YEAR 9 KNOWLEDGE ORGANISER

LENT TERM 2020/21

Name:

Family Group:

LEARNING - LOVING - LIVING

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LEARNING – LOVING – LIVING

GENERAL INFORMATION

The knowledge organiser is a book that sets out the **important**, **useful** and **powerful knowledge** of a single topic on one page.

When used effectively, Knowledge Organisers are useful in:

- Helping build a foundation of **factual knowledge.**
- Embedding **revision techniques** for now and future studies (A-Level, College, University)
- Allowing knowledge to become stored in **long term memory** which frees up working memory for more complex ideas. It also allows you to connect concepts together, even across subjects

HOMEWORK EXPECTATIONS

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 explanatory videos on the online platform of https://mathswatch.co.uk.

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.

MICROSOFT TEAMS

Remember to check TEAMS regularly for updates and additional home learning files including copies of your mastery booklets.

You can also ask your teachers questions on teams and view videos of 'how to use your knowledge organiser'.

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

EQUIPMENT CHECKLIST

Pencil case	Knowledge Organiser	2 Black or Blue pens
2 pencils and Eraser	Green Pen	Pencil Sharpener
Mini whiteboard and pen	Calculator	Ruler
Maths geometry set	Class book	

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	

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

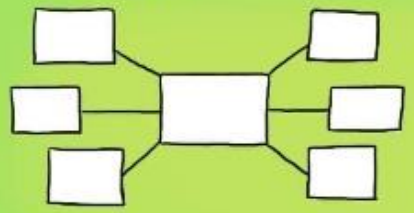
Before you start put away all your books & classroom materials.

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

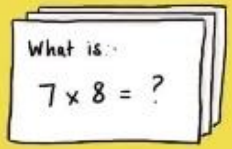
Create practice questions on a topic. Swap your questions with a partner & answer.

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

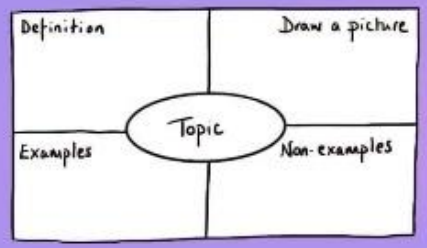
Create your own flashcards, question on one side answer on the other. Can you make links between the cards?



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.

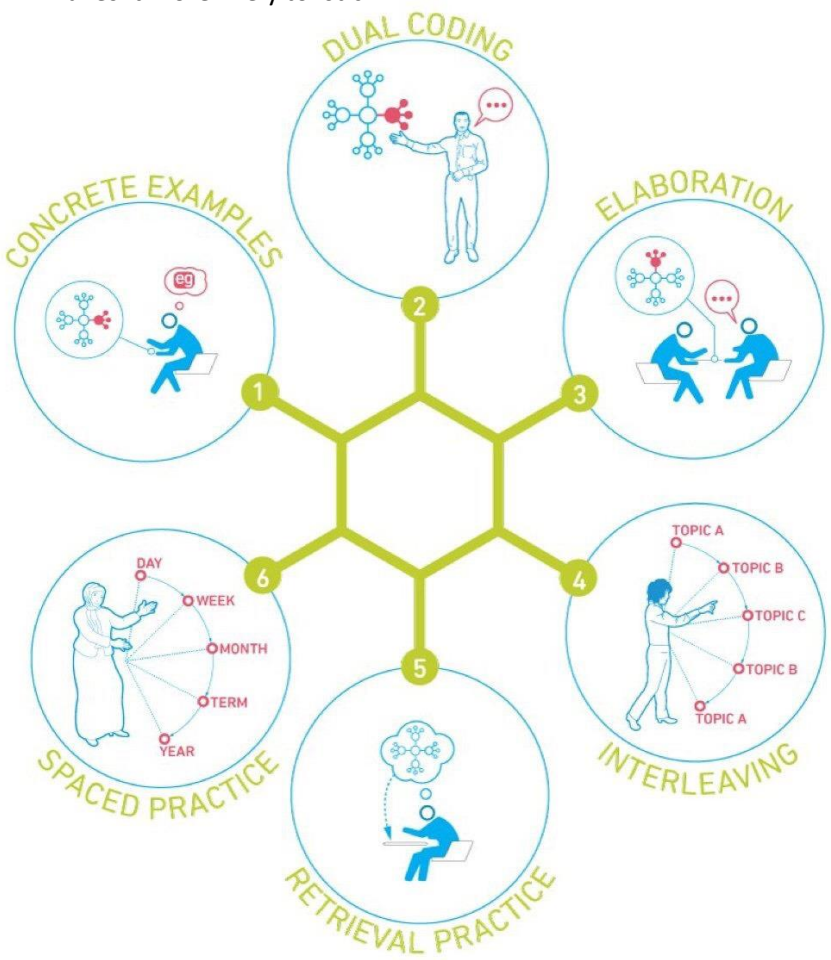
After you have retrieved as much as you can go back to your books & check what you've missed. Next time focus on that missing information

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.

INTERLEAVING

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. Skeptic	A person who questions the validity or authenticity of something purporting to be factual.	**72. Skirmish**	A fight, brisk encounter.

Keywords

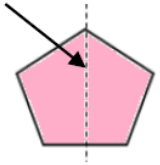
Mirror line: a line that passes through the center of a shape with a mirror image on either side of the line
Line of symmetry: same definition as the mirror line
Reflect: mapping of one object from one position to another of equal distance from a given line.
Vertex: a point where two or more-line segments meet.
Perpendicular: lines that cross at 90°
Horizontal: a straight line from left to right (parallel to the x axis)
Vertical: a straight line from top to bottom (parallel to the y axis)

Keywords

Parallel: Straight lines that never meet
Angle: The figure formed by two straight lines meeting (measured in degrees)
Transversal: A line that cuts across two or more other (normally parallel) lines
Isosceles: Two equal size lines and equal size angles (in a triangle or trapezium)
Polygon: A 2D shape made with straight lines
Sum: Addition (total of all the interior angles added together)
Regular polygon: All the sides have equal length; all the interior angles have equal size.

Lines of symmetry

Mirror line (line of reflection)

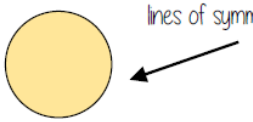


Shapes can have more than one line of symmetry…. This regular polygon (a regular pentagon has 5 lines of symmetry)

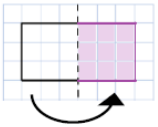
Rhombus
two lines of symmetry

Parallelogram
No lines of symmetry

A circle has an infinite amount of lines of symmetry

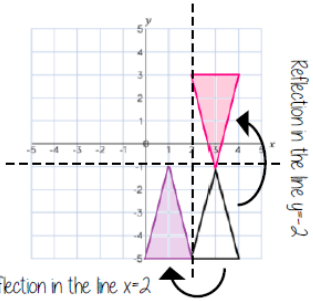


Reflect horizontally/ vertically (1)

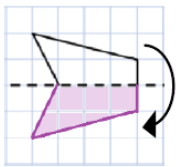


Note: a reflection doubles the area of the original shape

Reflection on an axis grid

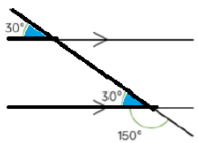


Reflection in a vertical line



Reflection in a horizontal line

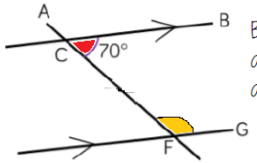
Alternate/ Corresponding angles



Because alternate angles are equal the highlighted angles are the same size

Because corresponding angles are equal the highlighted angles are the same size

Co-interior angles



Because co-interior angles have a sum of 180° the highlighted angle is 110°

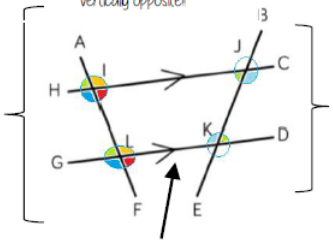
As angles on a line add up to 180° co-interior angles can also be calculated from applying alternate/ corresponding rules first

Parallel lines

Still remember to look for angles on straight lines, around a point and vertically opposite!

Lines QF and BE are **transversals** (lines that bisect the parallel lines)

Corresponding angles often identified by their "**F shape**" in position



Alternate angles often identified by their "**Z shape**" in position

This notation identifies parallel lines

What do I need to be able to do?

By the end of this unit you should be able to:

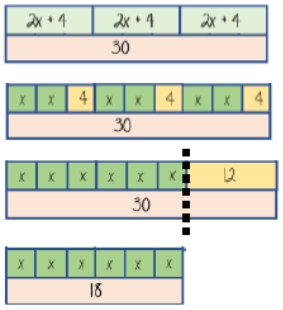
- Form and solve equations and inequalities
- Represent and interpret solutions on a number line as inequalities
- Draw straight line graphs and find solutions to equations
- Form and solve equations and inequalities with unknowns on both sides

Keywords

Solution: a value we can put in place of a variable that makes the equation true
Variable: a symbol for a number we don't know yet
Equation: an equation says that two things are equal – it will have an equals sign =
Expression: numbers, symbols and operators grouped together to show the value of something
Identity: On equation where both sides have variables that cause the same answer includes ≡
Linear: an equation or function that is the equation of a straight line
Intersection: the point that two lines meet
Inequality: an inequality compares two values showing if one is greater than, less than or equal to another.

Solve equations (R)

$3(2x + 4) = 30$



$3(2x + 4) = 30$

Expand the brackets

$6x + 12 = 30$

$-12 \quad -12$

Substitute to check your answer. This could be negative or a fraction or decimal

$6x = 18$

$\div 6 \quad \div 6$

$x = 3$

Form and solve inequalities (R)

Two more than treble my number is greater than 11

Form

$x \rightarrow \times 3 \rightarrow +2 \rightarrow 11$

$3x + 2 > 11$

Solve

$x \leftarrow -3 \leftarrow -2 \leftarrow 11$

$x > 3$

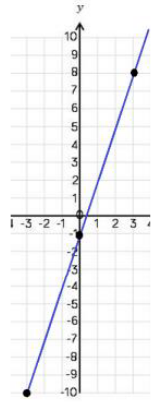
Plotting straight line graphs (R)

$y = 3x - 1$ → 3 x the x coordinate then – 1

x	-3	0	3
y	-10	-1	8

Draw a table to display this information

This represents a coordinate pair (-3, -10)



You only need two points to form a straight line

Plotting more points helps you decide if your calculations are correct (if they do make a straight line)

Remember to join the points to make a line

Inequalities with unknown on both sides

Solving inequalities has the same method as equations

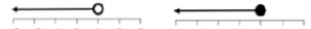
$5(x + 4) < 3(x + 2)$
$5x + 20 < 3x + 6$
$2x + 20 < 6$
$2x < -14$
$x < -7$

Check it!

$5(-8 + 4) < 3(-8 + 2)$
$5(-4) < 3(-6)$
$-20 < -18$

✓ -20 IS smaller than -18

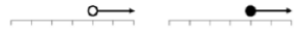
Solutions on a number line



$x < 1$ $\quad x \leq 1$

Both represent values less than 1

Includes the value 1



$x > 1$ $\quad x \geq 1$

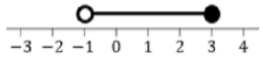
Both represent values more than 1

Includes the value 1

● Includes the value it sits above

○ Does NOT include the value it sits above

Values less than or equal to 3 but also more than -1



$-1 < x \leq 3$

This includes the integer values 0, 1, 2, 3

Keywords

Ratio: a statement of how two numbers compare
Equivalent: of equal value
Proportion: a statement that links two ratios
Integer: whole number, can be positive, negative or zero
Fraction: represents how many parts of a whole
Denominator: the number below the line on a fraction. The number represent the total number of parts.
Numerator: the number above the line on a fraction. The top number. Represents how many parts are taken
Origin: (0,0) on a graph. The point the two axes cross
Gradient: The steepness of a line

Compare with ratio (R)

"For every dog there are 2 cats"

Dogs: Cats

1:2

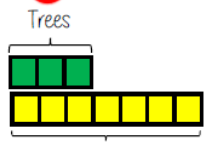
The ratio has to be written in the same order as the information is given
e.g. 2:1 would represent 2 dogs for every 1 cat

Units have the be of the same value to compare ratios

Ratios and fraction (R)

Trees: Flowers

3 : 7



Ratio

Fraction of trees

Number of parts of in group / Total number of parts

3/10

Fraction

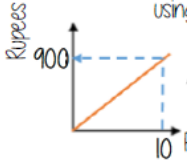
Conversion between currencies (R)

£1 = 90 Rupees ← Currency is directly proportional

For every £1 I have 90 Rupees

£1 = 90 Rupees (×10) → £10 = 900 Rupees (×10)

Currency can be converted using a conversion graph

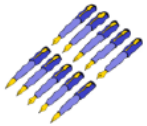


Convert 630 Rupees into Pounds

£1 = 90 Rupees (×7) → £7 = 630 Rupees (×7)

630 ÷ 90 = 7

Best buys



	4 pens costs £2.60	10 pens costs £6.00
"1 pen costs..."	£2.60 ÷ 4 = £0.65	£6.00 ÷ 10 = £0.60
"1-pound buys..."	4 ÷ 2.60 = 154 pens	10 ÷ 6 = 167 pens

You could work out how much 40 pens are and then compare

Compare the solution in the context of the question

The best value has the lowest cost "per pen"

The best value means £1 buys you more pens

Ratios in 1n and n:1

This is asking you to cancel down until the part indicated represents 1

Show the ratio 4:20 in the ratio of 1n

The question states that this part has to be 1 unit. Therefore Divide by 4

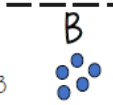
4 : 20

1 : 5

This side has to be divided by 4 too – to keep in proportion

the n part does not have to be an integer for this type of question

Combining ratios



The ratio of Blue counters to Red counters is 5:3

The ratio of Red counters to Green counters is 2:1

Ratio of Blue to Red to Green

10 : 6 : 3

Use equivalent ratios to allow comparison of the group that is common to both statements

Lowest common multiple of the ratio both statements share

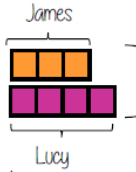
Sharing a whole into a given ratio (R)

James and Lucy share £350 in the ratio 3:4
Work out how much each person earns

Model the Question

James: Lucy

3 : 4



Find the value of one part

Whole: £350
7 parts to share between (3 James, 4 Lucy)

£350 ÷ 7 = £50

□ = one part = £50

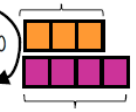
Put back into the question

James: Lucy

x 50 3 : 4 x 50

£150:£200

James = 3 x £50 = £150



Lucy = 4 x £50 = £200

Important Ideas, Formulas

Solving a quadratic equation by factorisation

Factorise $x^2 + ax + b = 0$	To factorise $x^2 + bx + c$, we are looking for 2 number m and n, $mn=c$ and $m+n=b$. Then $(x+m)(x+n) = 0$ Hence $x+m=0$, $x=-m$ or $x+n=0$, $x=-n$
Factorise $ax^2 + bx + c = 0$	To factorise $ax^2 + bx + c$, we are looking for 2 number which product is ac and which sum is b. Then we split the middle term using these 2 numbers and group terms to factorise.

Solve $12x^2 - 28x = -15$
Solution: Rearrange : $12x^2 - 28x + 15 = 0$ Factorise: $(2x - 3)(6x - 5) = 0$. So, either $2x - 3 = 0$ or $6x - 5 = 0$
$\Rightarrow 2x = 3$ or $6x = 5 \Rightarrow x = 3/2$ or $x = 5/6$

Solving equations using the quadratic formula

Solve $5x^2 - 11x - 4 = 0$, correct to two decimal places.

Take the quadratic formula:

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

and put $a = 5$, $b = -11$ and $c = -4$, which gives:

$$x = \frac{-(-11) \pm \sqrt{(-11)^2 - 4(5)(-4)}}{2(5)}$$

Note that a, b, c have been put in brackets to avoid mistakes. It is a very common mistake to think that $(-11)^2$ is -121.

$$x = \frac{11 \pm \sqrt{121 + 80}}{10} = \frac{11 \pm \sqrt{201}}{10}$$

$$\Rightarrow \quad x = 2.52 \text{ or } -0.32$$

Key Facts

Difference of two squares formula
$a^2-b^2 = (a-b)(a+b)$
1. Solve $4x^2 - 25 = 0$
Solution: $(2x - 5)(2x + 5) = 0$, $2x - 5 = 0 \Rightarrow x = +5/2$, $2x + 5 = 0 \Rightarrow x = -5/2$

$$x^2 + px + q = \left(x + \frac{p}{2}\right)^2 - \left(\frac{p}{2}\right)^2 + q$$

Solve $x^2 - 6x+7 = 0$ by completing the square.
Solution:

$$(x-3)^2 - 3^2 + 7 = 0$$
$$(x-3)^2 = 9 - 7$$
$$(x-3)^2 = 2$$
$$x - 3 = \pm\sqrt{2}$$

a $x = 3 \pm \sqrt{2}$

MathsWatch References

Clip 157 Clip 192	Factorising and solving quadratics Factorise harder quadratics
Clip 209b	Completing the square. Solving
Clip 191	Solving quadratics with the Formula
Clip 160	Roots and turning points of quadratics
Clip 179 Clip 180	Iteration-Trial and Improvement Iteration Processes

Q&A

Solving equations by iteration

Solve by iteration method: $x^2 - 5x + 6 = 0$
1)Re-arrange: $x^2 = 5x - 6$, $x = \sqrt{5x - 6}$
2)Make the subject x_{n+1},the other x becomes x_n

$$x_{n+1} = \sqrt{5x_n - 6}$$

3)Substitute in x_1 to produce your first result

$$x_1 = 4$$
$$x_2 = \sqrt{5(4) - 6}$$
$$= 3.741657 \ldots$$
$$x_3 = \sqrt{5(3.741657 \ldots) - 6}$$
$$= 3.564868 \ldots$$
$$x_4 = \sqrt{5(3.564868 \ldots) - 6}$$
$$= 3.438654 \ldots$$
$$x_5 = \sqrt{5(3.438654 \ldots) - 6}$$
$$= 3.345634 \ldots$$

...and so on. Carrying this on will eventually converge on one of the roots at $x = 3$

Vocabulary

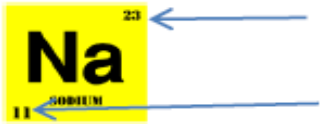
Factors	Numbers or expressions that go exactly into a given expression
Solve an equation	To find numbers that satisfy the equation, i.e. when we substitute this value into the equation we get identity.
Iteration	Repetition of a calculation, applied to the result again and again, aiming to obtain certain approximation to the solution

The structure of the Atom

- An atom is made up of three subatomic particles: **protons, electrons** and **neutrons.**
- Protons and neutrons are found in the nucleus
- Electrons are found orbiting the nucleus in shells (also known as *energy levels*).

- Protons have a charge of +1, electrons have a charge of -1 and neutrons have a charge of 0.
- Atoms have **no overall charge** because they have the same number of positive protons as negative electrons.

Atomic Number and Mass Number



Mass number: This is the total of protons+neutrons

Atomic number: This is the number of protons

Therefore sodium has 11 protons, 11 electrons and 23-11= 12 neutrons

Electron Configuration

There are very strict rules about how electron fill up the electron shells, the inner shell is always filled first. Each shell has a maximum number of electrons it can take.
Shell 1: maximum 2 electrons
Shell 2: maximum 8 electrons
Shell 3: maximum 8 electrons

Example:

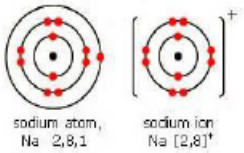
11 electrons

The electronic configuration of Sodium (Na) can also be written like this 2,8,1. This shows there is 2 electrons in the 1st shell, 8 electrons in the second shell and 1 electron in the 3rd shell.

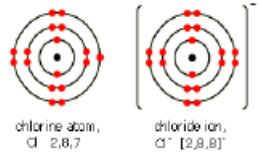
Key Terms	Definitions
Atom	The particles that make up all substances with mass, they contain protons, neutrons and electrons.
Nucleus	The centre of an atom, it contains protons and neutrons.
Proton	A sub atomic particle found in the nucleus, it has a charge of +1 and a relative mass of 1.
Electron	A sub atomic particle found in the shells of an atom, it has a charge of -1 and a negligible mass
Subatomic	These are the smaller particles that make up an atom
Neutron	A sub atomic particle found in the nucleus of an atom, it has a charge of 0 and a mass of 1
Atomic Number	The number of protons in an atom.
Mass Number	The total of protons and neutrons in an atom.

Ions

All atoms want a full outer shell of electrons. To do this they either need to gain or lose electrons. An ion is an atom with a positive or negative charge, these are formed by an atom gaining or losing electrons. Some atoms will lose electrons to get a full outer shell: these are metals. Some atoms will gain electrons to get a full outer shell: these are non metals.
For example, sodium has one electron in it's outer shell, it therefore loses one electron to form a Na^{+1} ion. We represent ions with square brackets around the ion and the charge in the top right corner.



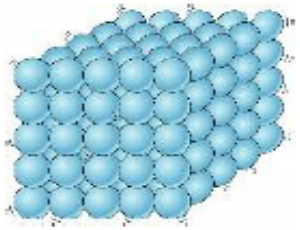
For example, chlorine has seven electrons in it's outer shell, it therefore gains one electron to form a Cl^{-1} ion.



Structure of Matter

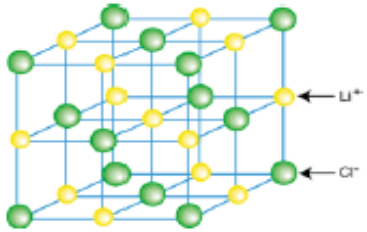
Atoms very rarely exist on their own. They are almost always bonded to another atom of the same type or an atom of a different type in a compound. When atoms are bonded together form structures, this is the way the atoms are arranged in space.

Atoms that are bonded together either form **simple or giant structures.** A giant structure is one which repeats over and over throughout the structure. The diagram below shows only a **very small part of a giant structure.**



Giant Ionic Structures

The particles that make up most giant structures **are ions.** Ions are atoms with a positive or negative charge. When we have 2 atoms that have an opposite charge we have **a giant ionic structure.** Below shows a small part of the 3D structure of Lithium chloride Li^+ and Cl-.



The lithium and chlorine are attracted to each other by a strong force of attraction as one is positive and one is negative. We call the force of attraction between positive and negative charges an **electrostatic force.**

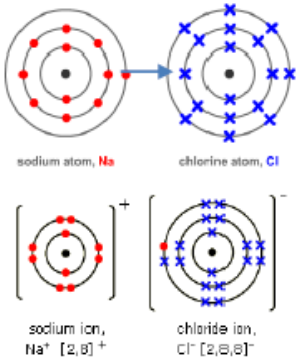
Key Terms	Definitions
Giant Structure	A giant structure is one which repeats over and over throughout the structure.
Ion	An atom (or particle) with a positive or negative charge, due to loss or gain of electrons
Ionic Bond	A bond formed by the electrostatic attraction of oppositely charged ions

Ionic Bonding - How giant ionic structures form

When a metal atom reacts with a non-metal atom electrons in the outer shell of the **metal atom are transferred to the non metal atom.**

This means the metal has a positive charge and the non metal has a negative charge. This means there is an **electrostatic attraction** between the two ions, this is what forms an ionic bond.

Both atoms will have a **full outer shell** (this is the same as the structure of a noble gas) see example below of sodium chloride.



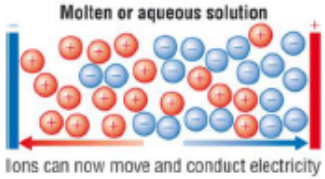
Melting point of giant ionic compounds

To melt a giant ionic structure, a very large amount of energy is required to break the many strong, electrostatic forces that exist between the ions.

Therefore ionic compounds have high melting points. For example the melting point of sodium chloride is 801 °C.

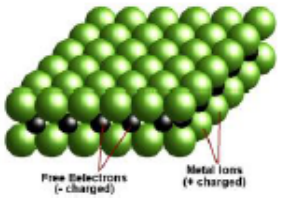
Properties of giant ionic structures-Conductivity

Giant ionic structures will not conduct electricity when they are a solid. However, if they are dissolved in water (aqueous) or molten



Giant Metallic Structures

A giant metallic structure still contains ions, however these are all ions of **the same element (a metal)**. This means all the ions are positive, in between the ions are **free or delocalised electrons**. These electrons can flow throughout the structure.

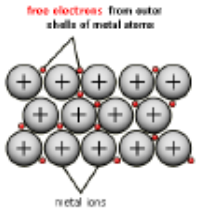


The ions and electrons are attracted to each other by a **strong electrostatic force.**

Properties of metallic structures

Metals are **good conductors of electricity**, due to the delocalised electrons, which can carry the electric charge throughout the structure.

Metals are also **good conductors of heat** as the free electrons can transfer the heat energy through the metal. The diagram below show a 2-D way of representing metallic bonding



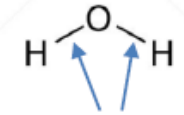
Metals also have high melting points, this is due to strong electrostatic attraction between the ions and the electrons.

Key Terms	Definitions
Simple structure	A structure that is formed of a small number of atoms, held together by strong covalent bonds.
Molecule	A small number of atoms bonded together
Covalent bond	Bonding between 2 (or more) atoms where electrons are shared
Intermolecular force	A force that exits between molecules.
Delocalised electron	An electron that is not attached to an atom

Simple Structures

Simple structures are held together by strong bonds between a small number of atoms (we call these simple structures, molecules). They are held together by **strong covalent bonds between the atoms** but there are weak forces between the molecules.

A water molecule



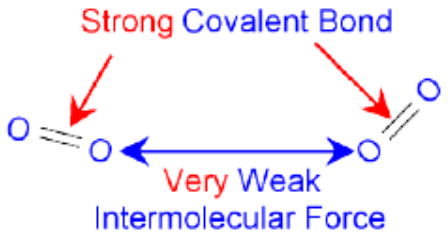
Strong covalent bonds

2 water molecules

Weak force between molecules

Properties of Simple Structures

Simple covalent structures have low melting and boiling points, this is why they are usually liquid or gas at room temperature. **This is because the forces between the molecules are weak.**



Remember that **covalent bonds are not broken, if this was the case it would be a chemical change.**

Simple covalent compounds do not conduct electricity, this is because they do not have free electrons or ions.

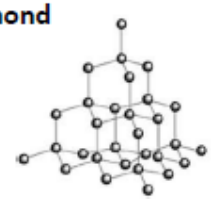
Giant Covalent Structures

Some giant structures are not made of have ions, these are known as giant covalent structures, there are covalent bonds between neighbouring atoms.

In a giant covalent structure all atoms are bonded to each other by strong covalent bonds. Giant covalent compounds have a **high melting point** because many strong covalent bonds need to be broken and this requires a lot of energy.

An example is diamond, diamond has a very high melting point, diamond does not conduct electricity as there are no free electrons.

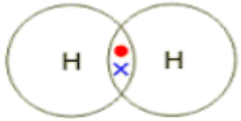
Diamond



Key Terms	Definitions
Covalent Bonding	Bonding between 2 (or more) atoms where electrons are shared
Molecule	A substance which contains two or more covalently bonded atoms
Lone Pair	A pair of electrons that are not part of the covalent bond
Giant covalent structure	A structure that repeats itself many times, the bonds between the atoms are covalent bonds.

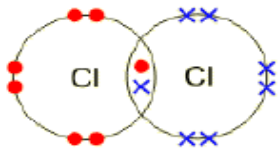
Covalent Bonding

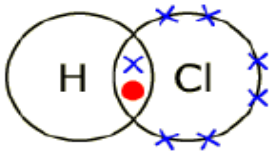
Covalent bonding occurs between non metals. A pair of **electrons are shared between the atoms**, so that both atoms have a full outer shell. The simplest example is hydrogen: both hydrogen atoms have **one electron in their outer shell. Therefore both hydrogen atoms share one electron each,** to give them both a full outer shell, we can show this bond on a dot and cross diagram.

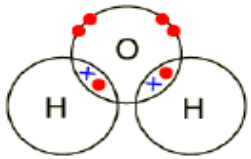


When drawing covalent molecules we use "dot cross diagrams" as we do with ionic compounds. It is important to represent the electrons on one atom with a dot and on the other atom with an X.

The bonding in, **chlorine, water and hydrogen chloride are shown below,** all share one electron per atom in a to make a full outer shell of electrons on each atom.







Energy in Reactions

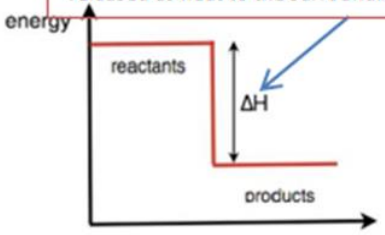
In a chemical reaction, bond breaking and bond making occur. To **break** a chemical bond you need to overcome the force of attraction in the bond, so this process requires energy (therefore it is **endothermic**). The process of bond formation is **exothermic**: energy is released when bonds form. In a chemical reaction the difference between the energy required to break the bonds and the energy gained from making the bonds will decide whether a reaction overall is exothermic or endothermic. Chemical reactions can therefore be divided into exothermic and endothermic chemical reactions.

Type	What happens?	Why?	Example
Exothermic	Heat energy is transferred to the surroundings.	The energy required to break chemical bonds is less than the energy gained from making chemical bonds. Therefore the excess is given off as heat to the surroundings.	Combustion reaction, reactions used in hand warmers
Endothermic	Heat energy is taken in from the surroundings	The energy required to break chemical bonds is more than the energy gained from making chemical bonds. Therefore heat is taken in from the surroundings.	The reaction of citric acid and sodium hydrogencarbonate, the reactions used in ice packs

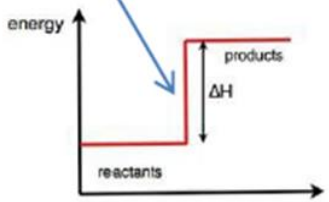
Reaction Profiles

Chemical reactions can occur only when reacting particles collide with each other with sufficient energy. The minimum amount of energy that particles must have to react is called the **activation energy. Reaction profiles** can be used to show the relative energies of reactants and products, the activation energy and the overall energy change of a reaction.

This is the reaction profile of an **exothermic reaction:** the energy of the products is lower than that of the reactants. The difference in energy is released as heat to the surroundings.



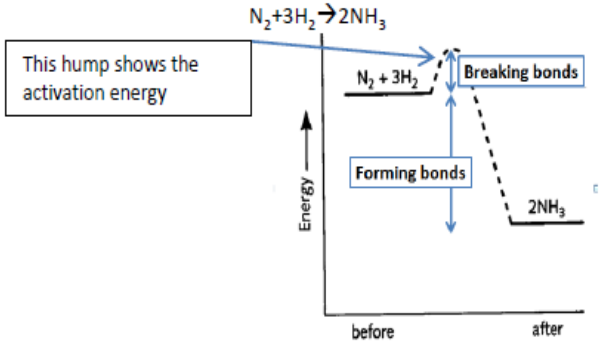
This is the reaction profile of an **endothermic reaction:** the energy of the products is higher than that of the reactants. The difference in energy is taken in from the surroundings, cooling them down.



Key Terms	Definitions
reaction profile	A graph which shows the energies of the products and reactants in a chemical reaction
exothermic	A reaction that gives out heat to the surroundings
endothermic	A reaction that takes heat in from the surroundings

Reaction Profiles- In more detail

The profile below shows the reaction which makes ammonia from nitrogen and hydrogen. The equation is given below:



There are some key features to highlight on this graph: firstly, the humped section represents the **activation energy** for this reaction. This hump shows how much energy is required to break the bonds in the reactants. To overcome the activation energy we often need to heat our reactants. The products are lower in energy than the reactants; this means it is an **exothermic reaction.** The excess energy is given out to the surroundings as **heat energy.**

Higher Tier: Calculating bond energies

The difference between the sum of the energy needed to break bonds in the reactants and the sum of the energy released when bonds in the products are formed is the overall energy change of the reaction. *(bond breaking **subtract** bond making)*

For example consider the reaction:

$N_2 + 3H_2 \rightarrow 2NH_3$

To work out the overall energy change you will need to subtract the energy released while forming the bonds in ammonia from the energy required to break the bonds in nitrogen and hydrogen molecules. This will give you the overall energy change. If the value is negative then the reaction is exothermic. If the value is positive the reaction is endothermic.

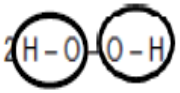
Higher Tier: Bond Energies continued

You can calculate the energy change in a reaction from bond energies given to you in a question. For example consider the reaction below:

This shows that hydrogen peroxide breaks down to make water and oxygen. We can use bond energies to work out the energy change in the reaction.

Bond	Bond energy in kJ per mole
H – O	464
O – O	146
O = O	498

The energy required to break the reactant bonds is:



2 x464 (for the O-H bonds) + 146 (for the O-O bond)=1074
However, as there are two moles of hydrogen peroxide molecules in the equation, this number needs to be doubled. **2 x 1074 = 2148 kJ/mol**

The energy gained from making the product bonds is:

2x464 = 928 but there are two moles of water molecules in this equation, so this doubled to 1856. Then we also need to add the 498 for the double bond forming to make O_2

1856 + 498=2354 kJ/mol

To find the overall energy change, we calculate like this:
energy required to break reactant bonds – energy gained from making product bonds:

2148 – 2354 = -206 kJ/mol

If the value is negative then the reaction is **exothermic**
If the value is positive the reaction is **endothermic.**

Key Terms	Definitions
reversible	Describes a chemical reaction that proceeds both ways.
dynamic equilibrium	An equilibrium where the forward and backward reactions are happening at the same rate.

Reversible Reactions and Equilibrium

Some chemical reactions are reversible, this means they can happen in both the **forward and reverse directions.** The symbol we use to represent an equilibrium reaction is shown in the equation below:

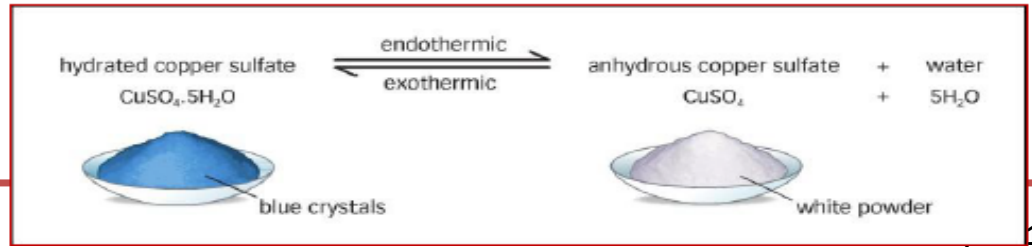
$$N_2 + 3H_2 \rightleftharpoons 2NH_3$$

In a reversible reaction that is left to react in a closed container, **dynamic equilibrium** occurs after some time. During equilibrium, the forward and reverse reactions are happening at the **same rate.** A dynamic equilibrium only occurs in a **closed system**, where no reactants and products are allowed to escape (i.e. a closed container). The overall concentrations of reactants and products all stay the same (but certainly don't have to be equal).

The relative amounts of reactants vs. products is described in the 'position of equilibrium':

- If the position of equilibrium lies to the **left**, it means that there is a **greater concentration of reactants than products.**
- If the position of equilibrium lies to the **right**, it means there is a **greater concentration of products than reactants.**

All equilibrium reactions are endothermic in one direction and exothermic in another direction. A good example is the hydration and dehydration of copper sulphate. It is exothermic when water is added to the copper sulphate, it is endothermic when water is removed. You must know this example.



Higher Tier: The effect of conditions on the position of equilibrium

The Haber process is a good example to explain Le Chatelier's principle, the equation for the Haber process is shown below. The reaction is carried out in the gaseous state. Remember this is one of many reactions but the principles always stay the same.

Exothermic in this direction

$$N_2 + 3H_2 \rightleftharpoons 2NH_3$$

Endothermic in this direction

Condition Change	Effect on this reaction
Increase the temperature	Shifts the equilibrium to the left as this is the endothermic direction, and endothermic reactions cool the surroundings down. The amount of reactants increases.
Decrease the temperature	Shifts the equilibrium to the right as this is the exothermic direction, which heats the surroundings. The amount of product increases.
Increase the concentration of reactants	Equilibrium shifts to the right to make more product and reach equilibrium again
Increase the concentration of products	Equilibrium shifts to the left to make more reactants and reach equilibrium again
Increase the pressure in the gas	Equilibrium shifts to the right, where there are fewer moles of gas molecules. This will decrease the pressure back again.
Decrease the pressure in the gas	Shifts the equilibrium to the left as there are more moles of gas molecules on that side of the equation.

Key Terms	Definitions
Le Chatelier's principle	A principle which states, "If a system is at equilibrium and a change is made to any of the conditions, then the system responds to **counteract the change**"

Higher Tier: Le Chatelier's Principle

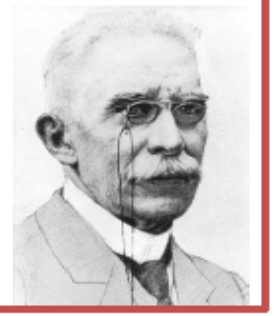
The amounts of all the reactants and products at equilibrium depends on the conditions of the reaction. If we change things like **temperature, concentration of a reactant or product and pressure in gases.**

The French scientist Le Chatelier devised a principle to explain how reversible reactions at dynamic equilibrium respond to a change in conditions. It states that:

"If a system is at equilibrium and a change is made to any of the conditions, then the system responds to counteract the change"

In other words, whatever you do to the system, the reaction will react to try to go back to how it was.

For example, if the temperature is raised the equilibrium will shift to cool the surroundings down.



3. Non-specific defense systems

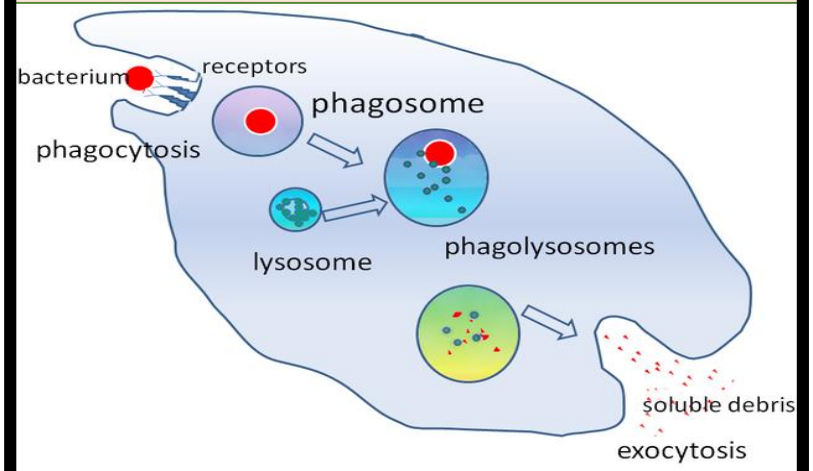
The human body has several non specific ways of defending itself from pathogens getting in	***Nose***	Nasal hairs, sticky mucus and cilia prevent pathogens entering through the nostrils.
	Trachea and bronchus (respiratory system)	Lined with mucus to trap dust and pathogens. Cilia move the mucus upwards to be swallowed.
	Stomach acid	Stomach acid (pH1) kills most ingested pathogens.
	Skin	Hard to penetrate waterproof barrier. Glands secrete oil which kill microbes

5. Antibiotics painkillers

antibiotics	***e.g. penicillin***	Kill infective **bacteria only** inside the body. Specific bacterial infections require specific antibiotics.
Bacteria can mutate Sometimes this makes them resistant to antibiotic drugs.		
Painkillers and other medicines	***e.g. aspirin, paracetamol, ibuprofen***	Drugs that are used to treat the symptoms of a disease. They do not kill pathogens

4. Immune system

White blood cells are part of the immune system



Phagocytes	***Phagocytosis***	Phagocytes engulf the pathogens and digest them.
Lymphocytes	***Antibody production***	Specific antibodies destroy the pathogen. This takes time so an infection can occur. If a person is infected again by the same pathogen, the lymphocytes make antibodies much faster.
	Antitoxin production	Antitoxin is a type of antibody produced to counteract the toxins produced by bacteria.

Pathogens are identified by white blood cells by the different proteins on their surfaces **ANTIGENS.**

6. Vaccinations

Vaccination	***Small amount of dead or inactive form of the pathogen***	***1st infection by pathogen***	White blood cells detect pathogens in the vaccine. Antibodies are released into the blood.
		Re-infection by the same pathogen	White blood cells detect pathogens. Antibodies are made much faster and in larger amounts.

Used to immunise a large proportion of the population to prevent the spread of a pathogen

8. Drug trials

Preclinical trials - using cells, tissues and live animals - must be carried out before the drug can be tested on humans.

Clinical trials use healthy volunteers and patients

Stage 1	***Stage 2***	***Stage 3***	***Stage 4***
Healthy volunteers try small dose of the drug to check it is safe record any side effects	A small number of patients try the drug at a low dose to see if it works	A larger number of patients; different doses are trialled to find the optimum dose	A **double blind** trial will occur. The patients are divided into groups. Some will be given the drug and some a **placebo**.

Double blind trial: patients and scientists do not know who receives the new drug or placebo until the end of the trial. This avoids bias.

A **placebo** can look identical to the new drug but contain no active ingredients

7. Drug development

Most new drugs are synthesised by chemists in the pharmaceutical industry.

Traditionally drugs were extracted from plants and microorganisms

Digitalis	***Aspirin***	***Penicillin***
Extracted from foxglove plants and used as a heart drug	A painkiller and anti-inflammatory that was first found in willow bark	Discovered by Alexander Fleming from the *Penicillium* mould and used as an antibiotic

Drugs have to be tested and trialled before to check they are safe and effective

New drugs are extensively tested for:	***Efficacy***	Make sure the drug works
	Toxicity	Check that the drug is not poisonous
	Dose	The most suitable amount to take

Electric charge and current

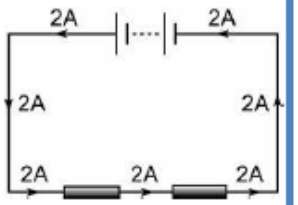
Every atom contains particles with an electric charge: protons and electrons. By getting electric charges to **flow**, we can get them to do work (i.e. transfer energy) in all sorts of useful ways. For that is what happens in any electric circuit you can think of: *flowing charges transfer energy*.

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.



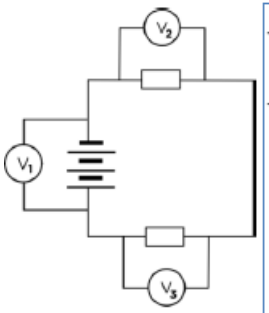
Current, resistance and potential difference

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.

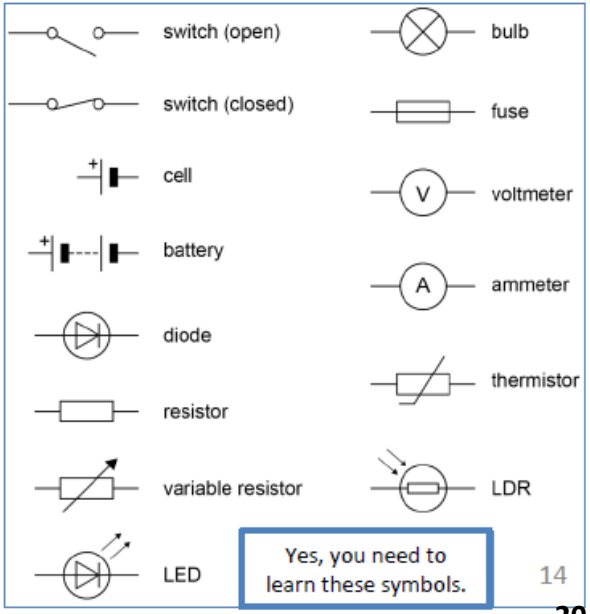
The **current** through a component depends on this **potential difference** across the component, but also its **resistance**. Without any resistance, a component would do no work (try putting a 0 in the equation!), so things like bulbs HAVE TO have resistance. The resistance of a component, along with 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
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.

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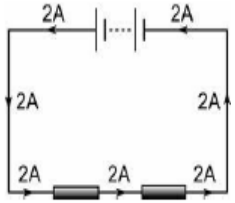

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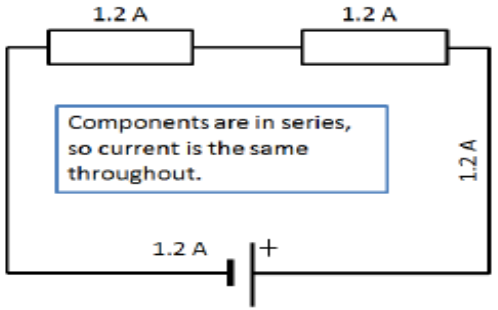
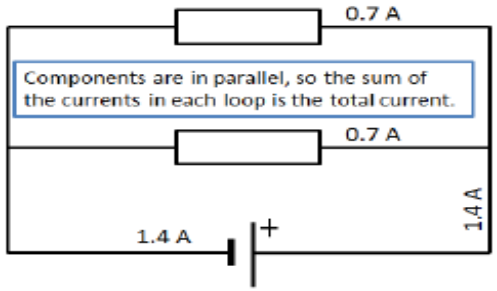
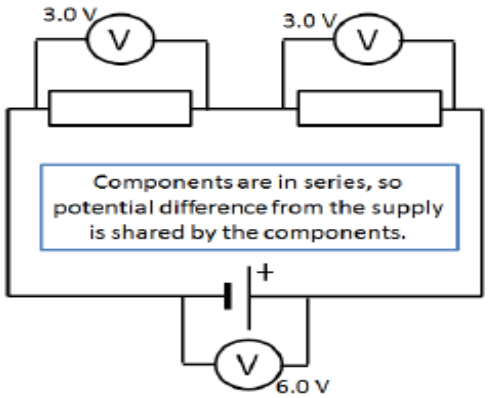
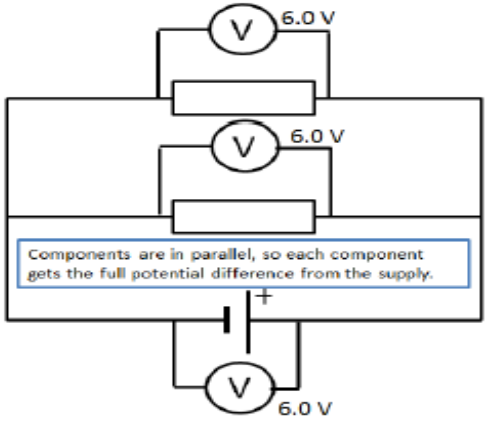
Key Terms	Definitions
series	Components connected one after another in a closed loop.
parallel	Components connected in different loops of a circuit.
resistor	An electrical component that regulates current in a circuit. Bear in mind, all electrical components have **resistance**, so are resistors in some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



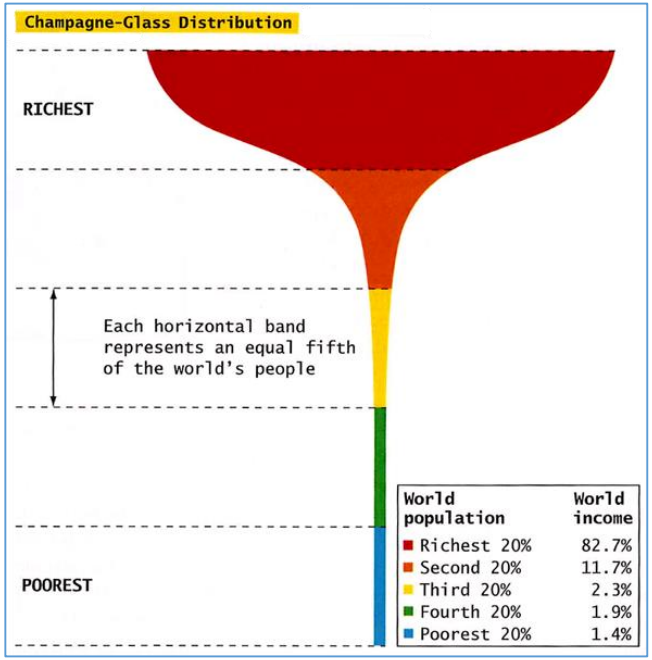






Number	Key term	Definition
1	**GDP**	Gross domestic product. The total value of goods and services produced by a country in one year.
2	**PPP**	Purchasing Power Parity. Shows what you can buy in each country.
3	**Poverty Line**	The minimum level of income required to meet a person's basic needs. US $1.25
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.



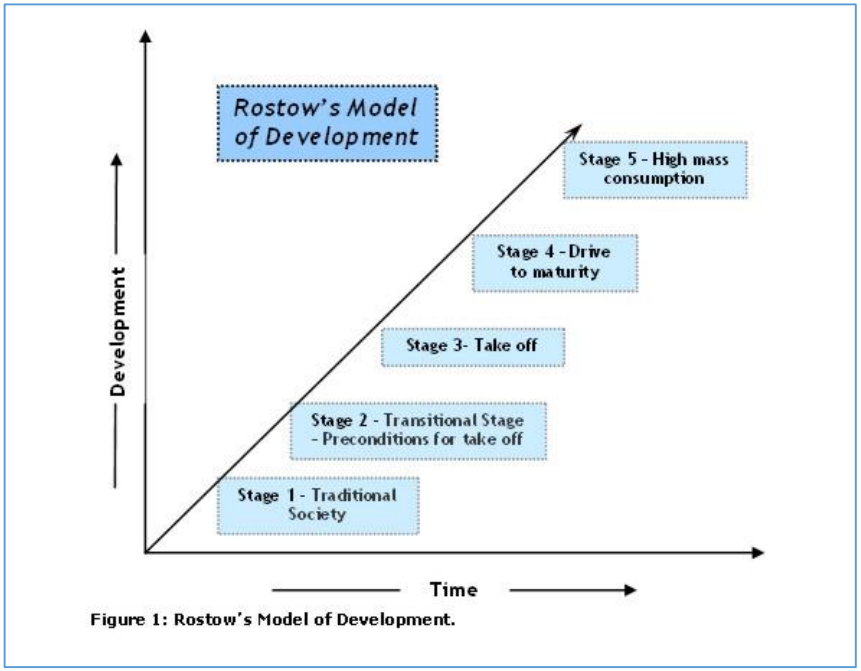
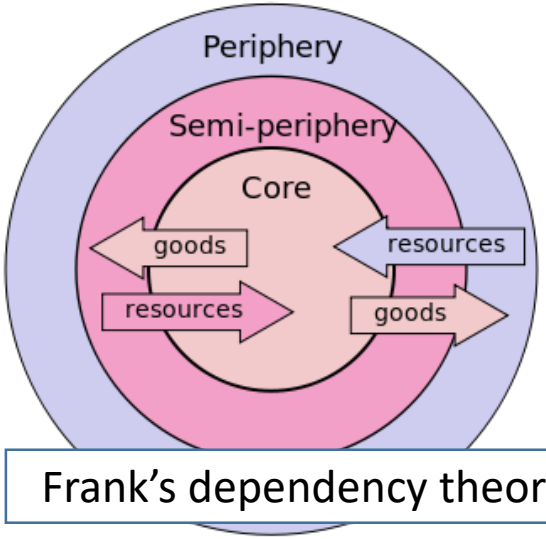
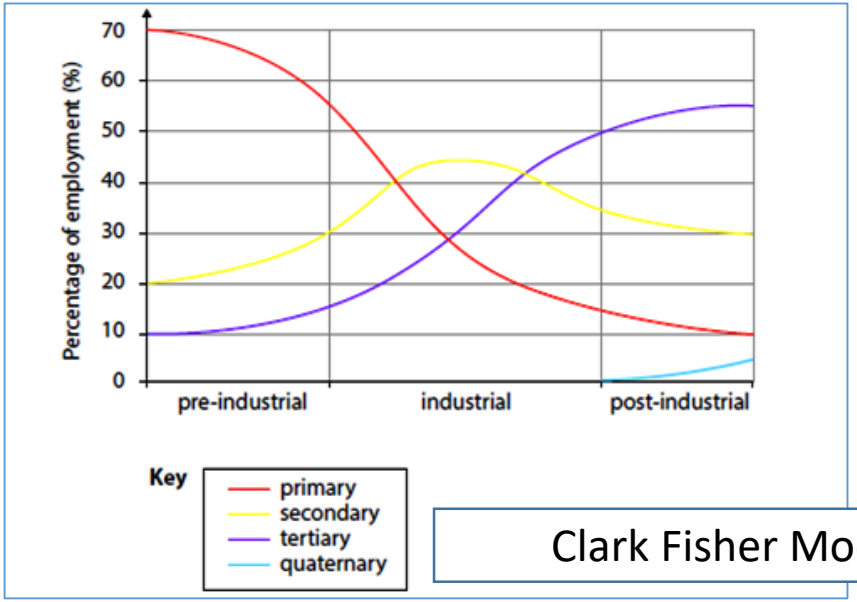


Figure 1: Rostow's Model of Development.



Frank's dependency theory



Clark Fisher Model

Number	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 i.e.. slums/squatter settlements.
22	**Spatial**	Relates to space e.g. the spatial growth of a city.

Anglo Saxon Crime and Punishment	
1	Crime and Punishment were dealt with by local communities with some involvement of the King and the Church. In 1066 a dramatic change occurred in England when William of Normandy invaded. The new regime sparked challenges to government authority. As the medieval period continued, the growth of towns led to a rise in crime rates in some areas. This prompted new ideas about law enforcement. Throughout this period, the church played an important part in defining and enforcing the law.
Key events	
2	**954** – English kingdoms unite under one king.
3	**1066** – William I is crowned King of England.
4	**1066-1087** – Resistance to William's rule was put down brutally.
5	**1072** – Forest Laws are introduced.
6	**1086** – Domesday Book.
7	**1154** – Henry II became King.
6	**1164** – Constitutions of Clarendon. Henry II reorganised the courts and set up prisons for those awaiting trial.
8	**1194** – Coroners are introduced.
9	**1215** – Trial by ordeal ends.
10	**1348** – Black Death reaches England.
11	**1485** – Henry Tudor becomes King Henry V11.
Key Concepts	
12	**Rural population** – 90% of people lived in the countryside.
13	During the Anglo-Saxon period, **the power and influence of the King over crime and punishment grew**. The role of the Catholic Church grew too and they wanted to give criminals opportunities to save their souls. The use of punishments, including capital punishment, grew.
15	**Under the Normans, systems were centralised**. This was a way of boosting the visible power of the King.
16	In the later Middle Ages, there was a shift away from local communities dealing with crime in their area towards a system where crime was dealt with by **government appointed officials**.
17	The **church was an extremely powerful institution** which controlled people's thought and actions.

Key Words		
18	**King's Peace**	Anglo-Saxons believed that it was the King's duty to take care of law and order, so people could go about their everyday lives knowing that the law would be upheld.
19	**Anglo-Saxon social structure**	King, nobles, freemen and serfs.
20	**Treason**	Betraying the King – for example, by helping his enemies, or plotting to kill or replace him.
21	**Crimes against the person**	Crimes like assault or murder that cause physical harm to another person.
22	**Crimes against property**	Crimes like theft, robbery and arson, that involve taking or damaging something that belongs to another person.
23	**Collective responsibility**	Being responsible for the actions of other members of your group. In a village community if someone broke the law, it was up to everyone in the village to take action.
24	**Reeve**	A local official, appointed from the community.
25	**Abbeys**	Communities of monks or nuns.
26	**Moral crimes**	Actions that didn't physically harm anyone, or their property, but didn't match up to society's views on decent behaviour: for example, having sex outside of marriage, or not sticking to the rules and customs of the church.
27	**King's shire reeve**	A man who was appointed locally to bring criminals to justice. The term 'shire reeve' later turned into the word 'sheriff'.
28	**Tithing**	Made up of 10 men over the age of 12. All were responsible for the behaviour of each other. One man from each tithing had to meet regularly with the shire reeve.
29	**Hue and cry**	Shouting for help if a crime had been committed. Everyone who heard it was expected to bring chase and capture the suspects.
30	**Petty theft**	Stealing small, low value items.
31	**Maiming**	Causing physical harm. A criminal could be punished by having a hand or ear cut off, or their tongue cut out.
32	**Oath**	A formal declaration of the facts, calling on God to witness that what is said is true.
33	**Trial by ordeal**	A way of testing whether the accused was innocent or guilty in the eyes of God.
34	**Trial by hot iron/ hot water**	Heat was used to burn one of the accused's hands which was then bandaged. If the burn healed well, the accused was innocent.
35	**Trial by cold water**	The accused was thrown into cold water with their arms tied. Anyone who floated was judged guilty.
36	**Wergild**	Fines paid to the victim's family. For murder. How much was determined by social status.
37	**Capital punishment**	The death penalty
38	**Corporal Punishment**	A range of punishments that caused harm or pain to the body – including being beaten or having body parts removed.
39	**Retribution**	A severe punishment, meant to match the severity of the crime.
40	**Deterrent**	A punishment that is frightening or painful and designed to put other people off committing the same crime.
41	**Stocks and pillory**	The pillory secured the arms and neck. The stocks secured the ankles. In full view, in bad weather for days on end, rubbish would be thrown at the accused and verbal abuse.
42	**Castles**	Built by the Normans to keep a careful watch on communities and to look intimidating.
43	**Feudal system**	Everybody owed money or service to the class above them.
44	**Murdrum**	If the murderer was not found, then a large sum of money had to be paid by the hundred where the body was found.
45	**Forest Law**	All common land was now strictly controlled by the King.
46	**Poaching**	Illegal hunting on land that belongs to someone else.
47	**Outlaw**	Any man aged 14 and over who tried to avoid trial and punishment by running away from his community. They could be killed without ay legal consequences for the person responsible.
48	**Folville gang**	A group of upto 50 outlaws who operated in England in the C14th.
49	**King's mund**	All men under the Normans should expect to live safe from crime under the authority of the King.
50	**Brand**	Make a mark on a criminal by burning their flesh with hot iron. They would now permanently stand out as a criminal.
51	**Trial by combat**	The two combatants fought to the death or until one gave in. It was usually used to settle disputes over money or land.
52	**Statute of Labourers**	Made it a crime to ask for higher wages.
53	**Heresy**	Made disagreeing with the teachings of the church a crime.
54	**Secular**	Non religious
55	**Clergy**	People who work for the church including priests.
56	**High treason**	Plotting to kill or betray the King.
57	**Hanged, drawn and quartered**	Semi strangled, then revived, abdomen cut open, intestines drawn out and limbs severed and displayed.
58	**Banished**	Ordered to leave the country.
59	**Trial of consecrated bread**	The priest had to pray and ask that when he ate a piece of consecrated bread, the bread would choke him if he lied about the crime of which he was accused.

Early Modern England Crime and Punishment	
1	Between c.1500-c.1700, there were wide ranging social, religious and political changes in England. Religion became more volatile after Henry VIII's divorce. Many religious activities were now viewed as religious crimes. The Gunpowder Plot increased fears around religious conflict in England. The English Civil Wars also led to great instability. The C17th saw persecution for witchcraft and during this period, the ruling elite continued to use the law to protect their own position in society. Punishment became harsher and more varied.
Key events	
2	**1509-47** – Reign of Henry VIII.
3	**1547-53** – Reign of Edward VI.
4	**1547** – Vagrancy Act – An able bodied vagabond who was without work for more than 3 days was to be branded with the letter V and sold as a slave for 2 years.
5	**1553-58** – Reign of Mary I.
6	**1558-1603** – Reign of Elizabeth I.
7	**1597** – Act for the Relief of the Poor – included harsh punishments to act as a deterrent to vagrants.
8	**1601**- Poor Laws aimed to make all local parishes provide poor relief for anybody who was not physically fit to work.
9	**1603-25** – Reign of James I.
10	**1605** – Gunpowder Plot.
11	**1606** – Popish Recusants Act – forced Catholics to take an oath of allegiance to the English Crown.
12	**1653-1658** – Rule of Oliver Cromwell as Lord Protector.
13	**1671**- Game Act – poaching was illegal.
14	**1688** – 50 capital crimes.
Key Concepts	
15	**Religious changes** in the C16th led to new and changing definitions of criminal activity.
16	**Economic changes** led to an increase in unemployment and vagrants and a suspicion of the poor by the upper classes.
17	Poaching and smuggling were seen to be '**social crimes**'.
18	The **population grew dramatically**, from 2.5 million in 1500 to 5 or 6 million by 1700. Urban areas grew too.
19	Between 1500 and 1700**, law enforcement was similar to how it had been in the Middle Ages**. The community were still expected to take a leading role in stopping and finding suspects.
20	Growth of towns and rising crime rates meant that **a new co-ordinated approach to enforcing law was needed.**
21	**Catholic persecution increased** after the Gunpowder Plot of 1605.

Key Words		
22	**Martin Luther**	German monk who protested against the Catholic Church.
23	**Reformation**	The change from Catholicism to Protestantism.
24	**Heretics**	People who had a different religion to the monarch.
25	**Treason**	To challenge the authority of the monarch and their authority as Head of the Church of England.
26	**Burned at the stake**	Tied to a wooden post and a fire lit beneath the victim.
27	**Middle Way**	The attempt of Elizabeth I to create a Protestant Church that was not too challenging to Catholic traditions.
28	**Act of Uniformity**	Everyone had to go to church on Sundays and holy days or pay a fine.
29	**Recant**	Make a public statement that you have changed your religious beliefs.
30	**Excommunicate**	Eject from the Catholic Church.
31	**Fox's Book of Martyrs**	Published I 1563, it describes the persecution of Protestants by Catholics under the reign of Bloody Mary (Mary I).
32	**Vagabonds/Vagrants**	Unemployed and homeless people who left their village or town in search of work.
33	**Deserving Poor**	Elderly and disabled.
34	**Undeserving Poor**	Those fit to work but did not.
35	**Poor Relief**	Financial assistance for the poorest members of society.
36	**Enclosed**	Fenced off for the exclusive use of the landowner.
37	**Import Duties**	Taxes payable on goods imported into the country.
38	**Smuggling**	Sneaking goods into the country to avoid import duties.
39	**Decriminalise**	Make an activity legal, or no longer a crime.
40	**Puritan**	A radical Protestant.
41	**Protectorate**	The period that Oliver Cromwell was in charge.
42	**Night watchman**	Early form of policing. Worked for the town constable who was employed by the town authorities.
43	**Thief takers**	Paid a reward for catching a criminal and delivering them to the law.
44	**Jonathan Wild**	An infamous thief taker in London who secretly led a gang of thieves who claimed rewards when they handled stolen goods.
45	**Bridewell Prison**	Built in 1556 and used to punish poor people who had broken the law.
46	**Capital Crime**	A crime that is punished by the death penalty.
47	**Pardon**	When a person is let off punishment for a crime of which they have been convicted.
48	**Bloody Code**	Harsh attitude to law making. Many crimes were punishable by death.
49	**Transportation**	Being sent away from England to serve a period of punishment in a colony abroad.
50	**Colonies**	New settlements in foreign lands – often taken by force from the original inhabitants.
51	**Plead for belly**	Pregnant women condemned to death asked to be allowed to live until the baby was born.
52	**Rehabilitation**	Help someone return to normal life and society after they have committed a crime.
53	**Conspirator**	Someone who is involved in a conspiracy – a secret plan to do something illegal.
54	**Pact**	A formal agreement.
55	**Demonology**	Book published in 1597 by James I about the nature of Hell and witches.
56	**Superstition**	Belief based on old ideas about magic rather than reason or science.
57	**Matthew Hopkins**	A self proclaimed Witch finder General who hunted down witches in the East of England.
58	**Familiars**	Animals who worked for the devil and witches.
59	**Swimming Test**	Involved drowning the accused. The guilty would float and the innocent would sink.
60	**Enlightenment**	Philosophical movement of the C17th and C18th that focused on the use of reason to question and analyse ideas that were previously taken for granted.
61	**Royal Society**	Established in London in 1660 and brought together thinkers and scientists from a wide range of academic fields.

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.
3	**1716** – Last known execution for witchcraft.
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.
8	**1789** – French Revolution.
9	**1810**- 222 crimes are capital offences.
10	**1816**- The first national prison opens at Millbank, 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 Millbank 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.
20	**1877** – All prisons are brought under government authority.
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	**Tread wheel**	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 reform.
46	**Elizabeth Fry**	Campaigner for prison reform.
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.

Box 1: Key Words

Monotheistic: A religion which believes in one God
Holy: Separate and set apart for a special purpose by God
Omnipotent: Almighty – unlimited power
Benevolent: all-loving
Justice: what is right and fair
Trinity: God the father, Son and Holy Spirit
Holy Spirit: Gods presence in the world
The Word: Jesus – as described in the book of John
Genesis: The first book in the bible which has the creation story in it
Incarnation: God in human form – Jesus.
Resurrection: coming back from the dead
Blasphemy: saying or doing something which goes against God
Crucifixion: Roman method of execution where a person is nailed to a cross
Ascension: 40 days after the resurrection when Jesus returned to God in heaven
Afterlife: What happens when you die
Day of Judgement: God will judge all souls at the end of time
Heaven: Eternal happiness, being in the presence of God
Hell: Eternal suffering, absence of God
Purgatory: Catholic belief in which souls are cleansed in order to enter heaven
Sin: Any action against God
Original Sin: first sin in the world committed by Adam and Eve which means all humans are born with this in them
Salvation: saving the soul from sin and going to heaven thanks to Jesus' sacrifice
Grace: A quality of God which shows to humans that God loves them which they don't need to earn
Forgiveness: pardoning someone for their wrong doing
Atonement: restoring the relationship between people and God through the life, death and resurrection of Jesus
Theodicy: A religious explanation for the existence of evil and suffering

Box 2: God as omnipotent, loving and just

Christians believe **God is all-powerful**. He has unlimited power and can do anything.

"Nothing is impossible with God"

God is all-loving he loves humans so wants what is best for them. Guidelines are given for us to live the best lives we can. Christians should love each other treating everyone with care and respect. *"God so loved the world he gave his one and only Son…"* God has unlimited power and authority with complete love and therefore gives justice is a fair way. Christians should try and bring about fairness in the world.

Box 3: The Oneness of God and the Trinity

Christians believe that the Trinity is made up of God the father, the son and the holy spirit. They believe God is three in one. There are not three Gods, but different forms of the same thing.

Box: 4 Different Christian beliefs about Creation

Creation in Genesis 1:1-3 - God created the world in 6 days and rested on day 7. *"In the beginning God created the heavens and the earth"* God created the perfect world in the beginning. *"it was good"*
Creation in John 1:1-3 – *"In the beginning was the word….through him all things were made…".* The word refers to Jesus and therefore he was present at the beginning of the world and involved in the creation of the world. This also shows the importance of the trinity being involved in the whole creation.

Box 5: The inconsistent Triad

Some people believe that you cannot have an all-loving God, who is all-powerful who allows evil and suffering to exist. Christians believe that God is transcendent (beyond our understanding) and therefore they can trust God when things in the world are not right. Christians have put forward a number of theodicies to attempt to address the inconsistent triad, such as life is a test and free-will.

Box 6: The Incarnation of Jesus – The Son of God

The Christmas story is the account of Jesus' birth. Some belief that this story shows Jesus had an ordinary birth as someone who was fully human, however was fully God as it says in the bible he was born through the immaculate conception. *"before they came together, she was found to be pregnant through the Holy Spirit".* This is proof to Christians that Jesus was incarnate. Through the incarnation God showed himself as a human.
"The word became flesh and made his dwelling among us". God in human form makes it easier for some to understand his actions, including miracles and resurrection. Jesus is known as the Messiah or special leader. When Jesus was baptised God said, *"You are my son".* Jesus was asked whether he was the Son of God, he replied, *"I am"*

Box 7: The Crucifixion

It is believed that Jesus was arrested, tortured and then put to death by Pontius Pilate through crucifixion. As Jesus was fully human he suffered pain as an ordinary human did.

"Father, into your hands I command my spirit" Jesus forgave the guards who crucified him and one of the criminals who was crucified next to him, *"You will be in paradise with me this day".* One of the Roman centurions said, "Surely this is the Son of God".

The crucifixion influences Christians today by accepting Jesus sacrifice they can be forgiven for sin and go to heaven. They can acknowledge that suffering is a part of life and God can understand what it is like for someone to suffer.

Box 8: The Resurrection and ascension

Jesus was buried in a tomb and left there until Easter Sunday because it was the Sabbath no-one could touch the body until after this. When Mary Magdalene returned to the tomb it was open and empty. An angel appeared and said Jesus had risen from the dead.

The resurrection is one of the most important parts of Christianity as it proves Jesus was divine and not just a human. For the next few days and weeks Jesus appeared to several people including his disciples to tell them to spread the news that he had risen and that they should continue his message.

The ascension happened 40 days after the resurrection when Jesus went up to heaven. *"He left them and was taken up into heaven."* He told his disciples to carry on his teachings, *"Go and make disciples of many nations, baptising them in the name of the father, Son and Holy Spirit".*

The significance for Christians today is it shows the power of good over evil and that they can be resurrected and therefore shouldn't fear death. God will forgive sins and they can become closer to God. The holy spirit will be there to guide and comfort. The resurrection gives the point to the Christian faith.

Box 9: Sin and Salvation

Sin separates humans from God, this can be anything that goes against God or his laws. As humans are not perfect it is impossible not to sin. Christians believe that all are born with sin in them known as Original sin. This is due to Adam an Eve disobeying God and eating the fruit from the tree of knowledge. This action separated humans from God and brought about death into the world. They were tempted by the serpent (devil) and Christians believe that Christians are tempted in life to do bad things.

Christians have freewill however they should use this to make the right choices using God and Jesus' teachings to guide them, e.g. The Ten Commandments.

Salvation means to be saved from Sin and its consequences, e.g. going to hell. Sin separates us from God and salvation saves us from this. This salvation comes through faith in God and Grace through faith in Jesus.

Box:11 The afterlife and judgement

Christians believe there is another life. Christians believe that they have eternal life but what happens to them depends on their belief in God. Judgement will happen at death or at the day of judgment.

The Apostles creed says, *"…he will come to judge the living and the dead…"*

The parable of the sheep and Goats shows how people will be judged by God. The sheep are the good and the goats the bad, going to heaven and hell.

Jesus also said, *"I am the way the truth and the life, no-one comes to the Father expect through me."* Treating others well and believing in God is important to guarantee a good afterlife.

Box 10: The role of Christ in Salvation

Salvation is offered through Jesus, *"For the wages of sin is death, but the gift of God is eternal life in Christ Jesus*". Jesus' death makes up for original sin. Humans can receive forgiveness for their sins because of Jesus' death and then receive eternal life. His sacrifice provides atonement, which means our relationship with God is restored. This removes the effects of sin and allows humans to get back to God.

"He is the atoning sacrifice for our sins and for the sins of the whole world". Jesus paid the price for the sin of all mankind through his death and Christians believe if you put your trust in him you can receive eternal life with God. Salvation is a gift you must choose through belief in Jesus and following his teachings.

Box 12: Heaven and Hell

Based on judgement Christians believe that people will go to heaven or hell depending on how they behave and whether they have a belief in Jesus. Heaven is seen as being with God and eternal happiness where there is no suffering. Hell is seen as eternal torment or suffering and being absent from God and where the Devil is.

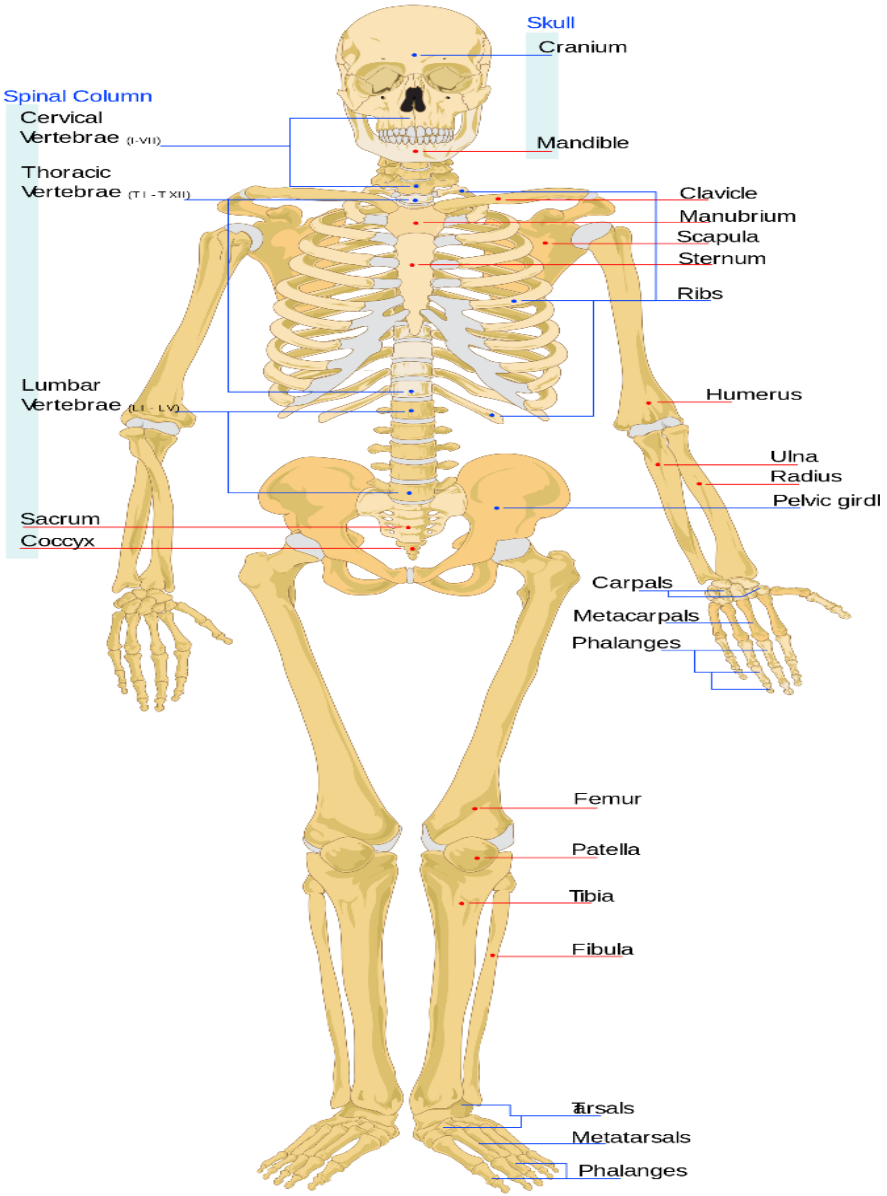
Some Christians believe that Heaven is a literal, real place you will go. Other Christians believe it is just being with God, in the same way hell may not be actually real but an absence of God.
In the book of revelation it mentions people who go to hell will burn in a lake of fire.

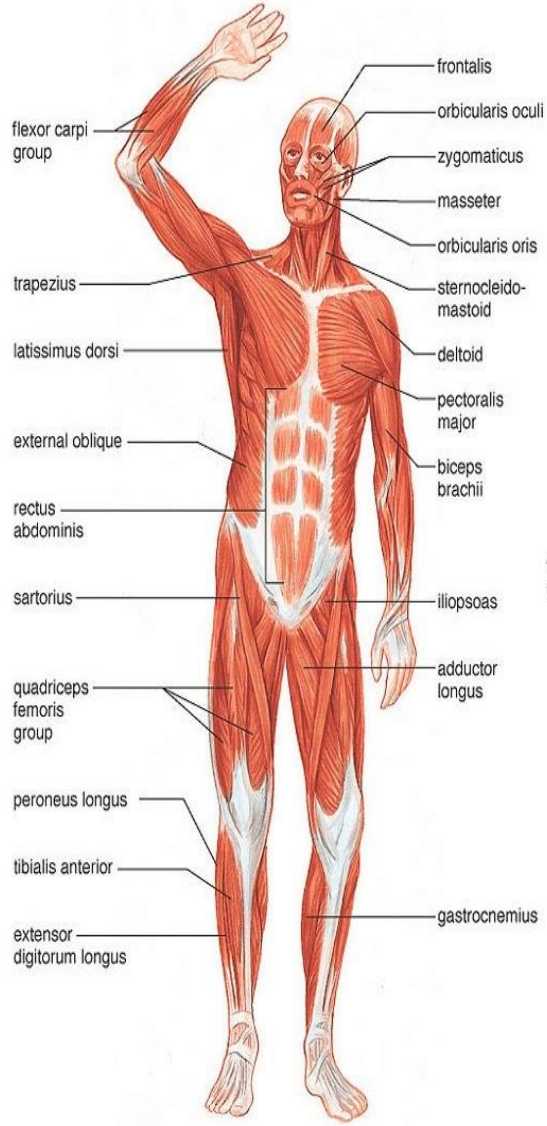
Catholics believe in a place called purgatory in which your soul goes to be cleansed as no-one is ready yet to go to heaven as as humans we are all imperfect.

YEAR 9- LENT TERM- RELIGIOUS EDUCATION- CHRISTIAN PRACTICES

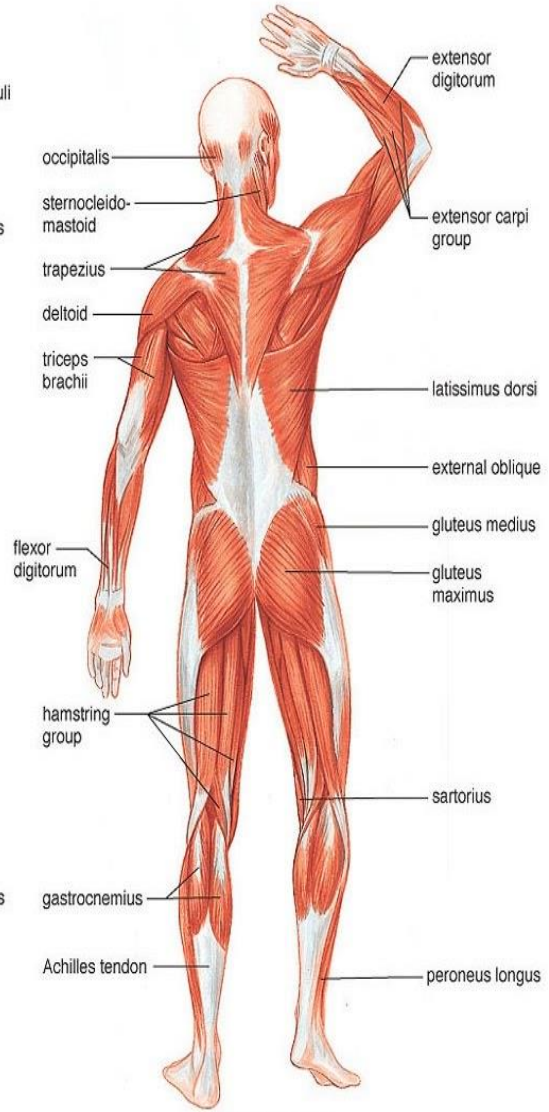
Key Ideas		
Worship + Prayer 	**Liturgical Worship** - This form of worship takes place in a church and is led by a priest - **Formal, set prayers** are read out - A more **traditional**, and formal form of worship **Non-liturgical Worship** - Also takes place in a church but **less formal** - No set prayers, instead people take turns to preach and read from the **Bible** - Can be modern and appealing to young people	**Prayer** - Prayer means **communicating with God**, either silently or out loud, sometimes through song - It is one of the most important parts of the spiritual life of a Christian and enables them to have a personal relationship with God - **Intercessions** are prayers made on behalf of others - **Thanksgiving** is when people pray to say thank you to God - **Set prayers** are written down and used in liturgical worship - **Informal prayer** is off-the-cuff and often used in non-liturgical worship
Eucharist + Baptism 	**Eucharist** - Eucharist and baptism are both sacraments meaning special occasions in a Christian's life - In Eucharist a priest **consecrates** (blesses) **bread** and **wine** and the congregation then receives these - **Catholics** believe the Holy Spirit transforms the bread and wine into Jesus' body and blood - **Anglicans** believe the bread and wine are symbolic - Christians take part in this ritual in order to remember the **sacrifice** Jesus Christ made for them by being **crucified** on the cross *"For whenever you eat this bread and drink this cup, you proclaim the Lord's death until he comes"* – 1 Corinthians 11:26	**Infant Baptism** - This is a **formal** service welcoming a new child into the Christian church - **Holy water** is sprinkled over the baby's head - All Catholics baptise their children close to birth in order to ensure they go to heaven **Believer's Baptism** - A believer's baptism welcomes someone into the church who is **old enough** to decide themselves - They are submerged in a pool of **holy water** - They make promises to stay away from evil - **Baptists** only practice this type of baptism
Pilgrimage + Festivals 	**Pilgrimage** - A pilgrimage is a journey made by a Christian to a holy site - Catholics go on pilgrimage to Lourdes where a vision of Mary was once seen, they believe the water there has healing effects	**Christmas** - Christmas celebrates the incarnation (birth) of Jesus Christ - Christians give gifts to commemorate the gift of God sending his own son to the world **Easter** - Easter celebrates the resurrection of Jesus Christ - Christians celebrate by saying *"he is risen"* and by eating chocolate eggs that represent new life
Evangelism + Church in the Community 	Christians have a duty to **evangelise** (tell others of the word of God). An example is the **Alpha Course** which is an educational course that tells people more about the life of Jesus.	Christians also have a duty to **help others in the local community**. Two examples of this are **Street Pastors** who help drunk people at night and **Food Banks** that provide food to people in poverty.
Reconciliation 	- Christians across the world play an important role in **reconciliation** (seeking to restore friendly relations after a conflict or falling out) - An example is **Coventry Cathedral** which was bombed during World War II but now seeks to create peace and reconciliation elsewhere in the world. **The World Council of Churches** also works to help after conflict. - In some places Christians face **persecution** where they are treated badly for their faith. Churches around the world work together to try and overcome this.	

Key Words	
Believer's Baptism	Service where those old enough to decide for themselves are welcomed into the church
Christmas	Christian festival which celebrates the incarnation (birth) of Christ
Consecration	When a priest blesses bread and wine in order to use it for Eucharist
Easter	Christian festival which celebrates the resurrection of Christ
Eucharist	Service where bread and wine is received by Christians to remember Jesus' sacrifice
Evangelism	Spreading the word of God through action or speech
Infant Baptism	Service where babies are welcomed into the church with holy water
Liturgical Worship	Formal worship with set prayers, hymns and Bible readings
Mission	The calling to spread the word of God and evangelise
Non-liturgical worship	Worship with no set pattern, may have modern music and sermons
Persecution	Hostility and ill-treatment of a group of people
Pilgrimage	Going on a journey to visit a holy site
Prayer	A communication with God, can be private or during worship
Reconciliation	Restoring friendly relations after a conflict or falling out

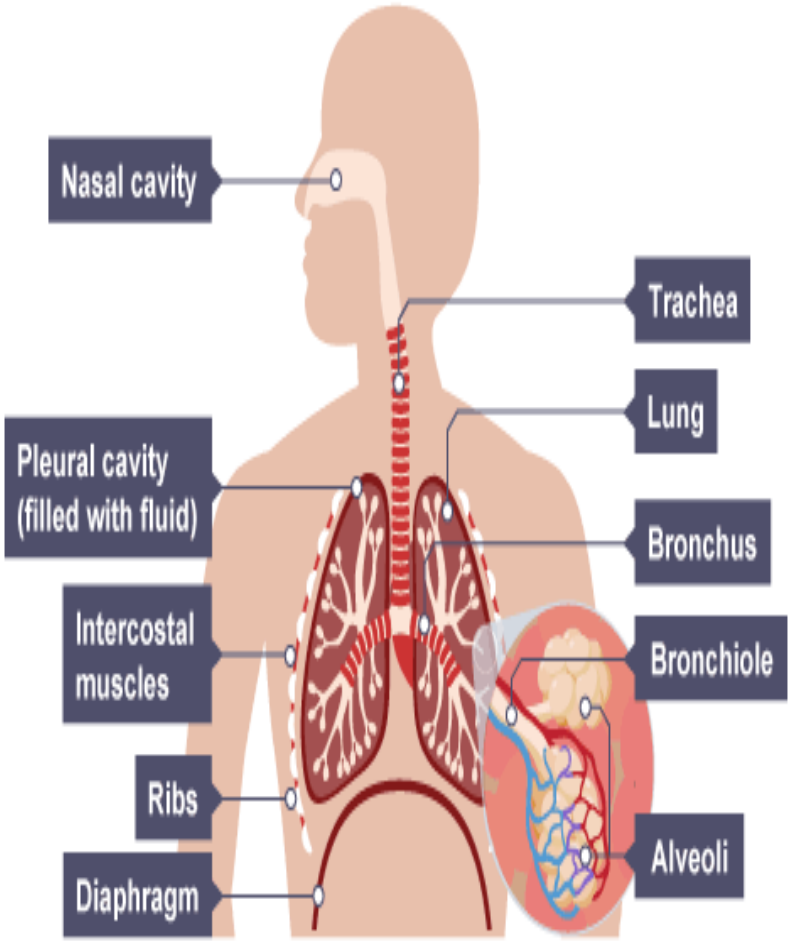




a. Anterior view



b. Posterior view



What happens during respiration?

When we breathe in, air moves from mouth and nose down into the trachea.

The trachea carries air from the throat to the lungs

The inner surface of the trachea is covered in tiny hairs called cilia, which catch particles of dust, which are then removed when coughing.

The trachea is kept open by rings of cartilage.

The trachea divides into two tubes called bronchi, one entering the left lung and the other entering the right lung.

Once inside the lung the bronchi splits several ways, forming smaller and smaller bronchi.

The small bronchi then divide into bronchioles which are tiny (diameter of less than 1mm).

At the end of the bronchioles are the openings to the alveoli.

There are usually several alveoli coming from one bronchiole, forming a clump which often looks like a bunch of grapes.

The function of the alveoli is the exchange of gases.

Capillaries that carry the blood surround the alveoli.

The exchange of oxygen from the lungs into the blood and the exchange of carbon dioxide in the blood from these capillaries occur through the walls of the alveoli.

LO1: Be able to use skills, techniques and tactics/strategies/compositional ideas as an individual performer in a sporting activity

BASIC RULES

1. What is the aim of table tennis? The aim of table tennis is to score more points than your opponent by volleying the ball across the net and landing on the table.

2. When is a point won? A point is won by you if your opponent is unable to return the ball to your side of the table (e.g. they miss the ball, they hit the ball but it misses your side of the table, or the ball hits the net), or if they hit the ball before it bounces on their side of the table.

3. How is table tennis scored? The winner of a game is the first to 11 points. There must be a gap of at least two points between opponents at the end of the game though, so if the score is 10-10, the game goes in to extra play until one of the players has gained a lead of 2 points. The point goes to the player who successfully ends a rally, regardless of who has served.
A match can consist of the number of games you like, just make sure you agree this in advance!

4. What is the ready position? Neutral starting position, slightly bent arm, racket in front of you so you can just reach the end of the table, feet shoulder width apart and knees bent, racket in a neutral position so you can play either a backhand or forehand.

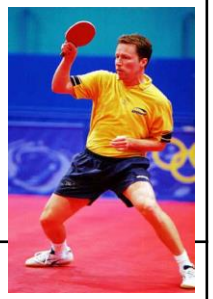
5. What is the correct racket grip? Shake hands or western grip – v shape formed with thumb and forefinger, should be firm grip but not too tight – imagine the bat is just an extension of your hand and forearm.

6. What happens if the ball hits the net? The ball must pass 'cleanly' over the net. If the ball 'clips' the net and goes over it is a 'let' and the point is retaken. If the ball hits the net and doesn't go over the point goes to the other player / team. There are no second serves.

BASIC STROKE TECHNIQUES

7. The Backhand Push
Stand close to the table, front ways on to the table, hit the ball at the top of the bounce, 50% of stroke action before hitting it, and 50% of stroke action after you have hit it (so its not too powerful)

8. The Forehand Drive
Stand close to the table, sideways on, facing the line of play. Using a medium stroke, racket arm should move slightly upwards in direction that the ball is going to travel. During the stroke your upper body should rotate 45 degrees to the right then turn back to face the ball, moving from right foot to your left.



9. The Serve
Table tennis serve is the most important stroke in the game because it provides the only situation in which you have total control over how and where you play the ball.

- On your backhand side, position yourself at the side of the table, hold the racket at an open angle (like backhand push).
- Balance the ball in the palm of your free hand and project the ball upwards, as near vertically as possible, so that it rises at least 6inces after leaving your hand.
- Allow the ball to drop and then hit the ball with your racket – so that it bounces your side of the table then goes over the net and bounces on your opponent's side.

BASIC TACTICS AND STRATEGIES

10. What shot do I play when?
If the ball is played short (just over the net) return the ball with a defensive shot (the push).
If the ball is played long (to the baseline on your side of the table) return the ball with an attacking shot such (the drive).

11. Vary your shots used - Try not to use the same shot every time you return the ball because then this becomes predictable to your opponent.
12. Vary the placement – Try to hit the ball into different spaces on the opponents side of the table so they have to move more – aiming for the backline, corners, sidelines and just over the net is the best place to aim.

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:

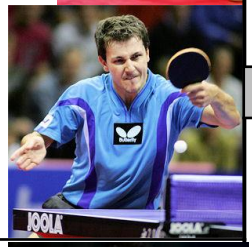
- **Early Offense -** The main reason for early offense is to advance the ball into the front court area and attack before the defense is able to become organized into a disruptive force. **Set Offenses -** Although most teams would prefer to play the up-tempo, fast-break transition game that personifies 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.

ADVANCED SKILLS

1. The Lob (backhand or forehand)
Ready position away from the table, right shoulder needs to rotate backwards and downwards until you racket is about knee height. Use a vertical brushing top spin action as you hit the ball. Aim to hit he ball at waist height. Follow through the stroke after hitting the ball until racket is at about head height.

2. The Forehand Drive
Stand close to the table, sideways on, facing the line of play. Using a medium stroke, racket arm should move slightly upwards in direction that the ball is going to travel. During the stroke your upper body should rotate 45 degrees to the right then turn back to face the ball, moving from right foot to your left.

3. The Backhand Drive
Using a medium stroke your racket arm should move forward and upwards. Racket angle should be slightly closed, loose wrist to help with topspin. Hit the ball at the top of the bounce, using 50% of stroke action before hitting it, and 50% of stroke action after you have hit the ball.



4. The Forehand Smash
Body is in a sideways position, slightly away from the table. Backswing should bring your arm back directly behind the path of the ball and your body should be rotating back slightly as you transfer weight on back foot. Racket in a high position, so you can come downwards and forwards as you play your stroke and hit the ball. Strike the ball at the top of the bounce or at shoulder height. As you play the stroke you transfer weight forwards returning to ready position.

DEFENSIVE STRATEGIES

5. **When should I play the lob?**
a defensive stroke played away from the table, usually in response to stroke from your opponent which forces you back off the table. Aim is to play a long topspin stroke causing the ball to travel in a high arc and land near baseline of opponent's side of the table.

6. When should I use a forehand push?
When your opponent plays his shot in such a way that if you dint hit the ball it would bounce at least twice on your side. Purpose of this shot is to stop your opponent playing an attacking shot, so you should try and make it bounce just over the net.

7. When should I play a backhand push?
This shot should be used when your opponent plays a shot in such a way that if you didn't hit the ball, it would bounce at least twice on your side of the table (short over the net). The purpose of this stroke is to stop your opponent from playing an attacking stroke, so you should try and make sure your shot is also played short over the net

ATTACKING STRATEGIES:

8. When should I use the backhand drive?
When your opponent plays his shot in such a way that the ball approaches you with height and/or depth. The purpose of this stroke is to play aggressively and stop your opponent from playing an attacking stroke, so you should try to make sure that your shot lands close to your opponent's baseline or sideline.

9. When should I use a forehand drive?
When your opponent plays their shot in such a way that the ball approaches you with height and/or depth. The purpose of this stroke is to play aggressively and stop your opponent from playing an attacking stroke, so you should try and make sure that your shot lands close to your opponent's baseline or sideline

10. When should I use the forehand smash
When the ball bounces higher than normal o your side of the table. The intention is to hit the ball as hard as possible, with minimal spin, in order to try and finish a rally and win a point.

BASIC RULES

1. What is the aim of wallball? Wallball is a simple activity played by hitting a ball against a wall with your hands. The aim of wallball is to score more points than your opponent by hitting a ball against a wall and landing inside the correct area on the floor.

2. When is a point won? A point is won by you if your opponent is unable to return the ball to the wall (e.g. they miss the ball, they hit the ball but it misses the wall, or the ball hits the floor before the wall).

3. How is wallball scored? The winner of a game is the first to 11, 15 or 21 points or played a timed game (commonly 15/20 minutes). There must be a gap of at least two points between opponents at the end of the game though, so if the score is 10-10, the game goes in to extra play until one of the players has gained a lead of 2 points. The point goes to the player who successfully ends a rally, regardless of who has served.
A match can consist of the number of games you like, just make sure you agree this in advance!

4. What is the ready position? Neutral starting position, feet shoulder width apart and knees bent, both arms in a neutral position so you can play either.

5. What is the correct equipment needed to play wallball? It is recommended to use an official wallball when playing the sport, however, any ball that can be struck safely with the hand can be used e.g. tennis ball, soft play ball, etc. Wallball gloves are optional and usually the player will decide if needed or not. Goggles are required for official tournaments.

6. Do we need a referee to play wallball? Wallball is a self-contained game and players are also expected to be referees, giving them experience of controlling a game, making decisions and taking ownership of their actions.
It is recommended that the loser referees the next match.

7. How do we start the game?
The game will start by one of the players serving against the wall and the ball must return beyond the service line and inside the court.

BASIC TACTICS AND STRATEGIES

8. The Target Serve
Most professional players believe that a well-controlled serve is the most important shot in the game. Services that rebound and bounce low near the short lines makes it even more difficult for the retriever, specially if he/she does not know which the direction the serve is being aimed.

9. What are the pass shots?
The pass shot is just what the name implies, a shot that is hit past the opponent. Control the passing angles is very important in order to move the opponent out of the advantageous front court position. These shots are usually classified as “cross court” and “down the line” passes.

10. Important tactics to win games:

a) Always serve first if you win the toss at the beginning of the game
b) Serve deep to push your opponent back
c) Dominate the centre of the court
d) Kill the ball, by hitting it low at the wall
e) Hit the ball down the side of the court to move the players away from the centre
f) Hit wide angles to push opponents off the court
g) Hit to the player weaker hand
h) In doubles drive the ball down the middle (hope to confuse the players so they both leave it)
i) Hit to the weaker opponent in doubles

1	Subprograms	Be able to write programs that use pre-existing (built-in, library) and user-devised subprograms (procedures, functions) Be able to write functions that may or may not take parameters but must return values, and procedures that may or may not take parameters but do not return values Understand the difference between and be able to Write programs that make appropriate use of global and local variables
4	Input/output	Be able to write programs that accept and respond appropriately to user input Be able to write programs that read from and write to comma separated value text files Understand the need for and be able to write programs that implement validation (length check, presence check, range check, pattern check)

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' ha 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.

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. (e.g., Hello, WR10 1XA)	**str(x)**
Integer	A whole number. (e.g.. 1, 189)	**int(x)**
Float/Real	A decimal number, not a whole number. (e.g.. 3.14, -26.9)	**float(x)**
Boolean	1 of 2 values. (e.g.. True, False, Yes, No)	**bool(x)**
Char	**A single character**	**char(x)**

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

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

WHY INDENTING IN CODE IS IMPORTANT

- Easier to read
- Easier to understand
- Easier to modify
- Easier to maintain
- Easier to enhance

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https://www.python.org/about/gettingstarted

CREATE AN ACCOUNT IN REPL.IT:
https://repl.it

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

YEAR 9- LENT TERM- COMPUTING - PROGRAMMING

Key vocab	
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.
Pseudo code	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. (e.g.. 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!")
```

```
1   my_file = open("C:/Documents/Python/test.txt", "a+")
2   print("What is the file name? ", my_file.name)
3   print("What is the file mode? ", my_file.mode)
4   print("What is the encoding format? ", my_file.encoding)
5   my_file.close()
6   print("Is File closed? ", my_file.closed)
```

```
if entry == "a"
then
   print("You selected A")
else if 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")

end switch
```

Selection will be carried out with if/else and switch/case.
In the example the pseudo code 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.

Function example

```
def userName(fname, sname, year):
        uname = str(fname[0] + sname + year[-2:])
        return uname
forename = "Joe"
surname = "Bloggs"
yearOfBirth = "2001"
```

A procedure is a way of giving a sequence of instructions a named identifier which can then be called from anywhere in the program. Procedures can also take inputs – these are known as **arguments**.

ERRORS IN CODE

Bugs, which can prevent computer programs from working in the way they should.
Run-Time Errors: Runtime errors are errors which will cause the program or computer to crash even if there appears to be nothing wrong with the program code. Running out of **memory** will often cause a runtime error. This could be because **instructions** have been written in the wrong order.
Syntax errors include spelling mistakes, incorrect use of punctuation and the use of capital letters.
Semantic errors, or logical errors, are those where the program works but produces different results from what you designed or expected. A program with semantic errors will **execute** without any errors being reported.

```
def hello(name):
        print("Hello " + name + " nice to meet you")

hello("Alice")
hello("Bob")
hello("Sue")
```

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`list = ["","",""]`	Creates a variable and makes it an array – a list which can store many values.

Theatre in Education Skills

Target Audience
It is important that the creators and performers in a T.I.E. play know exactly who their audience are so that the materials they produce are appropriate and beneficial for the specific audience.

Specific Message
T.I.E. plays must have a specific message that they are teaching the audience.

Facts
T.I.E. plays are designed to educate the audience about a specific topic. It is therefore essential that the information given out is accurate. Facts can be used to help devise the play and they should also be included within the performance

Communal Voice/Chorus
Chorus is when the performer use the same movement and say the same lines. Communal voice is a variation of Chorus used in T.I.E. The performers speak with 'one voice' and usually reinforce the message of the play.

Where to get help.
At the end of watching a T.I.E. play, the audience should know what to do if they face a similar situation to the characters in the play. Where do they go for help/support?

Directly Engaging the Audience:

1. **Direct Address** – The actor or character breaks the forth wall and speaks directly to the audience.
2. **Forum Theatre** – The audience are given tasks to do which involve them within the performance.

Episodes
A series of scenes which can be related or unrelated.

Placards/PowerPoints
A placard is a sign presented onstage. Using placards might be as simple as holding up a card or banner. Multimedia or a PowerPoint slideshow can also be used for this effect. For example Scene One – The Bad News

Narration
Narration is used in T.I.E. to guide the audience through the plot. There are two types of narration as follows:

1. **In role**
   The character narrates in first person For example "My name is Little Red Riding Hood. I live in the forest".
2. **Third Person/Out of role/All Knowing**
   Commenting upon a character as an actor is a clear way of reminding the audience of theatricality. The narrator speaks in third person. For example "This is Little Red Riding Hood. She lives in the forest".

Stereotypical characters
These are easily recognisable stock characters. They are often exaggerated and represent a type of character rather than a specific individual. For example, the mum, the teenager, the teacher.

Multi-roling
Multi-roling is when an actor plays more than one character onstage. The differences in character are marked by changing voice, movement, gesture and body language but the audience can clearly see that the same actor has taken on more than one role.

Speaking Stage Directions
This is when the actors narrate the stage directions prior to acting them out. For example the actor will say "Daniel sat down angrily" and then he will sit angrily.

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. This keeps that character representational and inhibits emotional involvement and attachment on the part of the audience.

Basic Set, Props, Lighting and sound
T.I.E. has to travel to a variety of performance venues. Therefore actors use minimal set and props. They usually carry their own sound equipment with them and rarely use stage lighting.

Song /Dance/Movement
Song, dance and movement are often used in T.I.E. plays to engage the audience and make the performances more visually/orally interesting.

Physical Theatre: Explanation

The Nature of Physical Theatre
At its simplest, you could define Physical Theatre as a form of theatre that puts emphasis on movement rather than dialogue. But remember there are a huge number of variations as the genre covers a broad range of work. But essentially Physical theatre is anything that puts the human body at the centre of the storytelling process. As a result it's often **abstract** in style, using movement in a **stylised** and **representational** way. With the expression of ideas choreographed through movement, such performers use very little or no dialogue at all.

Physical Theatre Key Words

Abstract: To perform in a way that is not like real life.
Stylised: Non-realistic performance
Representational: Symbolic
Exaggerate: To perform in a larger than life way. Over emphasize movement and speech.
Narrated Action: To perform the actions whilst a narrator orates (speaks)
Combined Art Forms:
Physical theatre includes elements of dance, music, visual arts, spoken word and mime

Rehearsal Techniques

- **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.

- **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. Actors on each side of the corridor give reasons for and against.

Body Language Key Word

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.

Physical Theatre: Performance Skills

Physicalisation of Set:
Using the body to create objects on the stage

Physicalisation of Emotions:
Using the body to symbolise emotions

Mask:
Concealed facial expression so meaning created through movement and body language

Power of the Hand:
Symbolic fight in which person A extends hand into face of person B and controls their movement

Mirroring: Copying the movement of a partner in complete unison

Unison:
Moving together in time

Formations:
Shapes line, triangle, square etc

Proxemics:
Distance between characters suggests meaning

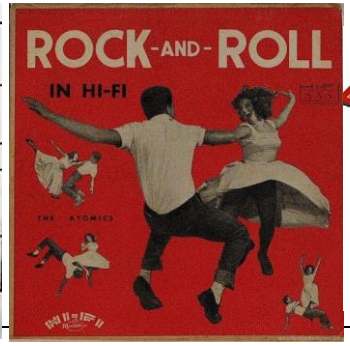
Character:
Physicality and actions to create person

Contact work:
Holding or making physical contact with others

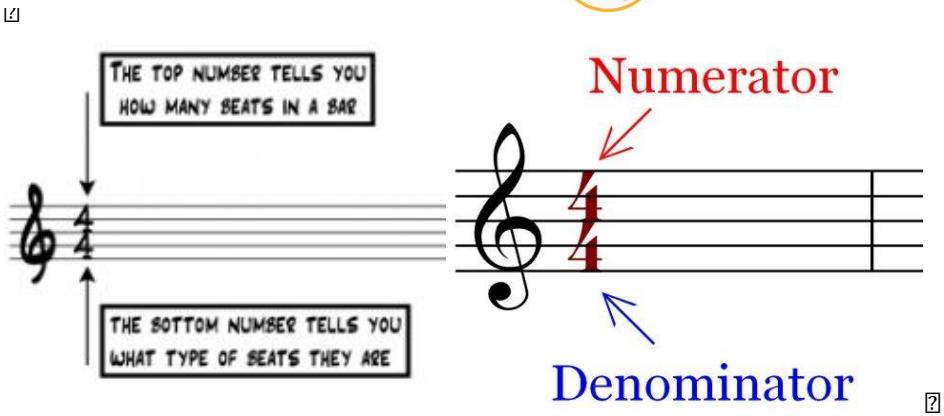
Dynamics:
Speed and energy of the movement

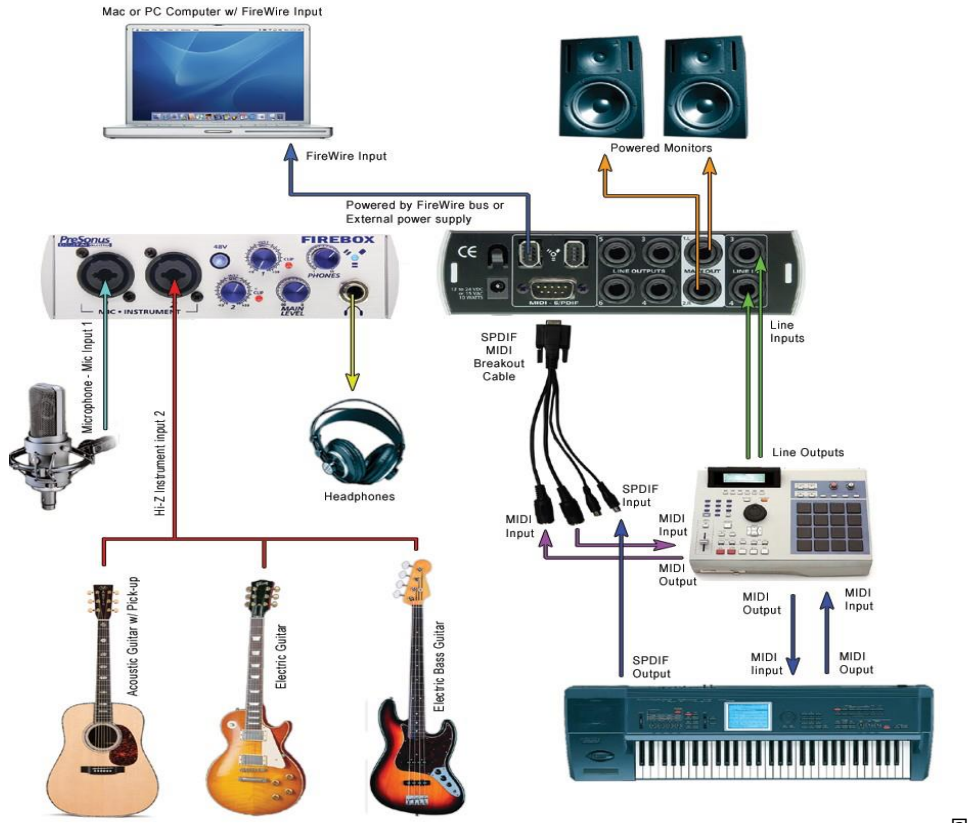
Focus:
Where your eyes should be focused during play.

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.

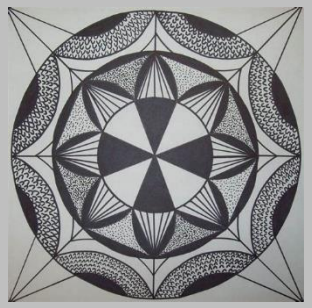




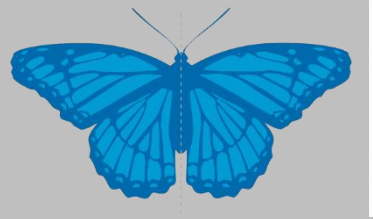
A. Key Terms

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"

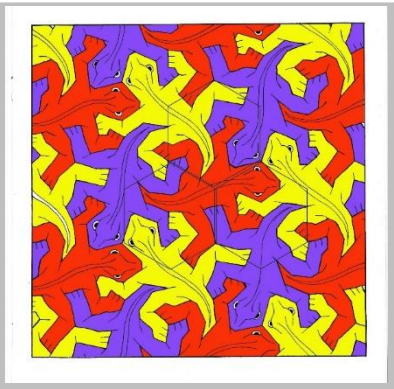
B. Pattern



B1: Radial Symmetry
A pattern that rotates around a central axis.



B2: Symmetry
the quality of being made up of exactly similar parts facing each other or around an axis.



B3: Tessellation
A tessellation of a flat surface is the tiling of a plane using one or more geometric shapes, called tiles, with no overlaps and no gaps.

C. Painting techniques

	Key Words: Painting Techniques and Equipment	
C1	Flat painting	The use of flat colours (no tints or tones blended in) to give each shape a clear bold finish.
C2	Layers	Additional layers of paint are added to make the painted shapes flatter in colour (no brush marks showing)
C3	Palette	A flat container with wells to mix different coloured paint in.
C4	Paint brush	A hand held painting tool to apply paint to any surface.
C5	Water pot	A plastic container to hold water for cleaning brushes.

Temperature control	
Keyword	**Definition**
1. Food spoilage	When food deteriorates so that its quality is reduced or it can no longer be eaten.
2. Food poisoning	An illness caused by eating contaminated food
3. high-risk foods	Food that contains a lot of moisture and nutrient (e.g. milk, cream, eggs, meat and fish), and easily support the growth of pathogenic microorganisms particularly bacteria.
4. bacteria	Microscopic living organisms, which are single-celled and can be found everywhere
5. reproduce	When animals and plants make more of their own kind
6. Binary fission	How each bacterium reproduces by splitting in two
7. Temperature danger zone	Temperatures between 5°C and 63°C where most bacteria can multiply
8. dormant	When bacteria are inactive and cannot grow at all
9. Temperature probe	A device with a metal spike that takes the temperature of food

Key Points

1. Bacteria are found everywhere and need the right temperature, warmth, time, nutrients, pH level and oxygen to grow and multiply.
2. Microorganisms (bacteria) are used to make a wide range of food products.
3. Bacteria are used to make cheese, yogurt and bread.
4. Lactobacillus are the most important in food manufacturing.
5. Bacterial contamination is the presence of harmful bacteria in our food, which can lead to food poisoning and illness.
6. As a food handler you must do everything possible to prevent this contamination.
7. What are the main symptoms of food poisoning and the bacteria that cause them?

Where do bacteria come from?	
Keyword	**Definition**
1. Micro organisms	Tiny forms of life, both plant and animal. They can only be seen under a microscope. Bacteria are just one type of microorganism.
2. pathogenic	Something that is capable of causing illness
3. contaminate	To make a food unsafe to eat by allowing it to come into contact with microorganisms that will grow and multiply in it.
4. mould	A micro-organism related to mushrooms. Some types of mould contaminate food by growing in it and spoiling the appearance, taste, smell and texture of the food.
5. Enzymes	Natural substances (mostly proteins) that speed up chemical reactions. They cause fruit and vegetables that have been harvested to ripen and the flesh of animals to break down once they have been killed
6. moisture	Needed for bacterial growth. Micro-organisms need water for all their biological processes.
7. time	It takes micro organisms time to grow and multiply. Most micro organisms multiply every 10-20 minutes
8. nutrients	Micro-organisms need nutrients and energy from food to enable them to grow and multiply
9. Ph level	If foods are too acidic or too alkaline, this will affect whether microorganisms can grow and multiply
10. oxidation	When substances combine with oxygen

Food poisoning (pathogenic) bacteria	
Salmonella	Found in raw and undercooked poultry, eggs and meat, raw milk. Incubation 12-36 hours
Staphylococcus aureus	Found in People! Especially hands, nose, mouth and on the skin, in cuts and skin infections, cold cooked meats, raw milk, dairy products. Incubation 1-6 hours
Bacillus Cereus	Found in soil and plants that grow in the soil such as rice. Incubation 6-15 hours
Campylobacter	Found in raw meat and poultry, milk and untreated dirty water. Incubations 48-60 hours
Listeria	Found in chilled ready-to-eat foods that do not require further cooking or reheating, such as: cooked sliced meats, cured meats, smoked fish, pre-prepared sandwiches and salads. Incubation 5-14 days
E. coli	Found in beef (especially minced beef) and other meat, raw milk, untreated dirty water. Incubation 12-24 hours

Raising agents	
Keyword	**Definition**
1. Raising agent	An ingredient or process that introduces a gas into a mixture so that it rises when cooked
2. Physical raising agent	Processes such as whisking, beating, folding, lamination , These incorporate air or steam to make mixtures rise.
3. Chemical raising agent	Raising agents that produce carbon dioxide when they are heated with a liquid. E.g. baking powder, and bicarbonate of soda. Self raising flour has baking powder added to it.
4. Biological raising agent	A micro-organism used as a raising agent: yeast
5. aeration	The adding of air during the combining of different ingredients.
6. whisking	Eggs or egg whites are whisked to trap air bubbles
7. steam	Moisture/water in the product produces steam when heated causing it to act as a raising agent
9. Baking powder	A chemical raising agent consisting of bicarbonate of soda and cream of tartar. This raising agent does not produce an after taste. It is used in cakes.
10. Bicarbonate of soda	A chemical raising agent used in making cakes with a strong flavour (e.g. gingerbread) due to the after taste produced.
11. Carbon dioxide	The gas produced by chemical and biological raising agents
12. Yeast	Yeast A microscopic fungus consisting of single oval cells that reproduce by budding, and capable of converting sugar into alcohol and CO2 gas. Also ferments in the correct conditions to make bread rise.
13. fermentation	The process in which yeast produces the gas carbon dioxide.

Food preparation skills (cake and pastry)	
Keyword	**Definition**
1. Creaming method	• Fat and sugar are creamed together. • Eggs added slowly • Flour folded in • *Aeration: SR flour, sieving, creaming fat and sugar*
2. rubbing in method	• Fat rubbed into flour • Additional ingredients added • Liquid added • Knead, then shape • *Aeration: SR flour, sieving, rubbing in*
3. whisking method	• Eggs and sugar whisked together • Flour gently folded in • *Aeration: steam from the eggs, sieving, whisking*
4. melting method	• Fat is melted with treacle, syrup or sugar • Dry ingredients stirred in • Eggs and milk added • *Aeration: bicarbonate of soda*
5. shortening	The ability of a fat to produce a characteristic crumbly texture to baked products (when flour is coated with fat to prevent gluten formation e.g. in short crust pastry)
6. Gluten formation	Formed from the two wheat proteins gliadin and glutenin, in presence of water. Gluten is developed by kneading
7. Shortcrust pastry	A short crumb, light, crisply textured pastry used to make pies and tarts • Fat rubbed into flour to fine breadcrumbs • Water added gradually • Knead, chill • Roll out
8. Choux pastry	A light, crisp, hollow pastry used to make profiteroles, éclairs and gougères • Fat and water melted in saucepan, c • Flour added, cooled • Eggs added • shaped
9. Puff pastry	A light and layered pastry • Fat rubbed into flour • Water added to form a dough • Roll the dough, fold into three • Repeat four times • chill
10. Sweet pastry	As short crust pastry with the addition of egg or egg yolk and sugar
11. Filo pastry	A thin crispy pastry usually baked in many layers to make baked dishes • Oil and warm water added to flour • Kneaded until smooth • Rested for 2 hours • Rolled out until paper thin

Sensory evaluation	
Keyword	**Definition**
1. senses	The ability of the body to react to things through sight, taste, hearing, smell,(aroma) and touch
2. Taste buds	Special cells on the tongue that pick up flavours
3. Olfactory receptors	Special cells in the nose that pick up aromas(smells)
4. Sensory descriptors	Words used to describe that characteristics of food
5. Sensory analysis	Identifying the sensory characteristics of products, i.e. taste, texture, appearance , mouth feel, colour. A way of measuring sensory characteristics.
Sensory testing methods	
1. Rating test	People are asked to rate a food sample for a specific characteristic.
2. Ranking test	People are asked to rank order samples of food according to a criteria.
3. Star profile	People are asked to rate the intensity of a food product from 1–5 against a set of sensory descriptors.
4. Triangle test	People are given three samples of a food product to try. Two samples are identical, the third something is different; they need to discriminate between the samples.
5. Paired preference test	People are given two similar samples of food and they have to say which one they prefer.

Quick test

1. Name two methods of holding food when cutting it
2. What glaze would you use on enriched dough?
3. What type of flour is used to make most cakes?
4. What gas does yeast produce?
5. Why is it important to use codes when tasting food?
6. List the stages used to carry out a controlled sensory analysis
7. What term describes how fat makes a short texture product?
8. Which basic cake making process traps air into the mixture by beating fat with sugar?
9. How does egg white trap air?
10. How does fat trap air?
11. Which type of pastry uses steam to help it to rise?

Key points – knife skills

1. Specific types of knives are designed for specific cutting and shaping tasks.
2. Knives are dangerous and if not handled correctly and care should be taken at all times.
3. A flat and stable cutting surface is essential to avoid injury when cutting food
4. There are specific terms used for vegetable cuts relating to the size and shape of the outcome

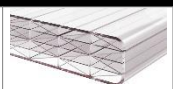
Materials – Ferrous metals - containing IRON

			
Cast iron	High carbon steel	Low carbon steel	Stainless steel
Good compressive strength, good for casting.	Strong and hard but difficult to form.	Tough and low cost.	Strong and hard, good corrosion resistance.

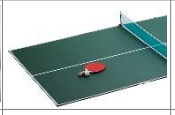
Materials – NON Ferrous metals / alloys – containing NO iron

					
Aluminium	Copper (pure metal)	Brass (alloy of 65% copper 35% zinc)	Bronze (alloy of 90% copper 10% tin)	Lead (pure metal)	Zinc (pure metal)
Light, strong, ductile, good conductor, corrosion resistant.	Malleable, ductile, tough, good conductor, easily joined, corrosion resistant.	corrosion resistant, good conductor, easily joined, casts well.	Tough and hardwearing, corrosion resistant.	Very soft and malleable, heaviest common metal, corrosion resistant.	Low melting point, extremely corrosion resistant, easily worked.

Materials – Polymers – Thermoplastics – shaped when hot – can be reheated

			
ABS	Acrylic	Polycarbonate	Polystyrene
Strong and ridged, hard and tough, expensive.	Good optical properties, transparent, good colour, hard wearing, shatter proof.	High strength and toughness, heat resistant, good colour stability.	Good toughness and impact strength, good for vacuum forming and injection moulding.

Materials – Polymers – Thermosetting plastic – can be moulded – non recycleable

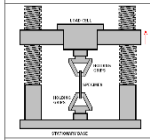
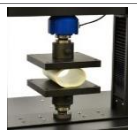
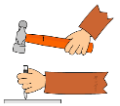
			
Polyester resin	Melamine resin	Polyurethane	Vulcanised rubber
Good strength but brittle	Stiff hard and strong	Hard with high strength, flexible and tough	Highest tensile strength, elastic, resistant to abrasion

Properties and characteristics of materials

	Absorbency	To be able to soak up liquid easily.
	Strength	The capacity of an object or substance to withstand great force or pressure.
	Elasticity	The ability of an object or material to resume its normal shape after being stretched or compressed; stretchiness.
	Plasticity	The quality of being easily shaped or molded.
	Malleability	To be able to be hammered or pressed into shape without breaking or cracking.
	Density	The quantity of mass per unit volume of a substance
	Effectiveness	The degree to which something is successful in producing a desired result; success.
	Durability	The ability to withstand wear, pressure, or damage.

Testing materials

Materials testing is used to check the suitability of a material.	Testing can be non-destructive or destructive.	Most Non destructive testing will be visual.	Tensile testing, compressive strength tests and hardness testing are destructive.

Tensile test	Compressive test	Hardness test
		
- Used to find the strength under tension. - The maximum pulling or stretching force before failure. - Used by applying a load and observing the changes.	- The resistance of a material under a compressive force. - A material is placed under compression to see its resistance. - concrete is a good example of material with compressive strength.	- Used to find out how hard a material is. - In a work shop a hammer and dot punch is used to create an indentation in the material.

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 – an agreement to keep us safe.	Personal Protective Equipment – to protect your body.	Manual Handling Operations – lifting and carrying.	Control of Substances Hazardous to Health – chemicals.	Reporting of Injuries RIDDOR – keeping a log of accidents.

Module 1

Theme: Identity and culture (who am I?)

1. Quelle est ta personnalité?
2. Décris ton/ta meilleur(e) ami(e).
3. C'est quoi un bon ami, pour toi?
4. Parle-moi de ta famille.
5. Tu t'entends bien avec ta famille? Pourquoi?
6. Qu'est-ce que tu vas faire ce soir/ce week-end avec tes amis/ta famille?
7. Est-ce que tu es sorti(e) récemment avec ta famille/tes amis?
8. Comment étais-tu quand tu étais plus jeune?
9. Qui est ton modèle?
10. Pourquoi est-ce que tu admires cette personne?

1. ***Je pense que*** je suis très cynique avec mes camarades… **En fait**, je me moque souvent d'eux. *Parfois*, ils disent que je suis égoïste parce que j'*aime* **leur** vendre mes bonbons. ***Ma mère m'a toujours dit qu' avant***, j'**étais** souvent paresseux et inutile à la maison, mais elle **a préféré** me garder parce que ***je ne sais rien faire de mes dix doigts.***

2. Ma meilleure amie est hyper sympa, elle *me* fait rire et on fait tout ensemble. **En fait,** nous sommes vraiment **comme cul et chemise**. Elle s'appelle Claire, elle est petite, intelligente, drôle et **un peu fofolle sur les bords**. *Par exemple*, la semaine dernière, elle **a dansé** dans la cantine avec le proviseur.

3. **Pour moi**, un bon ami est quelqu'un de confiance. Il ou elle doit avoir le sens de l'humour et surtout accepter mes défauts car ils sont nombreux. ***Avant***, à l'école primaire, **j'étais** trop crédule donc je me **faisais** avoir par des prétendus amis. Depuis, je me méfie!

4. Moi, j'ai une famille de taille moyenne, **en fait**, nous sommes quatre. Il y a ma mère, mes deux frères et moi. Mes parents **ont divorcé,** il y a cinq ans. **Malheureusement**, je ne vois mon père qu'un weekend sur deux, **du coup**, il me manque énormément! **C'est navrant mais on ne peut rien y faire!**

5. **La plupart du temps**, je m'entends très bien avec les members de ma famille car mes frères sont généreux et compréhensifs et ma mère est une persone douce et intègre. **Cependant**, Je ne supporte pas ma tante Rachelle, nous nous disputons tout le temps car **elle met toujours son nez dans mes affaires.**

6. Ce soir, **si Dieu veut,** je vais aller au cinéma avec mon frère Yaya. Nous **allons voir** le dernier film de Spike Lee à Leicester Square pour l' Avant-première! Comme Yaya **n'a pas d'oursin dans sa poche**, je sais qu'il **va me gâter** car ce **sera** mon anniversaire. **ça va être le pied!**

7. **Le weekend dernier,** après être allé à la messe, je **suis allé** faire les magasins avec ma mère car il n'y avait plus rien dans le frigo. Que dalle, nada… **Quelle galère!** On **a dû** prendre deux bus pour aller au supermarché pour découvrir qu'en fait il **était** fermé. **Trop dèg!** Du coup, on **a commandé** des pizzas en ligne. **Ca nous a couté les yeux de la tête!**

8. **Quand j'étais plus jeune**, j'**étais** gros et roux et j'**avais** les yeux bleus, je reconnais que c'est assez rare vu que je suis noir. Mes frères m'**ont dit** que j'**adorais** jouer à Spiderman et que je **jetais** souvent mes jouets par la fenêtre. J'**ai** physiquement **commencé** à changer à quinze ans mais la NASA ne me croit pas. **C'est vraiment dingue, n'est pas?**

9-10. L'unique modèle **à mes yeux est** Greta Thunberg **parce que** c'est une adolescente qui se bat pour la planète, elle **reste fidèle à elle-même** et elle a des convictions très forte. J'ose espérer qu'elle ***ait*** un impact positifs sur la société, les emplois, et les lois, ici, en Angleterre.

Vocabulario Vale Higher

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…*

Vocabulary	
Primary data	Data you have collected yourself
Secondary data	Data that comes from published sources
Qualitative data	Data that uses words
Quantitative data	Data that uses numbers
Discrete data	Quantitative data that which is counted
Continuous data	Quantitative data which is measured
Bivariate data	Data sets that uses two variables
Ranked data	Discrete data that is put it order
Hypothesis	A hypothesis is a statement of belief about some aspect of a population
Control	A control in an experiment is designed to check the hypothesis, and is compared to the standard.
Population	All the data that you are interested in
Sample frame	A list that includes every population from which a sample is to be taken
Sample	A sample can be taken and used to make predictions about a population.
Pilot study	Using a small sample of data to see if meaningful results can be obtained

Important Ideas
Categorical data can be sorted in to groups of data types.
You can carry out experiments or make observations to see if your hypothesis is supported by the data you collect.

Question	Answer
Data types	
What type of data is the following: 1) Number of seagulls on a beach 2) The weight of a bag of sugar 3) The name of a town 4) The score you got on your last test 5) The time taken to run a marathon	1) Quantitative – discrete 2) Quantitative – continuous 3) 3) Qualitative 4) Quantitative – discrete 5) Quantitative - continuous
Sampling	
Sarah wants to find out how many of the 250 students in his year bring a mobile phone to school. She decides to ask 10 of his friends (a) Write down two reasons why this is not a good sample (b) Explain how Sarah could take a better sample	(a) It's too biased - her friends are likely to do similar things - the sample is too small. (b) She should take a random sample of 30 or more using a list of all the students in her year.
Experimental design	
Malique wants to know whether drinking a certain tea will help with weight loss. Design an experiment for Malique.	1) Select two groups of people at random 2) Weigh each person 3) One group drink the tea. 4) Re-weigh all the people after a certain amount of time.

Key Facts & Formula	
Samples	GOOD samples: • Are as large as possible • Are unbiased • Have a suitable time frame BAD samples: • Are too small • Are biased • Are out of date, have people missing or counted twice, incorrect names on the list
Designing investigations	The DATA HANDLING CYCLE: • Specify the problem and plan • Collect data from a variety of sources • Process and represent the data • Interpret and discuss data
Estimation	You can infer characteristics of a population using estimation and sampling: **Proportion of sample with that characteristic x population size**

Important Ideas
Samples don't give you information about every member of the population so the data can be less accurate and may be biased
You can use summary statistics to make estimates of population characteristics

Vocabulary	
Random sampling	Every member of the population has an equal chance of being selected.
Stratified sampling	Stratified sampling gives the different groups in the same sample an amount of representation that's proportional to how big they are in the population.
Judgement sampling	Uses judgement to select a sample that is representative of the population
Opportunity sampling	Uses the people or objects that are available at the time.
Cluster sampling	Used when the population is in groups. A random sample of these groups is selected and all items in the selected groups are include in the sample.
Quota sampling	Splitting the population into groups wit certain characteristics and selecting a given number from each group.
Systematic sampling	Items are selected from the population at regular intervals either in time or in space.
Explanatory variable	The "cause" variable
Response variable	The "effect" variable
Extraneous variable	A variable you are not interested in which could affect your results

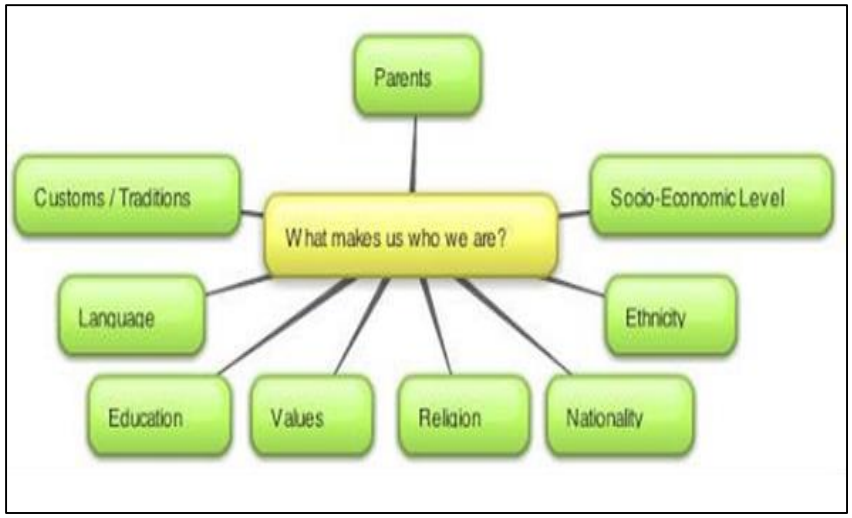
Question	Answer
Population and sampling	
You want to find out the average amount of pocket money received by students in your school. Describe how you would get a random sample of 40 from a population of 748 students.	**Get a list of all 748 students (a sample frame) and number them 1 to 748. Generate 40 random numbers (using a random number table or computer) between 1 and 748. Match the 40 random numbers to the students to create the sample.**
Estimation	
Evelyn captures 30 frogs from her garden pond and carefully marks each before returning them to the water. The next day she captures 20 frogs and finds that 10 are marked. Estimate the number of frogs in her pond.	$\frac{30}{N} = \frac{10}{20}$ $\Rightarrow N = 60$ frogs
Collection of data	
Rajan plans to distribute his questionnaire abut public transport by handing out copies in his town centre a) Give one advantage and one disadvantage of Rajan's plan for collecting data b) B) Suggest one way Rajan could reduce the number of non-responses	a) Advantage – it should be quick and cheap to carry out. Disadvantage – the results may be biased depending on who takes a questionnaire and who responds. b) He could enter people who respond in a prize draw

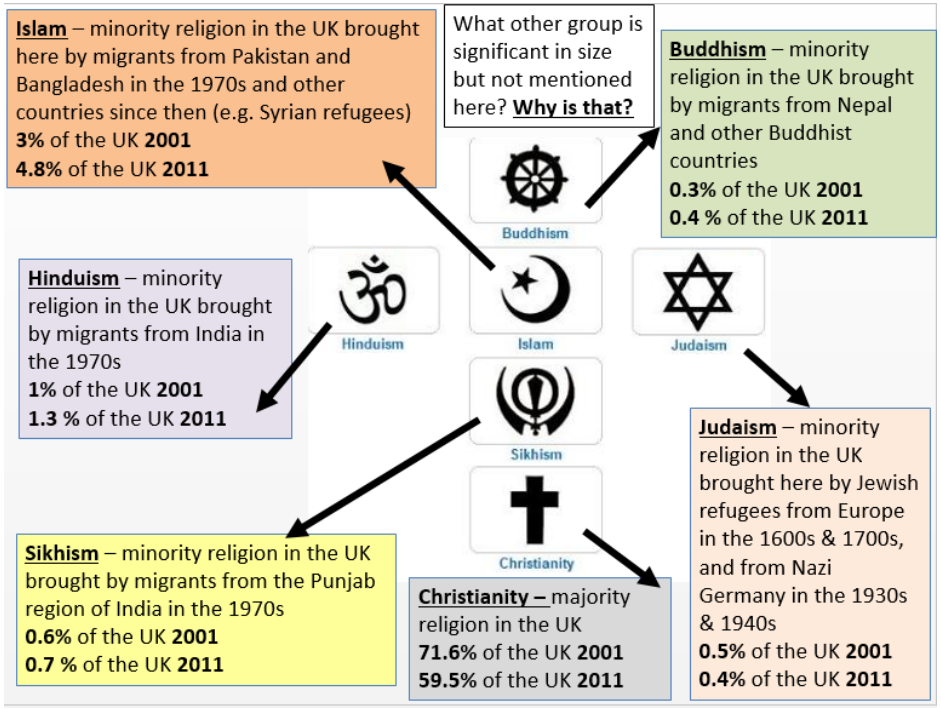
Key Facts & Formula

	Advantage	Disadvantage
Questionnaire	• Much cheaper to do • Each person answering the question is treated the same way	• Non-response • People may misunder-stand some questions
Interview	• Interviewer can explain complex questions • Interviewer can follow up on unclear responses	• Interviewer may be biased • Can be costly

Petersen Capture-recapture	$\frac{n}{N} = \frac{m}{M}$ Assumptions: No significant change to population All members of the population are equally likely to be captured. Capture and marking does not affect recapture & markings are not lost Sample is big enough to be representative
Stratified sampling	Number in sample for each stratum: $\frac{\text{stratum size}}{\text{population size}} \times \text{number in sample}$

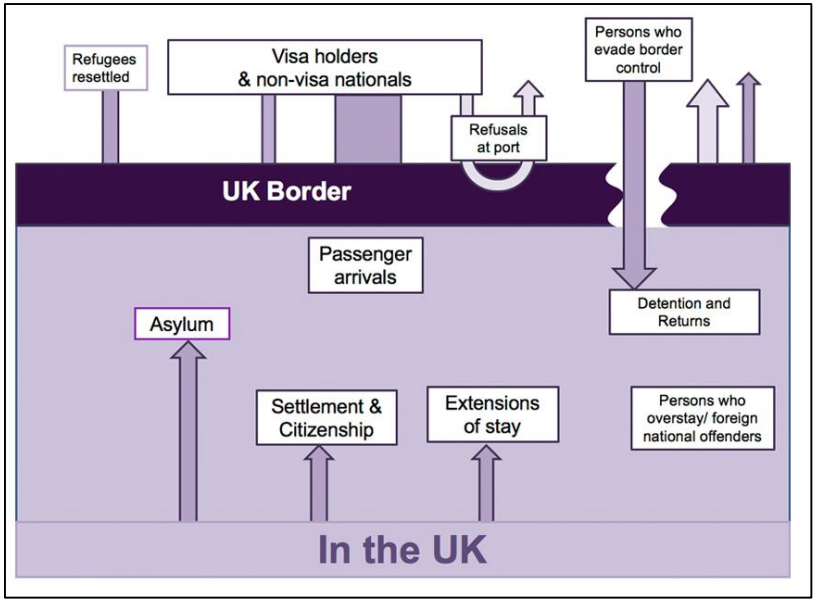
Key words	Definition
1. Multicultural Society	A society that is made up of people from a range of cultural and religious backgrounds.
3. Identity	Characteristics/qualities that make a person who they are e.g. age, gender, religion, regional location, job etc.
4. Multiple Identities	An individual assumes a range of identities i.e. part of a family, the area they come from' linked to a school or a supporter of a football team etc.
5. Britishness	The state of being British, or qualities that are considered typical of British people.
6. National Identity	Identity associated with being a citizen of a specific country e.g. English identity or Scottish identity.
7. Discrimination	Unfair treatment of others based on their race, gender, sexuality, age, disability, religion etc.
8. Prejudice	To pre-judge, have an unreasonable dislike for a person or group of people, view not based on experience.
9. Stereotyping	A generalized view about a group of people linked to a personal characteristic e.g. hair colour, where they live, their way of life etc.
10. Equality Act (2010)	Law which legally protects people from discrimination in the workplace and in wider society.
11. Immigration	The act of someone moving into another country.
12. Immigrant	A person who moves into another country to live, with the intention of staying there permanently.
13. Migration	The movement of people from one country to another – some moving in and others moving out.
14. Net Migration	The difference between the total number of people in and out of an area over a given period of time. If more people in the figure is a plus and if more people leave the figure is a minus.
15. Community Cohesion	Working towards a society where everyone shares a sense of belonging and common values – people live together peacefully and everyone feels valued.





Changing patterns in the UK: Ethnic groups 2001 and 2011 in England & Wales.

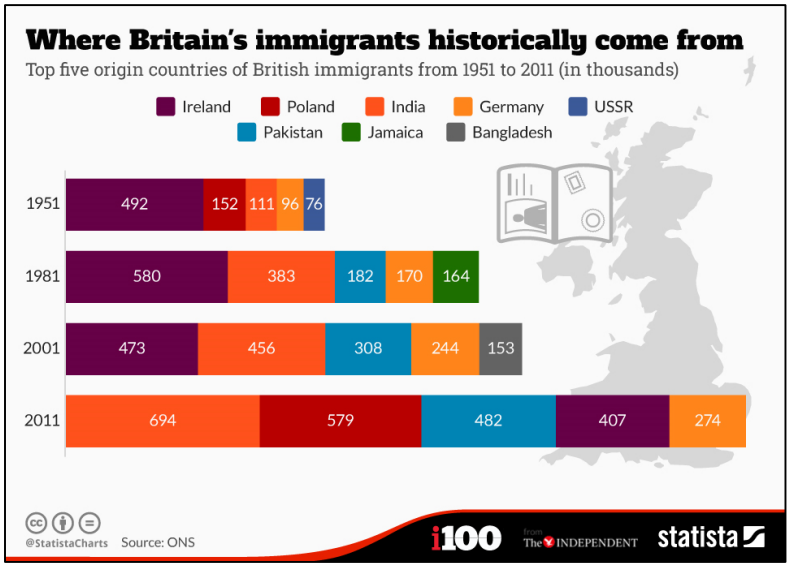
Ethnicity		% of UK population		
		2001	2011	% change + or -
White		91.3	86.0	
Asian / Asian British	Indian	2.0	2.5	
	Pakistani	1.4	2.0	
	Bangladeshi	0.5	0.8	
	Chinese	0.4	0.7	
	Other Asian	0.5	1.5	
Black / African / Caribbean / Black British	African	0.9	1.8	
	Caribbean	1.1	1.1	
	Other Black	0.2	0.5	
Mixed ethnic groups		1.4	2.2	
Other Ethnic groups	Arab		0.4	
	Any other Ethnic group	0.4	0.6	

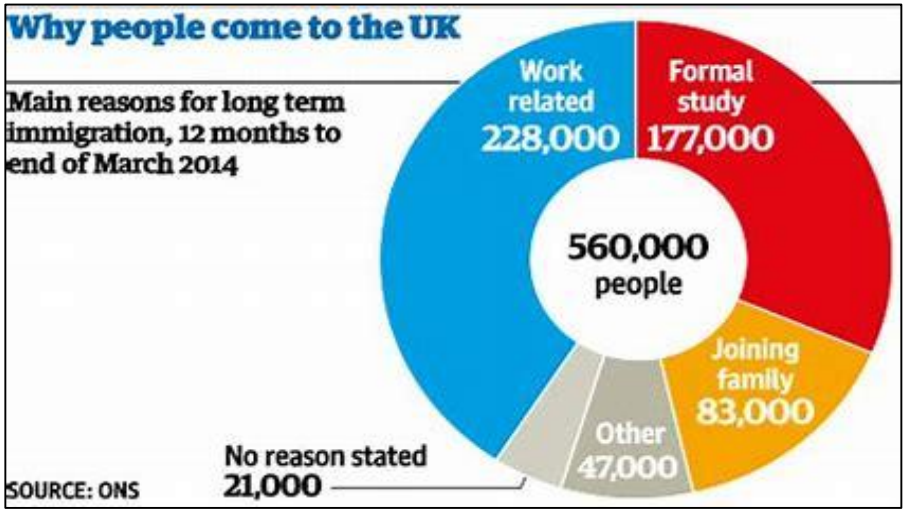


OVER 6 DECADES, WHERE MIGRANTS CAME FROM

Top ten non-UK countries of origin

1951		1981		2001		2011	
Ireland	492,000	Ireland	580,000	Ireland	473,000	India	694,000
Poland	152,000	India	383,000	India	456,000	Poland	579,000
India	111,000	Pakistan	182,000	Pakistan	308,000	Pakistan	482,000
Germany	96,000	Germany	170,000	Germany	244,000	Ireland	407,000
Russia	76,000	Jamaica	164,000	Bangladesh	153,000	Germany	274,000
USA	59,000	USA	106,000	Jamaica	146,000	Bangladesh	212,000
Canada	46,000	Kenya	100,000	USA	144,000	Nigeria	191,000
Italy	33,000	Italy	93,000	S Africa	132,000	S Africa	191,000
Australia	31,000	Poland	88,000	Kenya	127,000	USA	177,000
France	30,000	Cyprus	83,000	Italy	102,000	Jamaica	160,000
Top ten total	1,126,000	Top ten total	1,949,000	Top ten total	2,285,000	Top ten total	3,367,000
Others	774,000	Others	1,251,000	Others	2,315,000	Others	4,133,000
Total	1.9m	Total	3.2m	Total	4.6m	Total	7.5m





Box 1. Being an Entrepreneur

What is an entrepreneur? - It doesn't mean you have to be setting up new business ventures every day; **an entrepreneur is someone with the foresight, drive and ambition to take a risk and solve business or consumer problems.**

Examples of entrepreneurs are:
Sir Alan Sugar
Jamie Oliver
Nadiya Hussain
Victoria Beckham
Joe Wicks

Box 2. Entrepreneur Motivators

1. Financial	The desire to make a profit
2. Personal	The desire to control their life
3. Social	The desire to pursue interest or hobbies

Box 3. Entrepreneur Characteristics and Skills

1. Confidence	The ability to present their idea to the public
2. Motivation	Being passionate about their ideas
3. Determination	Not giving up when things get tough
4. Result-focused	Be focus on the end goal
5. Initiative	Able to think "outside the box"
6. Decision-making ability	Able to make decisions
7. Analytical ability	Able to gather and review information

Box 4. Financial Aims

1. Break- even	The point where the business is covering it costs but not making a profit
2. Profitability	Ensuring the business makes a profit
3. Increasing revenue	Taking actions to increase sale
4. Profit maximisation	Taking actions to make the most profit as possible – e.g. cutting costs

Box 5. Non Financial Aims

1. Customer satisfaction	Making sure customers are happy so they will come back
2. Employee engagement	Making employees happy so they will stay with the business
3. Diversification and expansion	Expanding the range of products or services offered or where the business sells its products and services
4. Ethical responsibility	Aware of their responsibility to the society and community e.g. not employing child labour

Box 6. Liability

1. Unlimited	The owner have to pay business debits so could risk losing their house or car
2. Limited	Owners only have to pay debts up to the amount they invest in the business

Box 7. Business ownership

Sole trader	Own by one person - **Unlimited liability**
Partnership	Own by two or more people - **Unlimited liability**
Private limited company LTD	Has family and friends Shareholder - **Limited liability**
Public limited company PLC	Sells shares on stock market - **Limited liability**
Franchise	Copy cat business ltd
Co-operative	Own by staff

Box 8.	Organisational structure
1. Flat	Only a few layers of authority in the organisation
2. Tall	Many layers of authority in the organisation

Box 9.	Restructuring
1. Delaying	Removing line of authority
2. Redundancy	when a business eliminates a certain job role

Box 10. Stakeholders 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.

Internal: - Stakeholders can be… **internal** - within a business.
Internal stakeholders of a business including:

1. **Employee –** want job security
2. **Managers –** want information so they can plan
3. **Owners –** want to know how the business is doing

External: - Stakeholders can be… **external** - outside a business.
External stakeholders of a business including:

1. **Shareholders –** want dividend and high share price
2. **Customers –** want good service and value for money
3. **Suppliers –** want to be paid by the business
4. **Government –** want business to obey the law
5. **Finance providers –** want loans to be paid on time

Stakeholder's Influence:

- Each stakeholder can also have an impact on the business.
- Employees/ Workers provide the labour for the company if they are on satisfied they could go on strike or involve a trade union. Without employs the business will not be able to run
- Managers make the strategic decisions for the business that has a direct impact on the financial performance
- Owners are in charge of the business they have the final say over the direction and goals at the business sets out to achieve
- Customers can stop purchasing from a business, this is called boycotting
- Suppliers can increase prices or can stop supplying a business
- Shareholders have invested in the company. If shareholders are unsatisfied with the businesses' performance they may sell their shares
- Local community can share information about the business by word-of-mouth all on social media this has a direct impact on the reputation of the business local community may also organise protests which can have an impact on the business
- Government sets legislation and rules that the business must follow, the government also sets taxation rates this has a direct impact on the profit of the business
- Finance providers lend the business money if they stop lending the business money the business may experience cash flow problems if they charge more interest this will have an impact on the businesses profit

Key words:

- **A hierarchy:** -- shows the layers of management and authority in a business or enterprise.
- **Tall organisations**: - have many layers of management is its organisational hierarchy.
- **Flat Organisations:** - have few layers of management in its organisation hierarchy.
- **Chain of Command:** - is the route/line of communication and authority within a business, it shows the route an order takes to get to its intended recipient.
- **Layers:** - are the different levels of employees or management in the organisation.
- **Span of Control**: - is the amount of people a manager is responsible for.
- **Characteristic:** — A quality or trait that belongs to someone, such as being creative.
- **Skill:**— The ability to do something well. For example, problem solving. Skills can also be learnt, such as languages.
- **A sole trader: -** is when a business is owned and operated by one person.
- **Unlimited liability: -** means that the owners of a business are personally liable for the debts of the business. The owner can lose their personal belongings such as their house or car.
- **Limited liability:** - is when the owners personal belongings are not at risk if the business cannot pay its debts — the owner can only lose what they invest.
- **A partnership: -** is a business owned and operated by 2-20 people.
- **A franchise**: - is a legal agreement with another business to sell their products.
- **Franchisor: –** the brand that owns the business plan.
- **Franchisee:** – a seperate entity that pays for the business plan and to trade under their name.
- **A Private Limited Company:** - is a business owned by shareholders that are family and friends.
- **A Public Limited Company:** - is a business owned by shareholders that have bought shares on the open stock market, that is open to the general public.

- **A cooperative:** - is a business owned by the community closest to the business, for example its employees or customers – these are known as the members.

There are 3 types of cooperatives:

Type of Cooperative:

1. Consumer cooperative — owned by the customers.

2. Worker cooperative — owned by the employees.

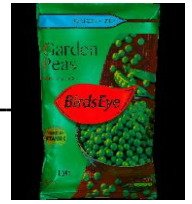
3. Producer cooperative — owned by the makers of products.

Example:

The Coop Food_____

John Lewis _____

The Green Pea Company _____



Entrepreneurs may be inventive or innovative.

- **Invention:** – the creation of new ideas.
- **Innovation**: – the application of new inventions into marketable products or services.
- **Invention:** - means creating new products or designs that people want to purchase. Innovation means introducing them to a marketplace.

Example: Apple innovates each year with a new iPhone, whereas Thomas Edison invented the light bulb!

Define: Asexual

A person who generally does not experience sexual attraction to any group of people

Define: Androgyny

A gender expression that has elements of both masculinity and femininity

Define: Biological Sex

The physical anatomy and gendered hormones one is born with.

Define: Bisexual

A person who experiences sexual, romantic, physical, and/or spiritual attraction to people of their own gender as well as another gender

Define: Cisgender

A description for a person whose gender identity, gender expression, and biological sex all align

Define: LGBTQ+

Lesbian
Gay
Bisexual
Trans
Queer / Questioning
+ = Other

Define: Sexuality

A persons sexual preference or orientation. Who they are attracted to.

Define: Drag Queen

A man who dresses up in an exaggerated feminine form usually in a show or theatre setting.

Define: Gender Dysphoria

Where a person experiences distress due to a mismatch of their biological sex and their gender identity.

Define: Heterosexual

A medical definition for a person who is attracted to someone with the other gender.

Define: Homosexual

A medical definition for a person who is attracted to someone with the same gender.

Define: Transvestite

A person who dresses as the opposite gender expression for any one of many reasons, including relaxation, fun, and sexual gratification.

Define: Intersex

A person with a set of sexual anatomy that doesn't fit within the labels of female or male (e.g., XXY phenotype, uterus, and penis)

Define: Pansexual

A person who experiences sexual, romantic, physical, and/or spiritual attraction for members of all gender identities/expressions

Define: Transgender

A person whose gender identity is the binary opposite of their biological sex, who may undergo medical treatments to change their biological sex

Define: Transsexual

A person whose gender identity is the binary opposite of their biological sex, who may undergo medical treatments to change their biological sex

Define: Gender Identity

Gender identity is a way to describe how you feel about your gender. You might identify your gender as a boy or a girl or something different. This is different from your sex, which is related to your physical body and biology.

Some of these terms are controversial in their definitions and may mean slightly different things to different people. These definitions have been taken from Stonewall charity.

Important legal changes that have affected LGBTQ+ people in the UK

- **2000**: Government lifts the ban on lesbians and gay men serving in the Armed Forces.
- **2001**: Age of consent for gay/bi men is lowered to 16.
- **2002**: Equal rights are granted to same-sex couples applying for adoption.
- **2003**: Repeal of Section 28 - Section 28 was a law that made it illegal to talk positively about homosexuality in schools.
- **2003**: A new law comes into force protecting LGBT people from discrimination at work. Until 2003 employers could discriminate against LGBT people by not hiring them or not promoting them, just because of their sexual orientation or gender identity.
- **2004**: Civil Partnership Act is passed.
- **2004**: Gender Recognition Act is passed - This Act allowed trans people to change their legal gender. This means that they can get a new birth certificate that reflects who they really are, which helps for future legal processes like marriage.
- **2007**: It becomes illegal to discriminate against people because of their sexual orientation or gender identity when providing them with goods or services.
- **2008**: The Criminal Justice and Immigration Act makes 'incitement to homophobic hatred' a crime.
- **2009**: A new law gives better legal recognition to same-sex parents.
- **2013**: The Marriage (Same-Sex Couples) Act is passed.

Trans Teens and Children

If a child is under 18 and thought to have gender dysphoria, they'll usually be referred to a specialist child and adolescent Gender Identity Clinic (GIC). Treatment is arranged with a multi-disciplinary team (MDT). This is a group may include specialists such as mental health professionals and paediatric endocrinologists. Most treatments offered at this stage are psychological, rather than medical or surgical.

If the child is diagnosed with gender dysphoria and they've reached puberty, they could be treated with gonadotrophin-releasing hormone (GnRH) analogues. These are synthetic hormones that suppress the hormones naturally produced by the body. They also suppress puberty and can help delay potentially distressing physical changes caused by the body becoming even more like that of the biological sex, until they're old enough for other treatment options. The effects of treatment with GnRH analogues are considered to be fully reversible, so treatment can usually be stopped at any time.

Teenagers who are 17 years of age or older may be seen in an adult gender clinic. They are entitled to consent to their own treatment and follow the standard adult protocols.

Gender Reassignment surgery will **not** be considered until a person has reached 18 years of age.

Schools and LGBTQ+ Students

All Schools are required to have a policy relating to LGBTQ+ Students and how they are supported in schools. However each case will be dealt with on an individual basis as to what is best for the students. Discussions will be conducted with Safe guarding team, parents, wellbeing teams and appropriate external agencies involved in the students care.

Where to get more help and support

- Parents and trusted family members
- Teachers and School Staff including School Nurse and Wellbeing Team
- Your Doctor or Community Nurse
- NHS Online
- Young Stonewall: https://www.youngstonewall.org.uk/
- The Proud Trust – Local Support groups: https://www.theproudtrust.org
- Friends and Family of Lesbians and Gays: https://www.fflag.org.uk/

Define: *Alcohol*

While some drinks have more alcohol than others, the type of alcohol in all alcoholic drinks is the same – it's a type of alcohol called ethanol. Alcohol is a colourless, odourless and inflammable fluid.

Define: *ABV*

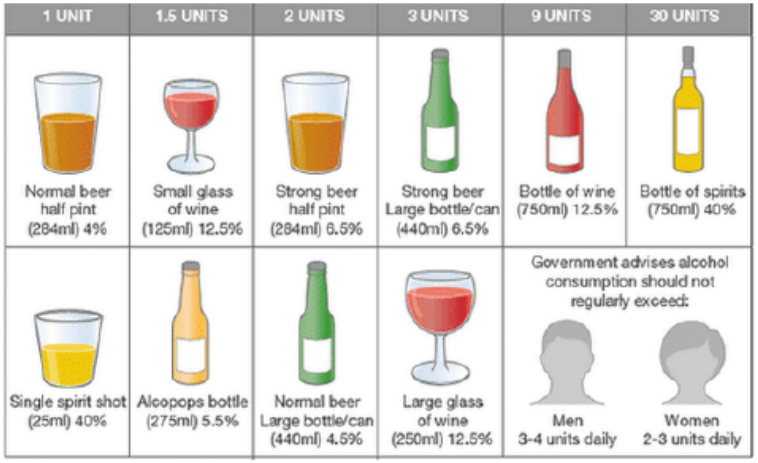
Alcohol by volume is a standard measure of how much alcohol (ethanol) is contained in a given volume of an alcoholic beverage (%).

Define: *Unit of Alcohol*

Units are a simple way of expressing the quantity of pure alcohol in a drink. One unit equals 10ml or 8g of pure alcohol, which is around the amount of alcohol the average adult can process in an hour.

Define: *Binge Drinking*

Consuming large quantities of alcohol in a short space of time. This is 8 units in a single session for men and 6 units in a single session for women.



How alcohol affects you drink by drink

Based on a standard (175ml) 13% volume glass of white wine or 4% strength pint of lager,

1 glass of white wine or a pint of lager (just over 2 units):
- You're talkative and feel relaxed.
- Your self-confidence increases.
- Driving ability is already impaired, which is why it's best to drink no alcohol if you're driving.

2 glasses of white wine or 2 pints of lager (just over 4 units):
- Your blood flow increases.
- You feel less inhibited and your attention span is shorter.
- You start dehydrating, one of the causes of a hangover.

3 glasses of white wine or 3 pints of lager (just under 7 units):
- Your reaction time is slower.
- Your liver has to work harder.
- Your sex drive may increase, while your judgement may decrease.

4 glasses of white wine or 4 pints of lager (just over 9 units):
- You're easily confused.
- You're noticeably emotional.
- Your sex drive could now decrease, and you may become less capable.

How to Calculate Units of Alcohol

Strength (ABV) x volume (ml) ÷ 1,000 = units

For example, to work out the number of units in a pint (568ml) of strong lager (ABV 5.2%): 5.2 (%) x 568 (ml) ÷ 1,000 = 2.95 units

Alcohol and the Law

It is against the law
- To sell alcohol to someone under 18 anywhere.
- For an adult to buy or attempt to buy alcohol on behalf of someone under 18.
- For someone under 18 to buy alcohol, attempt to buy alcohol or to be sold alcohol.
- For someone under 18 to drink alcohol in licensed premises,
- For an adult to buy alcohol for someone under 18 for consumption on licensed premises,
- To give children alcohol if they are under five.

It is not illegal:
- For someone over 18 to buy a child over 16 beer, wine or cider if they are eating a table meal together in licensed premises at the discretion of the manager.
- For a child aged five to 17 to drink alcohol at home or on other private premises.

Signs of Alcohol Addiction

It can be tricky to spot the signs of alcoholism as alcoholics can be secretive about it and can become angry if confronted. Some signs and symptoms can include:
- A lack of interest in previously normal activities
- Appearing intoxicated more regularly
- Needing to drink more in order to achieve the same effects
- Appearing tired, unwell or irritable
- An inability to say no to alcohol
- Anxiety, depression or other mental health problems
- Becoming secretive or dishonest

Who Can you turn to for help and Support

Parents or trusted family members	School Safe Guarding Team or any member of staff.
Your GP or Practice Nurse.	
Drink Aware	**0300 123 1110 (weekly 9am - 8pm, weekends 11am - 4pm)** https://www.drinkaware.co.uk
Al-Anon Family Group	0800 0086 811 from 10 am - 10 pm, 365 days a year https://www.al-anonuk.org.uk/
AddAction	https://www.addaction.org.uk – Webchat facility