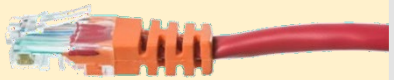
Network Interface Controller (NIC)
Required to send and receive data over a network.

*In home networks the **router**, **switch** and **wireless access point** are usually combined into one device.*

TRANSMISSION MEDIA

Three main types of cable can be used to connect devices in a network.

Ethernet Cable

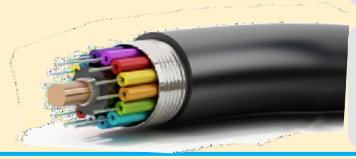


Also known as **twisted pair** – *cheap* but *prone to interference*.

Coaxial

Less prone to interference than ***ethernet cable*** but *more expensive*.

Fibre-optic



Least prone to interference but *very expensive*. Light is transmitted down glass fibres.

NETWORK PERFORMANCE

A number of factors affect the performance of networks.

Bandwidth
This is the main factor; the higher the **bandwidth**, the more data can be transferred at the *same time*.

Latency
The *time delay* between the transmission of bits. Lower **latency** results in *faster transfer*.

Transmission Errors
Errors can occur during transmission meaning the data has to be retransmitted.

Advantages

Star:
- Star networks are very reliable. If one connection fails, it does not affect other users
- Simple to add or remove a node as it has no effect on any other node

Mesh:
- There is no central node to fail
- Very robust network. If one path fails, the rest can still be used

Disadvantages

Star:
- Installing the network usually needs experts to set it up
- Extra hardware such as switches may be needed

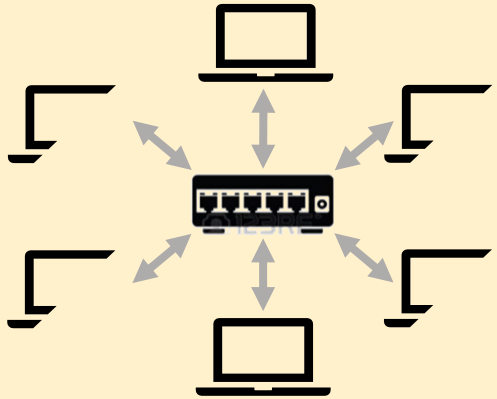
Mesh:
- The number of connections increase massively as more nodes are added
- Becomes impractical topology for a wired network as so many cables would be needed.

TOPOLOGIES

A **topology** is a way of *laying out a network*. You need to know about two specific topologies:

Star

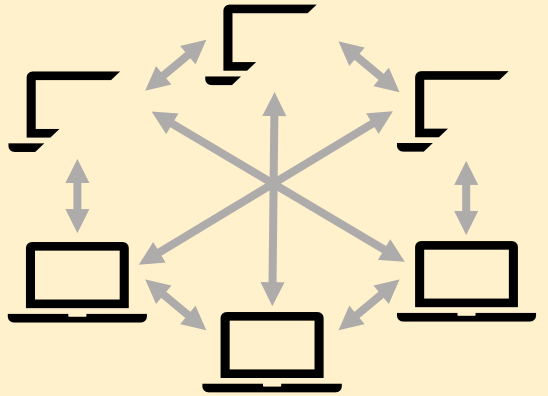
There is *one connection* between each computer and a central device, usually a **switch**.



Cheaper to set up than a **mesh** network; however, if the central device fails the whole network goes down.

Mesh

There are *multiple connections* between all computers, allowing **redundancy**.



If one connection fails there is *always another route;* however, it is *more expensive to set up*.

Benefits of The Cloud

- Backup and security is often taken care of by the cloud provider
- Easy to access files and share files with people anywhere in the world
- Less need for organisations to employ network managers

Drawbacks of The Cloud

- You cannot access your data without an internet connection
- Risk of hackers intercepting or gaining access to data.
- Data may be subject to different laws if stored in different countries.

THE INTERNET

The **Internet** is a *worldwide collection of computer networks* connected together. The **World Wide Web** (**WWW**) is a collection of **web pages** that are hosted on **web servers** around the world, and can be accessed using the **Internet**.

LAN

ISP

Internet Service Provider
Provides access to the **Internet**.

Web Servers

Host websites which can be accessed through the **Internet**.

DNS

Domain Name Servers
Convert domain names to **IP addresses.**

Humans use easy to remember **domain names** such as bbc.co.uk to access **Internet** resources, but computers need **IP addresses** (151.101.128.81).

The Cloud
A range **of Internet**-accessible services that are provided by **servers** around the world.

PROTOCOLS & STANDARDS

A **protocol** is a *set of rules* that define how devices should communicate. **Standards** allows hardware/software to interact across different manufacturers/producers.

Transmission Control Protocol / Internet Protocol
Defines how data is transferred over the Internet.

Simple Mail Transfer Protocol
Used to send emails.

Hypertext Transfer Protocol Secure
An encrypted version of **HTTP**, used for transferring personal data securely.

File Transfer Protocol
Used to transfer files between devices.

Hypertext Transfer Protocol
Used by the **WWW** to transfer web pages between **web servers** and **web browsers**.

Post Office Protocol
Used to retrieve email from an email server. Emails are *deleted from the server* once downloaded.

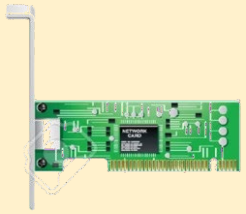
Internet Message Access Protocol
Used to retrieve email from an email server. Emails are *kept on the server*.

Ethernet is a *set of networking standards* that define how computers communicate over a wired network.

As the IMAP protocol keeps a copy of emails on the server it allows emails to be read on any device.

Key differences between IP and MAC addresses - MAC is written using **hex**, IP uses **binary**. MAC cannot be changed, whereas IP address can be changed.

ADDRESSING



MAC Addresses: Media Access Control Addresses are hardware based – built into the NIC and cannot be changed. They take the form of a 12-digit hexadecimal number.

IP Addresses: Internet Protocol Addresses are software based – assigned to a device when it joins a network and can be changed.

WIRED & WIRELESS NETWORKS

Wired Networks

Ethernet:
+ Fast (higher bandwidth)
+ Reliable
- Lacks portability
- More costly to install.

Wireless Networks

Wi-Fi:
+ Can easily connect multiple devices
+ Portability
- Range from WAP
- Signal can be blocked by walls/floors

LAYERS

- Network functionality is often split into **layers** to make it easier to understand.
- Each layer groups together protocols which have similar functions.
- The allows developers to concentrate on one area of the network without worrying about the other layers.
- Any changes made to one layer will not affect other layers as each layer is **self-contained**.
- Each layer has standards, forcing companies to make universally compatible hardware and software so different brands will work with each other seamlessly.
- The **TCP/IP** model is split into four **layers**, which data must travel through when sent and received.

Application Layer	Applications such as web browsers operate on this layer.	**Application Layer**
Transport Layer	On this layer the data is divided into chunks called **packets**.	**Transport Layer**
Network Layer	Here the source and destination **IP addresses** are added to the **packets**.	**Network Layer**
Link Layer	This layer deals with sending or receiving the **packets** using the **transmission media**.	**Link Layer**
Transmission Media		

Operating Systems

The operating system of a computer manages the hardware and enables all other software to communicate with it.

Without an operating system a computer is useless.

User Management

Manages the user accounts, including passwords and **access levels**.

Memory Management

Assigns available **memory** to **applications** and **data** *currently in use*.

Peripheral Management

Manages **peripheral** devices such as printers and scanners.

User Interface

Provides a **user interface** which enables the user to interact with the system.

File Management

Manages how files are stored and organised in **secondary storage**. *E.g. Naming files, folders, moving files etc.*

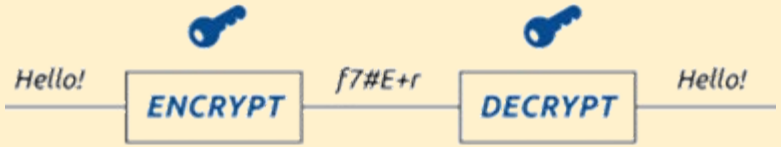
Utility Software

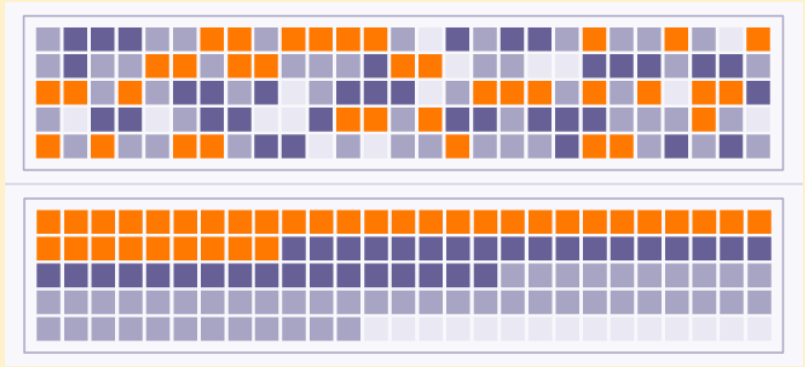
Utility software is designed to enable the user to perform maintenance on the system. It is often built into the operating system.

Encryption Software

Used to **encrypt** data, making it unreadable without a specific key.

E.g. It can encrypt all data on a storage device such as a memory stick. If the memory stick was lost the data would still be safe as it would be unreadable!





Defragmentation Software

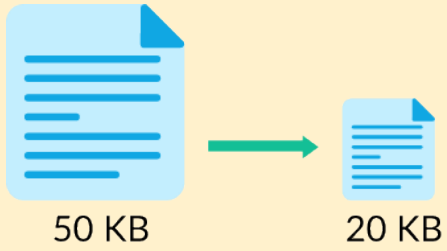
Over time the parts that make up files stored on a **hard disk drive** can become fragmented and this slows down access speeds.

Defragmentation reorganises the data so all the parts of each file are **stored together.**

Data Compression

Used to reduce the size of files so they take up *less storage space* or *can be transferred more quickly over a network*.

There are two types of compression: **lossy** and **lossless**.



Year 10 Computer Science: 2.1 Computational Thinking

Abstraction is the process of removing or hiding unnecessary detail to make a problem easier to understand and solve.

Decomposition is the process of breaking a problem down into smaller parts in order to make it easier to solve.

Algorithmic thinking is the ability to define a set of instructions that can be followed to solve a set of similar problems.

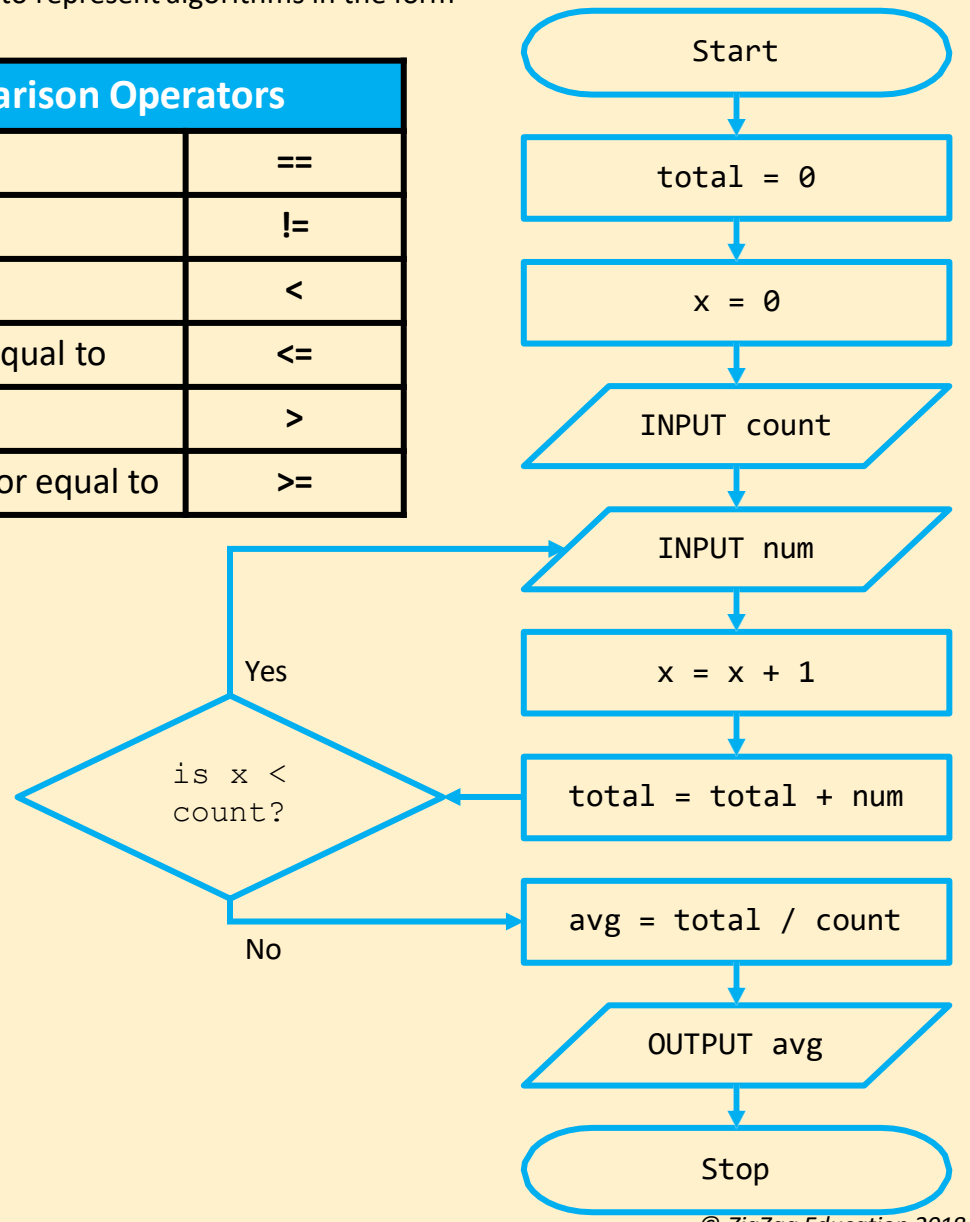
Flowchart Symbols

Start/Stop	Used to mark the start and the end of an algorithm.
Process	Used to indicate a process, such as a calculation.
Input / Output	Used when data is being inputted or outputted.
Decision	Used when an algorithm can take one of two paths based on a condition.
Subroutine	Used to call a self-contained algorithm.

Flowcharts are used to represent algorithms in the form of a diagram.

Comparison Operators	
Equal to	==
Not equal to	!=
Less than	<
Less than or equal to	<=
Greater than	>
Greater than or equal to	>=

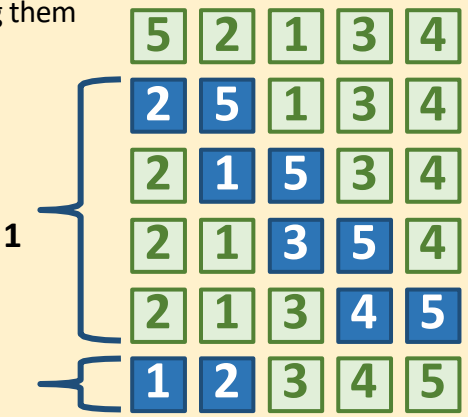
Data Types	
Character A single character (letter, number or symbol)	**"T"**
String A group of characters	**"Tom"**
Integer A whole number	**7**
Real/Float A number with a fractional part	**7.5**
Boolean Either TRUE or FALSE	**TRUE**

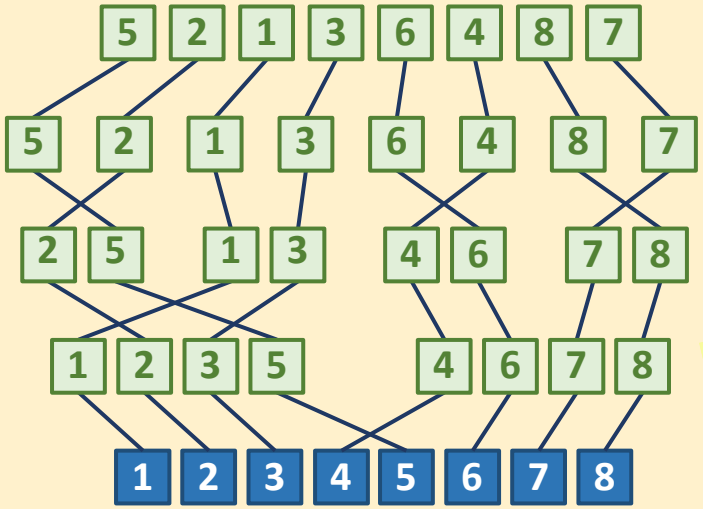


The **bubble sort** algorithm works through a list, comparing pairs of values and swapping them if necessary.

It keeps on passing through the list comparing values and making swaps until the list is sorted.

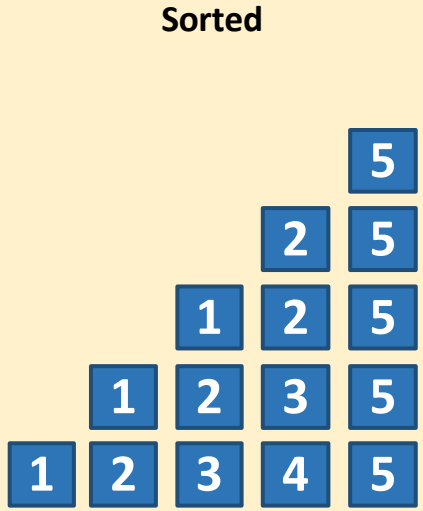
Easy to implement; however, it isn't very efficient.





The **merge sort** algorithm works by splitting a list into individual elements and gradually merging them into larger and larger sorted lists until they are in one sorted list.

Very efficient when used with both large and small lists.



Relatively efficient when used with small lists.

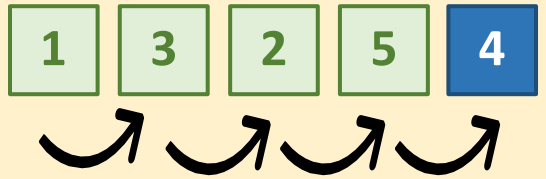
The **insertion sort** algorithm uses two lists, one sorted and one unsorted.

Elements are gradually moved from the unsorted list to the correct position in the sorted list.

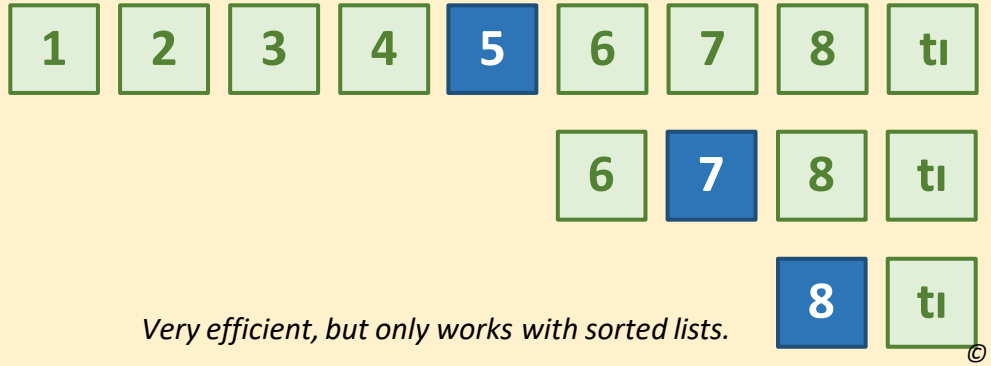
Linear Search

Searches for a value in a list by starting with the first element and *comparing each element* in turn *until the value is found*.

Very inefficient, but works with both sorted and unsorted lists.



Binary search works by *finding the middle value* in a list. If it is smaller than the value being searched for, the lower half of the list is discarded, if it is bigger the upper half is discarded. This process is repeated until the value is found.



Very efficient, but only works with sorted lists.

Variables & Constants

A **variable** is a *named location in memory* that can hold a value, which can be accessed or changed at any point in the program.

```
name = "Tom"
```

This example code creates a variable called '**name**', which contains 'Tom'.

Similar to a **variable** except the value is set at the start of the program and *can't be changed while the program is running*.

```
const vat = 20
```

This example code creates a **constant** called 'vat', which contains '20'. In Python: **vat = 20**.

The = sign is the assignment operator used to assign a value to a variable or constant.

Sequence

A **sequence** is a set of commands that are executed once in the order they appear.

```
num1 = int(input("Enter a number"))
total = total + num1

num2 = int(input("Enter a number"))
total = total + num2

num3 = int(input("Enter a number"))
total = total + num3

print(total)
```

Selection

Selection uses a condition to decide the *path that will be taken through the program*.

```
num1 = int(input("Enter a number"))
num2 = int(input("Enter a number"))

if num1 > num2:
    print(num1)
elseif num1 < num2:
    print(num2)
else
    print("They are equal")
```

Iteration

Iteration enables a group of commands to be repeated a set number of times or until a condition is met. There are two types of **iteration**:

Count-controlled loops repeat a group of commands a *set number of times*.

Condition-controlled loops repeat a group of commands *until a condition is met*.

This algorithm uses a **for loop** to output the numbers from 1 to 10. **For** loops have an inbuilt counter that increments automatically.

```
for i in range (1,10)
    print(i)
```

```
x = 1
while x <= 10:
    print(x)
    x = x + 1
```

This algorithm uses a **while loop** to output the numbers from 1 to 10. The **condition** in a **while loop** is tested at the start.

2.4: The Marketing Mix

Price

Factors that affect the price a business could charge:
- A business may look at the prices charged by competitors.
- A new business may have to lower prices or use special offers to entice customers.
- All business must consider their costs when setting a price, as well as the profits they are hoping to make.

Methods of pricing
- **Competitor pricing**
- **Cost-plus pricing**
- **Penetration pricing**
- **Skimming**
- **Promotional pricing**

*When evaluating different pricing methods to make a recommendation, always consider the **product** being sold.*

- *The product may have competitors*
- *The product may be aimed at few, wealthy customers.*
- *The product may be new and unknown.*

How the 4 P's work together

If a business wanted to increase sales…

Price
The price must be at a level to attract an increased number of customers e.g. penetration pricing.

Product
Does the product justify the price? If its older, then the price could be lowered to increase sales.

Place
Sell through different channels of distribution, for example online.

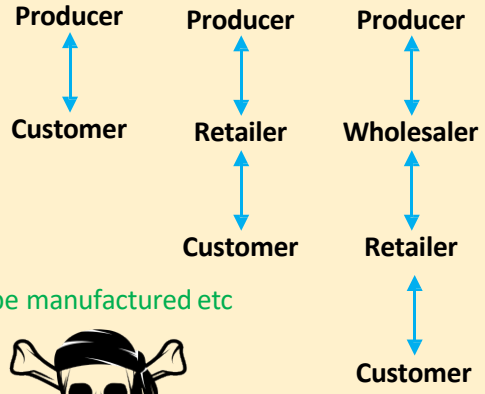
Promotion
Introductory price reduction, free delivery etc.

Market data - *information that will help a business to make marketing decisions.*
- Changes in demand for products
- Target market
- Market share
- Product change (*new product)*
- Effect of promotion

Place - *How products and services reach the customer.*
"The right product, in the right place, at the right time".

Physical Distribution - Selling products and services in traditional stores.
Digital Distribution - Selling products and services online.
Distribution channel - How the business gets the product to the consumer.

Physical distribution channels
Depending on the size of the business and number of customers, different distribution channels can be used.



Digital distribution
+ Customers can access products and services 24/7/365
+ Downloaded, so available quickly
+ Cost savings to the business, no physical product needs to be manufactured etc
- Not suitable for all products
- Not all customers have access to the internet
- Easy to illegally copy content and distribute it for free!

Promotion - *Advertising and promotions such as 'buy one get one free'*
Businesses must inform customers about their products and persuade them to buy.

Point of sale promotions
- Price reductions - *50% off.*
- Loss leaders - *Reduce the price to little or no profit.*
  - *Customer buys other products too.*
- Competitions - *Prize draws etc.*
- Free samples - *Try the product, used for new product launches.*

Advertising Campaign- *different forms of advertising used over a period of time*

Social media
- Websites
- Printed media (*newspapers, leaflets)*
- Television
- Radio

3.1 The Role of Human Resources & 3.2 Organisational Structures

Human Resources	Functions	Regulations	Zero-hours Contracts	Organisational Chart	Layers	Delayering
The workers employed by a business.	Different types of work that need to be done in business. E.g. production, finance, marketing.	Rules imposed on businesses by the government.	Contracts given to employees which do not guarantee work. Employees will be contacted if/when they are needed.	A diagram that shows how workers are organised in a business and who is in charge or whom.	The number of levels of authority that there are in a chain of command.	Reducing the number of layers in an organisational structure, making it flatter.
Accountability	**Chain of Command**	**Subordinates**	**Span of control**	**Delegation**	**Job Description**	**Flexible Working**
Responsibility that someone has - take the blame when things go badly and the credit when it goes well.	Links in the levels of authority from those at the top with the most authority and those at the bottom.	Workers that a line manager is responsible for.	The number of subordinates who report directly to the line manager.	Giving authority to a subordinate, so the subordinate is able to make decisions.	States the main duties, tasks, or responsibilities of a worker.	The practice of people working partly at their place of work and partly elsewhere, such as home.

3.1 The purpose of human resources

Human resources are the people who work for a business, including the owners, employees, and contractors.

Human resources carry out the **functions** of a business. E.g. Production workers make the product.

The human resources department deals with:

- The organisation of workers
- Communication in the workplace
- Recruitment and selection
- Motivation and retention of workers
- Training and development of workers
- Employment law

3.1 Identifying and meeting the human resources needs

Some changes a business may consider:

- Workers may need to be replaced, due to retirement, promotion etc
- The business may grow or shrink
- The business may change its methods of production
- The business may relocate
- The budget may change
- Changes in the law

When planning human resources:

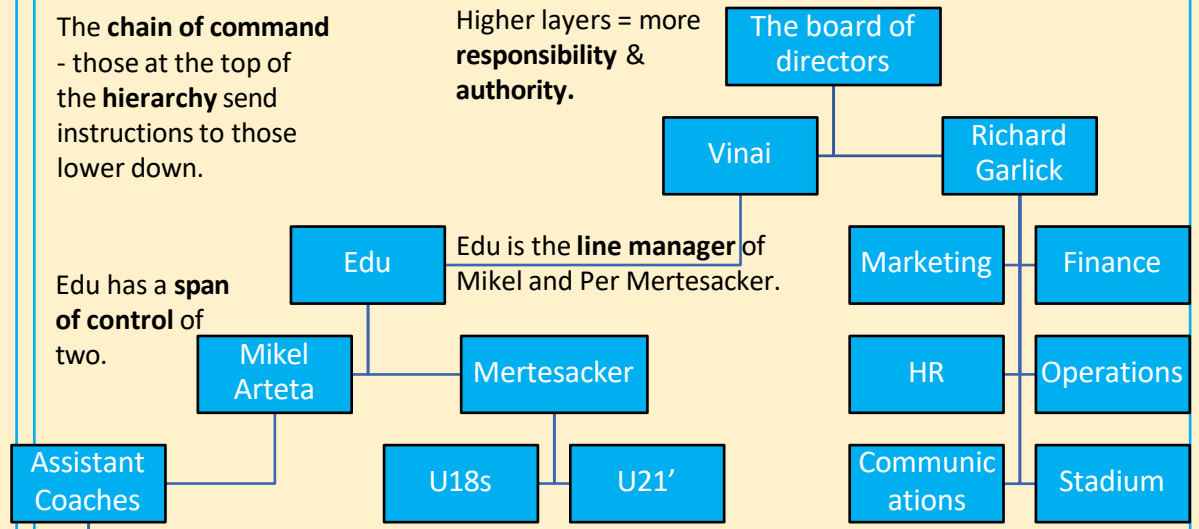
- Number of workers needed
- Full-time or part-time
- Age, gender, and ethnicity
- Affordability
- When the workers will be needed

3.2 Organisational structures and different ways of working

The **chain of command** - those at the top of the **hierarchy** send instructions to those lower down.

Higher layers = more **responsibility** & **authority.**

Vinai and Richard are the **subordinates** of the directors.



- This structure has several **layers. Tall** structures have a lot of layers, **flat** structures have few layers.
- In **flat structures** there are *fewer* managers (which could save money) but each manager has a **wide span of control**.

3.2 Different Ways of Working

Full-time & Part-Time
Full time is usually 35 hours work / week, part-time is anything less than this.

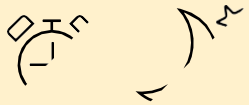
+ Part-time suits students, retirees, people who need to look after their family etc.

+ Also good for businesses as it gives them more choice, can reduce overtime costs and experienced workers (such as retirees) can contribute to the business.

- Part-time work may mean lower income compared with full-time, it can also be inconvenient - e.g. 3 hours early morning and 2 hours early evening.

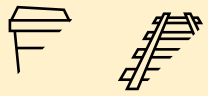
- If many employees are part-time → Increased recruitment and training costs for businesses. More difficult for managers as they may have to look after more workers.

Flexible working - all employees can ask for this, but businesses do not need to provide it.



- **Zero hours** contracts
- **Working from home**
- **Flexi-time** - weekly hours are worked in as few/many days as the employee wishes .
- **Shift work** - e.g. police: days (*7am-4pm*), afters (*3pm - midnight*), and nights (*10pm-7am*) with two days on each shift before four days off.

Temporary working
Workers only work for the business for a short period of time.



Working while mobile
Working when not in an office or at home, e.g. when in a Café or on the train.
+ Improves productivity and lowers costs for the business

Self-employment - Many people like being their own boss but lose sick pay etc.

3.3 Communication in Business

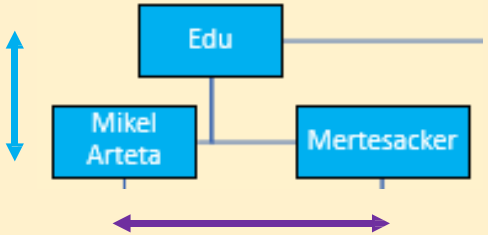
"Good communication is the lifeblood of business."

- **Internal communication -** between workers in the same organisation.
- **External communication** - between a worker and someone outside the organisation.

- **Formal communication -** Official channels such as letters, meetings etc.
- **Informal communication -** conversation in the staff room or at break.

- **One-way communication -** Good for giving information.
- **Two-way communication -** e.g. conversation, good for feedback and generating ideas.

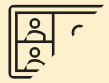
Vertical communication - between workers on different layers of the organisation.



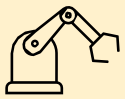
Horizontal communication - between workers on the same layer of the organisation.

How digital communication influences business activity

- **Marketing** - Websites and social media can be used to promote products. Products can be sold online and there is increased competition.



- **HR** - Ways of working have changed, people can work while mobile and work from home. Job applications can be sent by email and interviews conducted using video software.
- **Operations** - Production is now automated, computers communicate digitally with robots to control the production process. Banks use apps rather than branches.



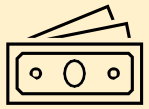
- **Finance** - Payments can be made digitally, easier to create & keep financial records.

3.4 Recruitment and Selection

Selection	Job Description	Person Specification	Internal / External Recruitment	Personnel / HR Dept	Induction Training	Skills Gap
The process of choosing between applicants for a job.	Lists the main duties, tasks, and responsibilities of a worker.	Lists the qualities, qualifications and knowledge that a person should have to do a particular job.	Internal: Job vacancy is filled by someone who is already an employee of the business. External: filled by somebody from outside the business.	Department that deals with recruitment, selection, pay etc.	Training to introduce new workers to the business.	Business recruits skilled workers because it is short of them.
CV	**Application Form**	**Letter of Application**	**References**	**Tests**	**Group Activities**	**Interview**
A document with the applicants personal details, experience and skills.	A form that asks applicants for their personal details, skills & experience.	A letter written by the applicant explaining why they think they are suitable.	Statements from previous & current employers about the suitability of the applicant for the job.	Activities completed by the applicant to test their skills.	Designed to test how well an applicant works with others.	Sessions where the applicant is asked questions.

The importance of recruitment for business

Recruiting new staff costs a lot of money, so businesses need to appoint the right workers for the job.



Why businesses recruit

1. The business is starting up or growing
2. To replace staff who leave
3. The business may have a skill shortage (or skills gap) for example, the business would need to employ staff with specific skills when introducing new technology.

Recruitment & Selection

Analysis of human resources needs (number and type of workers, and when they're needed).

Advertise the job vacancy.

Shortlist.

Select from the shortlisted candidates, typically involves interviews, tests and group activities.

Internal vs External Recruitment

Internal

+ Cheaper & quicker to advertise internally than externally.
+ Promotion is good for staff morale.
- The person appointed to the post will typically need to be replaced, so further recruitment may be needed.
- Existing staff may not bring new ideas to help the business improve.
- If an employee is promoted, other workers may be envious which could lead to resentment.

External

+ When new ideas are required.
+ When more workers are needed than are currently employed.
- Takes longer and costs more than recruiting internally.
- Managers will not know external candidates as well as they know internal candidates, so there is a risk that someone is employed who is not suitable for the job.

Advertising vacant jobs - where to advertise

Websites?
Social media?
Newspapers?

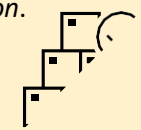
3.5 Motivation and Retention & 3.6 Training and Development

Motivation	Retention of workers	Turnover of labour	Productivity	Profit Sharing	Fringe Benefits	Working Environment
How workers are encouraged to work hard.	When workers choose to stay in a firm rather than move elsewhere.	A measure of the number of staff who leave a firm each year and need replacing.	Measure of output per worker. A method of measuring worker performance.	Workers receive some of the profits made by a business.	Additional benefits that workers receive on top of their pay e.g. pensions, meals in the canteen etc.	The quality of the physical workplace and its climate.
Training	**Development**	**On-the-job training**	**Off-the-job training**	**Induction Training**	**Apprenticeship**	
Short term, focused on helping a worker do well.	Long term, focused on helping a worker achieve their potential.	Training that occurs at the work place, while the worker is doing their job.	Training that occurs away from the job - can be at the workplace or elsewhere.	Training to introduce a new worker to a business.	Long term development for workers to learn job skills while they complete on/off the job training and study.	

3.5 Motivation and Retention

The importance of employee motivation & retention

- High employee performance - *good quality work.*
- High retention & low turnover - *workers are happy to continue working for the employer.*
- Easy to recruit new workers - *the firm may have a good reputation.*
- Less need for supervision of workers.
- Low absenteeism - *absent workers cost the firm money.*
- Reduced waste, better service, and increased custom.



Methods of motivation

Financial

- Pay (*increases costs, may reduce profits*)
- Bonus (*increases costs, targets must be realistic*)
- Profit sharing (*shareholders will not be happy with reduced dividends*)
- Fringe benefits (*increases costs, may reduce profits*)

Non-financial

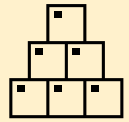
- Praise - *effort is noticed and appreciated.*
- Award schemes - *tangible way of recognising effort.*
- Working environment - *How safe, comfortable, and pleasant is the workplace? Do people get on well?*

3.6 Training and Development

Why businesses train their workers

- Technical skills - *how to use machinery.*
- Health & safety training - *reduce the risk of being injured at work.*
- New workers - *induction training.*
- Knowledge of new products - *workers may need to learn about new products they sell.*

Benefits of training

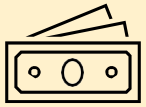


- Development of the business - *Business is able to develop new products and services.*
- Improve productivity - *Improves output → lowers costs → prices can be reduced.*
- Solve skill shortages - *Training used to teach new skills where there are skill shortages.*
- Improve customer service - *Can increase sales.*
- Improve motivation and retention - *Workers who receive training often feel valued.*

Staff development: Apprenticeships

Advantages for **businesses** - Can be cheaper to train an apprentice than hire a skilled worker.
Disadvantages for **businesses** - It costs the business money; If the apprentice quits, the money is wasted.

Advantages for **workers** - Gain qualifications to progress careers, and earn income.
Disadvantages for **workers** - Pay is usually quite low while training/learning.



3.7 Employment Law

Employment Law	Discrimination	Working time directive	Employment Tribunal	Trade Union	Contract of Employment	Statement of Employment Particulars
Designed to protect workers from employers who may treat them unfairly.	When one worker is treated differently from another for no acceptable reason.	The maximum hours that a person can be asked to work.	A panel that hears cases where employment laws may have been broken, and comes to a decision in favour of the employee or employer.	An employee organisation that exists to represent the interests of its members.	A legal agreement between an employer and an employee.	Part of the employment contract that gives details of the terms of employment.

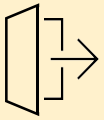
Types of discrimination

- Racial discrimination
- Equal pay discrimination
- Sex discrimination
- Religion or belief discrimination
- Sexual orientation discrimination
- Disability discrimination

The **Equality Act 2010** is designed to legally protect the rights of individuals, advance equality of opportunity for all.

Discrimination at work can affect the following:

- *Recruitment*
- *Pay*
- *Terms and conditions of employment*
- *Promotion opportunities*
- *Training opportunities*
- *Dismissal*



Holidays

In the UK workers are legally allowed **5.6** weeks holiday, including **eight** bank holidays.

For example, if you work five days per week:
5 x 5.6 = 28 days holiday entitlement per year.

If you worked two days per week:
2 x 5.6 = 11.2 days holiday entitlement per year.

Hours worked

How many hours a worker can work in the UK is controlled by the **working time directive**.

- Over 18, max 48 hours per week.
- Under 18, max is 40 hours per week.

This is averaged over 17 weeks, so some weeks you may work over 48hrs and this would be legal if in other weeks you worked less than 48hrs.

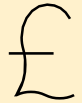
Complying with employment laws - the impact on recruitment and employment

Businesses benefit from complying with employment laws:

- Workers see the business as a good employer
  - *This can motivate workers*
- Workers feel **respected** and are happy to stay
  - *This can improve retention and reduce recruitment costs*
- Businesses with a good **reputation** find it easier to attract new workers.

Costs for complying (or not!) with recruitment and employment laws:

Increased wage costs



- Due to holiday entitlement and the working time directive, businesses may need to employ more workers.
- May need to hire consultants to check compliance with the law.

Court costs

- Pay for lawyers to represent the business.
- Fines if found guilty.
- Bad publicity if taken to court.

Year 10 Health and Social Care: Human Life Span And Development

Episode One: Life Stages

Understanding these processes is essential knowledge and understanding for health and social care practitioners.

Life Stage	Distinct phases of life that a person passes through.
Characteristics	Something that is typical of a person of that particular age and life stage.

Life Stage	Characteristics
Infancy (0-2 years)	Dependent on parents, rapid growth and development 
Early Childhood (3-8 years)	Gaining some independence, making friendships and improving the thought process. 

Life Stage	Characteristics
Adolescence (9-18 years)	Puberty bringing physical and emotional changes 
Early Adulthood (19-45 years)	Leaving home, making own choices, career and may start a family 
Middle Adulthood (46 -65 years)	Having more time to travel or enjoy hobbies. The ageing process begins. 
Later Adulthood (65 +)	The ageing process continues, maybe affecting mobility and memory. 

This is the BTEC Tech Award categorisation of life stages. It is the only one you should refer to throughout the course

Growth	Increased body size such as height or weight.
Development	Gaining new skills and abilities

Episode 2: Holistic Development

Holistic Development

Physical development – Physical growth and physiological change. This would be more rapid in some life stages than others , such as infancy, adolescence and older adulthood.

Intellectual development –

- There are four elements to intellectual development, memory skills, critical thinking, language development and problem solving.

Emotional development –

- Developing feelings about self and other, the attachments people form and maintain .
- Mental health is also part of emotional development.

Social development –

- Forming relationships, learning how to play and interact with others.
- Social isolation or inclusion and the reasons for it.

P.I.E.S

Year 10 Health and Social Care: Human Life Span And Development

Episode 3: Factors affecting growth and development.

Physical factors

- **Genetic inheritance**:
  DNA is passed down to children from their parents. This includes things like eye colour, hair colour and height.
- Also, inherited conditions – sickle cell disease, cystic fibrosis, muscular dystrophy, Marfan syndrome and Huntington's disease.
- Experience of illness and disease, lifelong conditions such as cardiovascular disease, obesity, type 2 diabetes .
- Mental health impacts such as stress , depression and anxiety also fit into this category. Physical factors also refer to disabilities and sensory impairments.

Diet and lifestyle choices.

- The type of diet a person has can either have a negative or positive impact on growth and development.
- Government guidelines say a person should eat 5 portions of fruit and veg a day and follow the eat well guide.
- The lifestyle choices we make such as exercise, smoking, alcohol, drug use and high risk activities can also have impact on development and health.

Economic factors

- The employment status a person has , financial resources available to them and material possessions and saving can all have an impact on a persons growth and development.

Environmental Factors

- This refers to the location and condition of the home a person lives in.
- The actual home environment is also important, is there conflict, abuse or neglect present.
- The level of exposure to air or noise pollution can all impact a persons growth and development.

Social Factors

- Whether or not a person has supportive relationships with family, friends will have an impact n a persons growth and development.
- Social inclusion or exclusion , including bullying and discrimination could also be a contributing factor.
- Personal relationship with friends and Family

Cultural factors

Educational experiences:

- A good education can positively affect development in a child.
- However a negative experience of school can have negative impacts on development holistically.

Culture:

- A persons religion, sexual orientation, race or gender can impact on their growth and development
- A person who gets involved in the community will have different experiences than one who feels isolated from the community they live in.

Emotional factors:

- The attachments a baby and child makes with their primary care givers and family members are important for a child to feel secure.
- During Childhood new friendships are formed , then in puberty emotional development accelerated.
- Emotional development can be positive or negative, how a person feels, such as depression, anxiety, grief, stress or happy, excited, content etc can all impact on growth and development

Year 10 Health and Social Care: Human Life Span And Development

Episode Four: Life Events

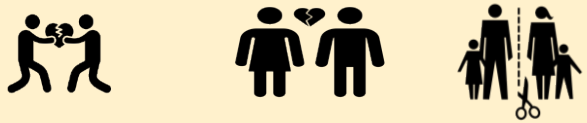
Life events can be **expected:** you would expect this event to happen to you in your lifetime, or **unexpected:** you would **not** expect this event to happen to you in your lifetime. Unexpected life events are harder to adapt to because you do not expect them to happen.

Health and well being life events
These can be both **expected** and **unexpected**, for example you would expect to go through puberty, the menopause, get grey hair and wrinkles.

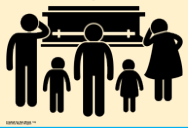
However they can also be **unexpected** , such as physical illness, not your general illnesses but ones that need hospital treatment or life limiting illnesses such as cancer, mental health and well being, injury, accidents, disabilities or life changing conditions.

Relationship changes
Expected relationship changes would include , entering into relationships, marriage, civil partnerships, long term cohabitation. Becoming parents, bereavement of family or friends due to old age (as we expect people to die when they are old).

On the other hand, there are relationship changes that occur which are **unexpected**
Separation or divorce occur which causes multiple relationships to change. For example, if there are children involved, they will have to get used to not seeing one of their parents daily.
Often forgotten are the relationships with grandparents / in laws or mutual friendships. These will all change , dependant on the circumstances of the separation.



Bereavement can also be **unexpected**. Any death of family or friends that occurs from unnatural causes is classed as **unexpected.**
Bereavement is a process which goes through stages, shock, denial, anger, depression, bargaining and acceptance .



Life circumstances
Like the other life events , life circumstances can be **expected** and **unexpected.**
Expected life circumstances include, leaving school, getting a job, moving out of parents house, moving home and retirement.

Unexpected life events would include, being excluded from education, periods of unemployment due to redundancy, loosing a job

Changes in living conditions and standards. In addition, due to life choices a person may find themselves imprisoned

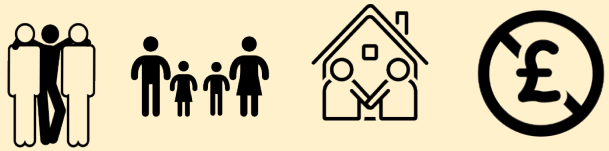
You need to explain what support a person has, how the support works and how the support enables the person to adapt to the life event.

Year 10 Health and Social Care: Human Life Span And Development

Episode Five: Types of Support

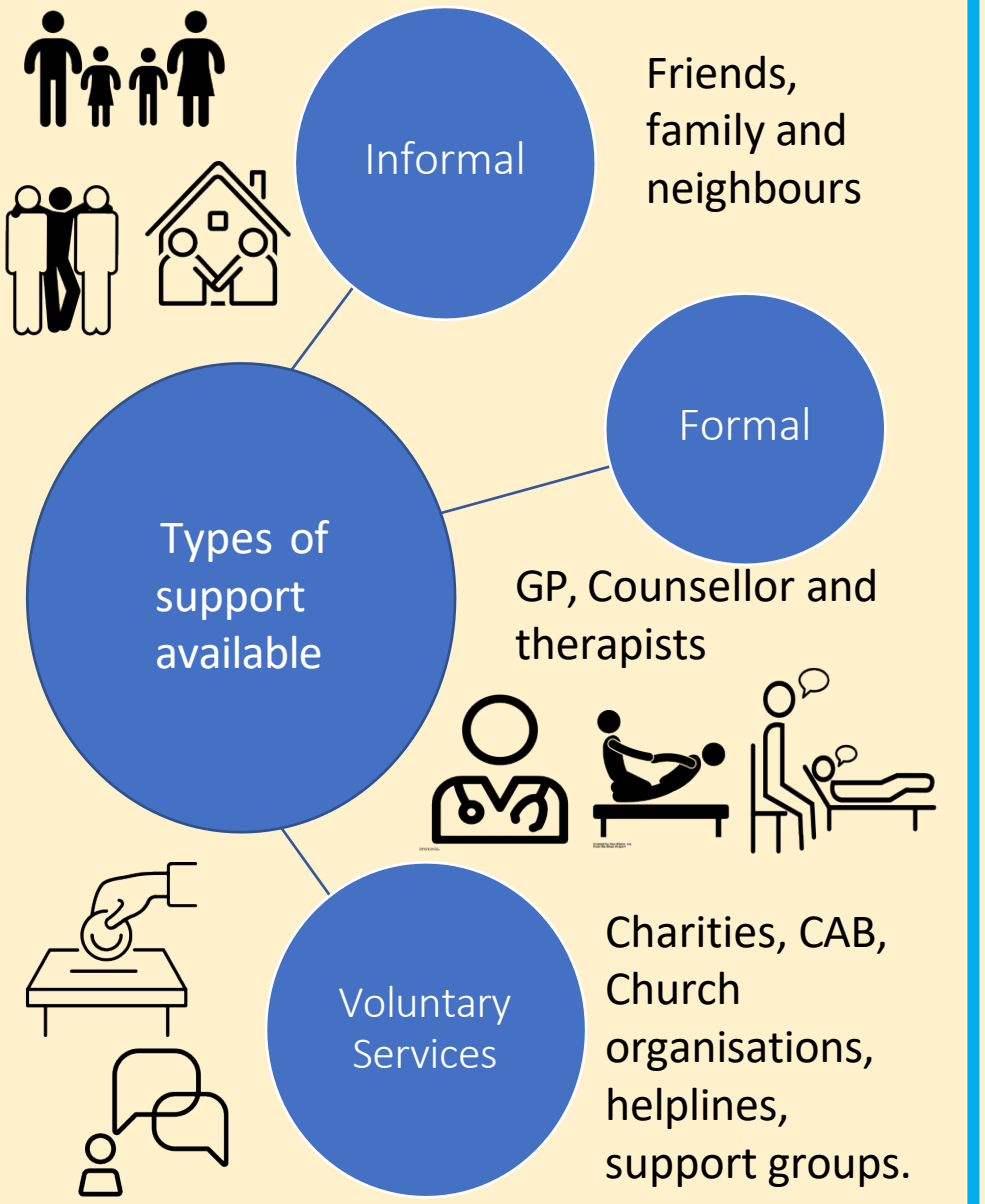
Support
Effective: Giving people the confidence they need to adapt.
Emotional: Make people feel secure and come to terms with the life event
Information advice: Where to go, choices they have.
Practical help, e.g. financial assistance, childcare, transport

Support comes in three different types.
Informal support is the everyday type of support a person would receive. Informal Support is **unpaid.**



Support can also be formal , people who provide formal support are paid for their service. Such services could be doctors, midwives speech therapists etc.

Voluntary Services offer support , free of charge, in many different forms, such as support groups help lines and advice groups. Voluntary groups rely on donations from the Government and the public.



How individuals adapt to life events.

Positive: The support an individual receives enables them to adapt to their new circumstances and the development of their PIES is not impacted in the long term.
This is because all four types of support are available, and the individuals confidence and self-esteem is maintained or even improved. The individual is well informed and can feel secure that they have a support network to help them during the adjustment period.

Negative: There is either a lack of support or ineffective support for the individual to access. This can lead to negative state of mind, anger, withdrawal or mental health issues. Ultimately the individual is unable to adapt both mentally and physically and the development of their PIES is impacted both in the short and long term.

You need to explain what support a person has, how the support works and how the support enables the person to adapt to the life event.

Episode Six Health Conditions

Year 10 Health and Social Care: Services and Values

Health Conditions

Cardiovascular conditions

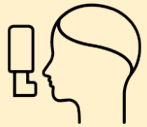
Coronary heart disease-

- Coronary heart disease is when your heart's blood supply is blocked or interrupted by a build-up of fatty substances in the coronary arteries.
- Over time, the walls of your arteries can become furred up with fatty deposits.
- The most common symptom of coronary heart disease is angina, or chest pain.
- Angina can be described as a discomfort, heaviness, pressure, aching, burning, fullness, squeezing, or painful feeling in your chest
- The main treatments for coronary heart disease are healthy lifestyle changes and medicines. Some people may need surgery.
- You can reduce your risk of getting coronary heart disease by making simple lifestyle changes, such as being active and having a healthy diet.

Cerebral vascular accident (stroke)

- A stroke is a very serious condition where the blood supply to part of your brain is cut off
- It needs to be treated in hospital as soon as possible
- Common symptoms of a stroke include your face dropping on 1 side, not being able to lift your arms and slurred speech.
- Treatments include medicines to treat blood clots and sometimes brain surgery.

Respiration conditions

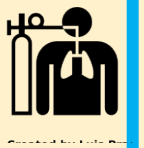


Asthma:

- Asthma is a common lung condition that causes occasional breathing problems.
- The main symptoms of asthma include wheezing and shortness of breath.
- There may be times when the symptoms get better and times when they get worse.
- The main treatments for asthma are inhalers that either ease symptoms when they happen or help stop symptoms happening.

Chronic obstructive pulmonary disease

- COPD happens when the lungs become inflamed, damaged and narrowed.
- The main cause is smoking.
- The outlook for COPD varies from person to person.
- The condition cannot be cured or reversed, but for many people, treatment can help to keep it under control .



Arthritis

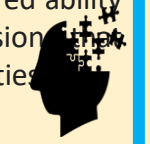
- Arthritis is a common condition that causes
- pain and swelling (inflammation) in the joints
- Common symptoms of arthritis include pain, swelling and stiffness in 1 or more joints.
- The main treatments for arthritis are lifestyle changes like exercise, physiotherapy and medicines. Surgery may be needed in more severe cases

Diabetes

- Type 2 diabetes is a condition that causes too much sugar in your blood.
- Symptoms of type 2 diabetes include needing to wee a lot, feeling thirsty all the time and feeling very tired.
- Treatment for type 2 diabetes includes medicines and changes to your diet and activity levels to help control your blood sugar levels

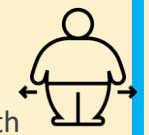
Dementia-

- Dementia is not a specific disease but is rather a General term for the impaired ability to remember, think, or make decisions that interferes with doing everyday activities



Obesity-

- Obesity is where you're very overweight.
- It can put you at risk of serious health problems.
- Obesity is usually caused by eating and drinking too much and moving too little.
- Adults are generally considered obese if they have a body mass index of 30 or above.
- The main treatment for obesity is a reduced-calorie diet and an exercise plan. Less common treatments include weight loss medicines and surgery.



Year 10 Health and Social Care: Services and Values

Episode Seven: Health and Social Care Services

When exploring the services available to the public Health and Social Care looks at services that support health and services that support social care. It is important to recognise that different services can meet different needs.

Different social care services:

- Services for children and young people, e.g. foster care, residential care, youth work
- Services for adults or children with specific needs (learning disabilities, sensory impairments, long-term health issues) e.g. residential care, respite care, domiciliary care
- Services for older adults, e.g. residential care, domiciliary care
- Role of informal social care provided by relatives, friends and neighbours

HEALTH CARE	SOCIAL CARE
Primary: GPs, dental care, optometry, community health care.	Children and young people: foster care, residential care, youth work.
Secondary and tertiary care: specialist medical care. Surgeons, consultants Fit into this category.	Adults or children with specific needs: residential care, respite care, domiciliary care.
Allied health professionals: physiotherapy, occupational therapy, speech and language, dieticians	Older adults: residential care, domiciliary care. Informal care relatives, friends, neighbours.

Episode Eight: Barriers to accessing services

Physical barriers,

- These barriers prevent a person getting into and around the facilities .
- These can be in terms of a person's mobility, being too ill to get to the service, having an injury that makes it challenging to get to the service.
- It can also refer to the accessibility the services provides such as , wheelchair access, lift availability or a large number of stairs.

Sensory barriers.

- The barrier of not being able to communicate effectively or understand vital information about the service due to difficulties in sight or hearing loss.

Social, cultural and psychological barriers,

Social barriers refer to feeling a lack of independence a person may feel having to go to the service resulting in them not going.

- It could also be due to a social stigma of the service, for example STD clinics.
- Culturally there may be barriers due to beliefs or practices

Language barriers, e.g. differing first language, language impairments.

- In addition the use of medical jargon can impair a persons willingness or ability to access a service.

Geographical barriers,

- The distance between a service users home and the service, the transport links available and the weather conditions all add to the geographical barriers a person can face.

Intellectual barriers, e.g. learning difficulties

Resource barriers for service provider,

- Staff , shortages, lack of local funding, high local demand

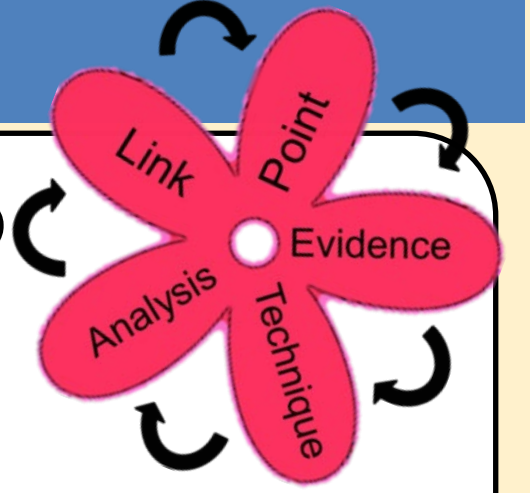
Financial barriers,

- Charging for services, cost of transport, loss of income while accessing services.

Episode Nine: Ways to overcome barriers to accessing services

- It is the responsibility of both the service user and provider to find ways to overcome the barriers for accessing health and social care services.
- As part of the controlled assessment it is vital you can offer sensible ways to overcome barriers and critique them.
- Suggestions can include: Organising transport, having a translator or sign language, hearing loops, appointments online , community services who attend patients homes, providing a nurse/ doctor of the same sex amongst others.

Perfect **PETAL** Paragraphs



WRITING FRAME

(Point – your idea in response to the question)

It is clear that…
The character ___ is portrayed as…
(The author) explores…
(The author) depicts _____ as…
(The author) figuratively describes…

(Evidence – choose a quotation to support your idea)

This can be seen particularly when (the author) describes… "_____"
The description of… "_____" here is…

(Technique – what kind of language is used here? Is there something in the structure to discuss?)

The use of _____ emphasises/suggests…
The metaphor figuratively describes…
OR
A particularly effective word/adjective/word type is ____

(Analysis) This gives the impression that…
Furthermore, the (author) implies...
The word "___" further emphasises...

FOR HIGHER LEVELS – discuss another word or feature from the SAME quotation to further support your point

In addition, the use of/reliance on **(pick a DIFFERENT technique)** compares/describes/suggests…
Furthermore, the use of the word(s) "___" is/are effective because…
This also makes the reader…

(Link to author's ideas/back to point/context/next point)

It is therefore clear that _____ is...
(The author) therefore portrays…

Descriptive Writing Devices

Basic	Advanced
Alliteration	Semantic Fields
Adjectives	Pathetic Fallacy
Adverbs	Foreshadowing
Metaphor	Show-not-tell
Onomatopoeia	Anthropomorphism
Personification	Symbolism
Simile	

How to plan

Write down your story chronologically in main events
Short character descriptions
Note down main themes
Note down spellings
Note down some devices you wish to include

Structure

Paragraphs – TiP ToP

Dialogue – start a new line for a new speaker even if they only say one word…

Punctuation – use a variety of punctuation for effect.

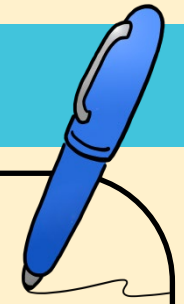
Sentence Types- Use a variety of sentence types for effect

- Simple
- Compound
- *Complex*

Being Concise

- Cut out any irrelevant connectives
- Have you used two synonyms where one would suffice?
- Can you rearrange the sentence in order to cut down words

Persuasive Writing Techniques



Personal Pronouns - address the reader, make them feel involved

Emotive language- using language to make the reader FEEL an EMOTION.

Rhetorical question- asking a question that doesn't need an answer.

Statistics and Facts- stating something that is unquestionably true. Using data and figures to support your point

Use of Expert Opinions- using opinions from experts in a relevant field to give your argument more weight

Anecdote – a short personal story that relates to your topic

Descriptive Imagery – use descriptive writing devices to make your argument more engaging (see other sheet)

Exaggeration – overstating information to make more of an impact

Repetition/Rule of 3 – repeating a point or listing in three to create impact

Note of Caution: Only use the verbs you're familiar with unless you take the time to examine the definition in the dictionary. This is **not** a list of synonyms. Each word has specific uses that are unique to its meaning.

Analytical verbs for writing about texts...

Advises
Affects
Alludes to
Argues
Articulates
Builds
Clarifies
Confirms
Connotes
Constructs
Conveys
Creates
Criticises
Demonstrates
Denotes
Depicts
Describes

Determines
Displays
Encourages
Emphasises
Establishes
Evokes
Exaggerates
Examines
Exemplifies
Expands
Explains
Explores
Exposes
Foreshadows
Foretells
Highlights

Hints
Illustrates
Impacts
Implies
Indicates
Informs
Introduces
Juxtaposes
Manifests
Narrates
Persuades
Portrays
Presents
Refers

Reflects
Relates
Remarks
Represents
Reveals
Shows
Signifies
Symbolises
States
Suggests
Supports
Tells
Typifies
Underlines

Sentence Starters

To describe:
- The diagram shows…
- The map shows…
- The picture shows…
- The graph shows…
- It shows…

To explain:
- This happens because…
- This demonstrates…
- The processes causing this are…
- Therefore…
- This maybe because…

To give opinions:
- I feel…
- I believe…
- In my opinion…
- It would seem that…
- I suggest…

To give examples:
- For example…
- Such as…
- For instance…
- To illustrate…
- …as an example…

To add ideas:
- Also…
- As well as…
- Furthermore…
- More importantly…
- Equally important…
- In addition…

To connect ideas:
- At first… then…
- Secondly…
- This is linked to…
- As a result…
- For that reason…
- The effect is…

To compare and contrast:
- Similarly…
- In the same way…
- However…
- Then again…
- In contrast…
- This is in contrast to…

To summarise
- In conclusion….
- In summary….
- In conclusion…
- Overall….
- Therefore….
- Ultimately….

To show sequence/process: Firstly… Secondly… Thirdly…
To start with… Lastly… Finally… Eventually… Next… Meanwhile… Afterwards… Results in…

Connectives

and but if yet so also like

therefore because however although whereas instead otherwise