YEAR 9 KNOWLEDGE ORGANISER

LENT TERM

Trinity

Name:

Family Group:

LEARNING - LOVING - LIVING

KNOWLEDGE ORGANISER GUIDANCE

The knowledge organiser is a book of **EVERYTHING** that you should know (and remember) for the whole term.

EACH NIGHT you should spend *at least* **1 hour** per night on homework.
3 subjects per night x 20 minutes per subject= 1 hour. Use the homework timetable as a guide to what subjects to complete each night.

Complete all work in your exercise book and make sure you bring your knowledge organiser to school EVERYDAY (in your coloured folder).

Every FRIDAY morning the week's worth of KNOWLEDGE ORGANISER homework will be checked in Family Group time and detentions issued for work not complete, or not up to standard.

SUBJECT HOMEWORK

All students will also be assigned **ENGLISH** reading activities on www.CommonLit.org with each assignment taking 20-30 minutes to complete and **MATHS** activities with short explanative videos on the online platform of https://mathswatch.co.uk.

Students in years 9-11 will also be provided with additional subject homework to be completed throughout the week. It is also recommended to take advantage of FREE online revision tools such as www.senecalearning.com or the recently updated BBC BITESIZE.

It is also recommended that students regularly **READ** a variety of **fiction and non fiction books** of their choosing. This extra reading will develop and broaden general understanding and context in all subjects.

HOMEWORK TIMETABLE

Year 9	Subject 1	Subject 2	Subject 3
Monday	Maths	Option A	Option C
Tuesday	English	Option B	Option C
Wednesday	Maths	RE	Option D
Thursday	English	Science	Option A
Friday	Maths	Science	Option B

HOMEWORK CHECKLIST

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Half term					
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6

RETRIEVAL ACTIVITY IDEAS

Here are some activities that you can try at home with your knowledge organiser to help revise. There are even more strategies on page 3.

4 Methods of Retrieval Practice

@ImpactWales

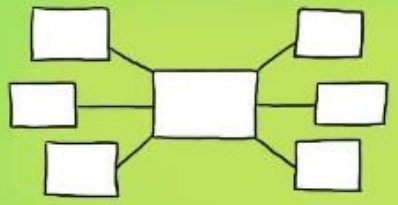
Before you start put away all your books & classroom materials.

Retrieval Practice Examples

- Exit Tickets
- Starter quizzes
- Multiple choice quizzes
- Short answer tests
- Free write
- Think, pair, share
- Ranking & sorting
- Challenge grids

BRAIN DUMP

Write, draw a picture, create a mind-map on everything you know about a topic.



Give yourself a time limit, say 3 minutes, then have a look at your books & add a few things you forgot.

QUIZZING

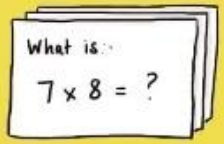
Create practice questions on a topic. Swap your questions with a partner & answer.

Question - What is a metaphor?

- ☐ A comparison using 'like, as, than'.
- ☐ A comparison where one thing is another.
- ☐ A comparison with a human attribute.

FLASHCARDS

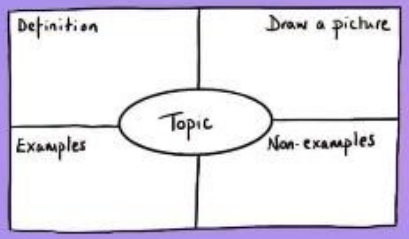
Create your own flashcards, question on one side answer on the other. Can you make links between the cards?



You need to repeat the Q & A process for flashcards you fail on more frequently & less frequently for those you answer correctly

KNOWLEDGE ORGANISERS

Complete a knowledge organiser template for key information about a topic.



You can use knowledge organisers to learn new vocab & make links in between subjects or ideas.

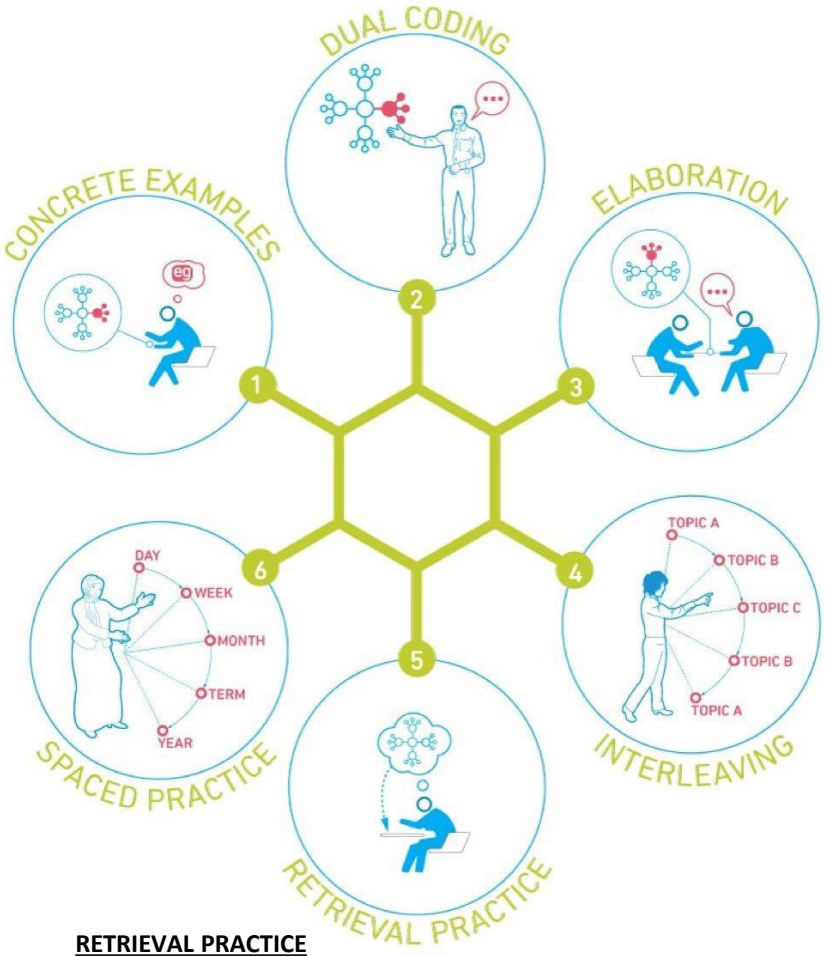
After you have retrieved as much as you can go back to your books & check what you've missed. Next time focus on that missing information

DUAL CODING

Dual coding is the process of combining visual and written materials. You can visually represent materials using methods such as info graphics, timelines, cartoon/comic strips, diagrams and graphic organisers. Combing images with words or explaining an image makes it more likely to 'stick'.

CONCRETE EXAMPLES

When you're studying, try to think about how you can turn ideas you're learning into concrete examples. Making a link between the idea you're studying and a real life example, concrete example, can help students understand abstract ideas and make it 'stick'.



ELABORATION

When talking about studying, elaboration involves explaining and describing ideas with many details. Elaboration also involves making connections among ideas you are trying to learn. Ask yourself questions about a topic to delve deeper. The more information you have about a specific topic the stronger your grasp and ability to recall.

SPACED PRACTISE

Divide up your revision into short manageable chunks of time . When revising aim for 20 - 30 minutes per session. Five hours spread out over two weeks is better than the same five hours all at once. This is **spaced practice** and it is regarded as one of the most effective revision strategies.

INTERVEAVING

Interleaving is a process where you combine multiple subjects and topics while you study in order to improve learning. Switch between ideas and make links between them during a study session. Interleaving has been shown to lead to better long-term retention

RETRIEVAL PRACTICE

Through the act of retrieval, or calling information to mind, our memory for that information is strengthened and forgetting is less likely to occur. Retrieval practice ideas include: Read, cover, write, check, flashcards and brain dumps.

Key Vocabulary - 1		Key Vocabulary - 2	
1. Scorn / scornful	Reject with contempt.	**13. Virtuous / virtuosity**	conforming to moral and ethical principles; morally excellent; upright; chaste.
2. Apothecary	A druggist, pharmacist.	**14. Profane / profanity**	not devoted to holy or religious purposes; unconsecrated; secular; common or vulgar.
3. Mockery	Ridicule, contempt, mocking.	**15. Derision**	An object of ridicule.
4. Bawdy	Indecent, lewd, obscene.	**16. Adulation**	Excessive devotion to someone, servile flattery.
5. Fiend/ fiendish	Cruel wicked and inhuman person.	**17. Garish**	Tastelessly showy.
6. Adolescent	Growing into manhood or womanhood, youthful.	**18. Dote**	Shower with love; show excessive affection for someone.
7. Tirade	A prolonged outburst of bitter; outspoken denunciation.	**19. Lament**	The passionate activity of expressing grief.
8. Fate	Something that unavoidably befalls a person; fortune.	**20. Addle**	Mix up or confuse.
9. Farce /Farcical	Foolish show; mockery; a ridiculous sham.	**21. Wit**	Amusingly clever in perception and expression.
10. Animosity	A feeling or condition of hostility; hatred; ill will; enmity; antagonism.	**22. Affray**	A noisy fight.
11. Chide	To express disapproval of; scold; reproach.	**23. Apt**	Unusually intelligent, able to learn quickly and easily, inclined, likely.
12. Discourse	Communication of thought by words; talk; conversation.	**24. Braggart**	A very boastful and talkative person.

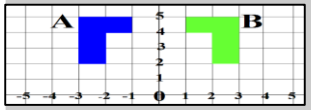
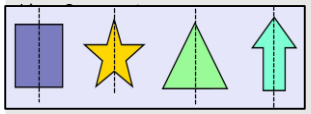
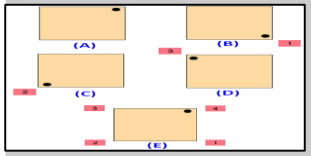
Key Vocabulary -3		Key Vocabulary - 4	
25. Bandy	To discuss lightly.	**37. Aloof**	Distance especially in feeling or interest ; apart
26. Jocund	Full or showing high- spirited merriment.	**38. Supercilious**	Haughtily disdainful or contemptuous.
27. Retort	A witty comeback.	**39. Inauspicious**	Ill-omened, un-favourable.
28. Dexterity	Skill or grace in physical beauty.	**40. Adulation**	Excessive devotion to someone, servile flattery.
29. Inundation	Flooding or overwhelming.	**41. Amorous**	Inclined or disposed to love.
30. Pensive	Thinking deeply or seriously.	**42. Banishment**	To expel or relegate to a country or place by authoritative decree.
31. Abate	To make less in amount, degree, to put an end to.	**43. Discern**	To perceive by the sight or some other sense or by intellect.
32. Barrage	An overwhelming quantity or explosion; as of words, blows or criticisms.	**44. Ominous**	Portending evil or harm.
33. Apprehension	Uneasy or fearful about something that might happen.	**45. Impending**	About to happen; imminent.
34. Incite	To stir, encourage or urge on.	**46. Suicide**	An intentional taking of one's own life.
35. Beguile	To influence by trickery, mislead; delude.	**47. Multivocal**	Speaking with more than one voice.
36. Vengeance	Violent revenge.	**48. Multivalent**	Having more than one meaning.

Key Vocabulary -5		Key Vocabulary - 6	
49. Pugnacious	Inclined to quarrel or fight easily.	**61. Egotistic**	Indifferent to the wellbeing of others, selfish.
50. Machismo	An exaggerated masculinity and sense of power and strength.	**62. Rationalise**	Attempt to explain or justify.
51. Contemptuous	The feeling with which a person regards anything considered mean, vile or worthless.	**63. Exposition**	A literary device used to introduce background information about events, settings, characters, or other elements of a work to the audience or readers.
52. Vivacious	Lively, animated.	**64. Complication**	A circumstance that complicates something; a difficulty.
53. Catharsis	Process of releasing, and thereby providing relief from, strong or repressed emotions.	**65. Climax**	The most intense, exciting, or important point of something; the culmination.
54. Martial Law	A law imposed upon a defeated country temporarily.	**66. Resolution**	A firm decision to do or not to do something.
55. Pestilent	Destructive to life; deadly.	**67. Denouement**	The final part of a play, film, or narrative in which the strands of the plot are drawn together and matters are explained or resolved.
56. Obstinate	Stubborn, not easily controlled or overcome.	**68. Overzealous**	Intensely devoted; enthusiastic.
57. Impetuous	Characterised by sudden rash action.	**69. Forthright**	Going straight to the point, frank, direct.
58. Eloquent	Having or exercising the power of fluent, forceful and appropriate speech.	**70. Untimely**	Happening or done at an unsuitable time.
59. Erratic	Deviating from the usual or proper course in conduct or opinion.	**71. Privy**	Sharing in the knowledge of (something secret or private).
60. Sceptic	A person who questions the validity or authenticity of something purporting to be factual.	**72. Skirmish**	A fight, brisk encounter.

YEAR 9 FOUNDATION– LENT TERM - MATHEMATICS - GEOMETRY

LEARNING - LOVING - LIVING

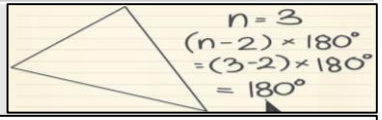
Important Ideas

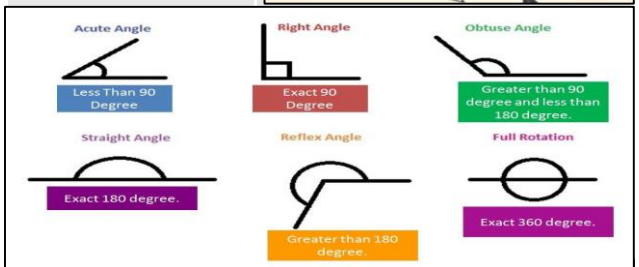
Reflection 	**F**lipping an object about a line without changing its size or shape.
	The "Line of Symmetry" (shown here with broken lines) is the imaginary line where you could fold the image and have both halves match exactly.
Order of Rotational 	The number of times a figure fits into itself in one complete rotation (360^0) is called the order of rotational symmetry.

Vocabulary

Angles	A measure of a turn, measured in degrees or °. There are 360° in a full turn.
Polygons	2-dimensional shapes. They are made of straight lines, and the shape is "closed" (all the lines connect up).
Coordinates	The pairs of numbers which specify the position or location of a point or of an object
Congruent	Two figures or objects are congruent if **they have the same shape and size**, or if one has the same shape and size as the mirror image of the other.

Q& A

Convert 500 km to m	1 km = 1000 m 500 km = 500 x 1000 = 500,000 m
What is the sum of the interior angles of a triangle?	



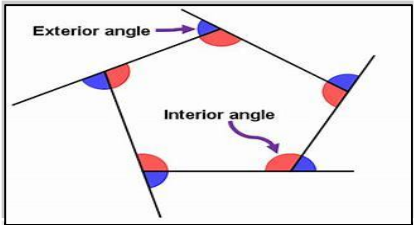
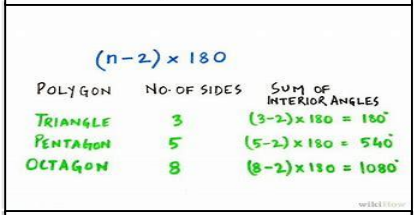
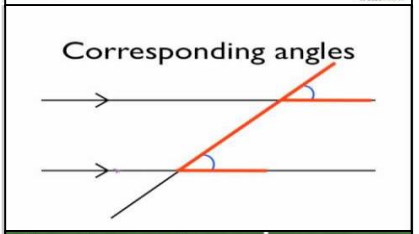
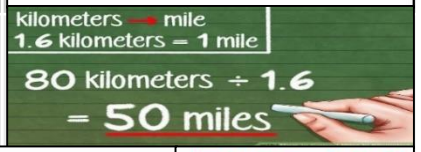
METRIC CONVERSIONS

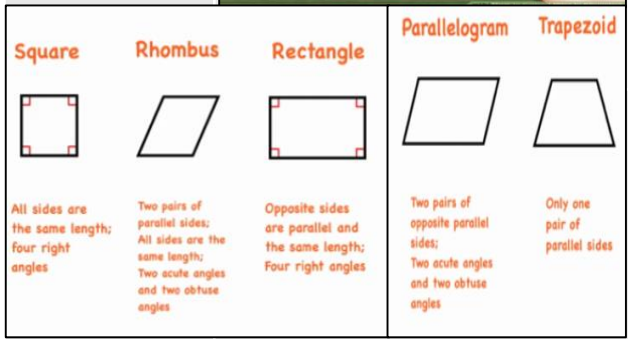
1 centimetre	=	10 millimetres	1 cm	=	10 mm
1 decimetre	=	10 centimetres	1 dm	=	10 cm
1 metre	=	100 centimetres	1 m	=	100 cm
1 kilometre	=	1000 metres	1 km	=	1000 m

MathsWatch References

Symmetry	11
Angles	13, 45, 46a, 46b, 120, 121, 122, 166
Metric Conversion	112, 142

Key Facts

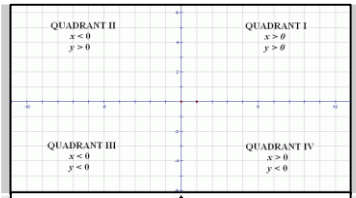
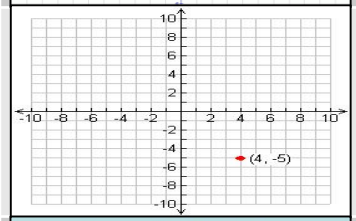
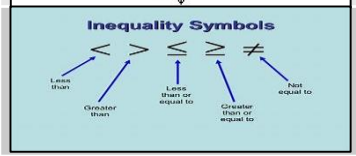
Interior and Exterior Angles	
Sum of Interior Angles	
Corresponding Angles	
Kilometers to Mile	



YEAR 9 FOUNDATION– LENT TERM - MATHEMATICS – GRAPHS AND INEQUALITIES

LEARNING - LOVING - LIVING

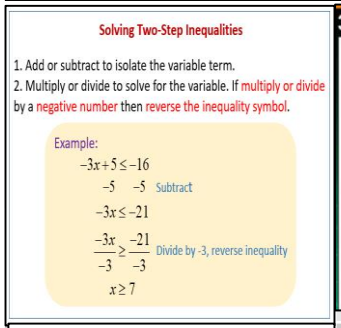
Important Ideas

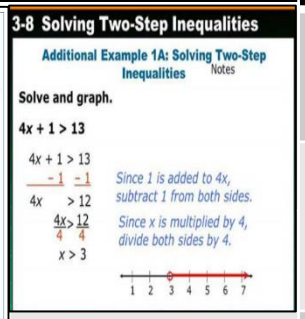
Quadrants	
Plotting a Point	
Inequalities	

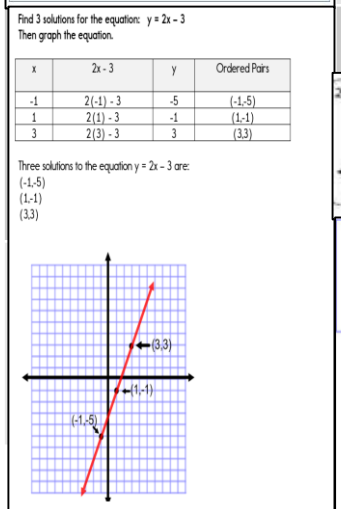
Vocabulary

Co-ordinates	Coordinates are numbers which determine the position of a point or a shape in a particular space (a map or a graph). Written: (x,y) Horizontal value Vertical value
Midpoint of a Line	The midpoint of two coordinates is the point that's exactly halfway between the two points.
Parallel Lines	Parallel lines are two lines that are always the same distance apart and never intersect.

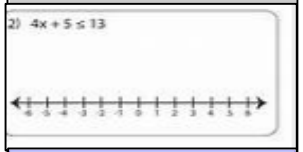
Q& A







Solve the following inequality:



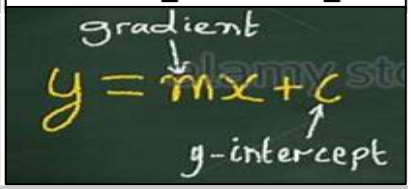
Complete the table of values to determine the ordered pairs. Graph the equation on a coordinate plane.

x	y = 2x + 3	y	(x, y)
-2			
-1			
0			
1			
2			

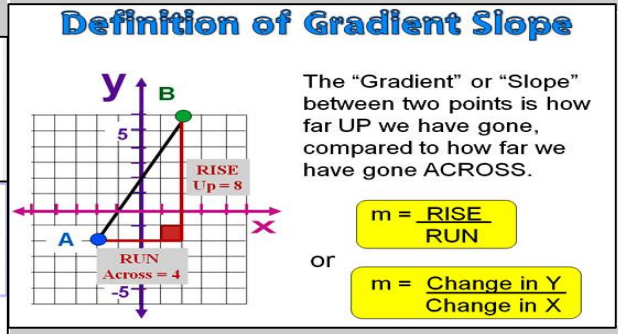
MathsWatch References

A1a, A1b	Coordinates
A14a, A14b, A14c	Straight Line Graphs
A20a, A20b	Inequalities

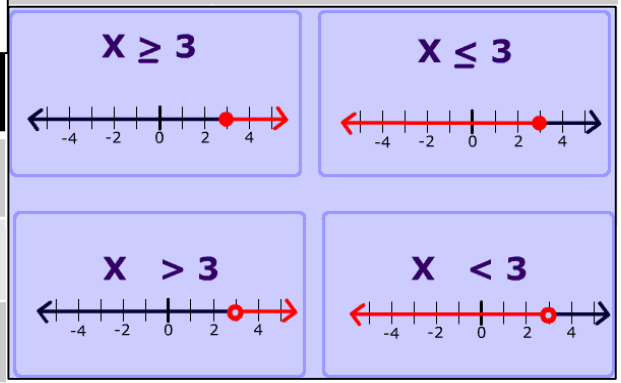
Key Facts & Formula

Midpoint of a Line	$M = \left(\frac{x_2 + x_1}{2}, \frac{y_2 + y_1}{2}\right)$
Equation of a Line	

Gradient



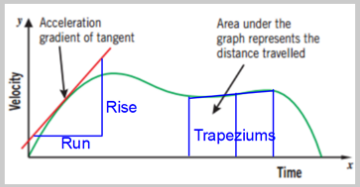
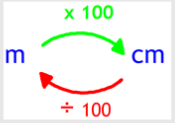
Inequalities on a Number Line



YEAR 9 HIGHER – LENT TERM - MATHEMATICS – PROPORTIONAL REASONING

LEARNING - LOVING - LIVING

Practice Questions – Methods explored

If you travel 30km in fifteen minutes what is your speed in kmph?	Distance : Time 30 : 15 x4 ↓ ↓ x4 120 : 60 Speed is the distance travelled in 60 minutes / one hour. 120kmph
Your speed on the journey is 50kmph. How far do you travel in fifteen minutes?	Convert speed in to a ratio of distance versus 60 minutes / one hour. Distance : Time 50 : 60 ÷4 ↓ ↓ ÷4 12.5 : 15 Use proportion by multiplying / dividing to find the answer. 12.5km
A block of iron has a volume of 40 cubic centimeters and a mass of 3kg. Calculate the density of the iron block in grams per cubic centimeter.	Convert 3kg into 3000g. Mass : Volume 3000 : 40 ÷40 ↓ ↓ ÷40 75 : 1 Use proportion by multiplying / dividing to find the answer. Here density is given as the mass per unit volume. In this case per cubic cm Answer = 75/m^3
Dave buys 12 pens for £30. How much does he pay for 17 pens? Use the proportion method and find the single multiplier.	Convert the question into a ratio and divide to find the cost of one pen. Cost : pens ÷12 ↓ 30 : 12 ↓ ÷12 2.5 : 1 x17 ↓ ↓ x17 42.5 : 17 × 17/12 You can use a single multiplier to speed up the calculation. Since you divide by 12 this is the denominator and the multiplying by 17 makes this the numerator.
Velocity (speed) -Time graphs	
Convert m to cm 	Length → scale factor **x/÷ by 100** Area → square the scale factor. **x/÷ by 10 000** Volume → Cube the scale factor. **x/÷ by 1 000 000**

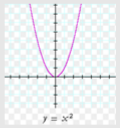
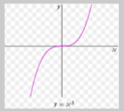
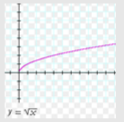
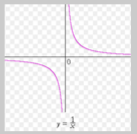
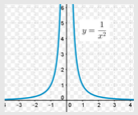
Vocabulary

Proportion	Fraction of the total amount. A multiplying / dividing method used to find different values.
Metric	Modern standard units of measure given in multiples of 10, 100 or 1000
Imperial	Older British units of measure
Speed km/h	KMPH : The distance in KM travelled in one hour.
Density g/cm^3	Grams per cubic centimeter. The mass per unit volume. Two **equal sized objects** are different in mass if they have different densities.
Pressure N/cm^2	Newtons per square centimeter. The mass/force exerted on a given area.
Direct Proportion	Two variables are linked by multiplication. **Y = KX**
Inverse proportion	Two variables are linked by division. **Y = K/X**

MathsWatch References - for further self study

42	Proportion
161	Cubic and root graphs
199	Direct and inverse proportion
216	Velocity(speed)-Time graphs
143	Distance-Time graphs
141	Value for money
142	Compound units

Key Facts & Formula to LEARN

Convert 5 miles to KM	5 miles : 8 Km
Convert 1 Gallon to litres	1 gallon : 4.5 litres
Convert 1 kg to pounds	1 kg : 2.2lbs
Y is directly proportional to the square of X	
Y is directly proportional to the cube of X	
Y is directly proportional to the square root of X	
Y is inversely proportional to X	
Y is inversely proportional to the square of X	

Pactice Questions – Methods explored

Solving Quadratics by factorization

$X^2 + 13X - 30 = 0$

$(X - 2)(X + 15) = 0$

$X - 2 = 0$ $\quad X + 15 = 0$

$X = 2$ or $X = -15$

$aX^2 + bX + c = 0$

30: 1 30, 2 15, 3 10, 5 6

Look at the factor pairs that SUM to give **b** and MULTIPLY to give **c**

Put these into two brackets

Make each bracket equal to zero and solve for X.

Solving Quadratics by Decomposition

$2X^2 + 7X - 4 = 0$

$2 \times 4 = 8$ (1, 8), (2, 4)

$aX^2 + bX + c = 0$

If a is not equal to one, multiply a and c together. Find the factor pairs of ac that have a difference equal to b.

$2X^2 - X + 8X - 4 = 0$

Decompose / split the middle term.

$X(2X - 1)$ $\quad 4(2X - 1)$

Factorise the 2 halves separately.

$(2X - 1)(4 + X) = 0$

Then form up the equation again. Two brackets are made from the terms at the front and the shared bracket.

$2X - 1 = 0$ $\quad 4 + X = 0$

$X = \frac{1}{2}$ or $X = -4$

Make each bracket equal to zero and solve.

Solving Quadratics in the form of the difference of two squares

$4X^2 - 81 = 0$

$aX^2 - c = 0$

The clue here is that a and b are square numbers and b must be minus. There is no b term

$(2X + 9)(2X - 9) = 0$

Factorise into two brackets with the square roots. One positive one minus.

$2X + 9 = 0$ $\quad 2X - 9 = 0$

$X = \frac{-9}{2}$ $\quad X = \frac{9}{2}$

Make each barcket equal to zero and solve.

Solving quadratics using the formula

$X^2 + 5X - 9 = 0$

$aX^2 + bX + c = 0$

If the equation will not factorise then you should use the quadratic formula. This is generally a calulator question and will ask you to give your final answer to a given number of decimal places.

$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ This is the quadratic formula. You must learn this.

$a = 1$, $b = 5$, $c = -9$

The values **a, b** and **c** are the numbers from the equation.

Substitute these into the quadratic formula. One + one - to give you the values of X.

$X = \frac{-5 + \sqrt{5^2 - 4 \times 1 \times -9}}{2 \times 1}$ $\quad X = \frac{-5 - \sqrt{5^2 - 4 \times 1 \times -9}}{2 \times 1}$

Practice Questions – Methods explored

Changing the subject of a formula (easy)

$\frac{Y}{4} = \frac{X^2}{4} - \frac{10}{4}$ (×4)

$4Y = X^2 - 10$ (+10)

$4Y + 10 = X^2$ (√)

$\sqrt{4Y + 10} = X$

Use inverse operations writing each step out in full before completing the next step.

X is on its own and is now the subject of the formula.

Changing the subject of a formula which requires factorization (hard)

$Y - 4X = bX + 7$ (+4X)

$Y = bX + 4X + 7$ (−7)

$Y - 7 = bX + 4X$

Get all the same letters to one side first and get rid of all the other bits to the other side.

Now factorise out the common factor.

$Y - 7 = X(b + 4)$ (÷ (b + 4))

Divide the bracketed term to leave X as the subject.

$\frac{Y - 7}{(b + 4)} = X$

X is now the subject

Solving simultaneous equations by elimination

$3X + 3Y = 21$

$-(X + 3Y = 17)$

Eliminate one of the letters by either +/- the two equations from each other.

$2X = 4$ (÷2)

$X = 2$

Solve for the remaining letter.

$2 + 3Y = 17$ (−2)

Substitute the value of the letter you found in the first part into the easiest eqaution.

$3Y = 15$ (÷3)

$Y = 5$

Solve for the other letter.

Solution = (2 , 5)

Your solution is the coordinate pair (X,Y)

Solving Simultaneous equations by substitution

$Y = X + 2$

$3X + 2Y = 19$

Make one of the letters a subject of one of the equations.

$3X + 2(X + 2) = 19$

Replace the letter in the other equation with what it is represented by.

$3X + 2X + 4 = 19$ (−4)

Expand and solve for the remaining letter.

$5X = 15$ (÷5)

$X = 3$

$Y = X + 2$

$Y = 3 + 2 = 7$

Substitute the found value into the easiest equation to find the other value.

Solution = (3 ,5)

The solution is the coordinate pair (X,Y)

Vocabulary

Factorize	To isolate common factors and re-write the expression as a multiplication: maybe into two brackets for quadratic or X^2 equations.
Subject of the formula	The single letter or value on its own on one side of the equation.
Linear Equation	An equation in which the highest power of any of the unknowns is one: $Y = 3X + 5$. This is the equation of a straight line (linear).
Quadratic Equation	An equation in which the highest power of any unknown is two: $Y = 3X^2 + 5$ This is the equation of a U or ∩ shaped graph.
Simultaneous Equations	Two equations that are related and can be solved as a pair. If a solution exists this is a coordinate pair or pairs (X, Y) which satisfies both equations. It is the point or points of intersection between the two graphs.
Substitution	Replacing a letter or unknown value with another expression or known value.

MathsWatch References - for further self study

94	Simple Factorization
95	Substitution
136	Rearranging Equations
140	Solving Graphical Simultaneous Equations
157	Factorizing and Solving equations
158	Difference of two squares
136	Rearranging Equations
190	Rearranging difficult formula
191	Quadratic formula
192	Factorizing difficult quadratics
211	Simultaneous Equations with a quadratic

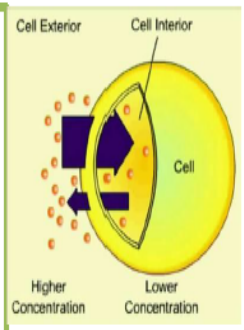
Exchange and Transport

To stay alive, all organisms must **exchange** substances with their environment. This means they must transport **into** cells the substances they need from the environment and transport **out** waste products to the environment.

Substances can be transported into or out of cells by: **diffusion, osmosis** or **active transport**.

Diffusion

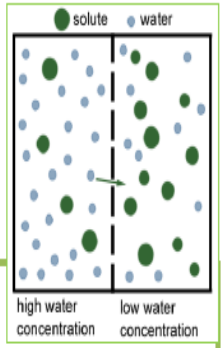
Diffusion allows many substances to move into or out of cells. Thanks to the random motion of particles in liquids and gases, particles will spread out until the concentration is equal throughout. If there is a cell membrane that lets the substance through (is **permeable**) in the way, it doesn't matter. Overall, the **net movement** of the substance will be from higher to lower concentration, as the diagram shows.



Diffusion is the process by which oxygen is transported into the bloodstream, and carbon dioxide is transported out (in the lungs, or gills of fish). It is also how the waste product **urea** moves from cells into the bloodstream, before removal in the urine.

The rate of diffusion is affected by:

1. the steepness of the concentration gradient
2. the temperature (a higher temperature increases the rate of diffusion as particles have more kinetic energy)
3. The surface area of the membrane (a larger surface area of cell membrane increases the rate of diffusion into/out of a cell).



Osmosis

Osmosis is the movement of water from a more dilute solution (more 'watery') to a more concentrated solution (less 'watery') across a partially permeable membrane, such as a cell membrane. Osmosis causes cells to swell up if they are placed in a dilute solution, or shrivel up if they are placed in a concentrated solution (a solution of salt, for instance, or sugar).

Key Terms	Definitions
diffusion	The net (overall) movement of particles from a higher concentration to a lower concentration, simply due to the random motion of particles in a liquid or gas. Diffusion happens across cell membranes, from higher to lower concentration. It does not require any energy from the cell.
concentration gradient	The difference in concentration of a substance between two places. A 'steeper' concentration gradient means there is a bigger difference in concentration.
surface area to volume ratio	The surface area divided by the volume of an organism, organ or cell. Generally, the smaller an organism is, the larger the surface area to volume ratio.
exchange surface	A place, such as the walls of the small intestine, where exchange of substances takes place e.g. by diffusion across it.
diffusion pathway	The distance over which a substance must diffuse. A thin wall or membrane is a short diffusion pathway.
osmosis	Osmosis only describes the movement of water. It is the diffusion of **water** from a dilute solution to a more concentrated solution across a partially permeable membrane.
partially permeable membrane	A membrane that only allows some substances through – others are prevented from travelling through. (e.g. a cell membrane)
active transport	The movement of substances **against** the concentration gradient – from lower to higher concentration. This requires energy from respiration.

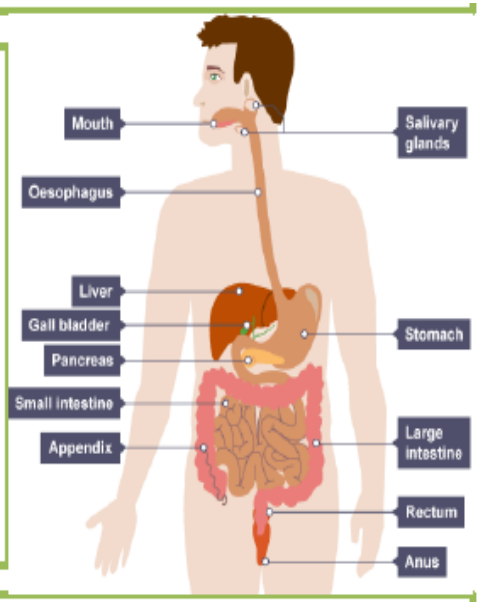
Active transport

Active transport is so-named because it requires energy. A good example of where it happens is in plant roots. Root hair cells (see specialised cells topic) absorb mineral ions (like magnesium ions and nitrate ions) from the very dilute solution in the soil by active transport. They need ions like these for healthy growth. An example in animals is absorption of sugar from the intestine into the blood – the blood has a higher sugar concentration so active transport is needed. The sugar is needed by all cells in the body for respiration.

The human digestive system

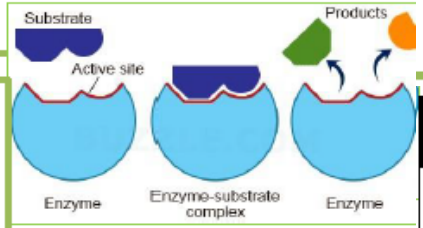
The digestive system breaks down food molecules into molecules our cells can actually use, and absorbs the simpler molecules resulting from digestion. The products of digestion are used to make new molecules we need, and the glucose is used in respiration. It is an **organ system**; the organs of the digestive system are shown on the diagram.

Mechanical digestion occurs in the mouth and stomach especially, where food is physically broken up into smaller pieces. This does not, however, break down the large molecules that our food is made from (carbohydrates, lipids and proteins). That is the role of chemical digestion, which is what enzymes do.



Enzymes and digestion

Enzymes are large proteins; there are many different types. All organisms use enzymes to control chemical reactions (**metabolism**). Enzymes are catalysts, so they speed up chemical reactions. They work by having an **active site** with a specific shape. A specific molecule slots into the active site (like a key into a lock) and the reaction takes place. So, the shape of the active site is vitally important, and only one sort of enzyme will work on each substrate. The diagram shows this 'lock and key' model of enzyme action.



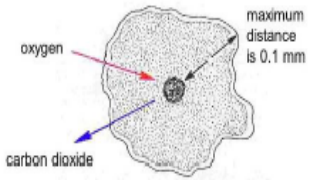
Bile

Bile is a vital substance for digestion. It is made in the **liver** and stored in the **gall bladder** before being released into the small intestine just after the stomach. It is **alkaline**, to neutralise the stomach acid and to make the partly digested food pH 8 – the optimum pH for enzymes in the small intestine. It also **emulsifies** fats, meaning it breaks them up into small droplets. This increases the fat droplets' surface area, increasing the rate of digestion by lipase.

Key Terms	Definitions
enzyme	A biological catalyst that speeds up chemical reactions in living organisms. Enzymes are large proteins.
digestive enzyme	Enzyme that works in the digestive system, breaking down large food molecules into simpler, smaller molecules for absorption into the blood. Learn the examples from the table.
active site	The part of an enzyme where the reaction takes place. They are very specific in shape, so that a specific substrate fits into the active site.
denature	To disrupt the shape of the active site of an enzyme. Denaturation happens when the enzyme is at too high a temperature or at the wrong pH for that enzyme.
substrate	The molecule that fits into an enzyme's active site and reacts to make a product or products.
carbohydrate	A type of molecule found in all living things. Made of carbon, hydrogen and oxygen. Simple sugars like glucose are carbohydrates, and so are complex sugars like starch – in fact, starch is made of many glucose molecules joined up.
lipid	Scientific name for fat. Lipids are made up of **glycerol** and **fatty acids**. Made mainly of carbon and hydrogen (+ oxygen).
protein	Type of molecule made from **amino acids**. Proteins in the body can be **structural** (e.g. muscle is made mainly of proteins) or **metabolic** (control chemical reactions – e.g. enzymes). Made mainly of carbon, hydrogen, oxygen and nitrogen.
optimum	The ideal temperature or pH for enzymes to work.

Digestive enzyme	Site of production	Site of action	Substrate	Product
Carbohydrase - e.g. amylase	Salivary glands, pancreas and small intestine wall	Mouth, small intestine	Complex carbohydrates - e.g. starch	Simple sugars - e.g. glucose
Protease	Stomach, pancreas, small intestine wall	Stomach, small intestine	Proteins	Amino acids
Lipase	Pancreas, small intestine wall	Small intestine	Lipids	Glycerol and fatty acids

Adaptations for efficient exchange and transport



Unicellular organisms have a very large surface area to volume ratio compared to multicellular organisms. This means that they simply exchange substances through their cell membrane directly with their environment. They are small enough that diffusion is sufficient to meet their needs (see diagram).

However, in multicellular organisms, cells that are not at the surface wouldn't be able to directly exchange substances with the environment. This is why organs with specialised exchange surfaces have evolved. Without lungs, gills, or leaves, for example, multicellular organisms wouldn't be able to obtain enough of the substances they need to survive, or be able to get rid of waste products efficiently.

Specialised exchange surfaces

To be effective at exchanging substances with the environment, any exchange surface must have a **large surface area**, and a thin wall/membrane for a **short diffusion pathway**. In animals, a constant blood supply also increases effectiveness, and in the lungs, ventilation (breathing in and out) increases effectiveness by refreshing the concentration gradient with each breath.

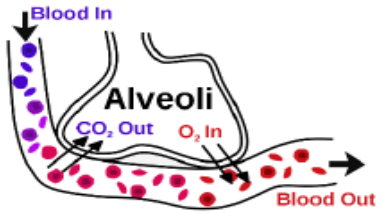
Exchange in animals and plants

Gas exchange in many animals, including us, happens in the lungs. The structures in the lungs where it happens are the **alveoli**. There are millions of these tiny air sacs, so in total their surface area is gigantic. They also have a short diffusion pathway, a good blood supply and air supply due to **ventilation**. (look at the diagram of one alveolus)

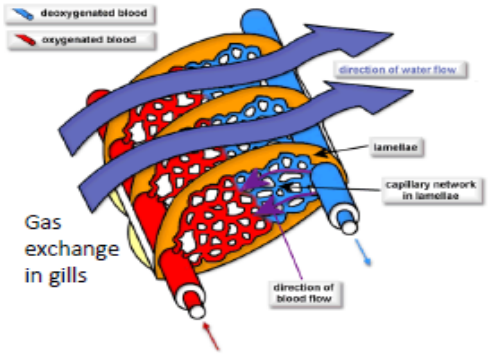
In fish, gills are where gas exchange takes place (see diagram). Again, a huge surface area increases the efficiency of gas exchange, along with a short diffusion pathway and good blood supply. The huge surface area comes from the division of gills into very thin plates of tissue called **lamellae**. This also creates the short diffusion pathway.

In plants, the **roots** absorb water and mineral ions. The root hair cells have **long projections** that increase the surface area of this exchange surface, and shorten the diffusion pathway. The **leaves** are responsible for gas exchange, including oxygen out and water vapour out, and carbon dioxide in. Being flat and broad increases the effectiveness of the leaves as exchange surfaces, by increasing the surface area and shortening the diffusion pathway. In leaves, exchange happens through microscopic holes called **stomata**.

Key Terms	Definitions
small intestine	The organ in the digestive system where products of digestion are absorbed into the bloodstream.
lungs	The organs were gas exchange takes place. The air sacs where gases are actually exchanged are called **alveoli**.
gills	The organs in fish where gas exchange takes place. Oxygen is absorbed from the water into the blood, and carbon dioxide is transferred to the water.
leaves	The plant organs responsible for gas exchange.
ventilation	Technical term for breathing in and out. Breathing in brings fresh air, with a relatively high oxygen concentration, into the lungs, and breathing out removes the air with a relatively high concentration of carbon dioxide (and low concentration of oxygen).

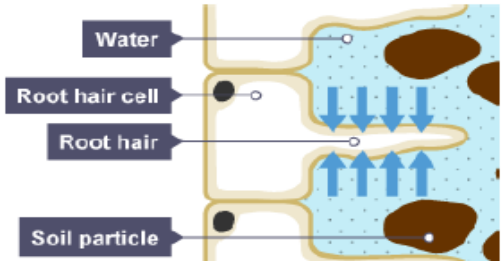


Gas exchange in lungs

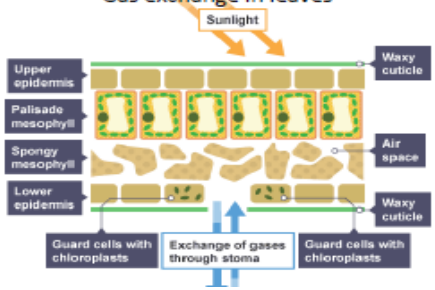


Gas exchange in gills

Substance exchange in roots



Gas exchange in leaves



Electric charge and current

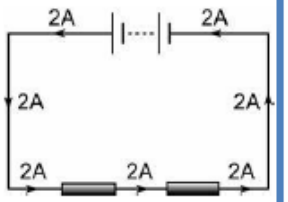
Every atom contains particles with an electric charge: protons and electrons. By getting electric charges to **flow**, we can get them to do work (i.e. transfer energy) in all sorts of useful ways. For that is what happens in any electric circuit you can think of: *flowing charges transfer energy*.

If we want to get electric charges to flow, we must make a **closed**, or complete circuit – a loop of conducting materials, like metal wires. Then, we must provide a source of **potential difference**. The source of potential difference could be a cell, battery or the mains. What these sources do is to create a *difference* in electrical *potential* energy – hence the name. This provides the force to make the **electric charges** in the conductors **flow**. When electric charges, like electrons, are flowing, we call it an **electric current**.

The size of an electric current is simply the **rate** of flow of electric charge.

So current $(I) = \frac{Q}{t}$ or $Q = It$

In a circuit, in any closed loop of the circuit, the size of the current is the same throughout the loop. As shown on the diagram, the current is the same in all parts of the loop, including through the battery and through the resistors.



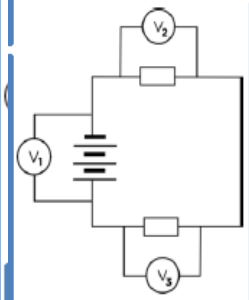
Current, resistance and potential difference

Cells and batteries etc. are **sources** of potential difference. This means they boost the potential energy of charges in a circuit. Other components, like resistors or bulbs, do **work** – so they take the potential energy of the charges and **transfer** it into some other form, like light or heat. In a circuit, all the energy provided by the cell/battery is transferred by the components in the circuit all together. So, in components like bulbs, the charges do work – i.e. they transfer energy. By definition, this means they have a potential difference **across** them. We say 'across' since it is a difference, from one side of the component to the other.

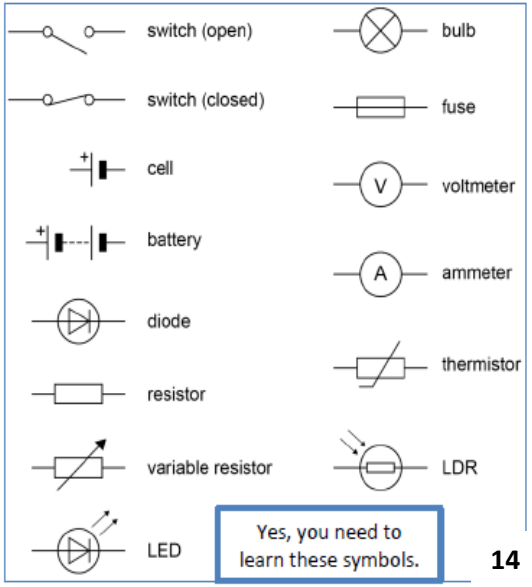
The **current** through a component depends on this **potential difference** across the component, but also its **resistance**. Without any resistance, a component would <u>do no work</u> (try putting a 0 in the equation!), so things like bulbs HAVE TO have resistance. The resistance of a component, along with the potential difference across it, determines the current through it, as shown in the second equation. It shows us that: if we keep the potential difference the same, but increase the resistance, the current must *decrease*. If we keep the potential difference the same, but decrease the resistance, the current must *increase*.

Key Terms	Definitions
electric charge	Just a positive or negative charge! In most electrical circuits, the electric charges that are flowing are **electrons** – which are of course negatively charged. Symbol: *Q*
current	The rate of flow of electric charge (i.e. speed). Calculated by dividing the size of the charge by the time. Symbol: *I*
potential difference	Also known as voltage, or p.d.. The potential difference is a measure of how much work is done per coulomb of charge.
resistance	Resistance determines the size of the current for a particular potential difference.

Equation	Meanings of terms in equation
$Q = I\,t$	*Q = charge flow (coulombs, C)* *I = current (amperes, A)* *t = time (seconds, s)*
$V = I\,R$	*V = potential difference (volts, V)* *I = current (amperes, A)* *R = resistance (ohms, Ω)*



Look how the voltmeters are added **across** the components to measure the potential difference across them.



Yes, you need to learn these symbols.

Electric charge and current

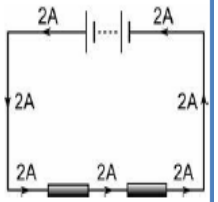
Every atom contains particles with an electric charge: protons and electrons. By getting electric charges to **flow**, we can get them to do work (i.e. transfer energy) in all sorts of useful ways. For that is what happens in any electric circuit you can think of: *flowing charges transfer energy*.

If we want to get electric charges to flow, we must make a **closed**, or complete circuit – a loop of conducting materials, like metal wires. Then, we must provide a source of **potential difference**. The source of potential difference could be a cell, battery or the mains. What these sources do is to create a *difference* in electrical *potential* energy – hence the name. This provides the force to make the **electric charges** in the conductors **flow**. When electric charges, like electrons, are flowing, we call it an **electric current**.

The size of an electric current is simply the **rate** of flow of electric charge.

So current $(I) = \frac{Q}{t}$ or $Q = It$

In a circuit, in any closed loop of the circuit, the size of the current is the same throughout the loop. As shown on the diagram, the current is the same in all parts of the loop, including through the battery and through the resistors.



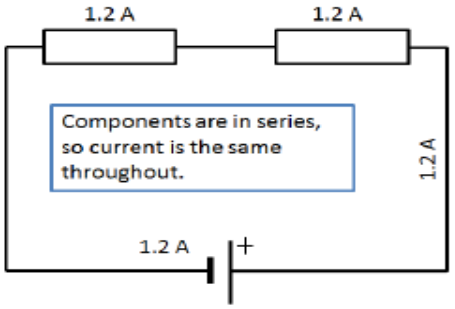
Current, resistance and potential difference

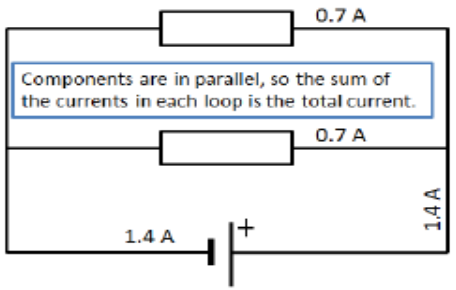
Cells and batteries etc. are **sources** of potential difference. This means they boost the potential energy of charges in a circuit. Other components, like resistors or bulbs, do **work** – so they take the potential energy of the charges and **transfer** it into some other form, like light or heat. In a circuit, all the energy provided by the cell/battery is transferred by the components in the circuit all together. So, in components like bulbs, the charges do work – i.e. they transfer energy. By definition, this means they have a potential difference **across** them. We say 'across' since it is a difference, from one side of the component to the other.

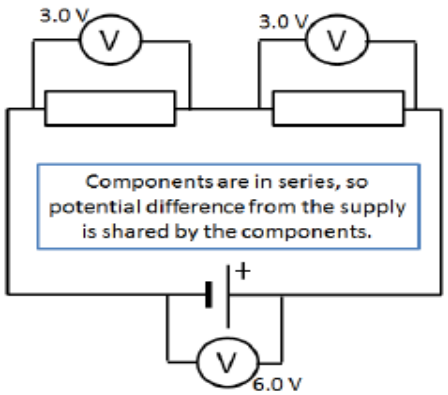
The **current** through a component depends on this **potential difference** across the component, but also its **resistance**. Without any resistance, a component would do no work (try putting a 0 in the equation!), so things like bulbs HAVE TO have resistance. The resistance of a component, along with the potential difference across it, determines the current through it, as shown in the second equation. It shows us that: if we keep the potential difference the same, but increase the resistance, the current must *decrease*. If we keep the potential difference the same, but decrease the resistance, the current must *increase*.

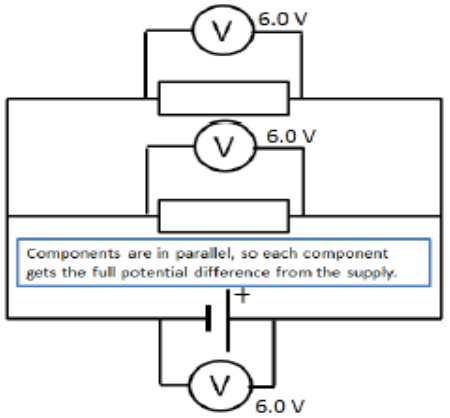
Key Terms	Definitions
series	Components connected one after another in a closed loop.
parallel	Components connected in different loops of a circuit.
resistor	An electrical component that regulates current in a circuit. Bear in mind, all electrical components have **resistance**, so are resistors in some sense, as well as being e.g. bulbs.

Equation	Meanings of terms in equation
for series circuits: $R_{total} = R_1 + R_2$ *	R_{total} = *total resistance (ohms, Ω)* R_1 = *resistance of first component (Ω)* R_2 = *resistance of next component (Ω) – and so on*



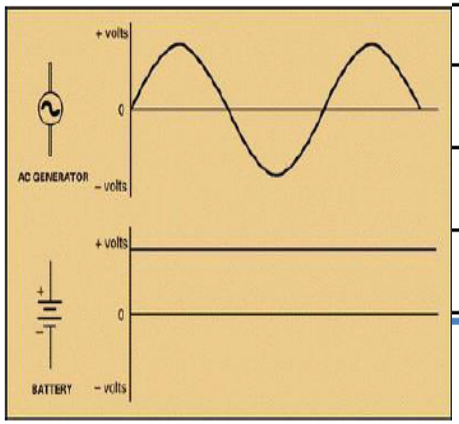






Direct and alternating potential difference

The flow of charge (current) in a circuit can travel in one direction around the circuit only. This is due to a **direct** supply of potential difference, also known as dc. Cells and batteries provide a direct potential difference. However, it is possible for the direction of the current to change back and forth in a circuit. This happens when there the supply provides an **alternating** potential difference – also known as ac. This means the p.d. is constantly switching from positive to negative, which you can see if you measure the p.d. and produce an image of is on an **oscilloscope**, as the diagram shows. The rate at which the p.d. switches from positive to negative is called the frequency of the supply. The bottom image, since the supply is a battery, shows a direct potential difference.



Key Terms	Definitions
direct p.d.	A supply where the potential difference is fixed at a certain value, so the current flows in one direction only
alternating p.d.	A supply where the p.d. switches between positive a negative, reversing the direction of the current frequently.
frequency	The number of times the p.d. reverses direction every second. Measured in Hertz (Hz).

Mains electricity

Mains electricity (the supply into your house/school etc. that comes through the plugs) is an ac supply. In the UK, we have a supply with a p.d. of about 230V, and the frequency is 50 Hz.

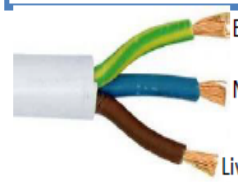
The national grid

The national grid connects power stations to consumers of the power – like you. It consists of a network of cables (i.e. power lines) and **transformers**. There are two types of transformers; together they improve the efficiency of the energy transfer from power station to homes and schools etc.:

1. Step-up transformers ***increase*** the p.d. from the power station to the transmission cables. This reduces the current so less energy is lost as heat.
2. Step-down transformers ***decrease*** the p.d. from the cables to a much lower value (230V, generally) for domestic use. This increases the current to suit electrical appliances used at home.

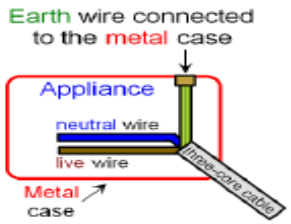
Three-core cables

We connect most electrical appliances to the mains with a three-core cable. The three pins on a plug are just the three ends, or terminals, of the three wires in the cable. Each wire in insulated in a different colour.



Wire in three-core cable	Colour code of the insulation	Function
Live wire	Brown	Carries the alternating p.d. from the supply to the appliance
Neutral wire	Blue	Completes the circuit. The neutral wire is at 0 V (earth potential).
Earth wire	Yellow and green stripes	Earth wires are at 0 V. They are safety wires, and only carry a current if there is a fault and the appliance has become live (electrified).

DANGER (and safety)



The earth wire carries current to the ground (literally, earth). This makes circuits safer because if there is a fault, it conducts the current to the ground rather than making the appliance 'live'. Appliances become live if the live wire touches the case. This is particularly a problem with metal-cased appliances, like cookers or toasters.

The live wire is the most dangerous one, since it is at 230 V. it should never touch the earth wire (unless the insulation is between them, of course!), because this would make a complete circuit from your mains supply to the ground (earth). A shock or fire would be highly likely.

Even if a circuit is switched off (i.e. the switch is **open**), the live wire can still be dangerous. If you touch it, you may complete a circuit between the live wire and the earth (because you'll be standing or

Relative formula mass (M_r)

This is the mass in grams of 1 mole of a substance. To calculate it you need to add up the atomic masses (bigger number) of all of the atoms in the molecule.

e.g 1. NaCl = Na + Cl = 23 + 35.5 = 58.5

e.g 2. MgF_2 = Mg + (2 x F) = 24 + (2 x 19) = 62

Higher tier -The Mole

A mole of an element is simply **6.02×10^{23} atoms (this number is known as Avogadro's number).** Obviously, if the atoms are larger then 1 mole of that atom will be heavier. For example, one mole of hydrogen atoms weighs 1 gram but 1 mole of carbon weighs 12 grams. To calculate the number of moles in an element you need to divide the mass by the relative atomic mass:
For example, how many moles are there in 6 grams of carbon?
6/12= 0.5

To work out the number of moles in a compound you divide the mass of the compound by the relative formula mass, for example how many moles in 30 grams of magnesium oxide (MgO)?
M_r of MgO=24+16= 40
Moles= 30/40=0.75

Higher Tier: Calculating Masses in Reactions

An understanding of the mole will allow to calculate the mass made in a chemical reaction.
Take the chemical reaction below:

$$Mg + 2HCl \rightarrow MgCl_2 + H_2$$

This equation shows that one mole of magnesium reacts with two moles of hydrochloric acid to produce one mole of magnesium chloride and one mole of hydrogen gas. Suppose you started with 5 grams of magnesium, how much magnesium chloride would you make?

Step 1: Calculate the moles of the element or compound you were given in the equation:

5/24=0.21 moles of magnesium

Step 2: Look at the balanced equation, you must therefore have 0.21 moles of magnesium chloride, as the ratio in the balanced equation between magnesium and magnesium chloride is 1 to 1.

Step 3: Calculate the M_r of the relevant product: what you want to find is the M_r of magnesium chloride:
M_r of $MgCl_2$ =24+35.5+35.5= 94

Step 4: Now find the mass that will be made from that number of moles of magnesium chloride

Mass = moles x M_r, so 0.21 x 94= 19.7 grams

Key Terms	Definitions
mole	6.02×10^{23} atoms of an element or molecules in a compound
Avogadro's number	6.02×10^{23} This is the number of atoms in 12 grams of carbon 12.
relative formula mass	The total atomic mass of elements in compound
limiting reagent	The reagent which is used up first in a chemical reaction.

Equation	Meanings of terms in equation
* $moles = \frac{mass}{M_r}$	*Mass is the mass of the substance in grams* *M_r is the relative formula mass of the compound (or use the relative atomic mass if it is an element)*

Higher Tier - Calculating moles from masses

If you know the mass of each reactant and product you can calculate a balanced equation from the masses, for example: Calculate the balanced equation when 12 grams of magnesium reacts completely with 38.5g of HCl, to make 49.5 grams of $MgCl_2$ and 1 gram of H_2

$$Mg + HCl \rightarrow MgCl_2 + H_2$$

Step 1: work out the moles of each reactant and product.
Mg=12/24= 0.5 HCl=38.5/38.5= 1 $MgCl_2$ =49.5/99 = 0.5 H_2 = 1/2 = 0.5
Step 2 divide through by the smallest number

Mg=0.5/0.5=1 HCl= 1/0.5 = 2 $MgCl_2$ =0.5/0.5=1 H_2 = 0.5/0.5=1

Step 3 write the balanced equation:

$$Mg + 2HCl \rightarrow MgCl_2 + H_2$$

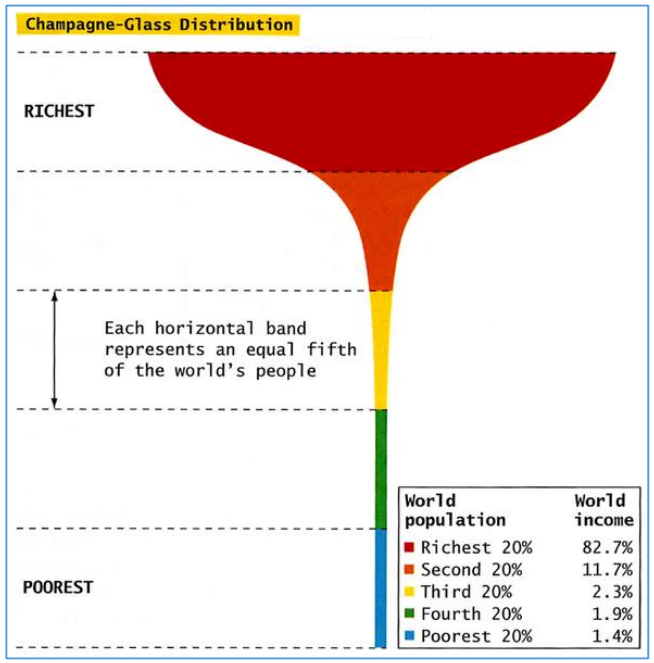
Higher tier - Limiting Reagent

When a chemical reaction is carried out, one or more reagents are in excess and one reagent is the limiting reagent. The **limiting reagent** is the reagent which is used up first in a chemical reaction, if all of this reagent is used up the reaction can no longer continue, for example, if a tiny amount of sodium is dropped into a large bowl of water there are a lot more water particles that there are sodium atoms. We therefore say that the sodium is the **limiting reagent** and the water is in **excess.**

The amount of product formed is **directly proportional** to the amount of limiting reagent. Therefore if you double the amount of limiting reagent you will get double the amount of product.

Number	Key term	Definition
1	**GDP**	Gross domestic product. The total value of goods and services produced by a country in one year.
2	**PPP**	Purchasing Power Parity. Shows what you can buy in each country.
3	**Poverty Line**	The minimum level of income required to meet a person's basic needs. US $1.25
4	**Measures of Inequality**	Shows how equally wealth is distributed.
5	**Literacy Rate**	The percentage of the population over the age of 15 who can read and write.
6	**HDI**	Human Development Index. Calculated using life expectancy, literacy rate and GPD. 0-1
7	**Subsistence farming**	Only producing enough to feed themselves and their families.
8	**Birth Rate**	Number of live births per 1000 people per year.
9	**Death Rate**	Number of deaths per 1000 people per year.
10	**Fertility Rate**	Average number of births per woman
11	**Life expectancy**	Average number of years a person can expect to live.

Number	Key term	Definition
12	**Maternal mortality**	Number of mothers per 100 000 who die in childbirth
13	**Dependency Ratio**	Proportion of people aged below (0-14) and above (over 65) normal working age. Its calculated by adding both groups together and dividing by the number aged 15-64, multiplied by 100. The lower the number, the great the number of people who work and less dependent.
14	**HICs**	High income countries
15	**MICs**	Middle Income countries
16	**LIC**	Low income countries
17	**RICs**	Recently industrialized countries.
18	**Landlocked**	A country that has no coastline
19	**Terms of trade**	The value of a country's exports relative to that of it's imports
20	**Cash crops**	Surplus crops that are sold for cash
21	**Neo-colonialism**	New colonialism is the idea that HICs such as the USA control poorer countries through terms of trade.
22	**Commodities**	Products that are sold.
23	**Tariffs**	Taxes that are added onto the import and export of commodities.



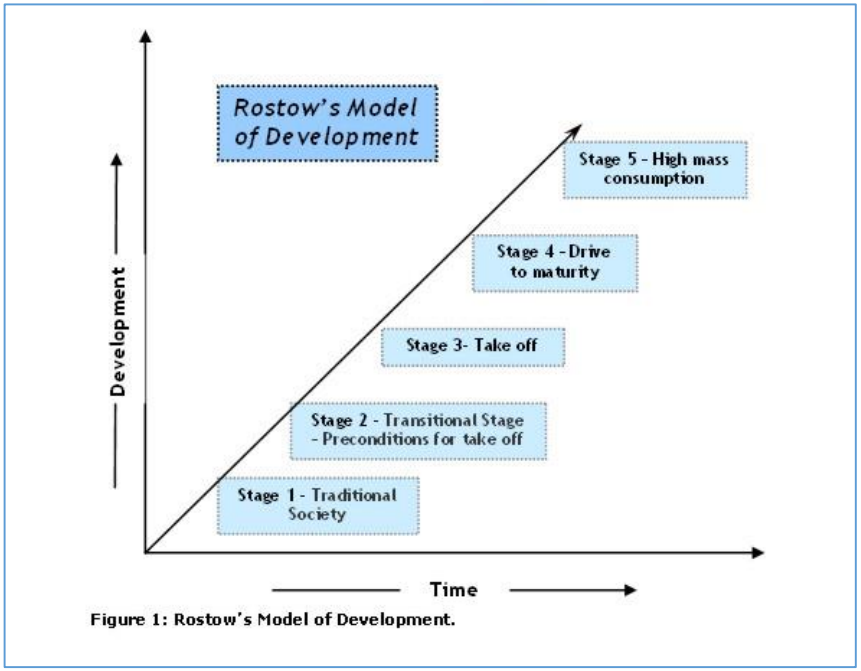
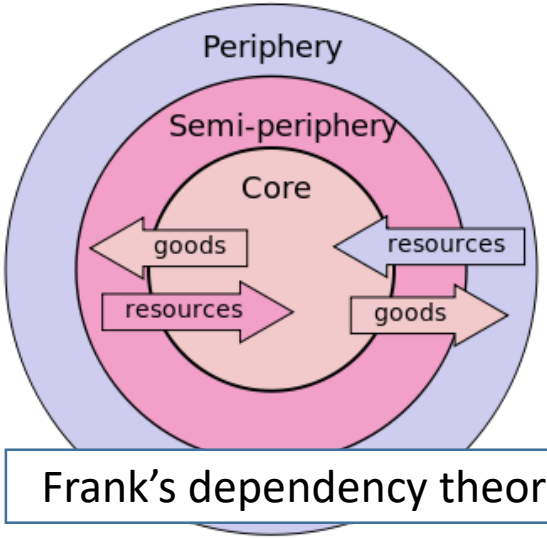
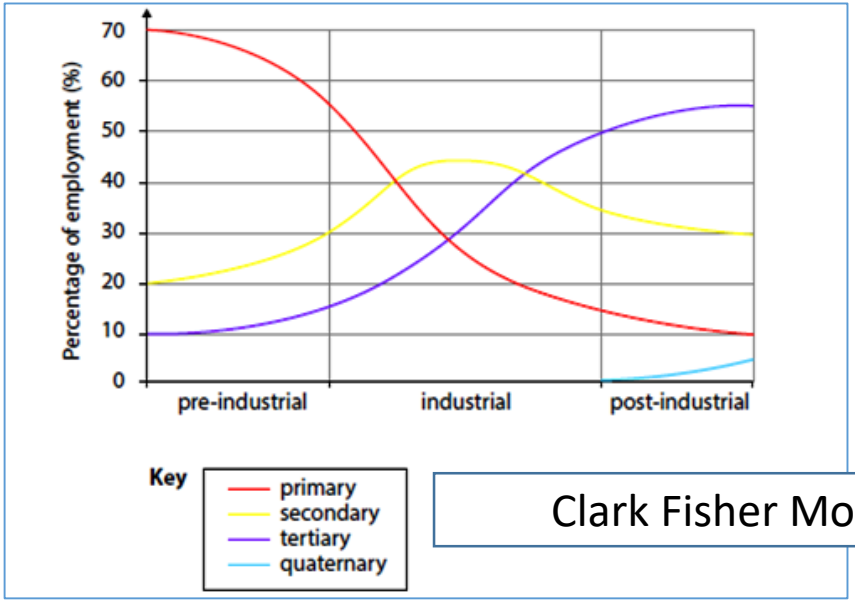


Figure 1: Rostow's Model of Development.



Frank's dependency theory



Clark Fisher Model

	Key term	Definition
1	**Urbanisation**	A rise in the percentage of people living in urban areas, compared to rural areas.
2	**Conurbation**	The merging of towns and cities to form one large city.
3	**World cities**	Megacities that play a disproportionally role in world affairs.
4	**Urban Primacy**	A city that has more importance and influence bigger than its size.
5	**Net Growth**	The number of people left after subtracting those leaving from those arriving
6	**Decentralisation**	Closure of industries.
7	**Internal Migration**	Movement within a country.
8	**Rural-urban Migration**	Movement of people from the countryside to towns and cities.
9	**Knowledge economy**	Working in industries that supply expertise/research and development.
10	**International migration.**	Moving from one country to another.

Number	Key term	Definition
11	**Informal economy**	An unofficial economy, where no records are kept. People have no contracts or employment rights
12	**Formal economy**	One which is official, meets legal standards for accounts, taxes and workers' pay and conditions.
13	**Ethnic enclaves**	Areas where people of similar ethnic background live together.
14	**Counter-urbanization**	Movement of people away from the city.
15	**Re-urbanization**	Movement of people back into the city.
16	**Regeneration**	The redeveloping of former industrial areas or housing to improve them.
17	**Brownfield**	Sites are former industrial areas that have been developed before.
18	**Meagcity**	A city with a population of 10 million or above.
19	**CBD**	Central business district
20	**Chawls**	Low quality multi-story buildings.
21	**Informal housing**	Illegal settlements ie. slums/squatter settlements.
22	**Spatial**	Relates to space eg the spatial growth of a city.

YEAR 9 – LENT TERM- HISTORY – CRIME AND PUNISHMENT - C.1700-C.1900

C18th and C19th Crime and Punishment	
1	This period saw rapid population growth and increased urbanisation meant more opportunities for crime. There was significant poverty in the cities and enforcing crime became more problematic. There was a change in attitudes too – prisons were for reforming criminals and not just punishing them. Important individuals in this time included John Howard, a prison reformer, and Robert Peel, the founder of the Metropolitan Police.
Key events	
2	**1690** – Excise duty extended to salt, leather and soap and mounted customs officers introduced.
4	**1723** – Black Act makes poaching game or damaging forest a capital crime.
5	**1735** – Witchcraft Act decriminalised witchcraft.
6	**1748** – Fielding brothers set up the Bow Street Runners.
7	**1778** – Transportation to Australia introduced.
9	**1810**- 222 crimes are capital offences.
10	**1816**- The first national prison opens at Milbank, London to hold convicts awaiting transportation.
11	**1823** – Black Act repealed.
12	**1829**- Metropolitan Police Act
13	**1832** – 60 crimes are capital offences.
14	**1835** – Gaols Act introduces inspection of prisons.
15	**1842** – Pentonville prison set up on the site of old Milbank prison.
16	**1850** – Import taxes cut and large scale smuggling reduced.
17	**1856** – Police Act makes it compulsory for all towns and counties to set up a police force.
18	**1868** – Public execution ended.
19	**1869** – National Crime Records established.
21	**1878** – Criminal Investigations Department set up.
22	**1898** – Prison Act emphasises rehabilitation and reform of prisoners.
23	**1902** – Holloway Prison for women opens/ first conviction in court using fingerprint evidence.
Key Concepts	
24	Smuggling and highway robbery became less common in the C19th.
25	There were increasingly harsh and unpopular laws against poaching but they were repealed in the 1820's.
26	The **growth of the prison system** meant that an alternative punishment to transportation was available.
27	Early C18th law enforcement continued to use similar methods to the early modern period but the establishment of the **Bow Street Runners was a very important development in policing that laid the foundations for the Metropolitan Police Act**.
28	The government was concerned with punishing wrongdoing and deterring others from crime by ensuring conditions were sufficiently harsh.

Key Words		
29	**Smugglers**	People who brought goods into the country and sold them on, without paying duties.
30	**Hawkhurst Gang**	A large smuggler gang which operated in the South East of England from 1735 to 1749.
31	**William Pitt**	Prime Minister who lowered import duties and who helped to reduce smuggling.
32	**Highway Robbery**	Threatening and attacking travellers and forcing them to hand over valuable possessions.
33	**Turnpikes**	Roads with a toll gate.
34	**Jack Shepherd/ Dick Turpin**	Famous highwaymen.
35	**Tolpuddle Martyrs**	Men from the village of Tolpuddle in Dorset who formed an early trade union.
36	**Martyr**	A person who suffers for their beliefs, and often is admired for it.
37	**George Loveless**	Leader of the Tolpuddle Martyrs.
38	**Trade Union**	An organisation that represents workers to protect their rights.
39	**Transportation**	Criminals were sent to America and later Australia as punishment for their crimes.
40	**Home Secretary**	The government minister with responsibility for law and order.
41	**Hulk**	Disused ships used as floating prisons just offshore.
42	**Inhumane**	Cruel, without compassion.
43	**The Tyburn Tree**	The most famous place for public executions. The tree could hang 24 people at once.
44	**Treadwheel**	A common form of hard labour where the prisoner walked up the wheel for 10 minutes at a time with a 5 minute break before the next stint.
45	**John Howard**	Campaigner for prison reformer.
46	**Elizabeth Fry**	Campaigner for prison reformer.
47	**Humanitarianism**	A school of thinking based on the principle that all humans are equal and inhumane treatment of other human beings should be challenged.
48	**Bow Street Runners**	A crime fighting team, established in London, in 1748, by the Chief Magistrate, Henry Fielding. By 1785, they were officially paid by the government.
49	**Metropolitan Police Act**	Gave London a uniformed police force. Set up by Home Secretary, Robert Peel.
50	**Prototype**	A new idea or design that is tried out before more versions are made.
51	**Separate system**	Prisoners were kept apart as much as possible.
52	**Pentonville Prison**	Designed as a model prison by Joshua Jebb.
53	**Psychosis**	A confused state where sufferers have hallucinations and delusions – seeing and imagining things that are not really there.
54	**Hard labour, hard fare and hard board**	Physically demanding work, boring and bland diet and wooden board beds.
55	**Robert Peel**	Home Secretary responsible for bringing in a wide range of changes to criminal law and for reforming prisons. Some historians call him the 'father of modern policing'.
56	**Penal**	Involving punishments.

Crime and Punishment from 1900 to the Present	
1	The role of the government in people's lives grew as did the role of the state in enforcing the law. Social attitudes changes which led to some activities being decriminalised while others were made illegal for the first time. Development in science and technology and better methods of communication led to advances in crime prevention and detection. There has been changing attitudes about the rehabilitation of offenders.
Key events	
4	1920's – women recruited into police force.
5	**1950**- Death penalty for Timothy Evans who was hanged for murdering his wife and baby. This was a miscarriage of justice.
6	**1953**- Death penalty for Dreck Bentley. Hanged for the murder of a police officer. He had not fired the gun himself, had learning difficulties and a low mental age.
7	**1955** – Death penalty for Ruth Ellis. Hanged for the murder of her violent and abusive boyfriend.
8	**1965** – Death penalty abolished for most crimes.
9	**1967** – Sexual Offences Act
10	**1968** – Abortion Act and Race Relations Act
11	**1976** – Domestic Violence Act
12	**1980** – Police National Computer is launched.
13	**1991** – Law recognises rape within marriage as a crime.
14	**1995** – National Automatic Fingerprint Identification System and National DNA Database set up.
15	**1998**- Death penalty abolished for all crimes.
16	**2000**- Terrorism Act
17	**2005** – Criminal Justice Act raises severity of 'hate crimes'.
18	**2006** – Racial and Religious Hatred Act
19	**2015**- Modern Slavery Act
Key Concepts	
20	**Changing social attitudes** cause changes in the law.
21	**New technologies** create new crimes.
22	**Important developments in modern policing** include increased use of science and technology, more emphasis on crime prevention and increasing co-operation and co-ordination at national level.
23	In the C20th, there has been **increasing specialisation in policing**.
24	During the C20th, there has been **changing attitudes about the purpose of prisons and types of punishments** and the death penalty has been abolished.

Key Words		
25	**Homosexuality**	Sam sex relationships were decriminalised in 1967.
26	**Sexual Revolution**	Growing liberal attitudes towards sex in the 1960's.
27	**The Crime**	A crime motivated by prejudice against the victim's race, gender, disability or sexual orientation.
28	**Homophobic**	Prejudice against people who are gay.
29	**Multicultural**	Lots of different nationalities living in an area/country.
30	**Injunction**	An order issued by a court to forbid a particular action or behaviour. An injunction can include instructions to stay away from a person or a place.
31	**Coercive behaviour**	Using force or threats towards a partner.
32	**Abortion**	To end a pregnancy.
33	**Social crimes**	Crimes in society that many accept to a degree e.g. tax evasion, copyright.
34	**Terrorism**	The use of violence, fear and intimidation to publicise a political cause.
35	**IRA**	Irish Republic Army – wanted political independence from the rest of the UK.
36	**Al-Qaeda and Isis**	Islamic Fundamentalist Terrorist Organisations.
37	**People Trafficking**	People from poorer countries being brought to the UK and forced to work for very low wages or no wages.
38	**Cybercrime**	This is any crime that is carried out using the internet and other digital technologies.
39	**Fraud**	Impersonating other people or businesses to make money illegally.
40	**Copyright**	This is the right of an artist or company to be recognised and aid as the creator of their work.
41	**Extortion**	Making people pay money by using threats or blackmail.
42	**Biometric Testing**	His uses unique body characteristics like fingerprints or eye patterns to restrict access to date, places an buildings.
43	**Neighbourhood Watch**	A local committee of people who raise awareness about crime and encourage neighbours to keep an eye on each others' property.
45	**Vigilance**	To keep a watchful eye for danger.
46	**Active citizenship**	People taking an active role in their community in order to improve it.
47	**Abolished**	Banned or made illegal.
48	**Liberal**	Open to new ideas.
49	**Age of criminal responsibility**	The age at which a person is judged to be mature enough to understand their actions. A person who has reached the age of criminal responsibility can be prosecuted and punished for their crimes.
50	**Borstal**	A prison for boys only.
51	**Electronic Tagging**	The court orders a person convicted of a crime to wear an electronic tag to monitor their movements.
52	**Anti-Social Behaviour Order**	A court places restrictions on what a person can do.
53	**Community service**	People convicted of minor offences are ordered to do supervised work to improve their local community.
54	**Restorative justice**	A criminal meets the victim of their crime to talk about what they have done and the impact it has had on others.
55	**Conscription**	Compulsive military service.
56	**Conscientious Objectors**	Men who refused to fight.
57	**Pacifists/ absolutists**	People who believe that fighting is wrong.
59	**White feather**	A symbol of cowardice.
60	**Propaganda**	Deliberate mass persuasion.
61	**Peace Pledge Union**	An organisation founded in the 1930's that opposed was and sought to find peaceful means to resolve conflicts around the world.
63	**Joint enterprise**	When an accomplice to a crime is held jointly responsible for the crime. Christopher Craig was the accomplice of Derek Bentley but he couldn't be hanged as he was 16.
64	**Diminished responsibility**	Not being fully in control of your actions, for example, because of mental illness.

YEAR 9 – LENT TERM- HISTORY – WHITECHAPEL, C.1870-C.1900

Whitechapel	
1	The lives of inhabitants of Whitechapel was tough and the policing of such an area was difficult too.
Key events	
2	**1829** – Founding of the Metropolitan Police.
3	**1840's** – Irish immigration to the East End
4	**1842** – A detective Department added to the MET.
5	**1878** – A CID Department set up.
6	**1873** - Great Depression **–** brought widespread unemployment and poverty.
7	**1875** – Artisan's Dwelling Act; a slum clearance programme. Peasbody Estate opened in 1881.
8	**1880's** – A wave of Russian immigration as a Jew was blamed for the assassination of Tsar Alexander II.
9	**1885** – Dynamite Saturday – When the Fenians (Irish Nationalists) launched attacks on central London landmarks.
10	**1887** – 'Bloody Sunday' when the Metropolitan Police attempted to stop a demonstration in Trafalgar Square.
11	**1888** – Serial murders of Jack the Ripper. .
12	**1890** – The Houses of the Working Classes Act 0 opened the way for the new London County Council to begin housing development schemes to replace slums with mass low cost housing. The Public Health Amendment Act - gave more powers to local councils to improve toilets, paving, rubbish collection and other sanitary services.
Key Concepts	
13	**Living conditions** – The poor of Whitechapel were herded together in noisy and filthy courts. Prostitutions, unemployment and poverty were common place.
14	**Statistics –** These can present historians with numerous problems.
15	**Anti Police feeling –** There was a feeling that the police favoured the middle and upper classes against the poor. Also police were expected to manage a variety of tasks that could be termed social work tasks.
16	**Attempts to improve living conditions** - Peasbody Estate and Bernado's.
17	**Anti Jewish feeling** – By 1888, the Jewish population of parts of Whitechapel had grown to 95% of the total. Jewish settlers were resented as they tended to find work quickly, they would accept lower wages, they ran tailoring businesses on the sweatshop model, they worked Sundays and the religious and cultural rules about food and clothing made them stand out.
18	**Jack the Ripper** – The murderer of 5 prostitutes (Mary Ann Nichols, Annie Chapman, Elizabeth Stride, Catherine Eddowes, and Mary Jane Kelly) in the Whitechapel area in 1888 was known by this name. The cases highlighted the challenges and inadequacy of the existing police force and shone a spotlight on the troubled area of Whitechapel.

Key Words		
20	**Workhouse/ doss house**	Offered a bed and food in return for hard labour.
21	**Residuum**	A criminal underclass born to steal, lie and rob.
22	**Charles Booth**	Shipping owner and led investigations into poverty
23	**H Division of the Metropolitan Police**	Had to investigate crime in Whitechapel
24	**Home Secretary**	Based in Westminster. He had little control over local police forces outside of London but the Metropolitan Police reported directly to him.
25	**Watch Committee**	A group of local politicians or law professionals set up to monitor the work of police forces.
26	**Manpower**	There were only 13.319 men in the MET in a population of just over 5 million. Only 1,383 were available for duty at any one time.
28	**Penny Dreadful**	A Victorian tabloid.
29	**Sir Charles Warren**	Metropolitan Police Commissioner from 1886. `
30	**Metropolitan Police**	Investigated crime in London and was controlled directly by the government. Did not patrol the City of London which had its own police force.
31	**Sanitation**	Conditions associated with public health, such as running water and sewerage systems.
32	**Pollution**	Wind carried smoke and stinking gas fumes through the maze like streets of the East End.
33	**Rookeries**	Overcrowded slum areas characterised by dirt, disease and crime.
34	**Lodging house**	Squalid accommodation which was rented for 8 hour sleeping shifts a day.
35	**Bernado's**	An attempt to prevent young people from going into the workhouse. It's motto was 'No Destitute Child Ever Refused Admission'.
36	**Navies**	Men who did labouring jobs on canals, roads, railways and as dockers.
37	**Special Branch**	Designed to counter Irish terrorism and protect London from an Irish nationalist group called the Fenians.
38	**Pogroms**	A Russian word describing a government supported attack on the Jews.
39	**Anarchy**	A political movement that opposes all forms of organised government. Mikhail Bukanin was the leading anarchist of the time. Associated with Eastern Europeans.
40	**Socialist**	Someone who believes that poor people would get a better deal if the government nationalised (took over) important industries and services and ran them for the good of all – not for profit.
41	**Capitalist**	Someone who believes individuals should be free to own property and businesses and make a profit.
43	**Anti-semitism**	Hatred against Jews.
44	**Sensationalist**	Describing events in a deliberately exaggerated style to shock and impress.
45	**Satirical**	Using humour or exaggeration to mock current affairs.
46	**Stereotyping**	Assuming all members of a group are alike – for example, looking similar, or having similar views.
47	**Beat**	The area the policeman is to patrol.
48	**Prostitute**	A person who offers sexual activity in return for a payment.
49	**Brothel**	A house where one or more prostitutes work.
50	**Gin palace**	Extravagant, richly decorated gas lit shop selling gin across the counter. Gin was a cheaply available, potent alcohol, popular with the poor. The light and splendour made a stark contract with the dark, dirty streets.
51	**Opium den**	A place where the drug opium was sold and smoked. Despite the name, the places could vary in appearance from an elegant bar room to a dark cellar.
52	**Protection rackets**	Gangs like the Bessarabian Tigers and the Odessians demanded protection money from small business owners.
53	**Frederick Abberline**	Inspector who led the investigation into the Ripper murders.
54	**Lunatic asylum**	The Victorian term for a psychiatric hospital.
55	**Alibi**	Proof that an accused person was in some other place at the time a crime was committed.
56	**Post mortem**	A detailed examination of a person's body to try and discover the cause of death.
57	**Dissecting**	Cutting an animal or human body into parts, usually as part of a scientific investigation.
58	**Forensic**	Using scientific methods and techniques to investigate crime.
59	**Bertillon system**	Combined physical measurements, photography and record keeping to identify repeat criminals.
61	**Whitechapel Vigilance Committee**	Set up by businessmen due to the police's lack of progress in catching Jack the Ripper.

5. Prophethood

- ✓ God has chosen people to bring the message of Islam to the people. These chosen people are called prophets.
- ✓ They are important because they provide communication between God and humans.
- ✓ In order for humans to live how God wants it is necessary for instructions to be delivered through prophets
- ✓ Around 124,000 prophets of which 25 are named in the Qur'an
- ✓ They are important role models as they were good people who lived according to God's will.

'Every community is sent a messenger'. Quran 10:47

Adam:

- ✓ First man on earth and first prophet of Islam
- ✓ Father of the human race so treated with great respect
- ✓ God created Hawwa (Eve) to stop Adam being lonely
- ✓ They were told not to eat from the tree in the middle of the garden but they did and so sin entered the world.
- ✓ Adam is important as God gave him understanding which he passed on through his descendants. God revealed to him the foods they can eat, how to repent for wrong doing and how to bury the dead.

'He taught Adam the names [of things]'. Quran 2:31

Ibrahim:

- ✓ Fulfilled all the tests and commands God gave him.
- ✓ Was promised to be the father of all nations.
- ✓ Demanded people to stop idol worship. Was supposed to be burnt alive but survived (miracle) so people began to follow God.
- ✓ Re-built the Ka'aba after it was destroyed.
- ✓ Important as he stopped idol worship, gave the message of one God and rebuilt the Ka'aba

'God took Abraham as a friend'. Qur'an 4:125

8. Holy Book - The Quran:

- The Qur'an is the direct word of God, which was revealed to Muhammad over a period of around 22 years.
- Contains the foundation of every believer's faith.
- Is most sacred of all the holy books.
- Is infallible (without error and non-changing)
- Contains a mixture of historical accounts and advice on how to follow God.
- There are 114 surahs (chapters) in total.
- Those who can recite the Qur'an from memory are given the title 'Hafiz'.

'This is the Scripture in which there is no doubt, containing guidance for those who are mindful of God'. Qur'an 2:2

Topics covered:

1. The Oneness of God (Tawhid)
2. Nature of Allah
3. Angels
4. Life after death
5. Prophethood
6. Predestination
7. Muhammad
8. Holy books
9. Sunni and Shi'a
10. Imamate

3. Angels

Muslims believe angels bring the words of God to the prophets. They have no free will and are made from elements of light. Their roles are:

- Messengers
- Guardians of people
- Recording actions of humans
- An angel of death
- Purify hearts
- Bring natural disasters

'Jibril:

- Archangel
- Relayed the Qur'an to Muhammad
- Guided Muhammad through his entire life

- Mika'il:
- Archangel
- Angel of Mercy
- Responsible for sending rain, thunder and lightning

1. The Oneness of God

- One of the most important beliefs for Muslims is Tawhid (the belief that there is only one God).
- This belief is repeated daily in the Shahadah (one of the five pillars).
- A Muslim's most important duty is to declare faith in one God.
- God is unique. No one can picture God which is why there isn't any pictures or statues of Him in Islam.
- God is the only creator and controller of everything.
- Muslims believe they should accept whatever happens as the will of God (supremacy of God's will)

'Say, He is God the One, God the eternal'. Quran 112:1-4

4. Life after death

-Death isn't the end it is a new stage of life called Akhirah.
-After death you lie in the grave waiting for the day of Judgment this is called Barzakh.
-Angels are sent to question them about their life. If they are good and honest they will be rewarded if they are bad an untruthful they will be punished.

The Day of Judgement

- ✓ When God's purpose for the world has been fulfilled He will destroy it
- ✓ The world will be transformed into a new world
- ✓ Everyone who has ever lived will be resurrected and judged by God.
- ✓ If people are given the book of deeds in their right hands they will go to heaven, if it is in their left they will go to hell.

Heaven and Hell

Heaven:

- Described as the gardens of happiness
- It is a reward for faith and good deeds

'A reward for what they used to do'. Quran 56:24

Hell:

- Described as a place of fire and great torment
- Punishment for those who reject God and do evil

'They will dwell amid scorching wind and scalding water in the shadow of black smoke, neither cool nor refreshing'. Quran 56:42-44

2. Nature of Allah

Muslims believe God is:
-Immanent (present in earth and involved with humanity)
-Transcendent (outside life and beyond understanding)
-Omnipotent (all-powerful)
-Beneficent (all-loving and all-good)
-Merciful (compassionate and forgiving)
-Just (fair and judges humans actions)

'There is no God but Him, the Creator of all things'. Qur'an 6:102

'He is with you wherever you are'. Qur'an 57:4

Topics covered:

1. The Oneness of God (Tawhid)
2. Nature of Allah
3. Angels
4. Life after death
5. Prophethood
6. Predestination
7. Muhammad
8. Holy books
9. Sunni and Shi'a
10. Imamate

6. Predestination

Sunni:

- Believe God has already determined everything that will happen in the universe.
- Linked to Sunni belief of the supremacy of God's will.
- Doesn't mean that people have no choice about how they behave.

'Only what God has decreed will happen to us'. Qur'an 9:51

Shi'a:

- Believe that God knows everything that is going to happen, but does not decide what is going to happen.
- Shi'a Muslims do not see conflict between supremacy of God's will and human freed to act freely and make choices as God knows what you will choose but does not choose for you.

'God does not change the condition of a people [for the worse0 unless they change what is in themselves'. Qur'an 13:11

7. Muhammad

- Muhammad received the final revelation of Islam from God.
- Known as the last and greatest prophet.
- Religious from an early age and would go into the mountains to a cave to pray and meditate.
- In 610CE on Mount Hira received his first revelation from God through the angel Jibril.
- For more than 20 years received further revelations, which were combined together to make the Qur'an.
- 3 years after the first revelation began preaching the words he received and continued to do it for the rest of his life.
- He challenged the people of Makkah to give up their sinful ways (cheating, drinking, gambling and idol worshipping).
- Was persecuted by the leaders of Makkah and so fled from the city in 622CE. This is known as the **Hijrah (departure)** and marks the beginning of the **Ummah (worldwide community).**
- Before the departure Muhammad was taken on an amazing experience where Jibril took him to Jerusalem. Muhammad was carried on a horse like creature with wings. From Jerusalem he ascended to heaven and saw signs of Gods and spoke to prophets such a Isa. This is where he was told to pray 5 times a day. This journey is known as the **Night Journey.**
- **'Muhammad is not the father of any one of you men; he is God's Messenger and the seal of prophets: God knows everything'. Qur'an 33:40**

10. The Imamate

- When Muhammad died it wasn't clear who should succeed him.
- Muslims split in to two groups **Sunni and Shi'a.**
- **Sunni's** elected Abu Bakr as their first Caliph (leader, teacher).
- **Shi'a** believe that Muhammad named his cousin Ali as his successor so he became the first Imam.
- For Shi'as it was important that Ali took control because they believe that Muhammad appointed him under divine instruction and leadership should follow in the family line.
- When Ali died his son became the Imam. Each Imam that followed was the son of the previous Imam.
- The **Twelver Branch of Shi'a Islam** believe that there have been twelve Imams in total. The last one they believe has been kept alive by God and is hidden somewhere on earth who will return to bring peace, justice and equality.
- The **Twelver's** believe that the Imams not only rule but are able to interpret the Qur'an and Shari'ah Law
- They believe that the receiving of God's law was through Muhammad but guiding people comes through the Imams.
- **The Imamate** is the name given to the appointment of the Imams and is important because people need divine guidance to know how to live correctly.

9. Sunni and Shi'a Islam

Sunni:

- When Muhammad died the majority of Muslims thought that **only** the Qur'an and Sunnah had the authority to guide the beliefs and behaviour of Muslims.
- They elected Caliphs to act on behalf of God and Muhammad. They do not make the laws; they just enforce them.
- These Muslims became known as Sunni (meaning followers of the Sunnah).

Shi'a:

- Another group believed that Muhammad named his cousin Ali as his successor.
- Ali and his supporters thought that the true leader had to be a descendent of Muhammad and chosen by God.
- Ali's claims to be leader were ignored by many Muslims.
- Over time a split developed between those who followed Ali (the Shi'as) and the Sunnis.
- Shi'as have their own interpretations of the Law and only accept sayings of Muhammad which have been passed down through Ali or his followers.

Six Articles of Faith in Sunni Islam:

- There is only one God Allah.
- Angels communicate the message of God to humans.
- The Qur'an is the most important writing and the highest authority in Islam.
- Muhammad is the most important prophet of God.
- The Day of Judgement is when all humanity will be judged by God and sent to paradise or hell.
- The supremacy of God's will means that God already know but also makes happen everything that occurs in the world and in human lives.

The Five Roots of 'Usul ad-Din' in Shi'a Islam:

1. Tawhid means that God is one.
2. Prophethood means accepting that Muhammad is God's last prophet.
3. God is just and wise and cannot do wrong. He holds humans accountable for their actions.
4. The Imamate means accepting that twelve Imams are the leader of Islam and guard the truth of the religion without error.
5. After death you will be resurrected and judged by God.

Key Word	Meaning	Key Word	Meaning
Akhirah	Everlasting life after death.	Iblis (Satan)	A spiritual being created from fire, who was thrown out of paradise for refusing to bow down to Allah.
Allah	The Arabic name for God.	Id-ul-Adha	The festival that celebrates Ibrahim's willingness to sacrifice his son for God.
angels	Spiritual beings believed to act as messengers of God.	Islam	The name of the religion founded by Muhammad; to surrender to the will of God; peace.
benificent	Benevolent, all-loving, all good	Ka'aba	The black cubed building in the centre of the Grand Mosque in Makkah; the holiest place in Islam.
Caliph	A person considered to be a political and religious successor to the prophet Muhamad, and the leader of the Sunni Muslim community.	merciful	The quality of God that shows compassion or forgiveness to humans, even though he has the power to punish them
Day of Judgement	A time when the word will end and every soul will be judged by God.	Mika'il	The Arabic name for Michael, the archangel of mercy who rewards good deed and provides nourishment to people.
Fairness	The idea that God treats people firmly and impartially without favour of discrimination	monotheistic	A religion that believes there is only one God.
Gospel	A holy book revealed by God to Jesus	Muslim	One who submits to Islam.
Hajj	The annual pilgrimage to Mekkah that every Muslim should try to make at least once in their life.	omnipotent	Almighty, having unlimited power; a quality of God.
Heaven	The state of eternal happiness in the presence of God; also called paradise.	predestination	The idea that God knows or determines everything that happens in the Universe.
Hell	The state of total separation from God.	prophet	A person who proclaims the message of God.
Imam	A person who leads communal prayer; in Shi'a Islam the title given to Ali and his successors.	Psalms	A holy book revealed by God to David.
Imamate	The divine appointment of the Imams.	prophethood	When God makes someone a prophet to communicate his message to people
Immanent	The idea that God is present and involved with life on earth and in the universe.	Qur'an	The holy book revealed to Muhammad by the angel Jibril; God's final revelation to mankind
Jibril	The Arabic name for Gabriel, the archangel who brought God's message to the prophets, particularly Muhammad.	Resurrection	Rising from the dead or returning to life.
Justice (Adalat in Shi'a Islam)	The idea that God is just and fair and judges human actions, rewarding the good and punishing the bad	Risalah	The belief that prophets are an important channel of communication between God and humans.
Sunnah	The teachings and deeds of Muhammad.	Scrolls of Abraham	A holy book revealed by God to Abraham.
Sunni	Muslims who believe in the successorship to Muhammad of Abu Bakr, Umar, Uthman and Ali.	Supremacy	Supreme power of authority; a quality of God.
Shi'a (Shi'i)	Muslim who believe in the Imamate, the successorship of Ali.	Tawhid	The Oneness and unity of God
Transcendent	The idea that God is beyond and outside life on earth and the universe	**Torah**	The five books revealed by God to Moses.

Key skills:	Rules, techniques, tactics:
1. How do you dribble? Head up, spread fingertips over ball, bounce at waist height.	**12. How many players are on the court during a game?** A game is played between 2 teams with 5 players on the court.
2. How do you perform a chest pass? W shape behind ball, chest height, follow through.	**13. What is the aim?** Players are aiming to score as many points in the time allocated by shooting through the hoop.
3. How do you perform a bounce pass? As a chest pass but ball will bounce before player.	**14. Can you move with the ball?** Players cannot travel with the ball or perform a double dribble (dribbling, picking up the ball, continuing to dribble). Players cannot hold the ball for longer than 5 seconds.
4. How do you demonstrate a set shot? knees bent, strong hand on bottom of ball, other hand supporting, extend elbow to 90 degrees towards net.	**15. What happens of the ball goes out of court or if a point is scored?** If the ball goes out of court then a side line ball is taken by the opposite team. If a point is scored the ball goes to the opposition from the backline.
5. How do you demonstrate a lay up? Strong hand on the bottom of ball, other hand supporting. Right right hand dribble, step right, jump left, aim for top corner of black box.	**16. What happens after the ball has crossed the mid line of the court in an offensive situation?** Once the offense (attacking team) has brought the ball across the mid line of the court, they cannot go back across the line during possession.
6. How do you perform a jump shot? Landing on alternate feet, first foot to land is static and pivots, ball must be released as jump is executed.	**17. What is a foul given for?** Hitting, holding or pushing an opponent.
7. How do you man to man defend? Knees bent, straight back, arms out, follow player (watch their belly button). **What is zone marking?** A strategy of team defense often used around the key. Prevents attacking players getting into the zone.	**18. What happens if the shooter is fouled?** 1 – 3 free throws can be awarded worth 1 point each.
8. What is rebounding? Regaining possession after a shot has been missed.	**19. How long does a basketball game last?** A game is made up of 4 quarters of 12 minutes so a total of 48 minutes. However regulation time is stopped for many aspects of gameplay including fouls, ball out of bounds and timeouts so a game can be up to 2 and a half hours!
9. What is the offence? The team with the ball are the offending team and are aiming to shoot at the basket and score. only chance that the team has a shot at the basket and scoring**.**	**20. Defensive strategies:** • **Zone defense** – this is where you work as a team to prevent the attacking team moving further up the court. It is a great method of defense but needs a great deal of team work and cooperation. • **Man to man defense** – this is where you mark a specific player and prevent them from getting them ball. Keeping them 'out of the game' through defense. • **Marking the ball** – this is where you follow the ball and try and intercept.
10. What is the defense? Preventing an opportunity for the opposition to score.	
11. What is an assist? Helping a teammate to score.	

22. Attacking strategies:

- **Early Offense -** The main reason for early offense is to advance the ball into the front court area and attack before the defense is able to become organized into a disruptive force. **Set Offenses -** Although most teams would prefer to play the up-tempo, fast-break transition game that personifies today's basketball, the "Set Play" is the staple of the game. Set plays use teamwork and screening actions in an effort to create open shots. Explore the most commonly used basketball offenses graphically illustrated and analyzed in great detail.

BASIC RULES

1. How do you start a football match? The football game is started by a kick off in the centre of the pitch.

2. What's the number of players on each side during a professional match? In a full sided game each team consists of 11 players.

3. What happen when the ball goes off at the side of the pitch? If the ball goes off the side of the pitch it is a throw in to the team that didn't touch the ball last.

4. What happen if the ball goes off at the end of the pitch?
If the ball goes off the end of the pitch it is a corner or a goal kick depending who the ball touched last.

KEY TERMINOLOGY

4. What is meant by the term offside?
If a player is past the opponent's last defender and in the opposition half when the ball is passed they are offside and an indirect free kick is awarded to the opposition team.

5. What is meant by the term corner kick?
A free kick taken from the corner of the field by an attacker. The corner kick is awarded when the ball has passed over the goal line after last touching a defensive player. The shot is taken from the corner nearest to where the ball went out.

6. Description of the term individual defence:
- Man to man marking – to be beside to the attacking player
- try to slow attacking player down
- show attacker to their weaker foot
- time tackle effectively to increase chances of winning the ball back.

7. What is meant by the term VAR?
The video assistant referee (VAR) is a match official in association football who reviews decisions made by the head referee with the use of video footage and a headset for communication.

TEACHING POINTS & STRATEGIES

8. What are the teaching points for the SHORT PASS?
- Non kicking foot next to the ball
- Use the side of the kicking foot to contact the ball following a short back swing
- Keep head over the ball to improve accuracy and ensure ball stays on the ground
- Follow foot through to generate more power

9. What is POSSESION FOOTBALL?
Possession football is when teams attempt to hold onto the ball for as long as possible, at all times choosing the easiest possible pass (hence the many times you see defenders passing the ball along the defensive line).

10. What is TEAM FORMATION?
The team formation describes how the players in a team generally position themselves on the pitch. It is a fluid and fast-moving game, and (with the exception of the goalkeeper) a player's position in a formation does not define their role as rigidly.
Formations are typically described by three or four numbers, which denote how many players are in each row of the formation from the most defensive to the most forward. For example, the popular "4–5–1" formation has four defenders, five midfielders, and a single forward. Different formations can be used depending on whether a team wishes to play more attacking or defensive football, and a team may switch formations between or during games for tactical reasons..

FULL FOOTBALL POSITIONS

Goalkeeper	Winger
Wing-back	Central-midfielder
Full-back	Striker
Sweeper	Attacking midfielder
Centre-back	Forward
Defensive midfielder	

RULES

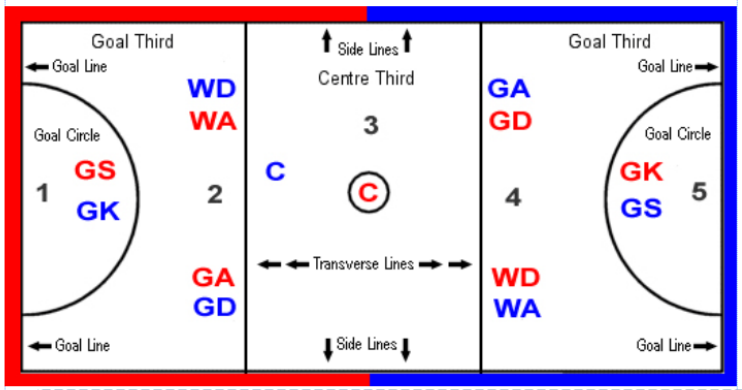
1. What is the footwork rule? Once a netball player puts their first foot down they then can't pick this foot up and put it back down again whilst holding the ball (cannot walk with the ball).

2. What is obstruction? You cannot stand within a meter (three feet) of the person holding the ball. Feet must be 1 metre away from them, then you are allowed to raise your hands to mark. If you raise your hands before your feet are far enough away this is called 'arms before distance' and a free pass is given to the other team.

3. What is contact? You are not allowed to contact any part of the player or the ball during the game. If you touch them then a free pass is given to the other team.

4. What happens in a game situation if contact or obstruction happens?
The player who made the obstruction or contact, must stand by the person who makes a free pass, without moving (acting passively) until the free pass has been taken and then they are free to move in the game again.

5. What are the starting positions for a centre pass and where are each position allowed to go on the court??



Where are you allowed to go on court?

GS/GK - 1, 2 | GA /GD - 1,2,3 | WA/WD 2,3
C/C - 2,3,4
WD/WA 3,4 | GD /GA - 3,4,5 | GK/GS 4,5

6. What are the rules in relation to a centre pass?
All players must go to their starting positions, and all must be in the shooting third (only the two centres are allowed in the centre third). As soon as the centre steps into the centre circle the umpire blows the whistle and the centre has three seconds to send the ball, whoever receives the ball MUST be standing inside the centre third.

TECHNIQUES and STRATEGIES

6. What are the different types of passes and when should you use them?
Chest pass – flat pass, sent from out of chest and towards your team mates hands and usually thrown over short distances only.
Bounce Pass – where you bounce ball out of the chest so it lands once before reaching your opponent, usually used in crowded area with lots of defenders.
Shoulder Pass – A one handed throw sent in a side ways on position, a higher pass that should be flat, but sent to reach team mates who are further away.

7. What are the different types of dodges you can use to outwit an opponent?
Sprint – where you are on your toes and you sprint off in one direction only.
Fake – Where you pretend to go one way and push off outside foot and sprint in the other direction instead.
Double Dodge – where you use a double fake, pretend to go left, right and then left again.

9. What are the strategies of attack?
- ✓ Accurate flat passes that do not spend too long in their air and therefore are harder to intercept
- ✓ Using a range of dodges to outwit your opponent to receive the ball.
- ✓ Using speed to get into space effectively
- ✓ Timing your dodges effectively so to outwit your opponent.

10. What are the strategies of defense?
- ✓ Man to man marking – where you find your player you are supposed to mark when the other team have the ball, standing sideways on so you can see the player and where the ball is.
- ✓ Marking the ball – if your player already has the ball you stand one metre away with your arms outstretched and put pressure on them.
- ✓ You try to intercept the ball in mid air if you are close enough so that you can try and win back possession.
- ✓ You should marking the following players: GS-GK GA-GD WA-WD C-C

Python -> English	
`print("hello!")`	Prints a value on screen (in this case, hello!)
`input("")`	Inputs a value into the computer.
`x = input("")`	Inputs a value and stores it into the variable x.
`x = int(input(""))`	Inputs a value into x, whilst also making it into an integer.
`answer = x + y`	Saves the result of x and y added together in a variable named answer.
`print(str(x))`	Prints the variable x, but converts it into a string first.
`print("Hello", "World")`	Prints the two strings concatenated with a space between. This code would output "Hello World".
`age = 12` `print("Age: " + str(age))`	The + joins together two variables when printing. Str has to be used to cast age to be a string. This code will output "Age: 12".
`if name == "Fred":`	Decides whether the variable 'name' has a value which is equal to 'Fred'.
`else:`	The other option if the conditions for an if statement are not met (eg. name = 'Bob' when it should be Fred)
`elif name == "Tim":`	elif (short for else if) is for when the first if condition is not met, but you want to specify another option.
`# COMMENT`	# is used to make comments in code – any line which starts with a # will be ignored when the program runs. They are used to describe the code to a programmer.
`for i in range(0,10):` `  # WRITE CODE HERE`	Repeats any code indented after this line a set number of times, in this case, 10.
`while x < 10:` `  # WRITE CODE HERE`	Repeats any code indented after this line until a condition is met, in this case x becoming equal to or greater than 10.
`list = ["",""]`	Creates a variable and makes it an array – a list which can store many values.

Input(s)	Process(es)	Output(s)	Decision(s)
Staff Name Staff Monthly sales (x12)	Calculate the total sales (monthly sales added together) Calculate the average sales (total divided by 12)	If they get a bonus or not	Whether they have entered 12 monthly sales Whether the average is enough to get a bonus

Validation Type	Where	Reason
Presence check	Sales	To make sure that each time the number of sales for each month is entered rather than having blank entries.
Presence check	Name	To make sure that a staff member's name is entered
Format check	Sales	To make sure that the sales are a numerical value

Data types		
Data Type	This indicates how the data will be stored. The most common data types are integer, string, and float/real.	**Casting code**
String	A combination of letters, numbers or characters. (eg, Hello, WR10 1XA)	**str(x)**
Integer	A whole number. (eg. 1, 189)	**int(x)**
Float/Real	A decimal number, not a whole number. (eg. 3.14, -26.9)	**float(x)**
Boolean	1 of 2 values. (eg. True, False, Yes, No)	**bool(x)**
Char	**A single character**	**char(x)**

Comparative operators	
==	Equal to
!=	Not equal to (or different to)
>	Greater than
<	Less than
>=	Greater than or equal to
<=	Less than or equal to

`MOD`	Modulus e.g. `12MOD5` gives 2
`DIV`	Quotient e.g. `17DIV5` gives 3
`^`	Exponentiation e.g. `3^4` gives 81

```
num1 = float(input("Enter the first number: "))
num2 = float(input("Enter the second number: "))
if num1 > num2:
   print (num1, " is greater than ", num2)
if num1 < num2:
   print (num2, " is greater than", num1)
if num1 == num2:
   print (num1, "is equal to", num2)
```

Arithmetic operators			
Operation	**Symbol**	**Example**	**Output**
Addition	+	2 + 10	12
Subtraction	-	9 – 6	3
Multiplication	*	5 * 4	20
Division	/	5 / 2	2.5
Floor Division	//	7 // 2	3
Remainder	%	7 % 3	1

Key terms	
Python	A programming language used to write programs.
Shell	The place where code is run.
Code editor	The place where code is written.
Programming	The process of writing computer programs.
Algorithm	A set of rules/instructions to be followed by a computer system.
Flowchart	A visual method of planning an algorithm using symbols.
Pseudocode	A language similar to English which is used to plan algorithms.
Code	The instructions that a program uses.
Sequence	Parts of the code that run in order and the pathway of the program reads and runs very line in order.
Selection	Selects a pathways through the code based on whether a condition is true.
Iteration	Code is repeated (looped), either while something is true or for a number of times.
Variable	A value that will change whilst the program is executed. (eg. temperature, speed)
Function	A collection of code that works outside the main program. These are created to speed up programming. They can be called from a single line of code at any time.
Comparative Operator	A symbol used to compare multiple values.
Arithmetic operator	A symbol used to manipulate numerical values.
Syntax	The punctuation/way that code has to be written so that the computer can understand it. Each programming language has its own syntax.
Syntax error	An error produced when the computer cannot understand the code which has been written.
Logic error	An error produced when a program is understood by the computer but does not perform as the programmer expects.

Addition example code

```
number1 = int(input("Input the first number :"))
number2 = int(input("Input the second number :"))
answer = number1 + number2
print("The answer is " + str(answer))
```

Finding errors – follow these steps

- Have you checked that you have closed all brackets correctly?
- Have you checked that you have closed all quotes correctly?
- Are your variable names spelt in the same way consistently? Remember that Python is case sensitive
- Have you remembered to use commas to separate the variables inside print?
- Have you used quotes around strings which you want to print out word for word?
- Have you used int or float on number inputs?

WHY comments IN CODE IS IMPORTANT

Well commented functions/logics are helpful to other programmers to understand the code better.
If you see/edit code later, comments may help you to memorize your logic that you have written while writing that code.

Selection example code

```
fav_num = int(input("Pick a number between 1 & 10..."))

if(fav_num == 7):
   print("Good guess!")
elif(fav_num < 7):
   print("Too low!")
else:
   print("Too high!")
```

```
if entry == "a" then

print("You selected A")
elseif entry=="b" then

print("You selected B")

else

print("Unrecognised selection")
endif

switch entry:
   case "A":

print("You selected A")
   case "B":

print("You selected B")
   default:

print("Unrecognised selection")

endswitch
```

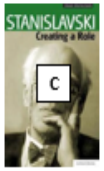
Selection will be carried out with if/else and switch/case. In the example the pseudocode is checking the input and returning a message based upon the specific input required, the else block is used as a catch for any unexpected input which allows the code to degrade gracefully.

The switch/case method works in the same way.

Stanislavski: A Brief Background

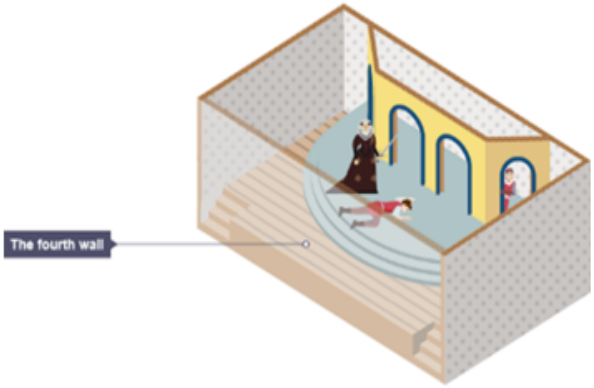
Stanislavski's was born in 1863 and died in 1938. Stanislavski was disappointed with theatre in his time. Actors didn't care much about their work. He wanted actors to be interested in their performances and he wanted their acting to become believable. So Stanislavski came up with a system to change this. He wrote a series of techniques for actors to help the act. He wrote the books below which were like a guide for the actors to follow. The A B C of acting!

- *An Actor Prepares*
- *Building a Character*
- *Creating a Role*



The Fourth Wall.

The set of a realistic production will be solid, three dimensional, and most often in a proscenium theatre that enhances the sense of that fourth wall. The performers present the action realistically, without using techniques such as addressing the audience or a tableau, which immediately shatter any illusion of real life being played out.



Stanislavski's The System

These are the techniques that Stanislavski created and wrote about in his books. They are designed to help the acting to closer reflect real life and give the audience the sense that they are watching real life. This is the System that Stanislavski created.

Given circumstances

The given circumstances are the information about the character that you start off with and the play as a whole. For example, how old is the character? What's their situation in the play and in relation to the other characters? What do the stage directions suggest?

Emotional memory

Emotional memory is when the actor finds a real past experience where they felt a similar emotion to that demanded by the role they are playing. They then 'borrow' those feelings to bring the role to life.

Magic If

Stanislavski said that the character should answer the question, 'What would I do if I was in this situation?'. This technique means that the actor puts themselves into the character's situation.

Improvisation

Improvisation is a crucial part of the rehearsal process and Stanislavski wanted the actor to reach far into themselves in creating the role. If all the actors in a production took their emotions into the inner circle of attention, it's easy to see that a production could lose cohesion. It's the director's job to keep that cohesion, at the same time as drawing out as much truth in performance as possible from each performer.

Everyday conversations and style of speaking.

A realistic play would use prose rather than poetry and would use ordinary language, rather than a heightened emotional vocabulary.

Ordinary people. Generally, the stories are about people who are more readily defined as middle or working class. For Stanislavski, it was substantially the middle class or **bourgeois**, to use the right term in the Russia of his day that he put on stage.

Real settings. These plays are set in realistic contexts. They won't have fairy tale or fantasy settings and are likely to be contemporary.

Brecht: A Brief Background

The playwright Bertolt Brecht was born in 1898 in the German town of Augsburg. After serving as a medical orderly in the First World War and appalled by the effects of the war, he went first to Munich and then to Berlin in pursuit of a career in the theatre. That period of his life came to an end in 1933 when the Nazis came to power in Germany. Brecht fled and during this period the Nazis formally removed his citizenship, so he was a stateless citizen.

In 1941 Brecht became resident in the USA but returned to Europe in 1947 after appearing before the House Un-American Activities Committee. Ostensibly against communism, this committee also targeted intellectuals. By the time of his death in 1956, Brecht had established the **Berliner Ensemble** and was regarded as one of the greatest theatrical practitioners.

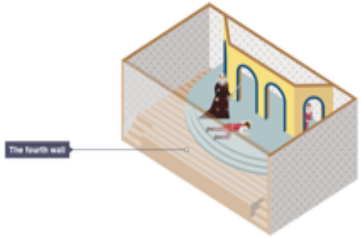
The V Effect

Many people speak of alienating the audience (making them separate from the action) but **verfremdungseffekt** actually translates more closely to 'distancing.' However, it's still often called the **alienation** effect or is shortened to the 'v' effect and there are many ways of using it.

Brecht definitely wanted his audience to remain interested and engaged by the drama otherwise his message would be lost. It was **emotional investment** in the characters he aimed to avoid.

His approach to theatre suits work which has a political, social or moral message. Perhaps you want the audience to consider the meaning in a **parable** (a story with a wider moral message). You might want to explore a theme or issue and make your audience consider varying viewpoints or sides to an argument. If so you can learn a lot from the distancing devices used in Brechtian theatre.

Epic theatre (Brechtian theatre) breaks the fourth wall, the imaginary wall between the actors and audience which keeps them as observers. They are active members of the theatrical experience as they are kept thinking throughout, not switching off.



Brechtian Techniques

Political Message: Brechtian plays have a political message.

Narration: Narration is used to remind the audience that what they're watching is a presentation of a story. Sometimes the narrator will tell us what happens in the story before it has happened. This is a good way of making sure that we don't become emotionally involved in the action to come as we already know the outcome.

Speaking the Stage Directions: The actors say the stage directions as they are enacting them. This device helps to remind the audience that they are watching a play and forces them to study the actions of a character in objective detail.

Direct Address and Step Out: Speaking directly to the audience breaks the fourth wall and destroys any illusion of reality.

Placards: Using placards might be as simple as holding up a card or banner or more complex using a PowerPoint. They can be used to guide the audience from one scene to another or to help the audience have a deeper understanding of the play.

Symbolic Props: Often one item can be used in a variety of ways. A suitcase might become a desk, or a car door or a bomb.

Episodes: Brecht called scenes 'episodes', with each scene being relatively self-contained.

Minimal set / costume / props: Set, costume and props are all kept simple and representational. Elaborate costumes might mean that the sense of theatre, of pretending to be something else, was lost.

Shock Tactics: Brecht would often try to shock the audience so that they would really consider his political message.

Multi-roling: Multi-roling is when an actor plays more than one character onstage.

Split-role: This is where more than one actor plays the same character. For instance, the actor playing the main character might rotate from scene to scene.

Stylised Lighting: Brecht believed in keeping lighting simple as he didn't want the production values to overshadow the message.

Spass: Spass literally translates as 'fun'. Brecht wanted to make his audience think. He realised that while we are laughing we are also thinking.

Gestus: Brecht wanted his actors to demonstrate a type of character not a specific character. For example, the boss who is corrupt and smoking a fat cigar as his workers starve is representative of every boss who profits through the exploitation of others.

Song, Nursery Rhyme, Dance and Movement: This reminds the audience of the fact they are watching a play.

Ensemble: All members of the cast working together on behalf of the play, rather than emphasising individual actors or characters. There is no central protagonist.

Characterisation

The act of changing voice, body language, movement, gesture etc. when in role is called characterisation. All people are different. The actor must use their skills to portray a character consistently throughout their performance. When creating characters, you need to consider **voice**, **body language, facial expression** and **gesture.**

Characterisation: Voice

Does your character have an accent? What is the tone of their voice like? How quickly do they speak? Do they have any vocal mannerisms that are particular to them?

Key Words

Volume: Loud to quiet
Crescendo: Increasing volume
Pitch: Deep or squeaky
Pace/Tempo: Fast or slow
Rhythm: Fluctuations in pace
Pause: Breaks in speech
Inflection: Emphasis on a word
Articulation: Emphasis on letters.
Tone: Emotion
Clarity: Clearly say words
Accent: A way of speaking that denotes where you are from

Characterisation: Body Language

This is what your character's movements and way of using their body says about them. A character who is very nervous and stressed may fidget a lot or have their shoulders hunched up tight to indicate tension.

Key Words

Movement: e.g. rushing in or stamping their foot excitedly.
Stance: How the character stands.
Gait: The way the character walks.
Posture: How the character stands or sits e.g. slouch or straight.
Proxemics: The space between the characters creates meaning. e.g. **distance** may mean enemies and **contact** may mean intimacy
Levels: Suggest status e.g. a dominant character may be higher up
Use of space: The character can demand a lot of space or hide in a small corner.

Characterisation: Facial Expression

Does your character move their face a lot? What does their facial expression say about their character? Do they have a very expressive face or do they try not to give much of themselves away?

Performing in a large theatre auditorium might mean that many of the audience are a long way away. It's the actors' job to communicate their role to fit the space effectively. Facial expressions, like body language, may be **heightened** or **exaggerated** so that the character's intentions are clear for all.

Characterisation: Gesture

A gesture is a movement expresses meaning. For example, the wagging admonitory finger accompanying words like 'I have told you time and time again that this behaviour is unacceptable' is probably among the most familiar of all gestures. They tend to work as emphasis.

However, gestures can also amplify a question, such as pointing in a particular direction as you say 'Do you mean this way?' They can also convey a mood, such as a shrug of the shoulders to convey indifference.

Rehearsal Techniques

These are exercises that the actors engage in BEFORE they perform live to an audience**.** They help the actors to understand their **characters** and realise their **intentions**. They also help to develop the plot and structure of a **devised** play.

Understand your character

The rehearsal techniques below help the actor to deepen their understanding of the character they are playing and become more familiar with their **intentions**.

- **Hot-Seating**
  An actor sits in the hot-seat and is questioned **in role.** They spontaneously answer questions.

- **Role on the Wall**
  Draw an outline of your character. Annotate it to reflect the character's thoughts, feelings, fears, circumstances etc.

- **Inner Thoughts**
  Whilst rehearsing a scene, one person will shout "Freeze, inner thoughts". The actor should freeze and spontaneously say out loud what the **character** is thinking.
- **Conscience Corridor**
  Performers make two lines facing each other. The **protagonist** poses a question such as "Should I put Grandad in a basket and leave him by the side of the road"? Actors on each side of the corridor give reasons for and against.

Improve how you play your character

These rehearsal techniques improve how you perform physically on stage.

- **Bigger Bigger Bigger**
  Rehearse one scene several times increasing the energy in gesture/movement, exaggeration of facial expression and volume
- **Non-Verbal Body Language**
  Perform a scene without speaking. Create meaning through mime.

Theatre Makers

The Playwright writes the script of the play including the stage directions and the dialogue.
The Performer has a role on stage. They appear in the production, for example as an actor, dancer or singer.
The Understudy learns a part, including lines and movements so that they are able to take over a role for someone if needed when there is a planned or unexpected absence.
The Lighting Designer designs the lighting states and effects that will be used during the performance.
The Sound Designer design the sound required for a production which may include music and sound effects.
The Costume Designer designs what the actors wear on stage making sure that the costumes are appropriate for the style and the period of the play.
The Set Designer designs the set of the play and the set dressing. They may also create/source props. All must be appropriate for the style and period of the play.
The Director oversees the whole production. They develop a concept for the play and liaise with the designers

How to learn lines

1. Read, repeat, cover, say (repeat)
2. Read your lines with a friend or family member
3. Record your lines onto a digital device and listen to them repeatedly
4. Record the lines in between your lines and try to say your lines in the gaps
5. Write your script out by hand
6. Make associations with the lines you say. What do the lines mean?
7. REPITITION IS KEY!!

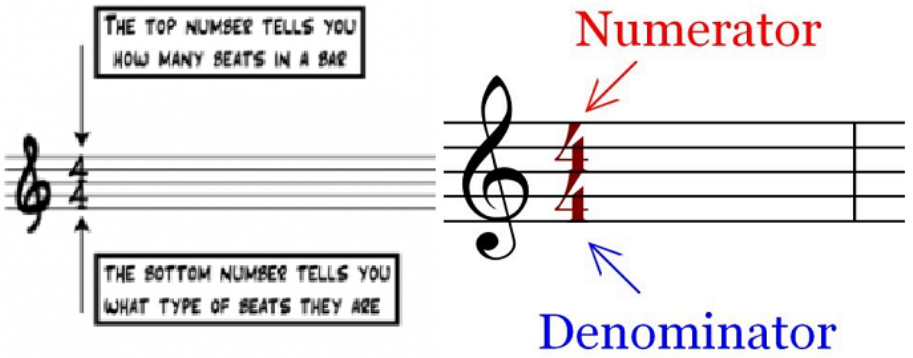
MR TIGHTS	Features	MR TIGHTS	KEYWORDS
Melody	• Ornaments were used frequently. • Mainly scalic/stepwise movement • Use of sequences	Rhythm	• Emphasis was on strong beats, upbeats and fast-changing rhythmic motion • Eighths, 16ths and triplets were frequently used
Texture	• Two or more melodies played at the same time created a musical texture called counterpoint/polyphony (polyphonic) • 2, 3, 4-part textures • Imitation	Structure	• Dances were popular during this period as well as preludes, fugues, suites, toccatas and theme and variations • Binary and Ternary forms were used frequently • Ritornello Structure
Harmony	• Diatonic & Functional Harmony • Perfect Cadences • Little dissonance – mainly through suspensions	Tonality	• Tonality was based on major and minor keys • Generally stayed in one 'affection' (mood/key) • Modulations only to closely-related keys
Instrument (sonority)	Composers began to write **dynamics** and **tempo** markings in their music. The Baroque period saw the orchestra beginning to take shape: • It consisted of mainly strings with violins, violas and cellos replacing the older viols. Recorders were replaced with flutes and there were oboes and trumpets added for different pieces. • The harpsichord accompanied the orchestra, filling in the harmonies. The harpsichord player directed the orchestra. A bassoon or cello would play the basic bass line along with the harpsichord and this formed the basso continuo or continuo. • An organ was used for the continuo instead of the harpsichord, especially if the piece was being performed in a church. • The continuo player played from a special type of notation called figured bass.		
Genre	The Baroque period (1600-1750) was an important time in the history of the world. Galileo, Kepler and Newton were discovering new ways to explain the universe. In music, art, architecture, and fashion, fancy decoration and ornamentation became the rule. • Throughout the Baroque period, composers continued to be employed by the church and wealthy ruling class. This system of employment was called the **patronage system**. As the patron paid the composer for each work and usually decided what kind of piece the composer should write, this limited their creative freedom. • Important Baroque composers include Johann Sebastian Bach, George Frederic Handel, Johann Pachelbel, Georg Phillip Telemann, Henry Purcell and Antonio Vivaldi. • The Baroque period saw the birth of a new form of music called **opera**. Opera combined music, acting, scenery, costumes, and props. Actors and actresses sing the script, or **libretto**. Some Operas are serious (*opera seria*), and some are funny (*opera buffa*). • Similar to the opera is the **cantata**. The Cantata, like the opera, is a series of **arias** and **recitatives**. However, the cantata is not staged or acted. During the Baroque period, instrumental music became as important as vocal music. The Baroque period saw a rise in music for solo instruments. • Much of the music written for instruments contained several contrasting sections or *movements*. One example is the **concerto**. Concertos were developed in the second half of the 17th century by Italian composers like Torelli, Alessandro Scarlatti, and Corelli. Within 25 years, almost all major centres had their own concerto composer. One of the most famous concertos is Antonio Vivaldi's Four Seasons. • Concertos sometimes featured one soloist or a group of soloists. Concertos featuring a group of soloists were known as *concerto*		

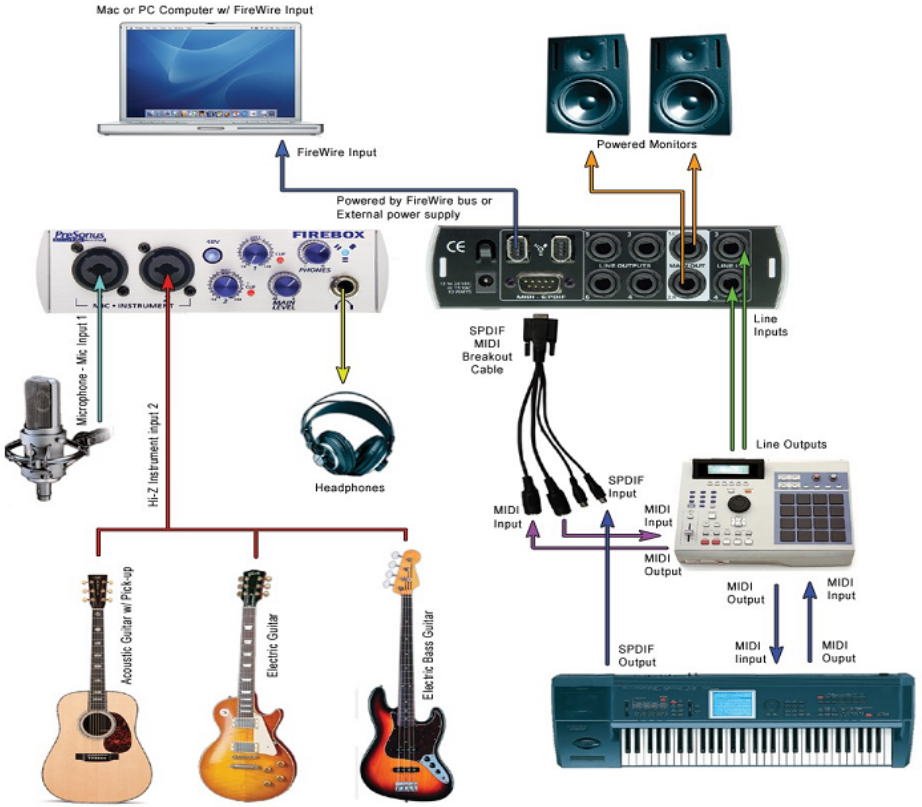
MR TIGHTS	Features	KEYWORDS
Melody	• **Conjunct** - Much of the music is stepwise. **Leaps** - small and generally no greater than a perfect fourth (e.g. bar 7). • **Passing notes** are frequent. • **Rests** - used to break up phrases. • Descending **sequences** (e.g. bar 20). • **Ornaments:** o **Trills** (e.g.bar13) o **Appoggiaturas** (e.g.bar35) o **Grace notes** (e.g.bar6) o **Upper mordents**(e.g.bar22) o **Lower mordents** (e.g.bar1). • **Syllabic** - The vocal line follows speech rhythms. **Melismatic** moments - (e.g. b.10 'wond'ring' & b.20 'eternal'). • **Repetition** of text - 'Music' at start; bar 23 the word 'drop' sung nine times. • **Word-painting**: b.12: 'pains'; b.13-14: 'pains were eas'd'; b.23-5: 'drop'; b.10: 'wond'ring'; b.20: 'eternal'; b.16-7: 'free the dead'. • Predominantly **minor key** suits the sombre nature of the play and the text.	**1- Conjunct** - movement by step. **2- Passing note** - a note used to travel from one chord note to another. **3- Sequence** - the repetition of a musical phrase at a higher or lower pitch than the original. **4- Ornament** – notes that decorate a melody. **5- Trill** - a musical ornament that rapidly alternates between two adjacent notes. **6- Appoggiatura** - often referred to as a 'leaning in' note, it leans on the main note commonly taking half its value and starting a semitone or tone higher. **7- Acciaccatura (grace note)** – a very quick preceeding note. **8- Mordent** (upper and lower) – Played quickly, Upper = note-note above-note; Lower= note, note below-note. **9- Syllabic** - when one note is sung per syllable.
Rhythm (incl. tempo & metre)	• **No tempo** marking, but **slow tempo** would be appropriate. • 4/4 **quadruple** metre. • Wide variety of rhythms - quavers and semiquavers most predominant. • **Dotted rhythms** are sometimes in the vocal (b.10) but more in RH part of the harpsichord. • There is only occasional **syncopation** (e.g. bar 20) and off-beat rhythms (e.g. bar 24). • The **ground bass** is presented entirely in quavers.	**10- Melismatic** - A group of notes sung to one syllable of text. **11- Word-painting** - Depicting a word in music to imitate its meaning. **12- Syncopation** - a temporary displacement of the regular metrical accent in music caused typically by stressing the weak beat. **13- Ground Bass** (Basso Continuo)- Continuous bass parts are provided for the harpsichord and stringed instruments such as the bass viol and lute.
Texture	• Melody and accompaniment/**melody-dominated homophony** - accompaniment provided by ground bass in left hand of the harpsichord and bass viol. • **Counterpoint** - right hand of harpsichord is elaborate realisation and provides some **counterpoint** with vocal line.	**14- Homophonic** - a texture comprising a melody part and an accompaniment. **15- Counterpoint** (polyphonic) - Multiple melodies playing together. **16- Realisation** - A musical composition that has been completed or enriched by someone other than the composer.
Instrument (sonority)	• Voice (most usually a tenor) and **continuo**. This particular edition is scored for **soprano**, **harpsichord** and **bass viol**. • Harpsichord: RH-elaborate improvised **realization** & chords frequently arpeggiated (e.g. bar 13). LH-plays the **ground bass**. • The ground bass is also played by the **bass viol**.	**17- Figured Bass** - musical shorthand for the keyboard player used in the Baroque era. The figures indicate the chord to be played above the bass note and whether this is in root position, first or second inversion. **18- Baroque** -The baroque style or period (1600-1750) **19- Diatonic** - using only notes from the key.
Genre Harmony	• **Henry Purcell** (1659–95) was an English Baroque composer and is widely regarded as being one of the most influential English composers throughout the history of music. • **'Music for a While'** is the 2nd of 4 movements written as incidental music for John Dryden's play based on the story of Sophocles' Oedipus. • **Baroque** Period (1600-1750). • **Diatonic** & **functional** chords. • **Perfect cadences** - chord V at end of the ground to the chord I at the start of the next playing of the ground bass (e.g. bars 3–4). This is a Ic–V–I cadential 6– 4. • **Suspensions & dissonances** - very occasional/infrequent. Also, **False relation**, which can be seen in bar 1 with an F♯ in the ground bass and a F□ in the right hand of the harpsichord.	**20- Functional** - Tonal **harmony** based on major and minor keys is usually called **functional harmony**. Functional chords = subdominant, dominant, and tonic. **21- Perfect cadence** - a cadence comprising two chords. A perfect cadence is chord V followed by chord I. **22- Suspension** Prolonging a note to create a dissonance with the next chord. **23- Dissonance** – notes which clash, often not from the key (chromatic). **24- False Relation** – a dissonance created by a note playing simultaneously or immediately before its chromatically altered (sharpened/flattened) equivalent.
Tonality Structure	• **A minor** (original in C minor) with a Tierce de Picardie. • **Ambiguous** tonality sometimes - due to **chromatic** & **non-diatonic** nature of ground bass. • **Modulates -** central section to closely related keys. These include E minor (bar 14), G major (bar 16), C major (bar 21), A major (bar 23), E minor (bar 27), all confirmed by perfect cadences. • This piece follows a **ground bass** (basso continuo) structure. • **DA capo aria (ABA)**	**25- Ambiguous tonality** - where the tonality is unclear. **26- Chromatic** - Relating to or using notes not belonging to the diatonic scale of the key in which a passage is written. **27- Modulation** - Change from one key to another. **28- DA Capo Aria** - ABA or ternary form. Often the repeated A section would be ornamented by the singer. Da Capo means 'again from the beginning'.

Factors that influenced its inception	Significant artists/bands/producers	Important recordings/performances/events
• Rock 'n' roll has many roots - gospel, blues, country - dating back to the nineteenth century and before, but the emergence of rock 'n' roll really began with the social and economic changes stemming from the Second World War. • Through *rock 'n' roll*, young people began searching for an identity. Before the 50s and Rock 'n' Roll, there was no such thing as a 'teenager' – young people listened to whatever their parents did. • Rock 'n' Roll gave them the opportunity to have their own music, clothing, style and identity – the rebellious age of the teenager had begun. • Amplified instruments were gradually becoming available, and this meant that electric guitar and bass soon became dominant, with the guitar become the solo instrument • Was heard in live dance halls, on juke boxes in coffee bars and on radio and was associated with dances such as the jive and the twist. Rock and Roll music was frequently associated with rebellion, and was popular with teenagers – a group who had only just developed their own identity.	**Chuck Berry:** Influenced by blues and country, played a major part in the fusion or rock 'n' roll from R 'n' B and hillbilly **Bill Haley & The Comets:** Uninhibited dancing style appealed to teenage audience as it represented rebellion. Took Rock 'n' Roll outside of America, by touring Europe and Australia **Elvis Presley:** Brought Rock 'n' Roll to both black and white audiences, achieving success in the R 'n' B and Country charts simultaneously **Sam Philips:** Producer and owner of Sun Records. Often referred to as 'The Father of Rock 'n' Roll, owing to his role in nurturing new talent and having 'discovered' many of the earliest Rock 'n' Roll Artists. **Jerry Lee Lewis:** Developed a distinctive style, influenced by R and B, Boogie Woogie and Gospel. Moved rock 'n' roll away from guitars to a piano-based sound **Eddie Cochran:** He experimented with multi-track recording and over dubbing in early 1960s **Gene Vincent:** Considered to be Rockabilly's greatest vocalist **Little Richard:** One of the first Rock and Roll singers in America. **Buddy Holly:** One of the pioneers of early rock and roll. Holly managed to bridge the racial divide that marked music in America along with Elvis and Chuck Berry. **Alan Freed:** DJ who started broadcasting *Moondog's Rock n Roll Party* in 1952	**'Rocket 88', (1951):**a precursor of rock 'n' roll, aimed solely at black audience **1953**: Alan Freed organized an R&B stage show at the Cleveland Arena. **1954**: '**That's alright', Elvis Presely:** Elvis' 1st release. '**Honey Don't', Carl Perkins**: One of the first original Rock 'n' Roll songs. **'Ain't that a shame', Fats Domino (1955):** 1st record to breakthrough to white audience/market in the pop charts, making him a Rock 'n' Roll star. **'Maybellene', Chuck Berry**: his first hit – a year before Elvis became famous, was popular across a wide spectrum of the population, both black and white, and particularly a teenage audience **'Rock around the Clock', Bill Haley & The Comets**: is considered the first rock 'n' roll hit, and was popularised by the 1955 film 'Blackboard Jungle', thus introducing rock 'n' roll to a wider audience through the medium of cinema. It was again used in the 1956 film 'Rock Around the Clock' **1956**: Elvis signs for RCA, recording '**Heartbreak Hotel**' – his 1st international hit – his sound became more commercialized. **1955-9**: Boom years for record industry where Rock'n' Roll becomes more internationally known.

Imagery & fashion associated with the style	Musical Features
Associated fashions included narrow lapels on jackets and drain-pipe trousers, white socks, string ties, cow-lick hair, full ballerina-length skirts, "waspy" belts, flat slip-onshoes, pony tails.	Usually uses 12-bar blues structure based on a repeated sequence using three chords, with Walking bass lines. Basic rock beat developed from jazz, and also featured strong back beat on 2 and 4, as in country. 'Shuffle rhythm' with slightly swung quavers was also common. Energetic delivery with screams and shouts, simple lyrics, scat singing (a type of jazz singing where nonsense syllables are used – e.g. doo wah) and the use of the blues scale. Backing vocals often in unison. Less improvisation than in rhythm and blues and country, and a developing verse – chorus structure, though this was still based on the 12 bar blues chord sequence. Call and response between vocal and guitar or piano.

Basic Functions of a DAW
Audio Recording: The basic function of any DAW is record audio. This can be done in a single pass, or by "punching in" exactly where a trouble spot began. DAWs can handle dozens to hundreds of audio tracks without causing too much strain on most systems.
Audio Editing: Audio clips can be cut, copied and pasted. They can be nudged around with the accuracy of a single sample. Audio levels can be raised or lowered at any point in the clip. Fade ins, outs, and crossfades are common. Coupled with extra tools, audio clips can be mostly relieved of distortion, pops, clicks, noise, and other artifacts.
Audio Routing/Mixing: DAWs generally have an edit window for recording, editing, and arranging clips; the other essential window is the mixer. It usually resembles a hardware mixer, with a fader to mix levels, input and output selection, pan, mute, and solo. The main difference is it'll have spots to insert more effects and send audio to more places (to a bus) than are usually available on a hardware mixer (and you don't have to actually buy gear or fuss with patch cables). **Applying Audio Effects:** Audio effects can alter dynamics, time, placement, filter, pitch, and just about anything else you can think to do with audio. They are used to alter the sound to whatever is needed for a given project. The most common effects are compression to level out audio, EQ to fix undesirable frequencies, and spatial/panning effects to place audio in different sonic locations.
Automating Effects: Effects don't have to be static, nor do you have to physically move a knob during a performance. Automation can alter any parameter of any effect over time. To write automation, you can either physically move a controller during playback/performance, use the mouse to create and move points, or employ the small array of drawing tools most DAWs make available.
Working with MIDI Data: Now we get to the sequencing part. DAWs read MIDI data, which is usually notes and their accompanying dynamics/time signatures/tempos/pedal states, etc . . . from notation programs and prior MIDI performances or programming. They also have the ability to write new MIDI data from controllers, including the humble computer keyboard and mouse. The most common MIDI creation tool is the MIDI keyboard.
Playing Instruments with MIDI Data: All DAWs have a set of software instruments that can be assigned to your MIDI data, imitating the sound of any instrument you wish to use.
RELATED HARDWARE
COMPUTER: including keyboard and mouse. This must have high processing speeds and large RAM in order to cope with the large amount of MIDI and ausio data you will have.
MONITORS: speakers to hear the music through that can transmit stereo sound of a high quality.
MIDI CONTROLLERS: a minimum of a MIDI Keyboard is required to input any data in to the DAW. Other controllers are available, such as drum machines; drum/effect/sound pads; sound modules; etc.
AUDIO INTERFACE: In order to record audio you will need an interface that translated audio data into MIDI data to be read by the computer.
MICROPHONES: a variety of microphones for different recording purposes and instruments as well as all relevant cables are required if you wish to record audio.

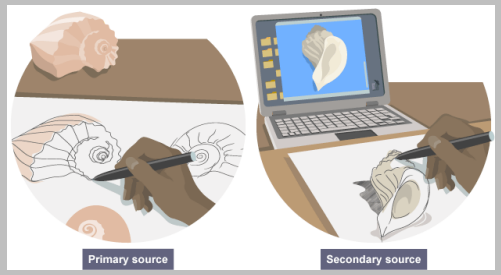




A. Key Terms

Keyword	Description
7. Pattern	A design that is created by repeating lines, shapes, tones or colours. The design used to create a pattern is often referred to as a motif. Motifs can be simple shapes or complex arrangements
2. Weight	**T**he thickness of a mark or brushstroke
3. To **Block in**	**to BLOCK IN**: to fill in an empty area in an image with a certain colour before adding fine details such as shadows and highlights.
4. Composition	how objects or figures are arranged in the frame of an image
5. Contemporary	Living or occurring at the same time.
6. Negative Space	When drawing shapes, you must consider the size and position as well as the shape of the area around it. The shapes created in the spaces between shapes are referred to as **negative space**.
7. Geometric	characterized by or decorated with regular lines and shapes. "a geometric pattern"

B. Presenting work



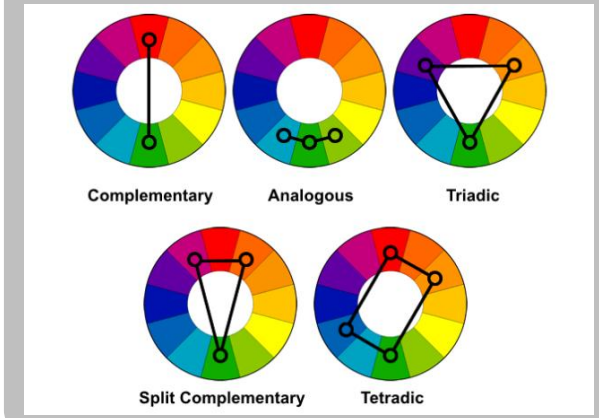
B1: Primary Source: Working from a first hand resource- something that is actually in front of you
B2: Secondary Source: Working from a second hand resource, such as a photograph.

Primary Sources allow you to:
B3: Examine your subject from different angles and change your viewpoint.
B4: Experience objects, images, people or places in different lighting conditions and compositions.
B5: Look at things close up or from further away.
B6: Take your own reference photographs from angles and in conditions that reflect your interests.
B7: Revisit your source material during your development process.

Secondary Sources cause problems such as:
B8: Not being able to draw from life will limit your decisions on viewpoint, composition and lighting.
B9: You will be relying on images generated by others based on their creative choices rather than your own.
B10: You may find it very difficult to carry out effective development like changing compositional arrangements.

C. Colour Harmony

12. Colour Harmonies are arrangements of colours which create a pleasing visual effect when pared together.



C1. Complementary colours are opposite each other on the colour wheel
C2. Analogous colours are directly next to each other on the colour wheel.
C3. A triadic colour scheme uses colours that are evenly spaced around the colour wheel
C4. The split-complementary colour scheme is a variation of the complementary colour scheme.
C5. Tetradic (rectangle) colour scheme uses two pairs of complementary colours.

	Nutrient	Source	Function	Effects of deficiency and excess
MACRONUTRIENTS	**1. Carbohydrates**	**1.** Starches – found in cereal grains such as rice, wheat, oats, plus starchy tubers (potatoes and sweet potatoes) and vegetables (carrots, beets, corn) **2**. Sugars – lactose found in milk and dairy, fructose found in honey, fruits and some vegetables (peppers, tomatoes etc.) **3.** Glycaemic Index – how quickly carbs convert to blood sugars. High GI convert quickly e.g. white bread, cornflakes, white rice, pineapple Medium – brown rice and oats Low GI – convert slowly – most fruits, carrots, wholewheat bread, beans, peas, lentils	**1.** Starches (polysaccharides) provide energy when broken down – slow release energy to the body (wholegrain provide slower release carbohydrates). provide fibre **2**. Sugars (Disaccharides and Monosaccharides) provide quick release energy to the body's' cells. Known as empty calories **1g carbs = 3.75Kcal** **3.** Intrinsic sugars – found in naturally in food eg fruit, vegetables **4**. Extrinsic sugars – added to foods eg white sugar, honey, artificial sweeteners	**1**. Deficiency of carbohydrates is extremely rare in the UK. Short term – weak, hungry and tired. Long term lack of carbohydrates in the diet can cause **2.** Ketosis – a condition where the body switches to using protein as an energy source. **3.** Excess – converts to fat – obesity, type 2 diabetes, heart disease, some cancers. Excess sugars – tooth decay **4.** No more than 5% of daily calories should come from sugar
	2. Proteins	**1.** Protein is digested by the body into its component parts – called amino acids. There are 8 which are essential for adults and 12 for children**. HBV** protein foods contain all the essential amino acids**. LBV** have one or more missing. **2.** High Biological Value (HBV) protein: Meat, fish, poultry, eggs, Quorn, milk, soya, Quinoa **3.** Low Biological Value (LBV) protein: Tofu, beans, nuts, seeds, grains eg wheat	**1.** Protein is needed for growth and repair, the production of body chemicals eg enzymes and hormones 2. Is also a source of secondary energy **1g protein = 4Kcal** **3. Complementary proteins** – eating a mixture of LBV proteins in order to get all the essential amino acids eg Beans on toast	**1.** Protein deficiency can cause: • Wasting of muscle & muscle loss • Oedema – build up of fluids in the body • Slow growth in children **2.** Severe deficiency leads to kwashiorkor → **3.** Excess – some is removed as waste. Rest is stored as fat. **4.** Adults need 55g of protein a day
	3. Fats	**1**. Saturated fats - Butter, cheese, meat, lard. Contain low density lipoproteins LDL (bad) which raise blood cholesterol levels and clog artery walls. **2**. Unsaturated fats – olive oil, avocado oil, fish oils. These contain **high density lipoproteins HDL** (good) which help to remove cholesterol by taking it to the liver where it is processed and removed.. **3.** Visible fats – fat on meat, bacon rind Invisible fats – cheese, avocados, nuts. **4**. Oils are turned into solid fats by hydrogenation. These fats are unhealthy.	**1. Fat** is a term used to describe **lipids** – this can refer to solid fats and oils. Fat is broken down by the body and used for energy. 1 **g fat = 9Kcal** **2.** Fat **provides** warmth when stored under the skin. **Protects** organs e.g. heart, liver. **3.** Fat Carries fat soluble vitamins A, D, E & K. **4.** Fat is important for hormone production **5. Contains** essential fatty acids that the body is unable to make itself **6.** Omega 3 and 6 are essential fatty acids which promote heart and brain development and prevent depression.	**1.** Lack of fat in the diet can lead to deficiencies of fat soluble vitamins A, D, E & K. **2.** Excess fat (either type) – obesity and all diseases linked to it. **3.** Excess unsaturated fat - build up of cholesterol on artery walls which can lead to a heart attack. **5.** Adults men need 95g fat and women 70g. No more than 30g or 20g saturated fat

Scientific method for NEA 1

Research
Gathering data or information about the ingredient(s) that you are investigating.

Investigation
practical work that is undertaken by experimentation to prove or disprove the hypothesis.

Analysis
Explanation of the results linked to the data. Link back to research

Hypothesis
An idea, prediction or explanation that you then test through experimentation

Annotate
Add information to a photograph or chart

Fair test
An experiment that tests exactly the same thing during the investigation. E.g biscuits made should be cut out using the same cutter

Control
The part of the experiment that stays the same. This ensures that a 'Fair Test' is carried out.

Independent variable
The part of the experiment that is changed

Dependent variable
The outcome of the experiment that can be measured

Sensory testing and tasting
Measuring the outcomes of experiment using the senses to describe outcomes

Functional properties of foods

1. Amino acid. Small units that join together to make large molecules of proteins.

2. Biological value. The measure that determines the amount of essential amino acids present in a protein food

3. Fatty acid: Molecules of hydrogen and carbon. 3 of these, along with glycerol, form a triglyceride.

4. Gliadin: A class of proteins found within grains (including wheat). Forms one part of the gluten structure.

5. Glutenin: A specific glutelin that is commonly found in wheat. Forms one part of the gluten structure.

6. Gluten. The protein found in wheat, barley, oats and rye products. Formed when Gliadin and glutenin are mixed with water.

7. Glycerol: A molecule that binds to 3 fatty acids to form a triglyceride.

8. Glycaemic Index: How quickly carbohydrates convert to blood sugars.

9. Starch: A polysaccharide which forms a key store of energy in plant cells.

10. Non starch polysaccharide. **(NSP):**
Also called fibre. The non digestible part of a plant cell.

11. Triglyceride: The main form of fat found in foods. Made up from 3 fatty acids and 1 molecule of glycerol.

12. Maillard reaction
Chemical reaction between proteins and carbohydrates , which changes the flavor and colour of a food

Key points

Nutritional needs change throughout life, but everyone needs to consider the current healthy eating guidelines when planning meals.

If you can't tolerate certain foods you have to change your diet

Some religions have their own dietary rules and laws.

Allergy to nuts can cause anaphylaxis
Dried pasta is an ambient food, fresh pasta is not.

Haemoglobin
Component of red blood cells which contains iron and is needed for carrying oxygen in the bloodstream

Micronutrients: Vitamins and minerals

Fat soluble vitamins:
Vitamins A, D, E & K which are present in the fat content of foods.

Water soluble vitamins:
Vitamins that dissolve in water. This includes the B group and vitamin C.

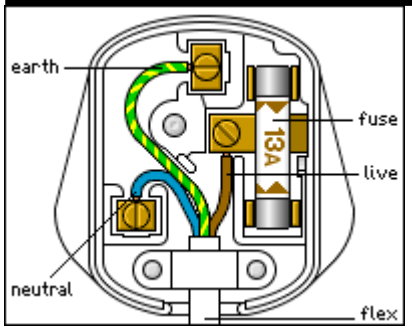
Minerals: Found in the ground. They help to build strong bones and teeth, make sure we have enough red blood cells to transport oxygen around the body and make nerves and muscles work correctly. They include iron and calcium

1	**Al dente**	'Firm to the bite', a description of the texture of correctly cooked pasta.
2	**Allergy**	When someone suffers an unpleasant , sometime life threatening reaction to a certain food or group of foods.
3	**Ambient**	Foods that can be stored at ordinary room temperature 19°C to 21°C), in a sealed container. All foods found on supermarket shelves are ambient foods
4	**Nutritional analysis**	Nutritional information for different foods, creating a nutritional profile of the specific nutrients in the food.
5	**Abbatoir**	Where meat for human consumption is processed.
6	**Butcher**	Skilled person who has been trained to handle and process meat , poultry and game for the consumer.
7	**Meat**	The flesh of quadrupeds eaten by humans. E.g Beef, Lamb and pork.
8	**Poultry**	Birds raised and eaten by human e.g. Chicken, geese, duck
9	**De-bone/boning**	The skilled removal of bones from meat or poultry as part of the preparation process before cooking.
10	**Extractives**	Savoury flavours that develop in meat as it cooks.
11	**Plucking**	The action used to remove feathers from poultry.
12	**Skinning (also de-skinning)**	Removing the skin from an animal before cooking.
13	**Type 2 Diabetes**	Develops when the body cannot use glucose properly.
14	**Coeliac disease**	An intolerance to the protein gluten.
15	**Lactose**	Intrinsic (natural) sugar found in milk and milk products.
16	**Lactose intolerant**	Inability to digest the milk sugar lactose.
17	**Vegetarians**	A group of people who do not eat meat or fish. There are different types of vegetarians.
18	**Vegan**	Vegetarian who will not eat any foods from animals including milk and eggs, or use any products such as cosmetics, shoes or clothes, which use animal products.
19	**Macronutrients**	Macronutrients are needed in the body in large amounts. They include protein, carbohydrate and fats.
20	**Micronutrients**	Micronutrients are needed in the diet in small amounts and are used by the body for protection from infection and to regulate body processes such as the absorption of energy from foods.

COMMON FEATURES OF ENGINEERING DRAWINGS

- Geometry – the shape of the object; represented as views; how the object will look when it is viewed from various angles, such as front, top, side, etc.
- Dimensions – the size of the object is captured in accepted units. The dimension is the numerical value expressed in appropriate units of measurement and indicated graphically on technical drawings with lines, symbols and notes.
- Tolerances – the allowable variations for each dimension. Tolerancing is the practice of specifying the upper and lower limit for any permissible variation in the finished manufactured size of a feature. The difference between these limits is known as the tolerance for that dimension.
- Material – represents what the item is made of.
- Finish – specifies the surface quality of the item, functional or cosmetic. For example, a mass-marketed product usually requires a much higher surface quality than, say, a component that goes inside industrial machinery.
- Scale – The scale to be chosen for a drawing shall depend upon the complexity of the object to be depicted and the purpose of the representation. In all cases, the selected scale shall be large enough to permit easy and clear interpretation of the information depicted. The scale and the size of the object, in turn, shall decide the size of the drawing.

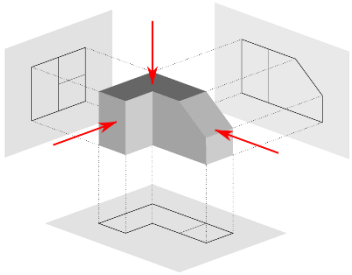
PLUGS AND FUSES



Most appliances are sold with moulded plugs already fitted. Nevertheless, it is still important to understand the correct wiring of a plug because enough of the old plugs still exist. It is also the case when you bring in equipment overseas. British Standard compliant adaptors are not always available for such non-UK plugs. You are very likely to need to change a plug at some time in your life. In the UK mains electricity is 230 V. (In Hong Kong, it is 220 V.) If you were to touch a live wire a current would flow through your body to the ground. This current may be enough to kill you.

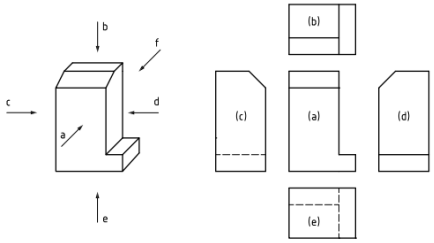
The cable from the appliance usually consist of three wires, an earth and two other wires, live and neutral, which carry the current to and from the power station (live is from the power station and neutral is back to the power station). The wires are made of copper surrounded by an insulation casing. The casing is made of plastic and is coloured:

A fuse is simply a very thin wire. The wire has quite a low melting point. As current flows through the wire it heats up. If too large a current flows, it melts, breaking the circuit. Fuses are used to protect the flexible lead between the plug and the appliance. If too large a current flows through a lead it may overheat or catch fire. Fuses are unlikely to act quickly enough to prevent human electrocution – their main purpose is to prevent fires due to large currents.



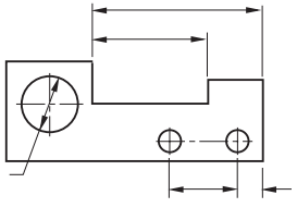
MULTI VIEW PROJECTION

A multiview projection is a type of orthographic projection that shows the object as it looks from the front, right, left, top, bottom, or back (e.g. the primary views), and is typically positioned relative to each other according to the rules of either first-angle or third-angle projection.
.

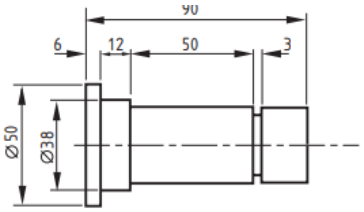


THIRD ANGLE PROJECTION METHOD (above)

With reference to the front view (a), the other views shall be arranged as follows (see Figure 8). • The view from above (b) shall be placed above. • The view from below (e) shall be placed underneath. • The view from the left (c) shall be placed on the left. • The view from the right (d) shall be placed on the right.



Dimension lines are added to show the length of a line. They have an arrowhead at each end.



Dimension lines always move from the smallest to largest – You can see the largest dimension line (90mm) is at the top

SI BASE UNITS

unit	abb	physical quantity	Smallest - - - - - - - - - - Largest
metre	m	length	Micrometer, millimeter, centimeter, meter
second	s	time	Microsecond, millisecond, seconds
kilogram	kg	mass	Milligram, gram, kilogram
ampere	A	electric current	Micro amp, milliamp, amp, kiloamp
kelvin	K	thermodynamic temperature	Kelvin, degrees Celsius
candela	cd	luminous intensity	Microcandela, millicandela, candela
mole	mol	amount of substance	Nanomole, micromole, millimole, mole

ENGINEERING DISCIPLINES

Mechanical	Hydraulics, gears, pulleys
Electrical	Power station, household appliances, integrated circuits
Aerospace	Aircraft, space vehicles, missiles
Communications	Telephone, radio, fibre optic
Chemical	Pharmaceuticals, fossil fuels, food and drink
Civil	Bridges, roads, rail
Automotive	Cars, motorcycles, trains
Biomedical	Prosthetics, medical devices, radiotherapy
Software	Applications, systems, programming

UNDERSTAND THE MAKING PROCESS

1	Preparation	Drawing, CAD, sketches, plans.
2	Marking Out	Pencil, scribe, steel rule, tri square, marking gauge, calipers, centre punch.
3	Modification	Saw, jigsaw, scroll saw, laser cutter, pliers, hammer, drill, file, glass paper.
4	Joining	Riveting gun, spanner, screwdriver, hot glue, gun , soldering iron, nail gun.
5	Finishing	Hand sander, glass paper, disc sander, buffing wheel, polish, spray paint, varnish.

HEALTH & SAFETY LEGISLATION

Health and Safety at work Act	Personal Protective Equipment	Manual Handling Operations	Control of Substances Hazardous to Health	Reporting of Injuries RIDDOR

BASIC RULES

1. How does score works in a badminton game? The game is played up to 21 points. If the score reaches 20-20, the winner is the player or team with a two point advantage. If the score goes up to 29-29, the winner is the the 1st to reach 30 points.

2. What are the service rules? The service must be made diagonally across court. The server must serve the shuttlecock with the head of the racket below waist height. A shuttle landing on the line is in. If a shuttle hits the net either on service or during a rally, play continues.

3. What are the badminton single rules? You must serve from the right service court when you have no points or an even number of points. You must serve from the left service court when you have an odd number of points. You lose the service if you fail to return the shuttlecock, hit it out of court or into the net.

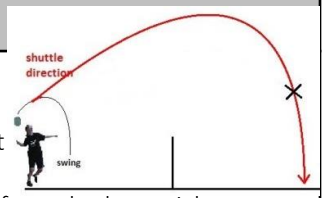
4. What are the badminton double rules? In doubles, the player on the right always start the serve and, when a point is won, the players switch sides and then serves from the left, continuing to alternate until a serve is lost. After service you can hit the shuttle anywhere in the entire court.

KEY TERMINOLOGY

4. What is meant by the term clears?
Clears can be played overhead or underarm, they both move your opponent to the back of the court. The action is similar to throwing a ball.

5. What is meant by the term smash?
The smash is an attacking shot, a good smash is unreturnable. It is hit with power and speed, downward towards your opponents court.

TEACHING POINTS & STRATEGIES

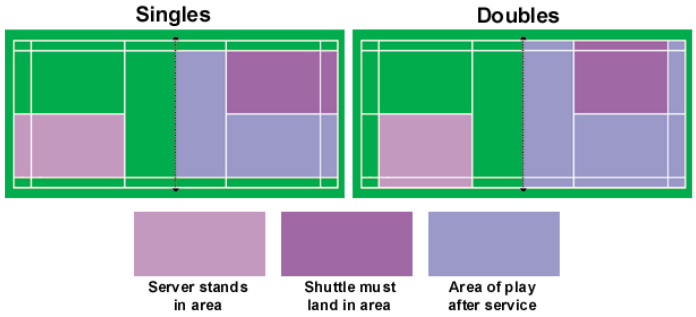


6. What are the teaching points for the CLEAR?
- Forehand grip
- Sideways stance to the net, weight on your back foot
- Bent your elbow and take the racket back
- Contact the shuttle as high as possible and in front of your body, straighten your elbow as you hit the shuttle
- Follow through with your racket, weight is transferred to front foot.

7. What are the teaching points of a SMASH?
- Forehand grip
- Sideways stance to the net, weight on your back foot
- Bend your elbow and take the racket back
- Contact the shuttle as high as possible and in front of your body using a strong throwing action
- Straighten your elbow as you hit the shuttle, snap down your wrist at the point of impact to add extra power and angle.

8. What are the teaching points of a FOREHAND?
- Stand behind the service line
- Sideways stance, lead with your non-racket leg, weight on your back foot
- Bring your racket back to waist level
- Swing forward, pushing the shuttle low over the net

9. **What are the teaching points of a BACKHAND?**
- Lead with your racket leg, non racket leg slightly behind with your feet pointing forward
- Short backswing then bring the racket forward
- Hold the shuttle in front of your waist level
- Push the shuttle, keeping it low.



Historical discrimination

The Holocaust was a result of Hitler's discrimination of Jews, leading to 6 million of them **dying**	During the 1950's in America Black people were discriminated against by groups like the KKK who murdered thousands of them .
Women generally get paid less for doing the same job as a man.	Up until recently it was seen as unacceptable for women to go and get a job, people thought they should be at home washing, cooking and looking after children.
Many Muslims are discriminated against because some people preach they are all terrorists, even though Islam is a peaceful religion.	Immigrants are regularly discriminated against because people feel they are taking jobs/school places in the country they arrive in from the locals.
In Saudi Arabia women have only recently been given the right to drive, but they still have many rights withheld from them.	In England during the 20th century shops hung signs outside refusing to serve black or Irish people.
Slavery discriminated against Black people for centuries and still has a negative impact on Black Americans today.	Some people discriminate against teenagers claiming they are all vandals and cause trouble when out with their friends.

How to end discrimination

Education	Educating students about the problems raises awareness
Rallies	Public displays of support show how many people are trying to fight discrimination
Law	Anti discrimination laws have been passed to help those at risk
Charities	They do excellent work all over the world help those effected
Religion	They teach us that everyone is equal, made in gods image. They need to work together to continue spreading the message
Defend	If you see someone is discriminating against someone else, speak up, explain how their actions are wrong.

16 Subject Specific Key Terms

Racism	Treating someone differently because of their race/nationality/religion
Ageism	Treating someone differently because of their age.
Sexism	Treating someone differently because of their gender
Discrimination	Acting on prejudice ideas, treating someone unfairly for a reason out of their control
British Values	Ideas, characteristics or mindset which makes you feel British
Segregation	Keeping certain groups/people apart. Such as white and black people
LGBT	Lesbian, gay, bi-sexual and transgender
Diversity	Showing differences from person to person
Prejudice	an unfair and unreasonable opinion or feeling, especially when formed without enough thought or knowledge
Dignity	A feeling of worth
Religious Discrimination	Treating someone differently because of their religion
Rights	What every human is entitled to
stereotype	Assuming everybody with a certain characteristic are the same

YEAR 9 - LENT TERM- CITIZENSHIP- THEME A- HUMAN RIGHTS

LEARNING - LOVING - LIVING

Subject Specific Key Terms

Human rights	The rights every human has such as freedom of speech or freedom for abuse
Blood Diamonds	Diamonds which are mined in areas of conflict by warring groups who use the money to support the war
ISIS	Islamic State in Iraq and Syria, a terrorist organisation
Refugee	a person who has been forced to leave their country in order to escape war, persecution, or natural disaster.
Child labour	Forcing young children as young as 6 to work
Sweat shop	Factories where people are employed for very low wages in very poor conditions, working up to 16 hours a day
Arab Spring	A series of rebellions in Arab nations (middle east) trying to overthrown dictatorships
Terrorism	Using violence to bring about some form of change e.g. Political or religious
Shari law	A strict Muslim law
the Cyrus Cylinder	One of the earliest documents to give people human rights
Magna Carta	One of the first major human rights breakthroughs in Britain, forcing the king to give some men rights
The Bill of Rights	Documented the rights all men have in America after they gained independence from Britain
Geneva Convention	Setting out rights for soldiers in conflict
Jihad	A struggle or fight against the enemies of Islam

Rights and responsibilities

Right to life
Freedom from torture and inhuman or degrading treatment
Right to liberty and security
Freedom from slavery and forced labour
Right to a fair trial
Respect for your private &family life
Freedom of thought, belief and religion
Freedom of expression
Freedom of assembly and association
Right to marry and start a family
Protection from discrimination in respect of these rights and freedoms
Right to peaceful enjoyment of your property
Right to education
Right to participate in free elections

As humans we all have these rights, but this means we also have lost of responsibilities. We are all responsible to ensure that our acts do not interfere with other peoples rights, for example:

- Right to life, your responsibility is to not murder
- Right to education, your responsibility is to not disrupt/effect other people education
- Right to freedom from discrimination, your responsibility is to treat everyone fairly and equally

Blood Diamonds

Blood diamonds are diamonds which are mined and sold by a group which is at war with the government, and the money is used to fund the war.

This was a major problem is Sierra Leone, during an 11 year civil war millions of pounds were made by selling these blood diamonds to buy guns to continue the conflict.

There is a huge push to remove these blood diamonds from the market so that those buying jewellery across the world are not funding these human rights abuses.

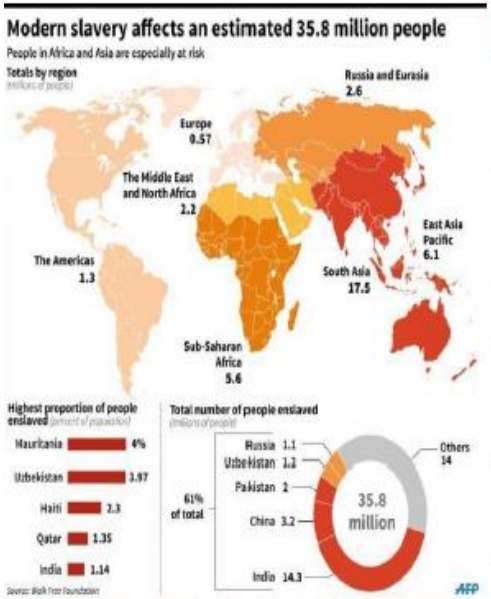
A certificate has been introduced to state the origin of the diamonds and companies will refuse to buy diamonds from conflict zones.

Rebel groups would often use child solders to do their dirty work for them. They would kidnap them from their families and get them addicted to drugs =, so they were reliant on the rebels.

they would brainwash them, some even tricking them into thinking they were invincible with the amount of drugs they gave them.

To prove there dominance over villages and scare anyone who may be thinking about going up against the rebels, they regularly cut villagers hands off as a warning to others.

Current Human Rights issues around the world



Area	Issue
DR Congo	Child soldiers –taken from their families and forced to fight
China	Child Labour – working in sweatshops for less than 10p per day
Asia	Modern slavery – see image
Syria	ISIS killing innocent people to try to fulfil their religious goals
USA	School shooters taking away students right to safety and education
Middles East & Europe	Refugee crisis as people flee ISIS
Russia	It is now legal to beat up your wife in Russia
India	Thousands of 12/13 year old girls are forced into marriages to much older men

Charity logo	What they do
Amnesty International	Amnesty International are one of the leading human rights charities, fighting for peoples rights across the world. From prisoners on death row to victims of genocide
unicef	UNICEF is a charity ran by the Un to help support children around the world who suffer from any form of human rights abuse
British RedCross	The Red Cross help those in need in war zones or natural disasters across the globe. Giving emergency aid such as water, food and medication
GIRLS NOT BRIDES	A charity focusing on ending child marriage around the world. One girl every 2 seconds is married before they are 18 in forced/ arranged marriages.

Human rights in Syria – ISIS

Thousands of people die as they try to flee Syria on small overcrowded boat when they capsize.	ISIS execute thousands of people, they broadcast it on T.V to scare people into following them
ISIS reserve the worst treatment for their enemies, they use torture methods and once burnt a enemy pilot alive in a cage	People live on the streets with no food or water trying to survive in the rubble of Syria's cities
This is the overcrowded dirty prisons they keep people in, whilst they are torturing them	Mile after mile of peoples homes are destroyed and civilians killed as they swept through cites
They brainwash children in ISIS schools, teaching them only what ISIS want them to know.	Families were split up as they fired to escape, most will never see them again.

1.1.1 Being an Entrepreneur:- An entrepreneur is someone with the foresight, drive and ambition to take a risk and solve business or consumer problems.

What motivates entrepreneurs? Entrepreneurs are motivated by three main factors, they **financial, personal and social.**

1.1.2 Entrepreneurial characteristics and skills: - The characteristics and skills of an entrepreneur and their applications in business, including:

Confident, Motivated , Determined, Results focused, Initiative, Decision making, Analytical ability, Communication

Characteristic - a feature or quality belonging typically to a person to identify them. For example, someone is hard working.

Skills – an ability to do an activity or job well, especially because you have practiced it. For example, a chef will practice knife skills.

1.2.1 Financial Aims and Objectives

- **Break even -** is the point of balance making neither a profit nor a loss.
- **Profitability -** the degree to which a business or activity yields profit or financial gain.
- **Increasing revenue -** It means generate more money. If a company wants to generate more revenue, they can do so by selling more products or selling the same amount at a higher price.
- **Profit maximisation -** is the short run or long run process by which a firm may determine the price, input, and output levels that lead to the highest profit.

1.2.2 Non Financial Aims and Objections:

1. Customer satisfaction - can be defined as the number of customers, or percentage of total customers, whose reported experience with a business, its products, or its services exceeds specified satisfaction goals.

2. Expansion - As businesses grow, they may aim to expand further.

Ways a business can grow: Internal growth, external growth, franchising

4. Diversification is a corporate strategy to enter into a new market or industry in which the business doesn't currently operate, while also creating a new product for that new market.

5. Ethical and corporate responsibility - Some businesses believe that they have a responsibility to behave in a ethical manner. To do this they consider two questions.

Impact: who/what does my decision affect or harm?

Fairness: will my decision be considered fair by those affected?

1.3.1 Legal structure

There are a range of legal structures for businesses:

Sole Trader –This is a business that is owned, financed and managed by one person. Any profit that the business makes belongs entirely to this person.

Partnership - This is a business which is owned by two or more people. These people all share the profits and responsibility for managing the business.

Franchise - A franchise is created when an existing, successful business (known as the franchiser) gives another person (known as the franchisee) the right to use its company name, business ideas, branding, products, marketing, business processes, etc in exchange for a fee.

Private Limited Company (Ltd) – A private limited company (Ltd) is usually a smaller business such as an independent estate agent. Shares do not trade on the stock exchange.

Public Limited Company (PLC) - In the UK, a public limited company makes its shares available to be traded on the stock exchange. This means that anyone can buy or sell shares in these companies. Public limited companies can be subject to lots of regulations, but their management has limited liability when it comes to the business performance.

Co-operatives - These organisations are owned and run by its employees and/or customers, who share any profits that are made.

1.3.3 Restructuring

Delayering - to reduce the size of a business hierarchy, especially in terms of a reduction in management. This creates a flatter (less layered) organisational structure.

Redundancies – elimination of a job role.

1.4 Stakeholder Engagement:

All businesses and enterprises have stakeholders. A stakeholder is an individual, group or organisation who has an interest in the business or enterprise, and may be affected by the business.

Stakeholders can be… **internal** - within a business - Internal stakeholders are those people who have an interest in the business because they are directly linked to the business – they are within the business.

Stakeholders can be… **external** - outside a business - External stakeholders are outside of a business, but they are still interested in and potentially affected by the activity of the business.

The advantages of stakeholder engagement, including:

Staff motivation/retention - When an organisation acts in ways that engage employees/workers, then the organisation can benefit from high levels of staff retention and motivation.

Improved reputation - An organisation that is seen to be engaging effectively with stakeholders will benefit from being able to build a positive reputation.

New Ideas - By communicating effectively with stakeholders and listening carefully to their views/insights, an organisation may be able to identify ideas for new business opportunities and/or areas for improvement.

Increased share prices - If an organisation has shares and shareholders, the price of its shares is directly related to its performance and level of success.

2.1.1 Product Type:

What is a product? - A product is goods or a service that is sold to customers or other businesses. Customers buy products to meet their needs.

A **product** is goods or a service that is sold to customers or other businesses. **Goods** are a tangible product – something you can touch.

Services are intangible products – something you cannot touch.

2.1.3 Boston Matrix - The structure of a Boston Matrix and the characteristics of the four categories, including: - **Stars, Question Marks, Cash Cows and Dogs.**

What is market share? - Market share is the percentage of business or sales a company has out of total business or sales by all competitors combined in any given market.

What is market growth? - The increase in size or sales recorded within a given consumer group over a specified time frame.

YEAR 9 - LENT TERM- VOCABULAIRE DU FRANÇAIS AU GCSE- ANNÉE 9 HIGHER- LE TEMPS DES LOISIRS

Semaine 1

Le sport	Sport		
Je fais …	*I do/go …*	de la planche à voile	*wind-surfing*
du canoë-kayak	*canoeing/kayaking*	de la voile	*sailing*
du footing	*jogging*	de l'escalade	*climbing*
du hockey sur glace	*ice hockey*	de l'équitation	*horse-riding*
du patinage	*skating*	des randonnées	*for walks*
du roller	*roller skating*	Je trouve ça …	*I think it's …*
du vélo/cyclisme	*cycling*	bien/cool	*good/cool*
de la boxe	*boxing*	génial/super	*great/super*
de la danse	*dancing*	passionnant	*exciting*
de la musculation	*weight-lifting*	barbant/ennuyeux	*boring*
de la natation	*swimming*	nul/stupide	*rubbish/stupid*

Semaine 2

La musique	Music		
Je joue …	*I play …*	Mon chanteur/Ma chanteuse préféré(e), c'est …	*My favourite singer is …*
du piano	*the piano*	car j'aime ses paroles/ses mélodies	*because I like his/her lyrics/tunes*
du saxophone	*the saxophone*	J'aime aussi la musique de …	*I also like …'s music.*
du violon	*the violin*	Ça me donne envie de …	*It makes me want to …*
de la batterie	*drums*	Ça me rend …	*It makes me …*
de la clarinette	*the clarinet*	J'ai téléchargé/acheté …	*I downloaded/bought …*
de la flûte	*the flute*	Je n'aime pas du tout la musique de …	*I don't like …'s music at all.*
de la guitare	*the guitar*	Je déteste …	*I hate …*
de la trompette	*the trumpet*		
de l'accordéon	*the accordion*		

Semaine 3 + semaine 1 et 2

La technologie	Technology		
Je fais …	*I do …*	Je vais sur mes sites préférés/ des blogs/des forums.	*I go on my favourite sites/blogs/forums.*
beaucoup de choses	*lots of things*	J'envoie des e-mails/mails.	*I send emails.*
des quiz/des recherches pour mes devoirs	*quizzes/research for my homework*	Je joue à des jeux en ligne.	*I play games online.*
Je fais des achats.	*I buy things/make purchases.*		

Semaine 4

Films et télé	Films and TV		
J'aime/J'adore les …	*I like/love …*	e préfère …	*I prefer …*
Je (ne) suis (pas) fan de …	*I am (not) a fan of …*	les documentaires	*documentaries*
Je n'aime pas …	*I don't like …*	les jeux télévisés	*game shows*
J'ai une passion pour les …	*I am passionate about …*	les magazines	*magazine programmes*
J'ai horreur des …	*I hate/can't stand …*	les séries	*series*
films de gangsters/d'action	*gangster/action films*	les actualités	*current affairs programmes*
films d'aventure/d'horreur	*adventure/horror films*	les émissions de musique/de sport/ de jeunesse/de télé-réalité	*music/sports/youth/reality TV programmes*
films d'arts martiaux	*martial arts films*	Mon émission préférée, c'est …	*My favourite programme is …*
films de science-fiction	*science-fiction films*	Je trouve ça …	*I find it …*
		Je pense que c'est …	*I think that it's …*

Semaine 5

Parler de sport	Talking about sport		
Je fais de l'escrime/du footing depuis (quatre ans).	*I've been doing fencing/jogging for (four years).*	… et qui demande …	*… and which requires …*
Je pratique le trampoline depuis (trois mois).	*I've been trampolining for (three months).*	une excellente forme physique	*excellent physical condition*
On joue au basket ensemble depuis (trois ans).	*We've been playing basketball together for (three years).*	une bonne coordination	*good coordination*
J'aime beaucoup ça car c'est …	*I like it a lot because it's …*	de l'endurance	*endurance*
élégant/facile	*elegant/easy*	de bons réflexes	*good reflexes*
ludique/sympa	*fun/ nice*	Ça m'aide à décompresser.	*It helps me to relax.*
rapide/beau	*fast/pleasant*	Ça me fait du bien.	*It does me good.*
C'est un sport qui est bon pour …	*It's a sport that is good for …*	Je préfère les sports individuels.	*I prefer individual sports.*
le corps/le cœur	*the body/the heart*	Je respire.	*I breathe.*
le mental/la concentration	*the mind/concentration*	Je me fixe des objectifs.	*I set goals for myself.*
		J'oublie mes soucis.	*I forget my worries.*

Semaine 6

Ma vie d'internaute	My life online		
Je suis passionné(e) de … photographie/cinéma/musique	*I am passionate about/a huge fan of … photography/cinema/music*	Je vais travailler avec mon ami/ma sœur/ mon prof …	*I'm going to work with my friend/ sister/teacher …*
Il y a (deux mois), j'ai créé …	*(Two months) ago, I created …*	car il/elle est plus/moins … que moi	*because he/she is more/less … than me*
une page Facebook	*a Facebook page*	arrogant(e)/créatif/-ive	*arrogant/creative*
une chaîne YouTube	*a YouTube channel*	modeste/patient(e)	*modest/patient*
une station de radio	*a radio station*	optimiste/organisé(e)	*optimistic/organised*
un blog	*a blog*	sérieux/-euse/technophobe	*serious/technophobic*
Ça (ne) marche (pas) très bien.	*It's (not) working very well.*	Nous allons créer …	*We're going to create …*
J'ai beaucoup d'abonnés et de mentions «J'aime».	*I have lots of subscribers and likes.*		

Semaine 1

La lecture	Reading		
Quand j'avais X ans, je lisais …	*When I was X years old, I read …*	Maintenant/Aujourd'hui, les jeunes …	*Now/Today, young people …*
J'aimais …	*I liked …*	lisent des blogs/des textos/des tweets	*read blogs/texts/tweets*
Avant, avec mes enfants, on lisait …	*In the past, I read … with my children.*	passent tout leur temps sur leur portable	*spend all their time on their mobile*
des histoires/des romans	*stories/novels*	Je trouve ça génial.	*I find that great.*
des livres illustrés/classiques	*illustrated books/classics*	Je trouve que c'est bien/mieux/un peu dommage.	*I find that it's good/better/a bit of a shame.*
des livres pour enfants/des journaux	*children's books/newspapers*	À mon avis, Internet a tué les joies de la lecture.	*In my opinion, the internet has killed the joy of reading.*
Maintenant, je lis …	*Now I read …*		
sur ma tablette/mon ordi	*on my tablet/my computer*		
sur Internet	*on the internet*		

Semaine 2

Mes émissions préférées	My favourite TV programmes		
Mon émission de télé préférée, c'est …	*My favourite TV programme is …*	Les acteurs sont excellents/ne sont pas crédibles.	*The actors are excellent/not credible.*
C'est (un docu-réalité) qui parle de …	*It's (a reality documentary) about …*	Le scénario n'a aucun rapport avec la réalité.	*The script has no connection to reality.*
Je le/la regarde …	*I watch it …*	Je le/la regarde en version originale.	*I watch it in the original language.*
toutes les semaines	*every week*	Avant, je regardais/nous regardions …	*Before, I/we used to watch …*
tous les jours/mois	*every day/month*	Maintenant, j'ai tendance à regarder …	*Now, I tend to watch …*
Je le/la trouve formidable/super/génial(e).	*I find it amazing/fantastic/great.*	en direct sur la TNT	*live on terrestrial TV*
Je ne le rate/manque jamais.	*I never miss it.*	en replay/streaming	*on catch-up/streamed*
Je ne le/la regarde jamais.	*I never watch it.*		
Je le/la trouve débile/vulgaire.	*I find it idiotic/crude.*		
J'adore les animateurs/animatrices.	*I love the presenters.*		

Semaine 3

Le cinéma	Cinema		
Je suis passionné(e) de cinéma.	*I'm passionate/mad about cinema.*	de vanité	*vanity*
J'adore …	*I love …*	d'arrogance	*arrogance*
J'admire …	*I admire …*	Il/Elle est extrêmement modeste/sincère/humble.	*He/she is extremely modest/sincere/humble.*
Je suis fan de … depuis …	*I'm a fan of … since …*	J'ai vu le film … il y a un moment et depuis, je suis fan.	*I saw the film … some time ago and since then, I've been a fan.*
Il est le plus …	*He is the most …*	Apparemment, quand il/elle était jeune …	*Apparently, when he/she was young …*
Elle est la plus …	*She is the most …*	X compte parmi les acteurs les plus connus et les plus appréciés au monde.	*X is one of the best-known and most popular actors in the world.*
beau/belle	*good-looking, beautiful*	J'adore ses films et je les recommande.	*I love his/her films and I recommend them.*
intelligent(e)	*intelligent*	Je vais voir son prochain film très bientôt.	*I'm going to see his/her next film very soon.*
talentueux/-euse	*talented*		
élégant(e)	*elegant*		
doué(e)	*gifted, talented*		
célèbre	*famous*		
chic	*chic*		
Chez lui/elle, il y a très peu …	*With him/her, there is very little …*		
de prétention	*pretentiousness*		

Semaine 4 - Traduction spéciale en français : tous le vocabulaire plus …

Les mots essentiels	High-frequency words		
normalement	*normally, usually*	apparemment	*apparently*
quelquefois	*sometimes*	en général	*in general, generally*
souvent	*often*	de toute manière	*in any case*
tous les jours	*every day*	surtout	*especially*
hier soir	*yesterday evening*	en ce qui concerne	*with regard to*
récemment	*recently*	autant de	*so many*
depuis un moment	*for a while*	de plus en plus	*more and more*
lorsque	*when*	en dehors de	*outside (of)*
d'abord	*first(ly)*	ensemble	*together*
ensuite	*next*	notamment	*notably*
à mon avis	*in my opinion*	partout	*everywhere*
personnellement	*personally*	pas du tout	*not at all*
car	*because, as*	pour la plupart	*mostly*
cependant	*however*	tandis que	*while, whereas*

Semana 1

¿Te interesa(n)…?	Are you interested in…?		
el arte dramático	*drama*	me interesa(n) / me fascina(n)	*I'm interested in / fascinated by*
el dibujo	*art / drawing*	me gusta(n) / no me gusta(n)	*I like / I don't like*
el español	*Spanish*	odio	*I hate*
el inglés	*English*	prefiero	*I prefer*
la biología	*biology*	porque es / son	*because it is / they are*
la educación física	*PE*	Mi día preferido es (el viernes).	*My favourite day is (Friday).*
la física	*physics*	mi horario	*my timetable*
la geografía	*geography*	¿Qué día tienes…?	*What day do you have…?*
la historia	*history*	Tengo inglés los martes.	*I have English on Tuesdays.*
la informática	*ICT*	¿A qué hora tienes…?	*What time do you have…?*
la lengua	*language*	a la una / a las dos	*at one o'clock / at two o'clock*
la química	*chemistry*	y / menos cuarto	*quarter past / to*
la religión	*RE*	y / menos cinco	*five past / to*
la tecnología	*technology*	y media	*half past*
los idiomas	*languages*	la educación infantil / primaria	*pre-school / primary education*
las empresariales	*business studies*	la educación secundaria	*secondary education*
las matemáticas	*maths*	el bachillerato	*A levels*
las ciencias	*science*	la formación profesional	*vocational training*
la materia / la asignatura	*subject*	el instituto	*secondary school*
me encanta(n) / me chifla(n)	*I love*		

Semana 2

¿Qué tal los estudios?	How are your studies?		
La física es más / menos … que…	*Physics is more / less … than…*	simpático/a / estricto/a	*nice / strict*
Es mejor / peor que…	*It's better / worse than…*	Mi profe…	*My teacher…*
tan … como	*as … as*	enseña / explica bien	*teaches / explains well*
fácil / difícil	*easy / difficult*	tiene buen sentido del humor	*has a good sense of humour*
divertido/a / aburrido/a	*fun / boring*	tiene expectativas altas	*has high expectations*
útil / relevante / práctico/a	*useful / relevant / practical*	crea un buen ambiente de trabajo	*creates a good working atmosphere*
creativo/a / relajante	*creative / relaxing*	nunca se enfada	*never gets angry*
exacto/a / lógico/a / exigente	*precise / logical / demanding*	me hace pensar	*makes me think*
Mi profesor(a) (de ciencias) es…	*My (science) teacher is…*	nos da consejos / estrategias	*gives us advice / strategies*
paciente / impaciente	*patient / impatient*	nos pone muchos deberes	*gives us lots of homework*
tolerante / severo/a	*tolerant / harsh*	el curso académico	*academic year*
listo/a / tonto/a	*clever / stupid*	las pruebas / las evaluaciones	*tests / assessments*
trabajador(a) / perezoso/a	*hard-working / lazy*	suspender / aprobar	*to fail / to pass*

Semana 3

¿Cómo es tu insti?	What is your school like?		
En mi instituto hay… /	*In my school there is… /*	público / privado	*state / private*
Mi instituto tiene…	*My school has…*	pequeño / grande	*small / large*
un salón de actos	*a hall*	moderno / antiguo	*modern / old*
un comedor	*a canteen*	En mi escuela primaria había…	*In my primary school there was/were…*
un campo de fútbol	*a football pitch*	Mi escuela primaria tenía…	*My primary school had…*
un patio	*a playground*	más / menos…	*more / fewer, less*
un gimnasio	*a gym*	exámenes / deberes / alumnos	*exams / homework / pupils*
una piscina	*a pool*	muebles / espacios verdes	*furniture / green spaces*
una biblioteca	*a library*	tiempo libre	*free time*
una pista de tenis / atletismo	*a tennis court / an athletics track*	oportunidades / instalaciones	*opportunities / facilities*
unos laboratorios	*some laboratories*	pizarras interactivas / clases	*interactive whiteboards / lessons*
muchas aulas	*lots of classrooms*	aulas de informática	*ICT rooms*

Semana 4

Lo bueno / malo es que…	*The good / bad thing is that…*	donde jugar	*somewhere to play*
Lo mejor / peor es que…	*The best / worst thing is that…*	poco espacio	*little space*
Lo que más me gusta es / son …	*What I like most is / are…*	antes / ahora	*before / now*
Lo que menos me gusta es / son …	*What I like least is / are…*	El edificio / El colegio /	*The building / The school /*
no…ningún / ninguna	*not a single…*	El día escolar	*The school day*
ni…ni…	*(n)either…(n)or*	es / era…	*is / was…*
nada	*nothing / anything*	(in)adecuado/a / corto/a / largo/a	*(in)adequate / short / long*
nadie	*no-one / anyone*	Las clases son / eran…	*The lessons are / were*
tampoco	*not either*	Instituto de Educación Secundaria (IES)	*secondary school*
Mi insti es…	*My school is…*		
mixto / femenino / masculino	*mixed / all girls / all boys*		

Semana 5

Las normas del insti	School rules		
Tengo que llevar …	*I have to wear …*	una chaqueta (a rayas)	*a (striped) jacket*
Tenemos que llevar …	*We have to wear …*	una chaqueta de punto	*a cardigan*
(No) Llevo …	*I (don't) wear …*	una corbata	*a tie*
(No) Llevamos …	*We (don't) wear …*	una falda (a cuadros)	*a (checked) skirt*
Es obligatorio llevar	*It's compulsory to wear*	unos pantalones	*trousers*
un jersey (de punto)	*a (knitted) sweater*	unos calcetines	*socks*
un vestido	*a dress*	unos zapatos	*shoes*
una camisa	*a shirt*	unos vaqueros	*jeans*
una camiseta	*a T-shirt*	unas medias	*tights*
		amarillo/a	*yellow*

Semana 6

blanco/a	*white*	llevar piercings	*to have piercings*
negro/a	*black*	Hay que…	*It is necessary…*
rojo/a	*red*	ser puntual	*to be on time*
morado/a / violeta	*purple*	respetar el turno de palabra	*to wait for your turn to speak*
naranja	*orange*	mantener limpio el patio	*to keep the playground clean*
rosa	*pink*	La norma más importante es…	*The most important rule is…*
azul	*blue*	respetar a los demás	*to respect others*
verde	*green*	Las normas son…	*The rules are…*
gris	*grey*	necesarias / demasiado severas	*necessary / too strict*

Semana 1

oscuro / claro	*dark / light*
a rayas / a cuadros	*striped / checked*
bonito / feo	*pretty / ugly*
cómodo / incómodo	*comfortable / uncomfortable*
anticuado / elegante / formal	*old-fashioned / smart / formal*
El uniforme…	*Uniform…*
mejora la disciplina	*improves discipline*
limita la individualidad	*limits individuality*
da una imagen positiva del insti	*gives a positive image of the school*
ahorra tiempo por la mañana	*saves time in the morning*
Está prohibido…	*It is forbidden…*
No se permite…	*You are not allowed…*
No se debe…	*You / one must not…*
comer chicle	*to chew chewing gum*
usar el móvil en clase	*to use your phone in lessons*
dañar las instalaciones	*to damage the facilities*
ser agresivo o grosero	*to be agressive or rude*
correr en los pasillos	*to run in the corridors*
para limitar la libertad de expresión	*for limiting freedom of expression*
para fastidiar a los alumnos	*for annoying the pupils*
sacar buenas / malas notas	*to get good / bad grades*
Estoy de acuerdo.	*I agree*
¡Qué va!	*No way!*
¡Qué horror!	*How awful!*
¡Qué bien!	*How great!*
Un problema de mi insti es…	*One problem in my school is…*
el estrés de los exámenes	*exam stress*
el acoso escolar	*bullying*
la presión del grupo	*peer pressure*
Hay (unos) alumnos que…	*There are (some) pupils who…*
se burlan de otros	*make fun of others*
sufren intimidación	*are victims of intimidation*
tienen miedo de…	*are afraid of…*
hacen novillos	*skive*
quieren ser parte de la pandilla	*want to be part of the friendship group*
son una mala influencia	*are a bad influence*

Semana 2 + semana 1

¿Cómo es tu día escolar?	***What is your school day like?***
normalmente	*usually*
Salgo de casa a las…	*I leave home at…*
Voy…	*I go…*
a pie / andando	*on foot / walking*
en bici / en autobús / en coche	*by bike / by bus / by car*
en metro / en taxi / en tren	*by underground / by taxi / by train*
Las clases empiezan / terminan a las…	*Lessons start / finish at …*
Tenemos … clases al día.	*We have … lessons per day.*
Cada clase dura … minutos	*Each lessons lasts … minutes.*
El recreo / La hora de comer… es a la(s)…	*Break / Lunch is at…*

Semana 3 + semana 2

¿Qué vas a hacer?	***What are you going to do?***
Voy / Vas / Vamos a…	*I'm going / You're going / We're going to…*
llegar / salir / estar	*arrive / go out / be*
ir en coche / andando	*go by car / walk*
llevar ropa de calle	*wear casual clothes / non-uniform*
ir / comer juntos	*go / eat together*
hacer una visita guiada	*do a guided tour*
ver los edificios	*see the buildings*
pasar todo el día en…	*spend the whole day in…*
asistir a clases	*attend lessons*
practicar el español	*practise Spanish*
ir de excursión	*go on a trip*
tener una programación variada	*have a varied programme*
Va a…	*It's going to…*
ser fácil / guay	*be easy / cool*

Semana 4

Las actividades extraescolares	***Extra-curricular activities***
Toco la trompeta…	*I play / I've been playing the trumpet…*
Canto en el coro…	*I sing / I've been singing in the choir…*
Voy al club de…	*I go / I've been going to the … club*
Soy miembro del club de…	*I am / I've been a member of the … club*
ajedrez / judo / teatro / periodismo	*chess / judo / drama / reporters*
lectores / Ecoescuela / fotografía	*reading / eco-schools / photography*
desde hace … años / meses	*for … years / months*
Para mí…	*For me…*
Pienso que / Creo que…	*I think that…*
las actividades extraescolares son…	*extra-curricular activities are*
muy divertidas	*a lot of fun*
algo diferente / un éxito	*something different / an achievement*
El año / trimestre / verano pasado…	*Last year / term / summer…*
participé en un evento especial/ un concierto / un concurso / un torneo	*I took part in a special event/ a concert / a competition / a tournament*
gané un trofeo	*I won a trophy*
toqué un solo	*I played a solo*
conseguimos la clasificación como…	*we achieved the award / designation as…*
tuvimos una charla	*we had a talk / presentation*
ganamos una competición nacional	*we won a national competition*
dimos un concierto	*we gave a concert*
¡Fue un éxito!	*It was a success!*
Este trimestre / El próximo	*This term / Next term*

Semana 5

Pienso que / Creo que…	*I think that…*
las actividades extraescolares son…	*extra-curricular activities are*
muy divertidas	*a lot of fun*
algo diferente / un éxito	*something different / an achievement*
te ayudan a…	*they help you to…*
olvidar las presiones del colegio	*forget the pressures of school*
desarrollar tus talentos	*develop your talents*
hacer nuevos amigos	*make new friends*
te dan…	*they give you…*
una sensación de logro	*a sense of achievement*
más confianza	*more confidence*
la oportunidad de ser creativo/a	*the opportunity to be creative*
la oportunidad de expresarte	*the opportunity to express yourself*
ganamos una competición nacional	*we won a national competition*
dimos un concierto	*we gave a concert*
¡Fue un éxito!	*It was a success!*
Este trimestre / El próximo trimestre…	*This term / Next term*
voy a	*I'm going to…*
aprender a …	*learn to …*
continuar con…	*continue with…*
dejarlo	*stop doing it*
apuntarme al club de…	*sign up for the … club*
vamos a…	*we are going to…*
montar una obra de teatro	*put on a play*
conseguir…	*achieve…*

Important Ideas

You can identify the shape of distribution of data using polygons, histograms or stem and leaf diagrams.

The area of each bar represents the frequency in a histogram.

Histograms can have equal or

Key Facts & Formula

Frequency density	Frequency density = $\frac{\text{frequency}}{\text{class width}}$

MathsWatch References

65b	Frequency polygons
128b	Stem and leaf
130a/b	Averages from a table
205	Histograms

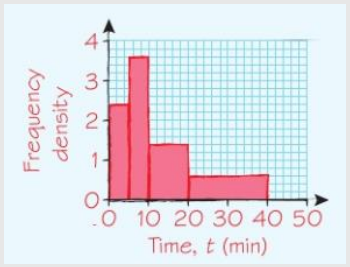
Question	Answer

Histograms

The table gives times (in minutes) some trains were late.
Draw a histogram to show this data

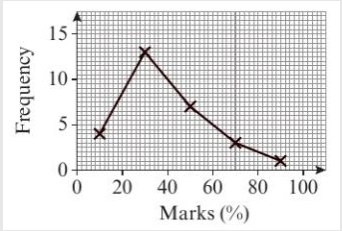
Time, t (min)	Frequency
$0 < t \leq 5$	12
$5 < t \leq 10$	18
$10 < t \leq 20$	14
$20 < t \leq 40$	12

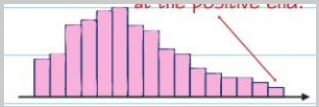
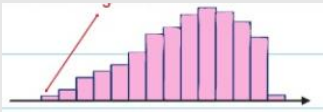
Class width	Frequency density
5	12 ÷ 5 = 2.4
5	18 ÷ 5 = 3.6
10	14 ÷ 10 = 1.4
20	12 ÷ 20 = 0.6



Skew

The frequency polygon shows the marks of a group of students in a test.
Comment on the shape of the distribution.



Vocabulary	
Skew	Distributions can be symmetrical, or have a positive or negative skew.
Symmetrical	The distribution is symmetrical about the middle and has no skew 
Positive skew	Most of the data values are at the lower end and the distribution is stretched out in the positive direction. 
Negative skew	Most of the data values are at the upper end and the distribution is stretched out in the negative direction. 

YEAR 9 – LENT TERM - STATISTICS – REPRESENTING DATA

LEARNING - LOVING - LIVING

Important Ideas

Data sets can be represented pictorially - graphs can be used to better represent data, and make data easier to analyse.

The appropriate form of representation is selected and justified depending on the nature of the data being represented.

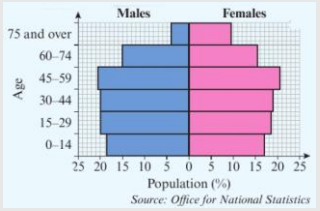
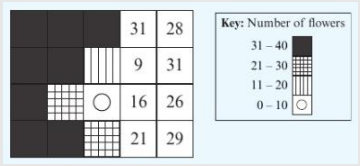
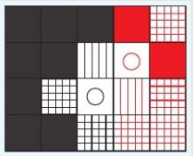
Errors in construction can lead to graphical misrepresentation.

Key Facts & Formula

Trend	Trends can be **upwards** or **downwards** but can also be **flat.**
Tables	Figures in tables can sometimes be rounded
Grouped frequency tables	Class intervals should never overlap
Method for drawing pie charts	1) Calculate the angle for each sector (total must add up to 360) 2) Draw a circle 3) Accurately draw the sectors 4) Label the sectors or write a key

MathsWatch References

15	Tally charts and bar charts
16	Pictograms
61	Two-Way Tables
64	Vertical line charts
65a – 65b	Frequency diagrams – frequency polygons
128a – 128 b	Pie charts – stem and leaf diagrams
186	Cumulative frequency
187	Boxplots
205	Histograms

Question	Answer
Population pyramid	
The population pyramid shows the estimated distribution of males and females in the UK in mid-2016 as a percentage of the total number of each gender.  a) What percentage of males were aged under 30? b) What percentage of females were aged 45 or over?	a) 18.4 + 20 = 38.5% b) 20.5 + 15.5 + 9.5 = 45.5%
Choropleth Maps	
The diagram shows a field split into 2-metre squares. The numbers in each square show the number of flowers. a) On the grid provided complete the choropleth.  a) Describe the distribution of the flowers.	a)  b) There is a higher density of flowers on the edges of the field

	Vocabulary	
1	Frequency table	Show how many of each category there are
2	Two-way table	Used to summarise bivariate data
3	Pictogram	A symbol is used to show a particular number of items
4	Pie chart	The size of each sector shows the proportion of the total data
5	Bar chart	Shows frequency of data values
6	Stem & leaf diagram	Shows the shape of distributions
7	Population pyramid	Made from two bar charts so you can compare the data they show
8	Choropleth map	Uses shading to show the value of the data
9	Comparative pie chart	Uses area proportional to the data they represent
10	Vertical line chart / Bar line chart	Shows frequency distributions for discrete data.
11	Frequency polygon	Drawn from continuous data in a grouped frequency table
12	Cumulative frequency	Can be used for both discrete (step polygon) and continuous (graph) data
13	Histogram	Used to show continuous data
14	Box plot	Good for comparing data sets

Key term	Definition
1. Employment	When an individual works part-time or full-time under a contract of employment.
2. Labour market	The supply and demand for labour (employees provide the supply and employers the demand).
3. Labour force	All people who are of working age, and able and willing to work.
4. Employee	Someone who is paid to work for someone else.
5. Employer	A person or organization that you work for.
6. Salary	A fixed regular payment, typically paid on a monthly basis but often expressed as an annual sum.
7. Wage	A fixed regular payment earned for work or services, typically paid on a daily or weekly basis.
8. Bonus	An extra amount of money given to an employee, often based on work performance.
9. Contract	A contract is an agreement that sets out an employee's employment conditions, rights, responsibilities & duties.
10. Economy:	System of how money is made and used within a particular country or region.
11. Economic Growth	An increase in the capacity of an economy to produce goods and services.
12. Trade	To take part in the exchange, purchase, or sale of goods and services.
13. Industry	A group of manufacturers or businesses that produce a particular kind of goods or services.
14. Unemployment	When a person who is actively searching for employment is unable to find work.

The 5 Sectors of the Economy.

Primary Sector: this involves acquiring raw materials**.** For example, metals and coal have to be mined, oil drilled from the ground, rubber tapped from trees, foodstuffs farmed and fish trawled. This is sometimes known as extractive production.

Secondary Sector: this is the manufacturing and assembly process. It involves converting raw materials into components, for example, making plastics from oil. It also involves assembling the product, e.g. building houses, bridges and roads.

Tertiary Sector: this refers to the commercial services that support the production and distribution process, e.g. insurance, transport, advertising, warehousing and other services such as teaching and health care.

Quaternary Sector: this sector includes government, culture, libraries, scientific research, education, and information technology. These intellectual services and activities are what drives technological advancement, which can have a huge impact on short- and long-term economic growth.

Quinary Sector: this contains the highest levels of decision making in a society or economy, including top executives or officials in such fields as government, science, universities, non-profit, health care, culture, and the media. It may also include police and fire departments, which are public services as opposed to for-profit enterprises.

Key Term	Definition
1. Career	The job or series of jobs you do during your working life.
2. Occupation	Your job or profession.
3. Promotion	When an employee moves from one job or position to another that is higher in pay, responsibility, and status.
4. Redundancy	When an employer no longer requires the job role that is being carried out by an employee.
5. Retire	To leave your profession or job and end your active working life.
6. Pension	An amount of money paid regularly by the government or private company to a person who has retired.
7. Apprenticeship	Apprenticeships combine practical training in a job with study.
8. Internship	A period of work experience offered by an organization for a limited period of time, either paid or voluntary.
9. Traineeship	A traineeship is a course that includes a work placement. It can last from 6 weeks up to 6 months.
10. CV	A document that presents your skills and qualifications effectively and clearly.
11. Cover Letter	A letter that should accompany your application form or CV. It is short, introduces you, and explains why you are applying for a job.
12. Job Interview	A meeting in which an employer asks the person applying for a job questions to see whether they suitable.
13. Video Resume	A short video created by a candidate for employment and uploaded for prospective employers to review.
14. Entrepreneur	A person who sets up a business or businesses, taking on financial risks in the hope of profit.

What is the future of the Labour Market?

Young people will have longer careers. Rising life expectancy means young people will have an extended number of years in the workforce and will need to be **adaptable** and **flexible**.

A rise in average qualification levels will make a **lack of skills and qualifications** a bigger barrier to finding work and building a career.

More opportunities for young people to **work flexibly** with changes in technology and employment policy such as job share, remote working and flexible office space.

The working population will be **more diverse** with more younger, older, women & people with disabilities joining the labour market.

The growth in sectors such as **health** and **social care** is likely to continue to grow, and the nature of work will continue to change.

Key Term	Definition
1. Ambitious	Having or showing a strong desire and determination to work hard and succeed.
2. Motivated	Enthusiastic or determined to achieve goals.
3. Reliable	Someone who can be trusted to behave well, work hard and do what is expected of them.
4. Persistent	Refusing to give up or stop trying.
5. Team Player	A person who plays or works well as a member of a team
6. Self-Starter	A person sufficiently motivated or ambitious to work on their own initiative without needing direction.