



"Knowledge is
of no value
unless you put
it into
practice"

Anton Chekov

YEAR 10

KNOWLEDGE ORGANISER

EDITION 1
2025-2026

Name:



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Nobel Peace Prize laureate, Former Secretary-General of the United Nations (1997-2006)



Knowledge is power.
Information is liberating.
Education is the premise
of progress, in every
society, in every family.



Contents	
Subject	Page number
Maths	8 – 19
English	20 – 25
Science	26 – 47
Geography	48 – 55
History	56 – 62
Religious Studies	63 – 68
French	69 – 79
Spanish	79 – 86
Dance	87 – 89
Drama	90 – 93
Music	94 – 96
Music Technology	97

Contents	
Subject	Page number
Sports Science	98 – 99
Art	100 – 101
Photography	102 – 104
Computer Science	105 – 112
iMedia	113 – 119
Business Studies	120 – 125
Child Development	126 – 134
Health and Social	135 – 142



How to use your Knowledge Organiser

What is a Knowledge Organiser and how will it help me ?

It is an organised collection of knowledge that you need to know and learn for every topic you study in every subject. It will help you to be successful in your tests and exams.

Your teacher will use the knowledge organiser in your lessons. They will ask you to refer to various sections - they might talk this through and/or ask you to make key notes in your books or to highlight certain sections on your knowledge organiser.

Your teacher will set homework, where you will be asked to learn key knowledge from your knowledge organiser - you will then be tested in lessons regularly via short quizzes.

Do I have to bring my Knowledge Organiser every day ?

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

Is there anything I could use to support me when using my knowledge organiser ?


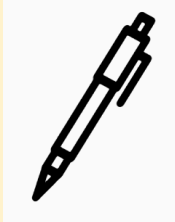












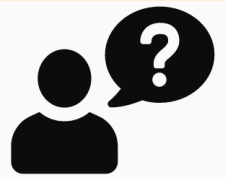



Some people find post-it's handy to stick onto their knowledge organiser pages - these are useful for extra notes.

Small white revision/flash cards are helpful so you can write key facts down. These can then be placed up around the house to help your revision.

How should I use my Knowledge Organiser to help me learn ?

There are lots of ways to use your knowledge organiser - the key to success is to find what works for you. The table below shows you some different ways to use them.

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

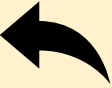


	Look, Cover, Write, Check	Definitions to key words	Flash Cards	Self Quizzing	Mind Maps	Paired Retrieval
Step 1	<p>Look at and study a specific area of your knowledge organiser.</p> 	<p>Write down the key words and definitions.</p> 	<p>Use your knowledge organiser to condense and write down key facts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



Literacy is defined as the ability to read, write, speak and listen, in a way that lets us communicate effectively and make sense of the world.

KS4 – Literacy

<u>Sentence Type</u>	<u>Definition</u>	<u>Example</u>
Declarative sentence	This sentence makes a statement.	My friend is a skilful footballer.
Exclamative sentence	An exclamatory sentence expresses strong feelings.	What an exquisite dress!
Imperative sentence	An imperative sentence gives a command or makes a request.	“Charge, for the guns”, he said
Interrogative sentence	An interrogative sentence is one that asks a question.	Did you know the girl- Eva Smith?

	<u>Verb Tenses</u>	<u>Example</u>	<u>Memory Clue</u>
Past Tense	Used to talk about past actions, states of being, or events.	Lisa went to the supermarket yesterday.	
Present Tense	Refers to the action or event that takes place or is taking place in the present.	James goes to the gym every day.	
Future Tense	A verb tense which indicates that something has not happened yet but will happen in the future.	I am going to learn to ski.	

<u>Analytical verbs</u>		
Infers	Exposes	Emphasises
Implies	Establishes	Reinforces
Suggests	Signifies	Highlights
Demonstrates	Alludes to	Illuminates

<u>Punctuation</u>	<u>Definition</u>
... Ellipses	To make the reader wonder what will happen next: She wondered what was behind the door... Or use to show a flashback in time: It had all started 5 years ago...
— Dash	Not to be confused with a hyphen. Dashes can be used to add extra information within a longer sentence, so are a way of showing parenthesis () .
Brackets [] Parenthesis ()	Parenthesis, () , are used to add extra information in text. Brackets, [] , are used mainly in quotations to add extra information that wasn't in the original quote.



Literacy is defined as the ability to read, write, speak and listen, in a way that lets us communicate effectively and make sense of the world.

QUALIFYING CONNECTIVES

- except
- unless, apart from
- as long as
- if, yet
- although
- However



Use these when you want to **explain why something changes** because of something else.

CONTRASTING CONNECTIVES

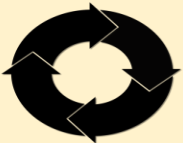
- where as
- on the other hand
- instead of
- alternatively
- otherwise
- unlike



These are to be used in sentences when you want to **contrast two ideas**.

CAUSE & EFFECT CONNECTIVES

- therefore
- so
- because
- consequently
- thus



These are to be used in sentences when you want to **explain why** something happens

COMPARING CONNECTIVES

- equally
- similarly
- as with
- in the same way
- likewise
- like



These are to be used in sentences when you want to **compare two ideas** with each other.

KS4 – Literacy

Exam Command Words

Analyse	Examine methodically and in detail, to explain and interpret it.
Annotate	Add notes to (a text or diagram) giving explanation or comment.
Assess	To judge or decide the amount, value, quality, or importance of something.
Calculate	Work out the value of something.
Critically	Strengths and weaknesses of what is being expressed.
Define	State the precise meaning of an idea or concept.
Describe	Give a detailed account in words.
Evaluate	To judge or calculate the quality, importance, amount, or value of something.
Examine	Inspect (someone or something) thoroughly to determine their nature or condition.
Explain	Make (an idea or situation) clear to someone by describing it in more detail or revealing relevant facts.
Interpret	Explain the meaning of (information or actions).
Justify	Show or prove to be right or reasonable.
Summarise	Give a brief statement of the main points of (something).



Times tables:

x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Rounding:

Example 1:

1st decimal place

Check the digit to the right of the number of decimal places needed

3.8742

3.8742 = 3.9(1dp)

Example 2:

more than 5 so round up

27.6273

2nd decimal

27.63 to 2dp

Types of Number:

Square numbers are made by multiplying a number by itself.
1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, ...

Cube numbers are made by multiplying a number by itself 3 times.
1, 8, 27, 64, 125, 216, 343, ...

Prime Numbers only have two factors
2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, ...
They are **only** in the 1 times table and their own times table.

Order of Operations

Percentages

Multiplying with negatives:

+	x	+	=	+
-	x	-	=	+
+	x	-	=	-
-	x	+	=	-

Dividing with negatives:

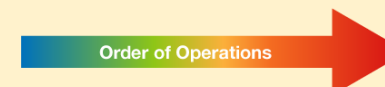
+	÷	+	=	+
-	÷	-	=	+
+	÷	-	=	-
-	÷	+	=	-

Adding/Subtracting with negatives:

+	+	⇒	+
-	-	⇒	+
+	-	⇒	-
-	+	⇒	-

BIDMAS

() x^y ÷ or × + or -
Brackets Indices Divide & Multiply Add & Subtract



To find...	You do...
50%	÷ 2
10%	÷ 10
1%	÷ 100
20%	÷ 5
25%	÷ 4



Equation of a Line

$$y = mx + c$$

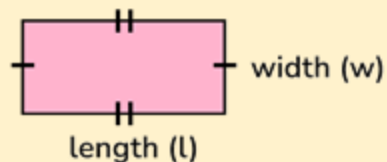
m = Gradient, c = y intercept

Year 10 - Maths – Formula Sheet

$$\text{Percentage change} = \left(\frac{\text{Difference}}{\text{Original}} \right) \times 100$$

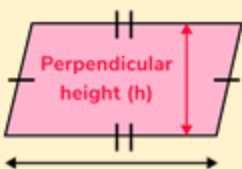
Rectangle

Area = length x width

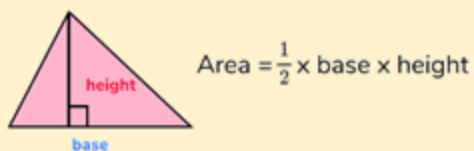


Parallelogram

Area = base x perpendicular height



Triangle



Trapezium

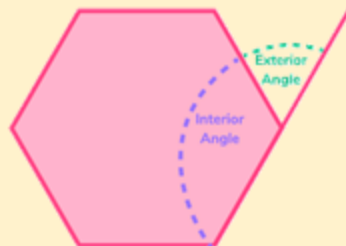


$$\text{Exterior angle} = \frac{360}{n}$$

n = number of sides

Interior angle + Exterior angle = 180°

Sum of interior angles = $(n - 2) \times 180$

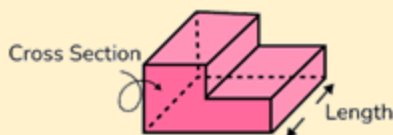


r = radius, d = diameter

$$\text{Area} = \pi r^2$$

Circumference = πd or $2\pi r$

Volume = area of cross section x length



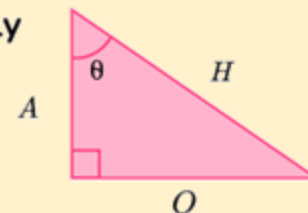
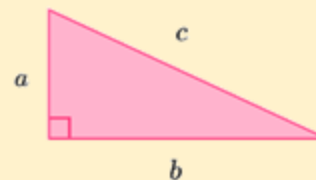
Note: Right angled triangles only

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

c is the hypotenuse

(The longest side)

a and b are the shorter sides.



$$\sin \theta = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

$$\cos \theta = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

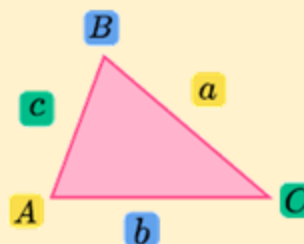
$$\tan \theta = \frac{\text{Opposite}}{\text{Adjacent}}$$

Quadratic equation

$$ax^2 + bx + c$$

Quadratic Formula

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



Area of a triangle

$$\text{Area} = \frac{1}{2} ab \sin(C)$$

Sine Rule

To find a side:

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

To find an angle:

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

Cosine Rule

To find a side:

$$a^2 = b^2 + c^2 - 2bc \cos(A)$$

To find an angle:

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



Ordering Decimals

Example:

Write the following decimals in ascending order:

0.3, 0.21, 0.305, 0.38, 0.209

- 1) Add zero's so that they all have the same number of decimal places.

0.300, 0.210, 0.305, 0.380, 0.209

- 2) They can then be placed in order (from smallest to largest):

0.209, 0.21, 0.3, 0.305, 0.38

BIDMAS: The hierarchy of operations

- B** Brackets
- I** Indices
- D** Division
- M** Multiplication
- A** Addition
- S** Subtraction

If a calculation contains division & multiplication or addition & subtraction, we work it out from left to right

Example 1: $5 \times 4 - 8 \div 2$

$$\begin{array}{r} 20 \\ - 4 \\ \hline 16 \end{array}$$

Example 2: $(2^2 + 6)^2 \times 4 - 8$

$$\begin{array}{l} (4 + 6)^2 \times 4 - 8 \\ (10)^2 \times 4 - 8 \\ 100 \times 4 - 8 \\ 400 - 8 = 392 \end{array}$$

The Four Operations

Addition and Subtraction: Column method

Example 1: $56.9 + 3.88 =$

$$\begin{array}{r} 56.90 \\ + 3.88 \\ \hline 60.78 \end{array}$$

- 1) Line up the decimal points
- 2) Fill any gaps with **zeros**
- 3) Start with the column on the right, working to the left
- 4) Carry into the next column for 10 or more

Example 2: $65 - 3.2 =$

$$\begin{array}{r} 64.50 \\ - 3.20 \\ \hline 61.30 \end{array}$$

- 1) Line up the decimal points
- 2) Fill any gaps with **zeros**
- 3) Start with the column on the right, working to the left
- 4) Borrow from the column to the left when the bottom number is larger than the top

Multiplication: Grid Method

Example: 3.4×4.2

x	30	4
40	1200	160
2	60	8

- 1) Remove the decimal points to make the calculation 34×42
- 2) Complete the grid method
- 3) Put the decimal back in

$$1200 + 160 + 60 + 8 = 1428$$

As there were two decimal places in the question, there should be two in the answer

$$3.4 \times 4.2 = 14.28$$

Division: Bus Stop Method

Example: $28.84 \div 1.4 =$

$$14 \overline{) 2288.4}$$

- 1) Multiply both numbers by 10 until the divisor is no longer a decimal
- 2) Complete the division
- 3) But **DON'T** put the decimal back in

Year 10 – Maths – Number Skills

Financial Skills

Understanding Bank statements, bills and payslips is a useful skill.

Often, we are asked to calculate missing values within a statement or bill

Example:

Date	Description	Credit £	Debit £	Balance £
01/08/21	Balance	-	-	248.50
08/08/21	Salary	615	-	863.50
09/08/21	Transfer	220.50	-	1084
14/08/21	Rent	-	713	371

$$\begin{array}{r} 248.50 \\ + 615.00 \\ \hline 863.50 \end{array}$$

$$\begin{array}{r} 863.50 \\ + 220.50 \\ \hline 1084.00 \end{array}$$

$$\begin{array}{r} 1084.00 \\ - 713.00 \\ \hline 371.00 \end{array}$$

- Credits display money going into your account, such as a salary or if a friend sends you some money.
- Debits display money that is being taken out of your account for bills and other expenses like food shopping.
- The balance is updated on the right after every transaction.

KEY VOCABULARY

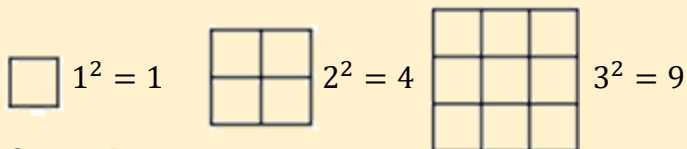
Word	Definition
Operation	In maths these are the functions $\times \div + -$
Commutative	If changing the order does not change the result.
Ascending \uparrow	In order from smallest to largest
Descending \downarrow	In order from largest to smallest
Transaction	A record of money that has moved in or out of your bank account.



Powers and Roots

Square Numbers:

The first few square numbers are shown below



Square Roots:

This is the number that we multiplied by itself to get the square numbers

Examples:

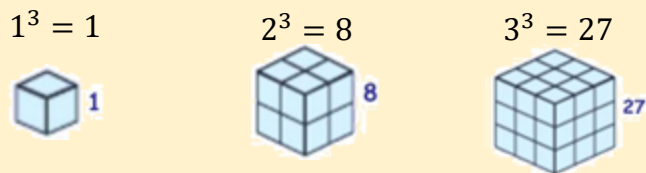
$$\sqrt{49} = 7 \text{ because } 7 \times 7 = 49$$

Remember the answer is 7, not 7 x 7

$$\sqrt{121} = 11 \text{ because } 11 \times 11 = 121$$

Cube Numbers:

The first few cube numbers are shown below



Index notation:

When a number is raised to a power/index, it tells you how many times you have to multiply the number by itself

Examples:

$$3^6 = 3 \times 3 \times 3 \times 3 \times 3 \times 3 = 729$$

$$2^4 = 2 \times 2 \times 2 \times 2 = 16$$

Rounding

Rounding to the nearest 1, 10, 100, ...

- 452 to nearest 10 = 450
- 37564 to nearest 100 = 37600
- 4.893 to nearest whole = 5

Check the
number to the
right to decide:
0-4 round down
5-9 round up

Rounding to decimal places

- 4.83 to one decimal place = 4.8
- 0.567 to two decimal places = 0.57
- 1.9998 to three decimal places = 2.000

Rounding to Significant figures

The first significant number is the first digit of a number which isn't zero. The 2nd, 3rd significant figures follow immediately after the 1st, regardless of zeros.

- 307 to one significant figure = 300
- 0.0307 to one significant figure = 0.03
- 0.0307 to two significant figures = 0.31

Estimation

When estimating you are not guessing you are making the numbers 'easier' for you to work out the sum. To estimate a sum, you need to round each number to 1s.f. then calculate using BIDMAS.

Example:

$$\text{Estimate } \frac{29.91 \times 38.3}{3.1 \times 3.9} \rightarrow \text{Round all numbers to 1.s.f. } \frac{30 \times 40}{3 \times 4}$$

$$\rightarrow \text{Calculate } \frac{1200}{12} = 100$$

Limits of Accuracy: Error Intervals

Example:

State the error interval of 4.5 when it has been rounded to 1 decimal place. The lowest value it could have been is 4.45, the highest is 4.549999... so the error interval would be $4.45 \leq x < 4.55$

Laws of Indices

Multiplication law: When multiplying with the same base, we add the powers. General rule: $a^m \times a^n = a^{m+n}$

Example:

$$2^5 \times 2^7 = 2^{5+7} = 2^{12} \quad x^{-3} \times x^8 = x^{-3+8} = x^5$$

Division law: When dividing with the same base, we subtract the powers. General rule: $a^m \div a^n = a^{m-n}$

Example:

$$2^{14} \div 2^7 = 2^{14-7} = 2^7 \quad x^{10} \div x^8 = x^{10-8} = x^2$$

Brackets law: When raising a power to another power we multiply the powers together. General rule: $(a^m)^n = a^{mn}$

Example:

$$(5^{-4})^2 = 5^{-4 \times 2} = 5^{-8} \quad (h^9)^3 = h^{9 \times 3} = h^{27}$$

Power of 1:

Any number to the power of 1 is just that number. e.g. $5^1 = 5$ and $a^1 = a$

Power of 0:

Any number other than 0, when raised to the power of 0 will equal 1. e.g. $5^0 = 1$ and $a^0 = 1$

KEY VOCABULARY

Word	Definition
Square number	the result of multiplying a number by itself
Cube number	the result of multiplying a number by itself 3 times
Power/Index	how many times to multiply the number by itself
Root	a root is the inverse of a power.
Error Interval	the range of values that a number could have taken before being rounded or truncated



Equivalent fractions

We can create **equivalent fractions** by **multiplying or dividing** the numerator and denominator of a fraction by the same thing

Example 1:

$$\frac{1}{2} = \frac{10}{20}$$

x10

Example 2:

$$\frac{5}{15} = \frac{1}{3}$$

÷ 5

These fractions are equivalent because both the numerator and denominator have been multiplied/divided by the same number. **This process is called simplifying.**

Adding and Subtracting fractions

To add and subtract fractions, we need to have **common denominators**.

Example:

$$\frac{2}{3} + \frac{3}{5} = \frac{10}{15} + \frac{9}{15} = \frac{19}{15} = 1 \frac{4}{15}$$

Multiplying and dividing fractions

When **multiplying fractions**, we multiply the numerators together and denominators together.

Example: $1\frac{1}{3} \times 2\frac{3}{4} = \frac{4}{3} \times \frac{11}{4} = \frac{44}{12} = 3\frac{8}{12}$

If you are multiplying mixed fractions, you must make them improper first.

When **dividing fractions**, we find the **reciprocal** of the second fraction and multiply.

Example: $\frac{2}{3} \div \frac{3}{5} = \frac{2}{3} \times \frac{5}{3} = \frac{10}{9} = 1\frac{1}{9}$

KEEP the first fraction the same, **CHANGE** the sign to a multiply, **FLIP** the second fraction by finding the reciprocal.

Percentage Increase and Decrease (Non-Calculator)

To find a percentage increase or decrease without a calculator first find the percentage and add or subtract it from the original amount.

Example 1: Increase 500 by 22%:
 10% of 500 = 50, so 20% of 500 = 100
 1% of 500 = 5, so 2% of 500 = 10
 $500 + 100 + 10 = 610$

Example 2: Decrease 84 by 4%
 1% of 84 = 8.4, so 4% of 84 = 33.6
 $84 - 33.6 = 50.4$

Calculating a Percentage Change

When you are given the new and original amount of something you can calculate the percentage increase or decrease that has taken place. To do this we need to memorise and use the following formula:

$$\% \text{ change} = \frac{\text{difference}}{\text{original}} \times 100$$

Example:

A games console was bought for £200 and sold for £250. Calculate the percentage change.

$$\% \text{ change} = \frac{50}{200} \times 100 = 25\% \text{ increase}$$

Reverse Percentages

When given a percentage change and the new amount, the original amount can be calculated by dividing by the multiplier.

Example: An object has increased in size by 7% to 53.5kg
The multiplier for a 7% increase is 1.07, we divide the new amount by this
 $53.5 \div 1.07 = 50\text{kg}$

KEY VOCABULARY

Word	Definition
Numerator	The number at the top of the fraction.
Denominator	The number at the bottom of the fraction.
Equivalence	Two values, numbers or quantities which are the same.
Percentage	a proportion that shows a number as parts per hundred
Increase	when an amount goes up
Decrease	when an amount goes down
Interest	a process in which an amount of money increases over time



Simplifying Ratio

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

Example 1: Simplify the ratio 15:30:24

$$\begin{array}{l} 15:30:24 \\ 5:10:8 \end{array} \quad \div 3$$

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

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

$$\begin{array}{l} 4:35 \\ 1:\frac{35}{4} \\ = 1:8\frac{3}{4} = 1:8.75 \end{array} \quad \div 4$$

Ratio to Fractions

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

Example 1:

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

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

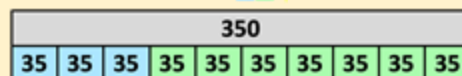
There are $\frac{2}{3}$ as many blue counters as red counters

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

Sharing in a Ratio

Example 1:

Share £350 in the ratio **3:7**.



$$3 + 7 = 10 \text{ parts}$$

$$1 \text{ part} = 350 \div 10 = 35$$

$$3 \text{ parts} = \text{£}105 \quad 7 \text{ parts} = \text{£}245$$

£105:£245

Example 2:

Laura makes some orange juice by mixing orange cordial and water in the ratio **3:10**. She uses 42mL of orange cordial. How much water does she use?



$$3 \text{ parts} = 42\text{mL}$$

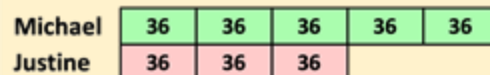
$$1 \text{ part} = 42 \div 3 = 14\text{mL}$$

$$10 \text{ parts} = 14 \times 10 = 140\text{mL}$$

Laura uses 140mL of water.

Example 3:

Michael and Justine share some money in the ratio **5:3**. Justine gets £108. How much money did they share?



$$3 \text{ parts} = \text{£}108$$

$$1 \text{ part} = 108 \div 3 = \text{£}36$$

$$5 + 3 = 8 \text{ total parts}$$

$$8 \text{ parts} = 36 \times 8 = \text{£}288$$

Michael and Justine shared £288.

Year 10 – Maths – Ratio & Proportion

Direct Proportionality

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

Example:

4 pens cost £3.20

Multiply by 2

8 pens cost £6.40

Divide by 8

1 pens cost £0.80

Multiply by 30

30 pens cost £24.00

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

Inverse Proportionality

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

Example:

6 builders can build 10 houses in 30 months

Multiply 6 and 30

1 builder would take 180 months

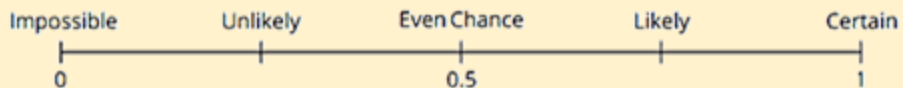
Divide by 18

18 builders would take 10 months

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

KEY VOCABULARY

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



Events are **mutually exclusive** if they cannot happen at the same time.

Examples of **mutually exclusive** events:

- Turning left and right
- Heads and Tails on a coin

Outcomes are **exhaustive** if they cover the entire range of possible outcomes. When rolling a six-sided die, the outcomes 1, 2, 3, 4, 5 and 6 are **exhaustive**, because they cover all the possible outcomes.

To find the number of **expected outcomes**, multiply the probability by the number of trials.

Example:

The probability that a football team wins is 0.2. How many games would you **expect** them to win out of 40? $0.2 \times 40 = 8$

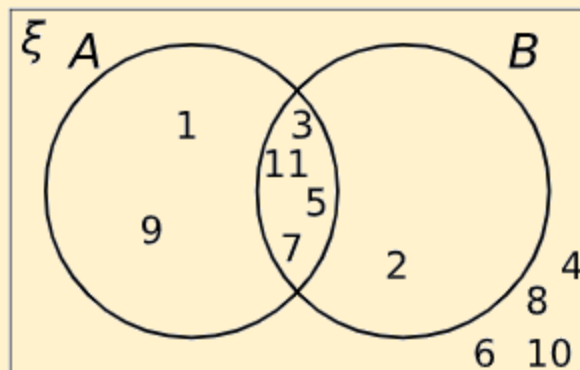
Two-way tables are a way of sorting data so that the frequency of each category can be seen quickly and easily.

For example, 20 people are questioned about whether they have a pet or not. The results can be seen in this two-way table.

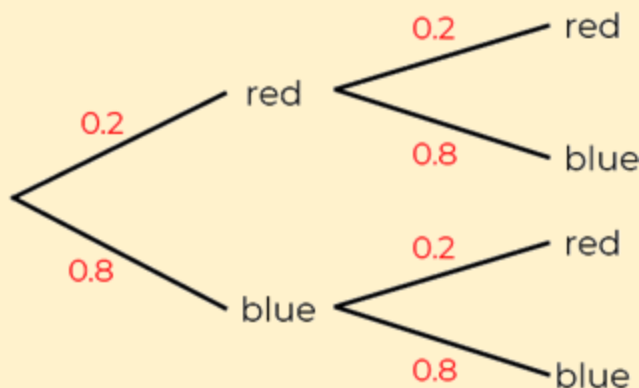
	Owns a pet	Does not own a pet	Total
Boys	9	2	11
Girls	4	5	9
Total	13	7	20

A **Venn diagram** is a way of grouping different parts of data known as **sets**.

In the Venn diagram below, *A* contains odd numbers and *B* contains prime numbers. The overlapping section contains numbers that are odd and prime.



Probability trees are similar to frequency trees, but we instead put the probabilities on the branches and the events at the end of the branch.



Year 10 – Maths – Probability

The **AND rule** states that: **If two events, A and B, are independent, then,**
 $P(A \text{ and } B) = P(A) \times P(B)$

This means to find the probability of A and B occurring you must multiply the probability of A occurring by the probability of B occurring.

Here, the probability of rolling a 5 **and** getting a head is:



The **OR rule** states that: **for two events, A and B, then,**
 $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$

If A and B cannot happen together, we say they are mutually exclusive, and then we have $P(A \text{ and } B) = 0$, so the OR rule becomes
 $P(A \text{ or } B) = P(A) + P(B)$

The **conditional probability** of A given B, is the “probability that event A happens **given that** event B happens”. You will not be told that it is a conditional probability question, but seeing words like ‘without replacement’ or ‘given’ will mean that it is one, or you may have to use your own intuition.

KEY VOCABULARY

Word	Definition
Relative frequency	The number of times the event occurs divided by the total number of trials
Independent event	One event doesn't affect the probability of the others happening
Dependent event	One event does affect the probability of the others happening



Collecting like terms

In algebraic expressions we can collect together like terms. They must contain the same letters and the same powers to be 'like term'

Example 1:

Like terms

$$3y + 2x + 4x - y = 2y + 6x$$

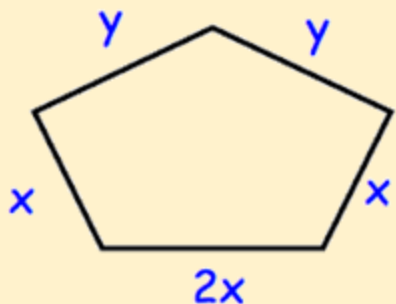
Example 2:

Like terms

$$4x^2 + 2x + 3x^2 = 7x^2 + 2x$$

Be care will positive and negative numbers when collecting terms. The symbol in front of the term belongs to that term.

Example 3:



Perimeter = $4x + 2y$

Expanding Single Brackets

When we **expand** brackets, we **multiply** everything outside the brackets by everything inside the brackets.

Example 1: Expand & Simplify:

$$3(2x + 5)$$

$$\begin{array}{r} \times \quad 2x \quad + 5 \\ 3 \quad \boxed{6x} \quad \boxed{+ 15} \end{array}$$

$$6x + 15$$

Example 2: Expand & Simplify:

$$5x(2x - 4)$$

$$\begin{array}{r} \times \quad 2x \quad - 4 \\ 5x \quad \boxed{10x^2} \quad \boxed{- 20x} \end{array}$$

$$10x^2 - 20x$$

Expand and simplify

If we need to **expand** multiple brackets, we expand them separately then **simplify** at the end

$$3(5x + 4) - 3(2x - 3)$$

$$15x + 12 \quad -6x + 9$$

$$15x - 6x + 12 + 9$$

$$9x + 21$$

Factorising into single brackets

Factorise:

$$6x + 4$$

1) Find the HCF of the terms.

2) Divide each term by the HCF.

$$\frac{6x}{2} = 3x \quad \frac{4}{2} = 2$$

$$2(3x + 2)$$

We can check by expanding the bracket.

KEY VOCABULARY

Word	Definition
Expression	A group of numbers, letters and mathematical operations
Terms	Each separate number and/or letter in an algebraic expression
Expand	Multiply each term in the bracket by the expression outside the bracket
Factorise	To factorise an expression, we need to take out any factors that are common to each term. The process is the opposite of expanding brackets



Equations

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

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

Solving 1-step Equations

Example 1: $x + 5 = 12$
 $-5 \quad -5$ Take 5 from both sides
 $x = 7$ (balancing method)

Example 2: $4x = 20$
 $\div 4 \quad \div 4$ Divide both sides by 5
 (balancing method)

Solving 2-step Equations

Example: $2x + 4 = 10$
 $-4 \quad -4$ Subtract 4 from both sides
 $2x = 6$
 $\div 2 \quad \div 2$ Divide both sides by 2
 $x = 3$

Solving with unknowns on both sides

Example: $5x + 4 = 2x + 10$ Start by balancing the equation so that all the variables (x 's) are on one side.
 $-2x \quad -2x$
 $3x + 4 = 10$
 $-4 \quad -4$
 $3x = 6$
 $\div 3 \quad \div 3$ Then solve using the balancing method
 $x = 2$

Equations with brackets

Example: $12(x - 4) = 24$
Expand the brackets
 $12x - 48 = 24$
 $+48 \quad +48$
 $12x = 72$
 $\div 12 \quad \div 12$
 $x = 6$

Formulae

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

Example: The formula to find the area of a rectangle is:
 $Area = length \times width$
 If we are told the length is 7cm and width is 5cm, we can use the formula to find the area:
 $Area = 5 \times 7$
 $Area = 35cm^2$

Rearranging formulae

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

Example: The formula to find the area of a rectangle is:
 $Area = length \times width$

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

$$Area = length \times width$$

$$\div width \quad \div width$$

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

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

KEY VOCABULARY

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



Expanding double brackets

To expand double brackets, we need to multiply all terms in one bracket by all the terms in the other. We use the multiplication

Example : grid to help us out:

Expand & Simplify:

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

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

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

$x^2 + x - 6$

Step 1: Split up each term onto the sides of the multiplication grid, including the positive/negative sign.

Step 2: Multiply all 4 terms together

Step 3: Write all these 4 terms down, making sure to include all positive/negative signs.

Step 4: Collect the like terms to simplify the answer.

Factorising quadratics

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

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

Example :

Factorise:
 $x^2 + 6x + 8$

Step 1: List the factors of +8:

1 and 8
2 and 4

Step 2: Which add to make +6?

1 and 8
2 and 4

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

Solving Quadratic Equations

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

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

Example :

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

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

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

$$-3 \quad -3$$

$$x^2 + 7x + 10 = 0$$

Step 2: Factorise the quadratic

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

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

$$(x + 5) = 0$$

$$x = -5$$

$$(x + 2) = 0$$

$$x = -2$$

or

Solving Quadratic Equations without factorising (Higher)

Some quadratic cannot be factorised. This does not mean they cannot be solved. We use the **Quadratic formula**.

Quadratic Formula :

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

The a , b and c correspond to the values in a quadratic equation:

$$ax^2 + bx + c = 0$$

Example :

Solve: $2x^2 - 6x + 3 = 0$

$$a = 2, b = -6, c = 3$$

$$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4 \times 2 \times 3}}{2 \times 2}$$

$$x = \frac{6 + \sqrt{12}}{4}$$

$$x = \frac{6 - \sqrt{12}}{4}$$

$$x = 2.37 \text{ (2dp)}$$

$$x = 0.63 \text{ (2dp)}$$

The quadratic formula can solve any quadratic, but factorising is easier. Check a quadratic cannot be factorised before trying the Quadratic Formula.

KEY VOCABULARY

Word	Definition
Quadratic	An expression or equation containing a squared term. E.g. x^2
Equation	A group of numbers, letters and mathematical operations equal to something



Writing Inequalities

Inequalities show the range of numbers that satisfy a rule.

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

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

Example:

State the Integers of n that satisfy:

$$-2 < n \leq 3$$



Cannot be equal to -2

Can be equal to 3

-1, 0, 1, 2, 3

Solving inequalities

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

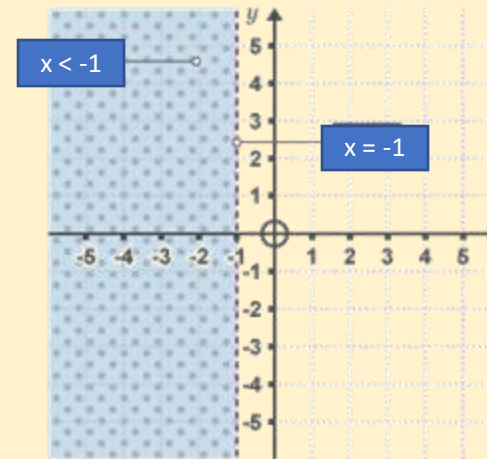
Example: Solve the inequality $3m + 2 > -4$ and represent the solution on a number line:

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

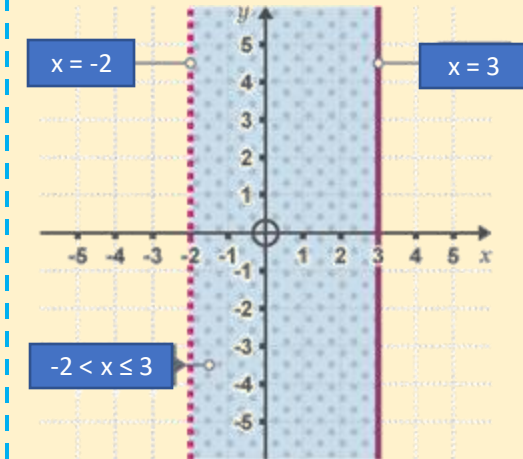


Graphs of inequalities

An inequality can be represented graphically as a region on one side of a line.




This graph shows the inequality $x < -1$. This can be seen as there is a dashed line at $x = -1$, and the region where the x coordinates are less than -1 is shaded.




Example: Show the region satisfied by the inequality $-2 < x \leq 3$.

Representing Inequalities on a number line

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

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

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

Example 1: $x < 2$



Example 2: $-5 \leq x < 4$



KEY VOCABULARY

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



When working with surds, you will need to know your square numbers:

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225

Year 10H – Maths - Surds

Simplify:

$$\begin{aligned} &\sqrt{32} \\ &\downarrow \\ &\sqrt{16 \times 2} \\ &\downarrow \\ &\sqrt{16} \times \sqrt{2} \\ &\downarrow \\ &4 \times \sqrt{2} = 4\sqrt{2} \end{aligned}$$

Combine

Simplify

Multiply:

$$\begin{aligned} &\sqrt{2} \times \sqrt{10} \\ &\sqrt{2 \times 10} \\ &\frac{\sqrt{20}}{\sqrt{4 \times 5}} \\ &\sqrt{4} \times \sqrt{5} \\ &2\sqrt{5} \end{aligned}$$

Divide:

$$\begin{aligned} &9\sqrt{24} \div 3\sqrt{3} \\ &\frac{9}{3} \sqrt{\frac{24}{3}} \\ &3\sqrt{8} = \underline{6\sqrt{2}} \end{aligned}$$

Add/Subtract:

$$\begin{aligned} &\sqrt{8} + \sqrt{18} \\ &\begin{array}{l} \sqrt{4 \times 2} \quad \quad \quad \sqrt{9 \times 2} \\ \downarrow \quad \quad \quad \downarrow \\ 2\sqrt{2} + 3\sqrt{2} \\ \hline 5\sqrt{2} \end{array} \end{aligned}$$

We can only collect terms with the same radicands.

Expand Brackets:

$$\begin{array}{c} (2 + \sqrt{3})(4 + \sqrt{3}) \\ \begin{array}{|c|c|c|} \hline & 2 & +\sqrt{3} \\ \hline 4 & \mathbf{8} & \mathbf{4\sqrt{3}} \\ \hline +\sqrt{3} & \mathbf{2\sqrt{3}} & \mathbf{3} \\ \hline \end{array} \\ 8 + 4\sqrt{3} + 2\sqrt{3} + 3 \\ \hline \underline{11 + 6\sqrt{3}} \end{array}$$

Rationalising the Denominator:

$$\frac{2}{\sqrt{5}} \xrightarrow{\times \sqrt{5}} \frac{2 \times \sqrt{5}}{\sqrt{5} \times \sqrt{5}} = \frac{2\sqrt{5}}{5}$$

irrational rational

To rationalise a denominator with two terms, we must multiply by the term's **conjugate**.

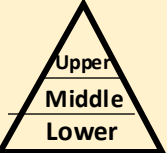



$$\frac{1}{(3 + \sqrt{3})} \times \frac{(3 - \sqrt{3})}{(3 - \sqrt{3})} = \frac{3 - \sqrt{3}}{9 + 3\sqrt{3} - 3\sqrt{3} - 3} = \frac{3 - \sqrt{3}}{6}$$

Word	Definition
Surd	A root of the whole number that has an irrational value
Radicand	The value you want to take the root of

Word	Definition
Rational	A number that can be written as a fraction, where both the numerator and denominator are integers, and the denominator is not equal to zero
Irrational	A real number that cannot be written as a simple fraction



<u>Characters.</u>	<u>Memory Clue</u>
Mr Birling – glutenous, portentous “A man has to make his own way” “wretched girl's suicide”	
Mrs Birling – portentous, cold-hearted “a rather cold woman and her husband's social superior” “girls of the class”	
Gerald Croft – aristocratic, superficial “easy, well-bred young man-about-the-town” “Nearly any man would've done”	
Sheila Birling – superficial, materialistic “Yes, go on, Mummy” “But these girls aren't cheap labour, they're people”	
Eric Birling – naïve, lacks confidence “Half shy, half-assertive” “She was pretty and a good sport”	
Inspector Goole – omniscient, authoritative “There are millions and millions of Eva Smith's in the world” “We are members of one body.”	

<u>Big ideas:</u>
<p>Class: Priestley explores the theme of class through the treatment of working-class Eva Smith by the wealthy Birlings and Gerald Croft when she is in the following situations:</p> <ul style="list-style-type: none"> • when she is a factory worker • when she works in a shop • when she is effectively homeless • when she is potentially a single mother 
<p>Social responsibility: Priestley explores social responsibility through:</p> <ul style="list-style-type: none"> • the treatment of Eva Smith • how each character does or doesn't take responsibility for their behaviour • the Inspector's lessons 
<p>Age: Priestley explores the theme of age through:</p> <ul style="list-style-type: none"> • Sheila and Eric's response to Eva's death • Mr and Mrs Birling's response to Eva's death • how the older characters perceive the younger ones 
<p>Gender: Priestley explores the theme of gender through:</p> <ul style="list-style-type: none"> • how Mr Birling and Gerald Croft view women • how Mrs Birling treats Eva Smith • how Eva Smith is portrayed as independent and outspoken before her death 

<u>Key vocabulary</u>	<u>Definition</u>
Capitalism	A country's trade and industry are controlled by private owners.
Socialism	Equality for all that includes all provisions
Glutenous	Excessively greedy
Proxy	Representing someone else
Supercilious	Feeling superior to others
Materialistic	More value on possessions
Antithesis	Opposites
Microcosm	Small units within a larger unit
Penitent	Feeling or showing regret
Portentous	A person who thinks they are self-important
Altruistic	Showing concern for others



Beginning – Celebrating Engagement



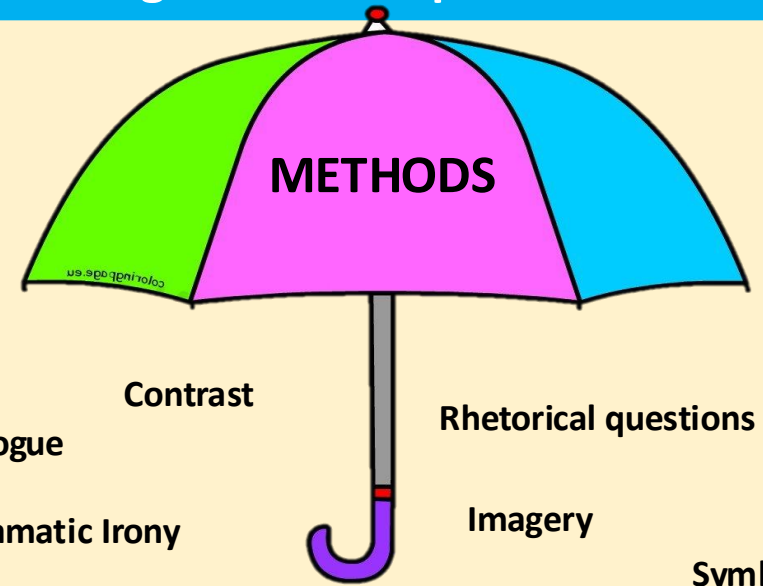
Middle – Inspector's Interrogation



End – Chance to redeem



How can I be successful in my writing?		
Authorial intent AO1	Critical, exploratory, conceptualised response to task and whole text.	
Evidence AO1	Judicious use of precise references to support interpretation(s).	
Inference(s) AO2	Exploration of effects of writer's methods to create meanings.	
Zoom in AO2	Analysis of writer's methods with subject terminology used judiciously.	
Zoom out AO3	Exploration of ideas/contextual factors shown by specific, detailed links between context/text/task.	
Effect AO1/AO3	Exploration of writer's purpose.	



Example SEIZZE Paragraph:

How does Priestley explore responsibility in An Inspector Calls?

Priestley explores ideas about responsibility through the way the Birlings behave towards Eva Smith. Arthur Birling explains the family's philosophy when he says 'a man has to mind his own business and look after himself and his own' which suggests that he feels that he only has responsibility for his own family and himself. This is reinforced by the way the Birlings treat Eva Smith. First of all, Arthur fires her from his factory to make an example of her because she asks for higher wages and dares to take responsibility for others by speaking up on their behalf. Arthur's prime motive is to keep wages down so that he could make more profits. Priestley reinforces this through Arthur's constant repetition of 'hardheaded man of business', to remind the audience that he is representative of capitalism and the damage it causes. Priestley is showing the audience that a blind belief that generating profits and prosperity for the good of everyone is fundamentally wrong as it causes innocent people to suffer tragic consequences.

Analytical verbs

Infers	Exposes	Emphasises
Implies	Establishes	Reinforces
Suggests	Signifies	Highlights
Demonstrates	Alludes to	Illuminates



The Reading Section – Section A

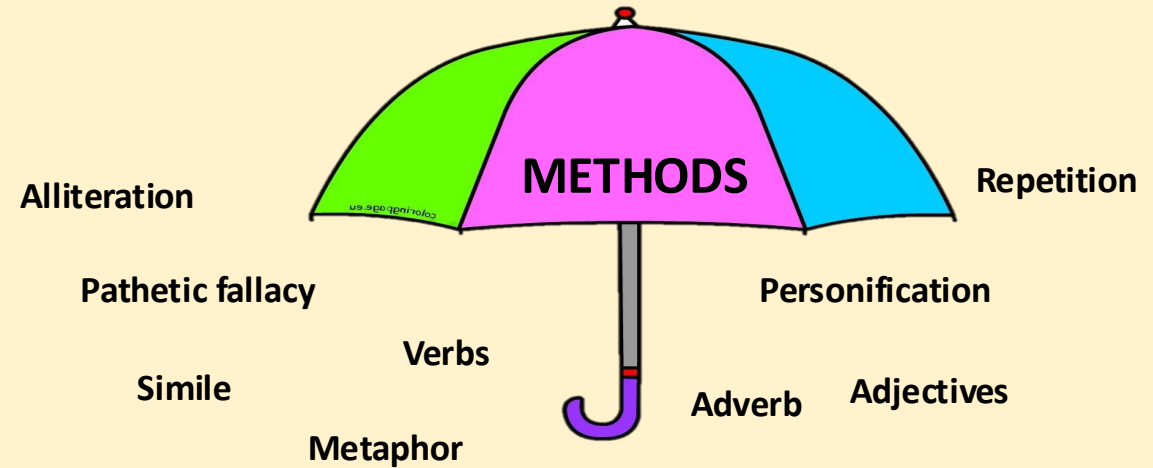
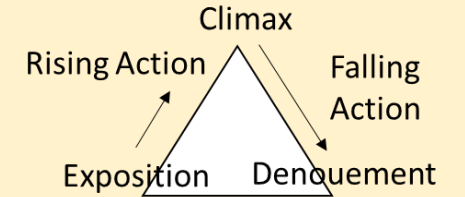
- Question 1: Multiple choice questions (4 Marks) 5 minutes
- Question 2: Language Analysis (8 Marks) 10 minutes
- Question 3: Structure Analysis (8 Marks) 10 minutes
- Question 4: Evaluation (20 Marks) 25 minutes

Question Two Language Analysis 2 X S-E-Zi-Zi	<p>Statement – It is clear that the writer uses _____ to...</p> <p>Evidence – My evidence is...</p> <p>Zoom in- The word _____ makes me think of.... Which tells me that...</p> <p>Zoom in- It also suggests ideas of... which implies...</p>				
Question Three Structure Analysis 3 X S-E-I	<p>Statement – The focus at the start is on...</p> <p>Evidence – My evidence is...</p> <p>Inference- This is an effective opening because...</p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>Focus is on... </td> <td>Pace is ... </td> <td>Mood is.. </td> <td>Tension levels are... </td> </tr> </table>	Focus is on... 	Pace is ... 	Mood is.. 	Tension levels are...
Focus is on... 	Pace is ... 	Mood is.. 	Tension levels are... 		
Question Four Evaluation Analysis 2 X S-E-I-Zi-E-I-Zi-Ef	<p>Statement – I agree with the statement because...</p> <p>Evidence – My evidence is...</p> <p>Inference- This suggests...</p> <p>Zoom in- The word _____ makes me think of.... Which tells me that...</p> <p>Evidence – This is further reinforced with the quote...</p> <p>Inference- This suggests...</p> <p>Zoom in- The word _____ conjures up images of.... Which tells me that...</p> <p>Effect on the Reader: This would make the reader think/feel...</p>				

Year 10 – English – Language Paper 1

The Writing Section – Section B

There will be a choice of two questions.
 It will be marked out of 40.
24 marks for content and organisation.
16 marks for technical accuracy (SPAG).
 You will have to write either a description based on an image or a narrative.



Sentence Forms			
Exclamative	Declarative	Interrogative	Imperative

Punctuation									
.	,	?	!	...	;	:	()	-	/



How can I be successful in my creative writing?		
A05 - Content	<ul style="list-style-type: none"> ✓ Register is convincing and compelling for audience ✓ Assuredly matched to purpose ✓ Extensive and ambitious vocabulary with sustained crafting of linguistic devices 	
A05 - Organisation	<ul style="list-style-type: none"> ✓ Varied and inventive use of structural features ✓ Writing is compelling, incorporating a range of convincing and complex ideas ✓ Fluently linked paragraphs with seamlessly integrated discourse markers 	
A06 – Technical accuracy	<ul style="list-style-type: none"> ✓ High level of accuracy in spelling, including ambitious vocabulary ✓ Extensive and ambitious use of vocabulary ✓ Wide range of punctuation 	

Analytical verbs		
Infers	Exposes	Emphasises
Implies	Establishes	Reinforces
Suggests	Signifies	Highlights
Demonstrates	Alludes to	Illuminates







Example narrative paragraph:

Throbbing, my back awoke from it's slumber, a small trail of saliva crusted on my cheek and down my chin and my sweater clung to my skinny body. I **groggily** massaged my eyes hoping to banish the blur that was cast over them. However, when I removed my clammy hands away from my eyes reality slapped me in the face full force. I was still in the library and I had been now for, I frantically looked for the clock, **4 HOURS!** Shocked by my recent discovery, **as fast as lightning** I ransacked through my school bag in desperate search of my phone but it was no were to be found...

Example descriptive paragraph:

The air was filled with the loud clanging sounds of people pulling their suitcases. They zoomed around rapidly, **like a swarm of wasps**, vanishing as quickly as they appeared. A small cluster of boys laughed merrily, their faces filthy with soot and dust, hurling stones at the passing trains. The floor had been covered in a heavy blanket of filth. **Warped** cans of coke spilled musky brown liquid onto **decaying** apple cores, the pungent odour assaulting the nostrils of the crowd. It was another busy morning at the station. **Nothing out of the ordinary.**



Characters.	Memory Clue
Macbeth – loyal/disloyal, ambitious, tyrannical “I have no spur to prick the sides of my intent, but only vaulting ambition” “Is this a dagger I see before me”	
Lady Macbeth – strong, ruthless, ambitious “Unsex me here” “Look like the innocent flower, but be the serpent under it”	
The Three Witches – supernatural, ominous “Where shall we three meet again? In thunder lightning or in rain?”	
Banquo – caring, loyal, trustworthy “I fear thou play'dst most foully for it”	
King Duncan – noble, generous, stability “What he hath lost, noble Macbeth hath won”	
Macduff – loyal, brave, fierce “was from his mother's womb untimely ripped.”	



Beginning

The Witches Prophecies

Big ideas:

Ambition

- Ambition leads to evil - it makes Macbeth stronger and more determined but then destroys his wife.
- Ambition eventually kills Macbeth as well, because he becomes a tyrant and so loses the support of his friends.

Supernatural









- The very first characters we meet are the three witches, and their prophecies drive the story forward.
- In Shakespeare's time, belief in witchcraft was very strong and many so-called witches were burnt at the stake.

Loyalty and guilt

- Duncan clearly values loyalty – he has the first Thane of Cawdor executed and rewards Macbeth
- Loyalty is also very important to Banquo – he will not desert Duncan. Macbeth, however, has an odd idea of loyalty – he knows he is doing the wrong thing, but he still goes ahead.

Middle

Macbeth becomes King

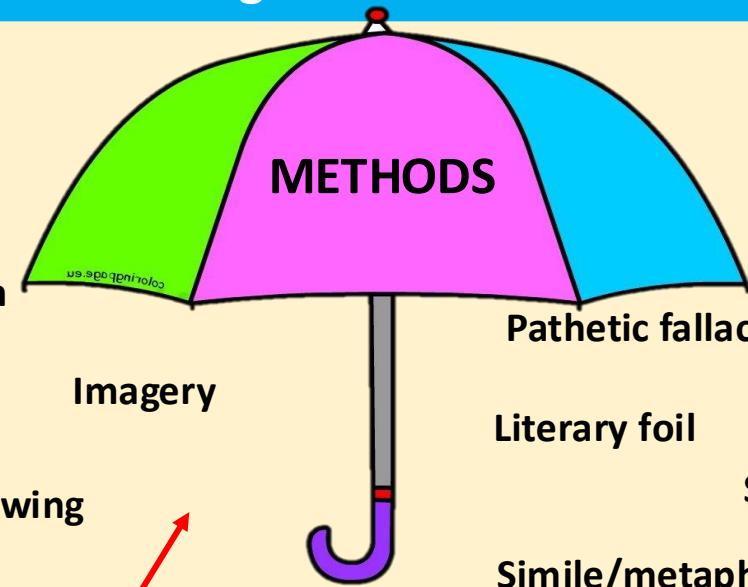
Key vocabulary	Definition	Memory clue
Tragedy	A play dealing with tragic events and the downfall of the main character.	
Tragic hero	A noble protagonist who experiences a tragic downfall.	
Tyrannical	Exercising power in a cruel or arbitrary way.	
Soliloquy	Speaking one's thoughts aloud when by oneself.	
Fate	To be destined to happen.	
Morality	The distinction between right and wrong.	
Ambition	A strong desire.	
Duality	Having two sides.	

End

Downfall of Macbeth & Lady Macbeth



How can I be successful in my writing?		
Authorial intent AO1	Critical, exploratory, conceptualised response to task and whole text.	
Evidence AO1	Judicious use of precise references to support interpretation(s).	
Inference(s) AO2	Exploration of effects of writer's methods to create meanings.	
Zoom in AO2	Analysis of writer's methods with subject terminology used judiciously.	
Zoom out/effect AO1/AO3	Exploration of ideas/contextual factors shown by specific, detailed links between context/text/task.	



Example SEIZZE Paragraph.

Starting with this extract **how** does **Lady Macbeth** use language **to manipulate** her husband in the play?
 Write about:
 •how she persuades him to her point of view in **this extract**
 •how she uses her powers of persuasion in the **rest of the play**

*Macbeth starts this scene in a decisive mood but by the end of it has given in to his wife's powers of persuasion. She asks him lots of questions but does not give him time to answer; this would **unsettle** him and make the audience aware of just **how ambitious she is**. Lady Macbeth **uses emotional blackmail** when she says, "From this time, / Such I account thy love." She also calls him a coward **using a simile** to compare him to a cat who would like to get hold of some fish but which does not want to get its paws wet; this is an example of one of the many **animal images** used in the play. **I think her biggest insult is to say that he is not acting like a man**: "When you durst do it, then you were a man." The key **opposites** used here are "when" and "then". For a woman to say this to a man in **Shakespeare's time** would have been totally unacceptable and the original audience would probably have been shocked by it.*

Analytical verbs

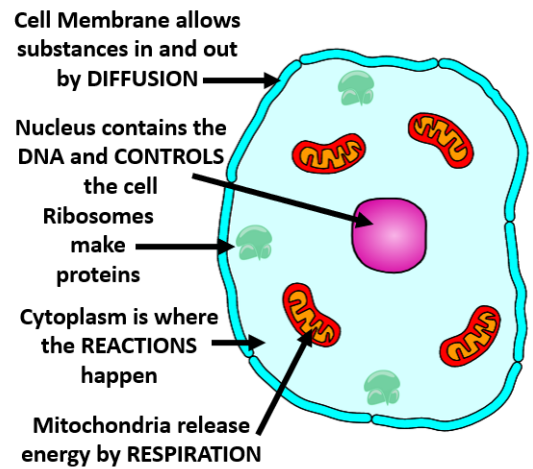
Infers	Exposes	Emphasises
Implies	Establishes	Reinforces
Suggests	Signifies	Highlights
Demonstrates	Alludes to	Illuminates



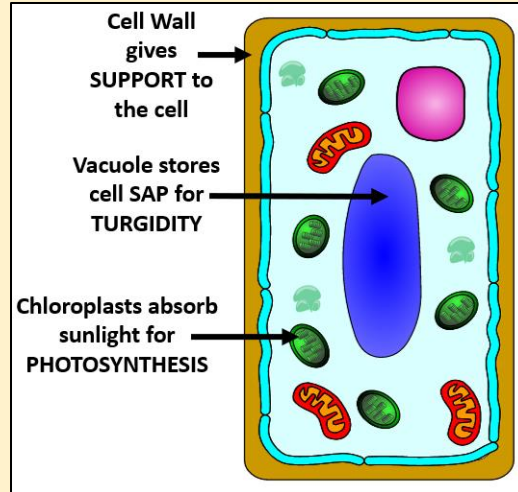
- Cells are the building blocks of life.
- Eukaryotic cells have a nucleus, prokaryotic cells do not.
- Specialised cells are adapted to perform a function.
- Electron microscopes view cells with a higher magnification and resolution.

Eukaryotic cells → Prokaryotic cells → Specialised cells → Microscopes

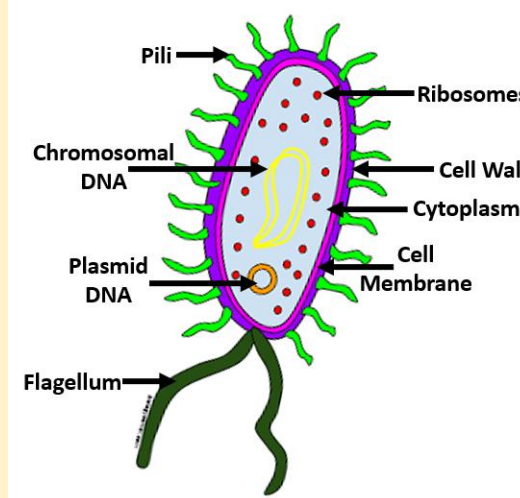
1) Animal cell



2) Plant cell



3) Prokaryotic cell – no nucleus



4) Specialised animal cells

Nerve cells are long and connected at both ends to carry impulses.
Muscle cells have lots of mitochondria to move.
Sperm cells have a tail to swim.
Red blood cells have no nucleus and are biconcave to carry oxygen.
Ciliated cells have hairs to sweep mucus.

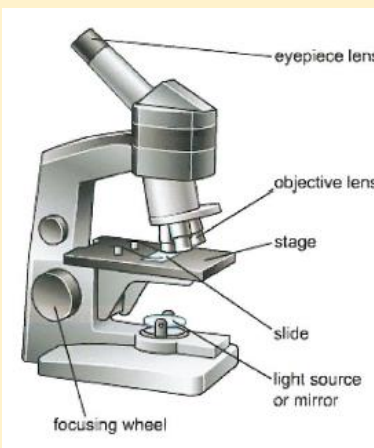
5) Specialised plant cells

Root hair cell have large surface area to absorb water.

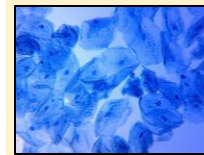
Xylem are dead hollow tubes that carry water up the plant.

Phloem have pores in their end cell walls to transport sugar up and down the plant.

6) Light Microscopes



Onion cells stained with iodine



Cheek cells stained with methyl blue

7) Magnification

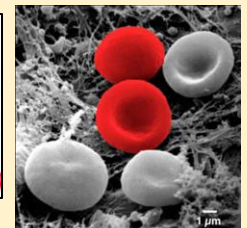
$A = \text{Actual size}$
 $I = \text{Image size}$
 $M = \text{Magnification}$

$$\text{Magnification} = \frac{\text{size of image}}{\text{size of real object}}$$

$1,000 \mu\text{m} = 1\text{mm}$

8) Electron microscope

Higher resolution and magnification than light microscopes.

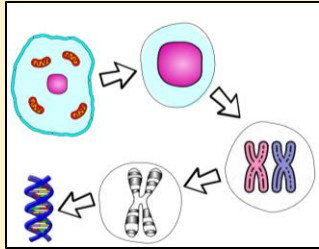




- Cells divide by mitosis for growth and repair.
- Some stem cells can be used to produce new cells.
- Substances move into or out of cells by diffusion, osmosis or active transport.

Chromosomes → Mitosis → Stem cells → Movement of substances

9) Chromosomes



Nucleus – contains genetic information.

Chromosomes – coiled packages of DNA.

Gene – section of DNA.

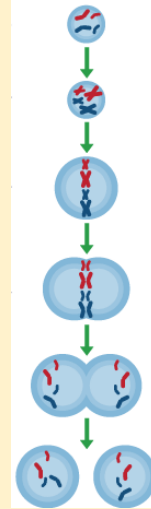
10) Mitosis

Produces body cells.

For growth and repair.

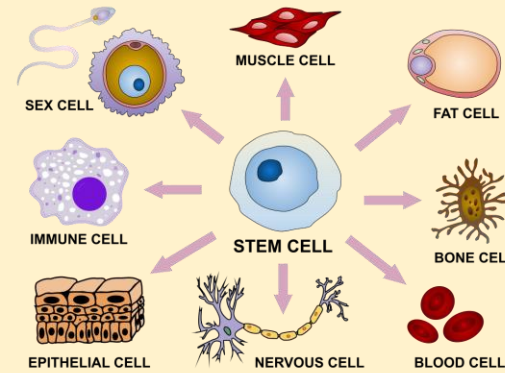
Chromosomes pull apart to opposite ends.

Two nuclei form.



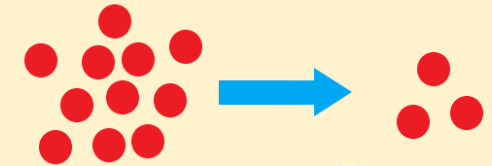
11) Stem cells

Are undifferentiated cells.



12) Diffusion

The movement of particles from a high concentration to a low concentration.



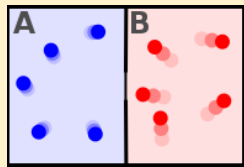
Examples:

- alveoli
- villi
- root hair cells

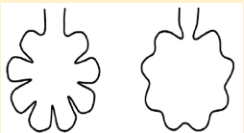


13) Factors affecting diffusion:

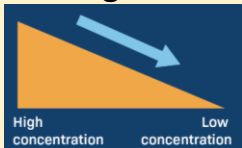
- Temperature



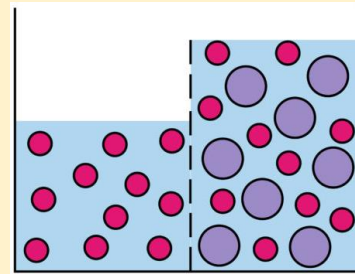
- Surface area



- Concentration gradient



14) Osmosis



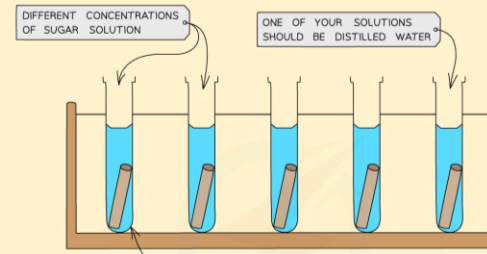
The movement of water from a dilute solution to a concentrated solution through a partially permeable membrane.

15) Osmosis required practical

IV – Concentration of sugar solution

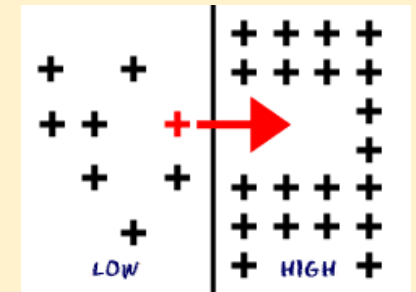
DV – Change in mass of potato

CV – Volume of sugar solution, time in sugar solution



16) Active transport

Movement of particles from an area of low concentration to an area of high concentration. This requires energy.

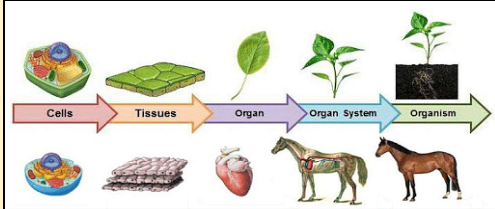




- The digestive system is adapted for maximum digestion.
- Enzymes are biological catalysts speeding up digestion.
- The circulatory system consists of blood, blood vessels and the heart.
- The breathing system is adapted for maximum oxygen absorption.

Organisation → Digestive system → Circulatory system → Respiratory system

1) Organisation

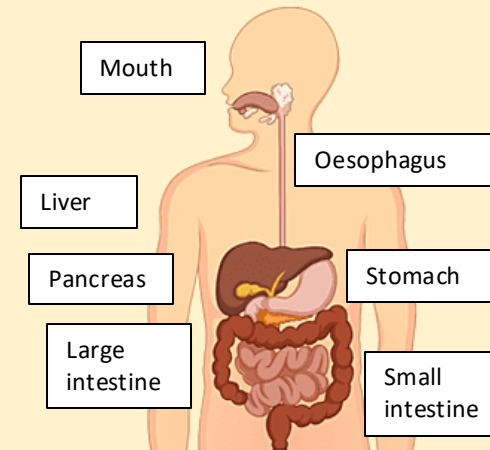


Cells: single building blocks of life.
 Tissues: many cells working together.
 Organs: different tissues working together.
 Systems: different organs working together.

2) Food tests

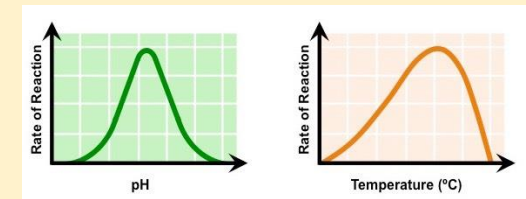
Food Test	Chemical Used	Colour of Chemical	Positive Result
Starch	Iodine	Orange	Dark Blue / Black
Sugar	Benedict's	Blue	Orange / Red
Protein	Biuret's	Blue	Purple
Lipids / Fats	Methanol	Clear	Cloudy

3) Digestive system



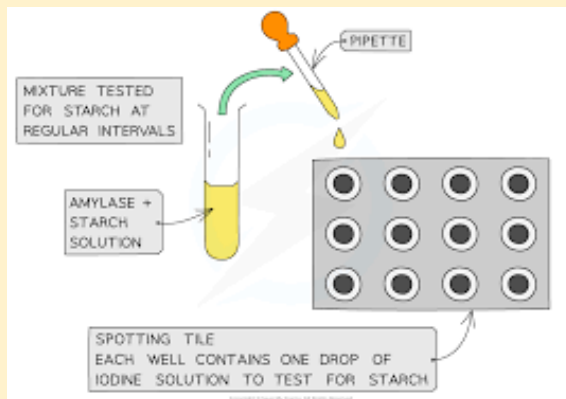
4) Enzymes

Speed up reactions without being used up or changed.



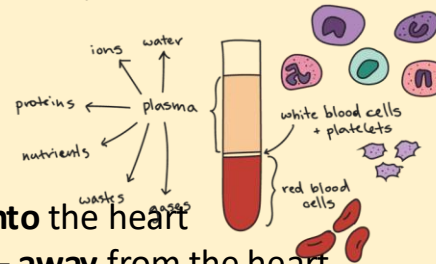
Amylase: Sucrose → Glucose
Protease: Proteins → Amino Acids
Lipase: Lipids → Fatty Acids + Glycerol.

5) Enzymes required practical



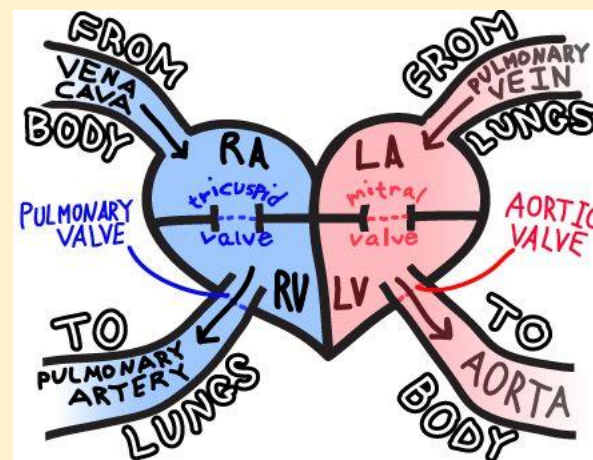
6) Blood and blood vessels

Red blood cell – carries oxygen.
 White blood cell – immune system.
 Platelets – form scabs
 Plasma – transports substances



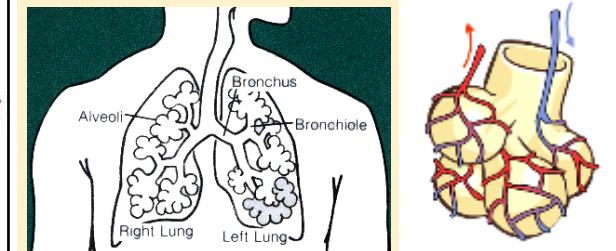
Veins – into the heart
Arteries – away from the heart
Capillaries – 1 cell thick

8) The heart



9) Breathing

Air → trachea → bronchi → bronchioles → alveoli → [O₂]
 ↑
 Air ← trachea ← bronchi ← bronchioles ← alveoli ← [CO₂]



Alveoli have a large surface area, thin walls and a good blood supply.

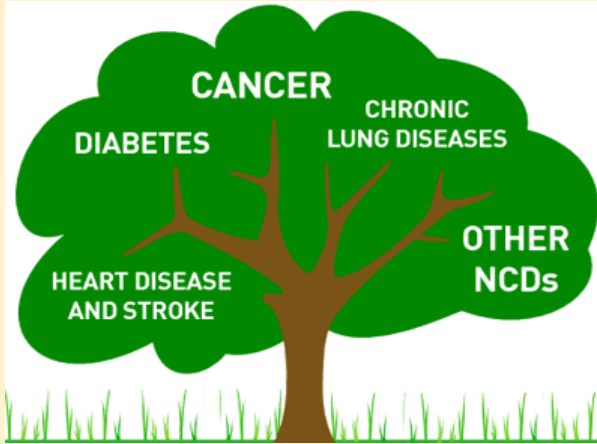


- Health is the state of physical and mental well-being.
- Coronary heart disease is caused by the build of fatty deposits..
- Cancer is caused by uncontrollable cell division.
- Plants have transport systems for water and sugars..

Non-Communicable Disease → CHD → Cancer → Plant Organisation

10) Non-communicable disease

Not caused or spread by pathogens.

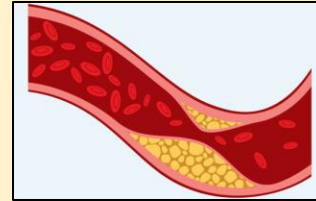


11) Coronary Heart Disease

CHD is a build of fatty material in artery leads to it narrowing.

This reduces...

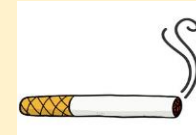
- Blood flow
- Oxygen
- Respiration
- Energy release



Statins – lower cholesterol.
Stents – keep artery open.

12) Risk factors for disease:

- High fat diet
- Lack of exercise
- Obesity
- Drugs, smoking and alcohol
- Carcinogens
- Ionising radiation
- Genetics
- Stress

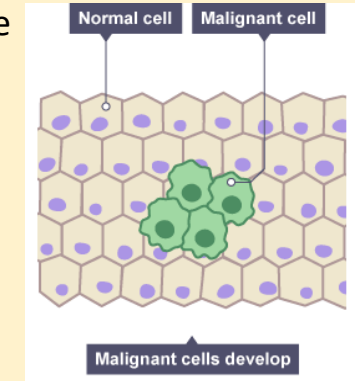


13) Tumours:

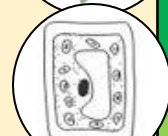
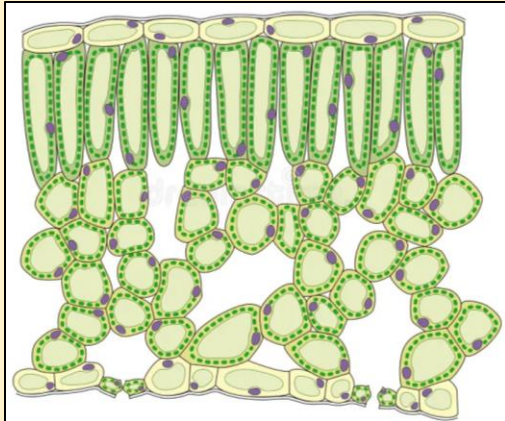
Uncontrolled cell growth

A benign tumour doesn't invade other tissues.

A malignant tumour invades other tissues.



14) Plant organs and tissues



Upper epidermis for protection.

Palisade mesophyll packed with chloroplasts.

Spongy mesophyll has cells loosely packed to allow gas exchange.

Lower epidermis has stomata for gas exchange surrounded by guard cells.

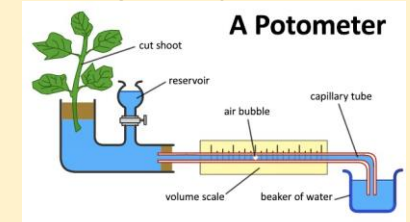
15) Transpiration stream



1. Water enters via roots.
2. Travels up xylem.
3. To the leaves.
4. Out through the stomata.
5. By transpiration.

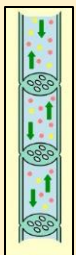
Rate **decreased** by humidity.
 Rate **increased** by temperature, air movement and light intensity.

16) Measuring transpiration



17) Translocation:

Glucose is transported in phloem vessels.



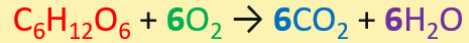


- Aerobic respiration occurs with oxygen and anaerobic respiration without.
- Fermentation produces ethanol and carbon dioxide.
- Exercise increases breathing rate, heart rate and breath volume.
- Metabolism is the sum of reactions in the body.

Respiration → Response to exercise → Metabolism

1. Aerobic respiration

glucose + oxygen → carbon dioxide + water



Occurs with oxygen.

Takes place in the mitochondria.



Releases energy from glucose. It is an exothermic reaction.

Energy is needed to keep warm, move and build molecules.

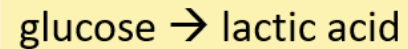


2. Anaerobic respiration

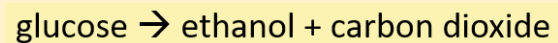
Occurs without oxygen.

Takes place in the cytoplasm.

Releases less energy than aerobic respiration.



Fermentation is used to make wine, beer and bread.



3. Response to exercise

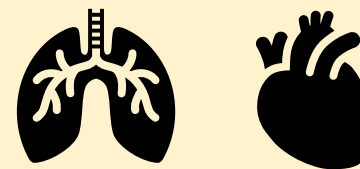
Lactic acid is produced during vigorous exercise.

Excess lactic acid causes muscle fatigue and cramp.



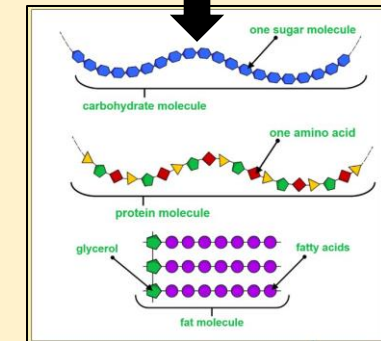
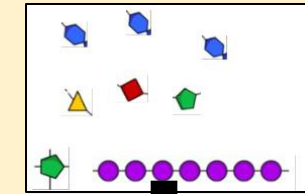
Oxygen is needed to remove the lactic acid.

The heart rate, breathing rate and breath volume increases after exercise.

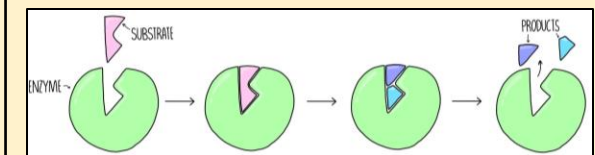


4. Metabolism

Is the sum of all chemical reactions in the body.



These reactions are controlled by enzymes.

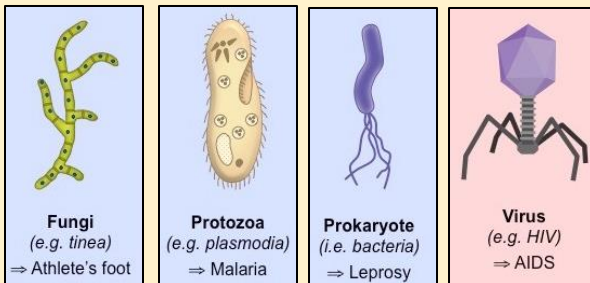




- Communicable diseases are caused by pathogens.
- Viruses, bacteria, fungi and protists are pathogens.
- White blood cells engulf pathogens and produce antibodies.
- Our immune system defends against pathogens.

Pathogens → Communicable Diseases → Body Defences

1) Pathogens



Communicable diseases are caused and spread by pathogens.

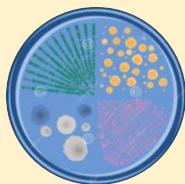
Pathogens are microorganisms that cause disease.

Bacteria produce toxins. These damage tissues and make us ill.

Viruses live and reproduce inside cells, causing cell damage.

Culturing Bacteria on agar:

- Agar plate
- Wire loop
- Heat
- Spread
- Seal



2) Viral disease

Measles

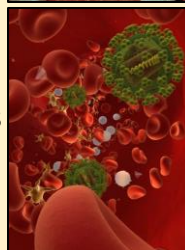
- spread through droplets
- fever and red skin rash
- children are vaccinated

HIV

- exchange of bodily fluids
- flu-like illness
- can become AIDS
- controlled by antiretrovirals

TMV

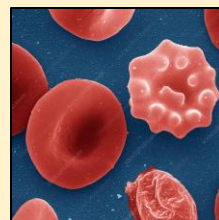
- discolouration of leaves
- poor plant growth



5) Protist disease

Malaria

- fevers
- spread by mosquito (vector)
- prevention includes draining swamps and using mosquito nets



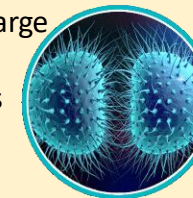
3) Bacterial disease

Salmonella

- poor food hygiene practices
- vaccinate poultry
- fever, cramps, vomiting, diarrhoea

Gonorrhoea

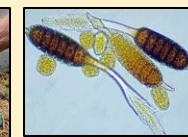
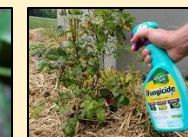
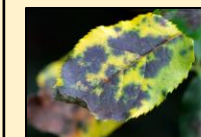
- STD
- thick yellow or green discharge
- treated by antibiotics
- stop spread with condoms






4) Fungal disease

Rose Black Spot

- spread by wind or water
- black spots on leaves
- fungus attacks chloroplasts → less photosynthesis → stunted growth
- treated with fungicides or destroying plant



6) Non-specific defence

Skin	Scabs	Ciliated cells
Physical barrier	Stops pathogens entering	Wafts mucus 
Goblet cells	Stomach acid	Fever
 Produce mucus	Kills pathogens	 Destroys pathogen enzymes
White Blood Cells		
Produce antitoxins	Produce antibodies	Engulf & digest pathogens

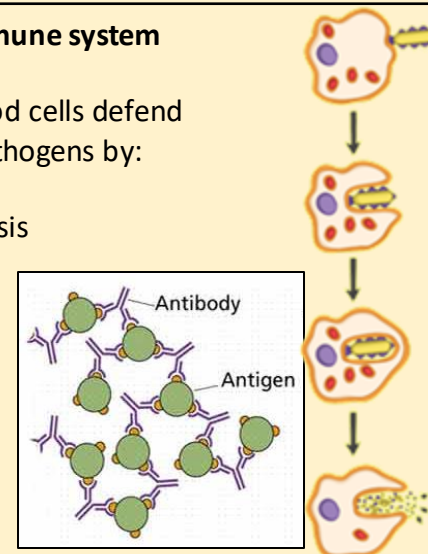
8) The immune system

White blood cells defend against pathogens by:

Phagocytosis

Producing antibodies

Producing antitoxins



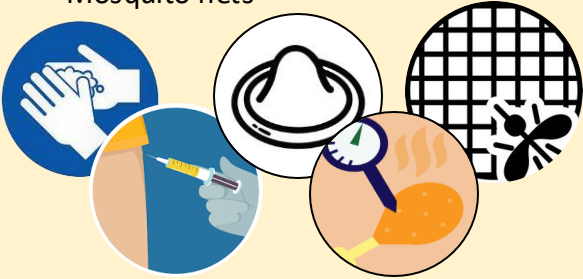


- Good hygiene practice, contraception and vaccinations can reduce the spread of disease.
- Vaccinations contain dead or weakened pathogens.
- Drugs need to be tested and trialled before use.

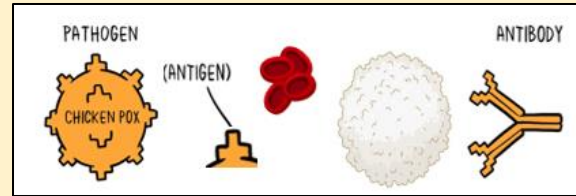
Prevention → Vaccines → Antimicrobials & Antibiotics → Developing Drugs

8) Preventing Communicable Disease:

- Hand washing
- Vaccination
- Condoms
- Cook food thoroughly
- Mosquito nets



9) Vaccination



1. Inject dead or inactive pathogen.
2. White blood cells produce antibodies.
3. Remaining white blood cells become memory cells.
4. Same pathogen re-enters, can quickly produce correct antibodies.

10) Painkillers and antibiotics.

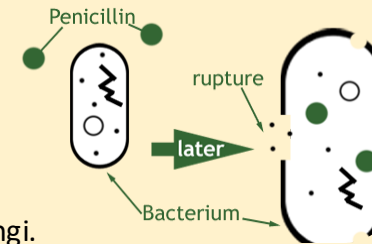
Antimicrobials kill pathogens.

Antivirals treat viruses.

Antifungals kill fungi.

Antibiotics kill bacteria by destroying their cell walls.

Painkillers treat symptoms of disease.



11) Discovery of drugs

- The heart drug digitalis from foxgloves.
- The painkiller aspirin from willow.
- The antibiotic Penicillin from the Penicillium mould.



12) Developing drugs

- Drugs are tested for efficacy, toxicity and dose.
- Placebo drugs can be given in double blind trials.

Pre-clinical testing	Clinical testing		
	Phase 1	Phase 2	Phase 3
Laboratory tests including tests on animals	10–100 volunteers	200–400 patients	3000+ new patients

	Trial	Doctor	Patient
Open		✓	✓
Blind		✓	✗
Double-Blind		✗	✗

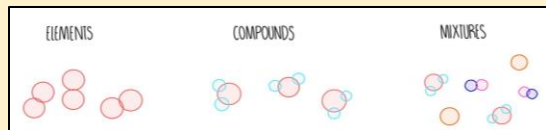


- All elements are made up of atoms.
- Atoms are made up of 3 sub-atomic particles
- The model of the atom has been developed over a long period of time.

Year 10 – Science -Atomic Structure (C1)

Elements → Equations → The development of Atom → Sub-atomic Particles

1. Particle diagrams



Element – one type of atom

Compound – more than one type of atom chemically bonded.

Mixture – two or more substances that can be separated.

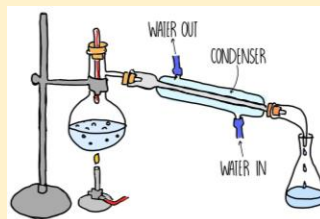
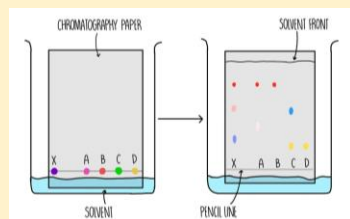
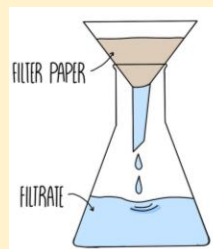
2. Separating mixtures

Filtration – insoluble solid and liquid.

Crystallisation – evaporates water forming crystals.

Distillation – liquids based on boiling point.

Chromatography – pigments.



3. Equations

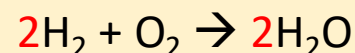
Word Equations

Hydrogen + Oxygen → Water

Reactants

Products

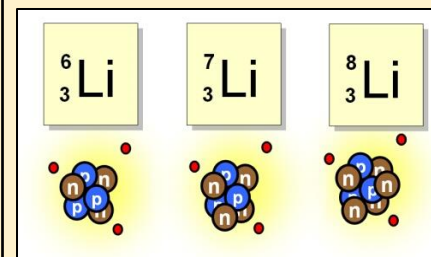
Symbol Equations/Balanced Equations



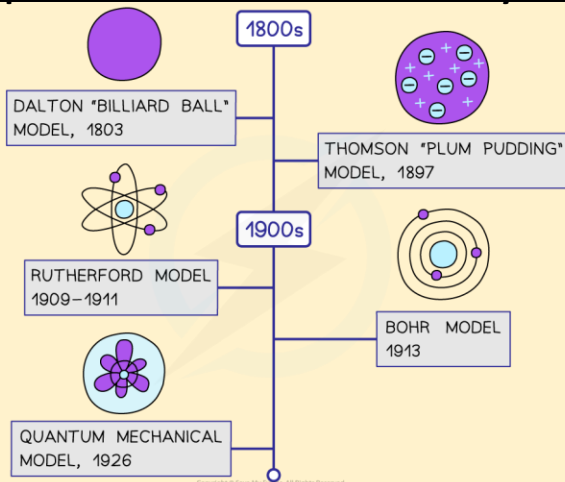
5. Sub-atomic particles

ATOMIC PARTICLE	CHARGE	MASS
PROTON	+ 1	1
NEUTRON	0	1
ELECTRON	-1	1/2000

6. Isotopes



4. Development of the atomic model – key diagrams



Rutherford's alpha scattering experiment:

Rutherford found that most of the alpha particles **passed straight through** the gold foil, with **only a very small number being repelled**. This led him to conclude two things:

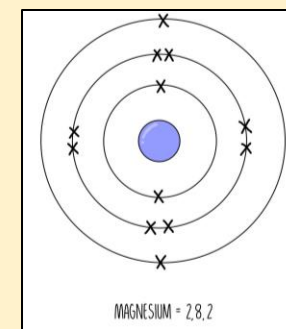
1. The atom is **mostly empty space**, with a **tiny nucleus** located in its centre.
2. The **nucleus** of the atom is **positively charged**

7. Electron configuration

Rules:

First shell = 2 electrons

2[>] = 8 electrons





- All elements are made up of atoms.
- Atoms are made up of 3 sub-atomic particles
- The model of the atom has been developed over a long period of time.

Elements → Equations → The development of Atom → Sub-atomic Particles

1. Development of the periodic table

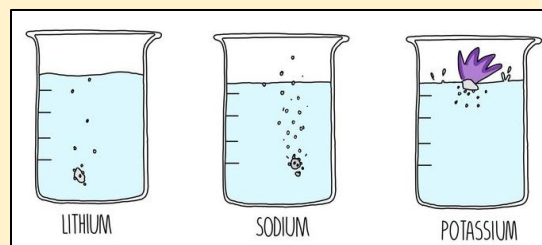
- Early Periodic Table arranged by **atomic weight**
- **Mendeleev – Left gaps** for undiscovered elements.
- Swapped elements based on their properties.

Group 6	Group 7	Group 6	Group 7
O	F	O	F
S	Cl	S	Cl
Cr	Mn	Cr	Mn
	Se		Br
Mo	*	Mo	*
	I		Te

Note: A red arrow in the second table points from Te to I, indicating a swap.

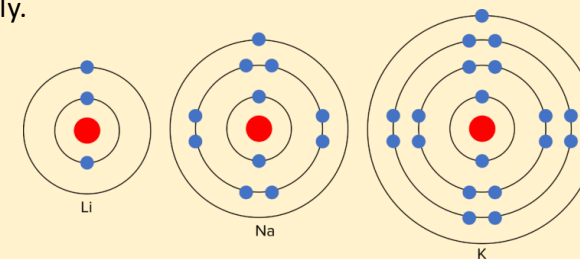
2. Group 1 – The Alkali Metals

- 1 electron in outer shell – react similarly.
- All turn universal indicator **purple** as an alkali is produced (metal hydroxide).
- All fizz as they all produce hydrogen gas.



3. Group 1 reactivity

- All have one **electron** in their outer shell.
- As you go down the group the elements have more shells.
- The distance between the outer shell electron and the nucleus is further away.
- Therefore the **attraction** is weaker and an electron is lost more easily.

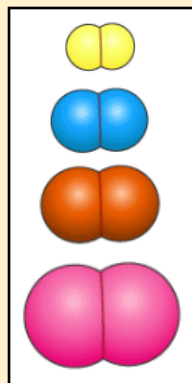


4. Group 7 – The Halogens

- 7 electrons in outer shell – react similarly
- **Diatomic** – travel around in pairs
- As you down the group the boiling points increase

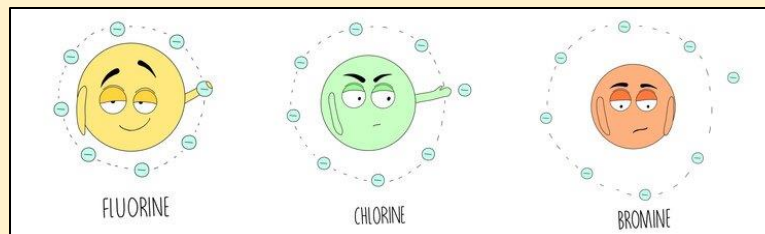
Why do the boiling points increase down the group?

- More electron shells
- Bigger atom
- Stronger **intermolecular forces**
- Require **more energy** to overcome.



5. Group 7 reactivity

- All have seven **electrons** in their outer shell.
- Fluorine is the smallest atom and has less shells.
- The distance between the spare electron and nucleus is less.
- Therefore the **attraction** is stronger and an electron will be gained more easily at the top.



6. Metals

METALS	NON - METALS
SHINY	DULL
HIGH MELTING POINTS	LOW MELTING POINTS
GOOD CONDUCTORS	POOR CONDUCTORS
HIGH DENSITY	LOW DENSITY
MALLEABLE	BRITTLE

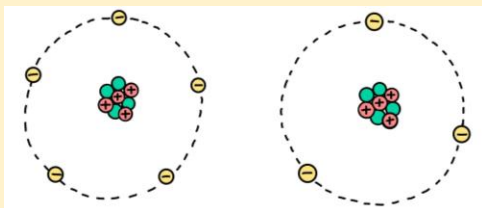


- Bonding is between elements and involves electrons.
- There are 3 main types of bonding: Ionic, covalent and metallic.
- Diamond and graphite are types of giant covalent compounds

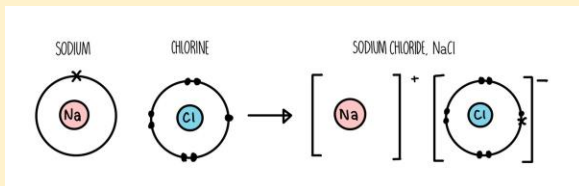
Ions → Ionic Bonding → Covalent bonding → Metallic bonding

1. Ions

- **Ions** are atom/s that have gained or lost **electrons**.
- Occurs between metals and non-metals.
- Involves a transfer of **electrons**.
- Metals lose electrons and form + ions.
- Non-metals gain electrons and form - ions.

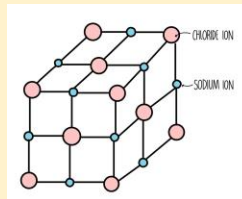


2. Ionic bonding



- Metals lose electrons to form a positive ion.
- Non metals gain electrons to form a negative ion.
- They both have a full outer shell.

3. Properties of ionic compounds

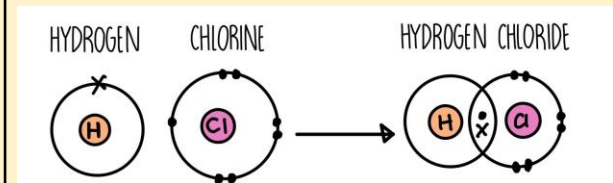


A strong **electrostatic attraction** holds the **ions** together. Properties of ionic compounds are:

- High melting point
- Solids at room temperature
- Conduct electricity when (aq) or (l)

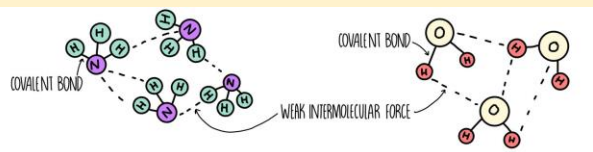
4. Covalent bonding (Simple)

- Between non-metals only.
- The **electrons** are shared.
- Examples are Oxygen, Chlorine, Water and Carbon Dioxide.

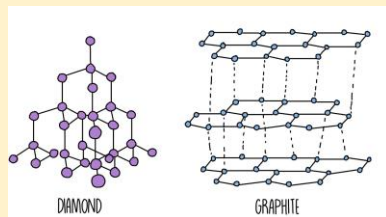


5. Covalent Bonding Properties

They are all gases at room temperature due to weak **intermolecular forces**. These require only a small amount of energy to overcome.



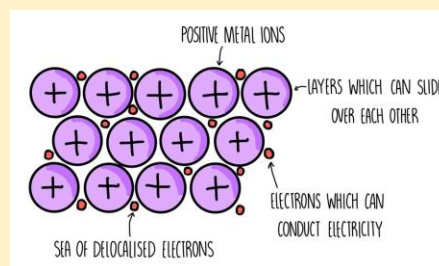
6. Covalent Bonding (Giant)



Diamond- Is hard and has a high m/p due to a giant covalent structure which requires lots of energy to break the bonds.

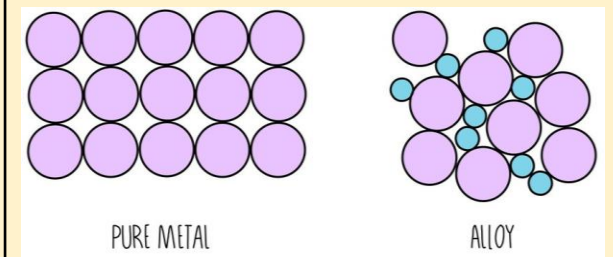
Graphite – conducts electricity due to having 3 carbon bonds so has a spare electron to move throughout the structure.

7. Metallic Bonding



Metals conduct electricity as the electrons are free to move and carry charge through the structure.

8. Metals vs Alloys



Alloys are harder than pure metals because the atoms have different sized **atoms** which disrupts the **layers** which can no longer slide.

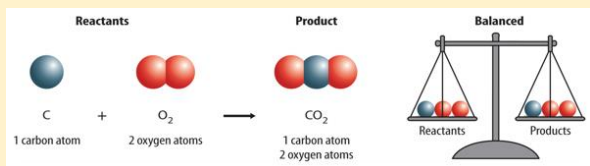


- Mass cannot be created or destroyed
- Relative Atomic Mass (A_r) is the Mass number on the Periodic Table
- M_r is the Sum of the A_r of the atoms in a compound/molecule

Law of Conservation of Mass \longrightarrow M_r \longrightarrow Balancing Equations

1. Law of Conservation of Mass

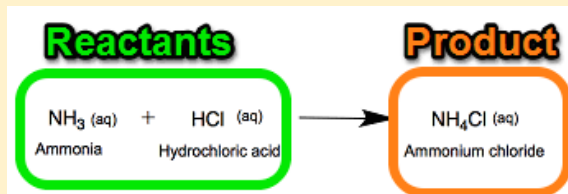
No atoms are made or lost during a reaction. This means that the number of atoms of each element in our **reactants** is equal to the number of atoms of each element in our **products**.



2. Word equations

Reactants \rightarrow Products
to form

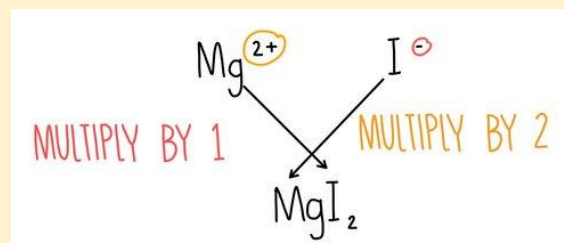
E.G Ammonia reacts with Hydrochloric acid to form Ammonium chloride.



3. Formulas

In chemistry you will need to be able to make formulas for common compounds.

Use your annotated periodic tables to find the charge for each element:



4. Balanced equations

The number of each type of element in the reactants must equal the number of each type of elements in the product.

E.G $N_2 + 3H_2 \rightarrow 2NH_3$

Element	Reactants	Products
N	2	1
H	2	3

Element	Reactants	Products
N	2	$1 \times 2 = 2$
H	$2 \times 3 = 6$	$3 \times 2 = 6$

5. Relative formula mass

• Add how many atoms of each element there are together.

ATOMIC NUMBER	12
	Mg
	MAGNESIUM
MASS NUMBER	24

$$\begin{aligned} &CO_2 \\ &(1 \times 12) + (2 \times 16) \\ &12 + 32 \\ &= 44 \end{aligned}$$

$$\begin{aligned} &Fe(OH)_3 \\ &(1 \times 56) + 51 \\ &56 + 51 \\ &= 107 \end{aligned}$$

6. Uncertainty

$$\text{Estimated uncertainty} = \frac{\text{range}}{2}$$

$$\text{Percentage uncertainty} = \frac{\text{range}}{\text{mean}} \times 100$$

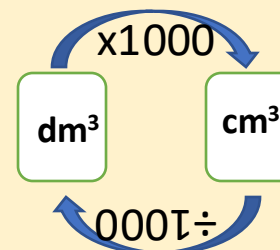
7. Concentration

Concentration is the mass of solute dissolved in a specific volume of solvent.

$$\text{Concentration} = \frac{\text{Mass (of Solute)}}{\text{Volume (of Solvent)}}$$

Volume is measured in decimetre cubed (dm^3)

$$1 \text{ dm}^3 = 1000 \text{ cm}^3$$



8. The Mole (HT)

1 mole of any substance is equivalent to its relative formula mass in grams. To calculate moles = $\frac{\text{mass (g)}}{\text{RFM}}$

$$6.02 \times 10^{23} \text{ carbon atoms} = 12 \text{ grams}$$





- Mass cannot be created or destroyed
- Relative Atomic Mass (A_r) is the Mass number on the Periodic Table
- M_r is the Sum of the A_r of the atoms in a compound/molecule

Year 10 – Science - Quantitative Chemistry (C3)

Law of Conservation of Mass \longrightarrow M_r \longrightarrow Balancing Equations

9. Avogadro's (HT only)

Avogadro's law states that one **mole** of any substance contains 6.022×10^{23} particles.

For example:

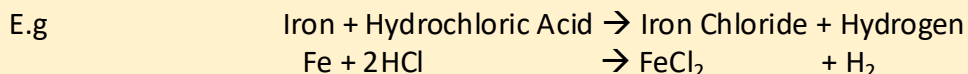
Calculate the number of water molecules in 0.5 mol of water.

$$\text{No. of water molecules} = 6.022 \times 10^{23} \times 0.5$$

$$= 3.011 \times 10^{23}$$

10. Reacting masses (HT only)

We can use equations and formula mass values to **predict** the amount of different substances that will react together and the amount of the product formed.



Stage 1 **RFM** $56\text{g} + 2 \times 36.5 = 73\text{g}$ $\rightarrow 56 + 71 = 127\text{g} + 2\text{g}$

Stage 2 **Mass** 28g

Stage 3 **Ratio** $/2$ $127/2 = 63.5\text{g}$

How much Iron Chloride would be produced if you started with **28g** of Iron ?
 56g (RFM of Fe) / 28g (From the question) = 2. This is the ratio that you divide all substances by to get the reacting masses.

11. Balancing equations from mass (HT only)

By using the masses of the products and reactants, it is possible to work out the balancing numbers in an equation

Reactants	Products	Step 1: Equation	Step 2: Moles calculations
Sb = 488g Cl ₂ = 426g	SbCl ₃ = 914g	Sb + Cl ₂ \rightarrow SbCl ₃	Sb = $488 / 122 = 4$ Cl ₂ = $426 / 73 = 6$ SbCl ₃ = $914 / 228.5 = 4$

Step 3: Simplify the ratio	Step 4: Balanced symbol equation
4:6:4 2:3:2	$2\text{Sb} + 3\text{Cl}_2 \rightarrow 2\text{SbCl}_3$

12. Limiting Reactants (HT only)

The reactant that is completely used up in a chemical reaction is called **the limiting reactant**, because it limits the amount of products.

Example:



Calculate the mass of H₂ produced using 36g Mg (A_r 24)?

Number of moles = mass \div A_r = $36\text{g} \div 24 = 1.5$ mol

From the equation above, 1mol Mg forms 1mol H₂.

Therefore, 1.5mol Mg will form 1.5mol H₂

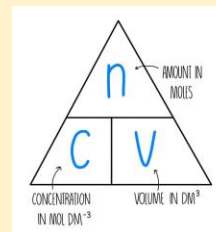
Mass of H₂ = M_r x number of moles

$$= 2 \times 1.5$$

$$= 3\text{g}$$

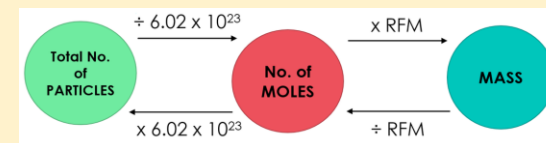
13. Concentration (HT only)

$$\text{MOLES} = \text{CONCENTRATION} \times \text{VOLUME}$$



Equations:

$$\text{Concentration} = \frac{\text{Mass (of Solute)}}{\text{Volume (of Solvent)}}$$



$$\text{MOLES} = \text{CONCENTRATION} \times \text{VOLUME}$$



- Avogadro's Number is the number of particles in 1mole of a substance.
- In a chemical reaction, there is always a Limiting Reactant.

Year 10 – Science - Quantitative Chemistry (C3)

Avogadro's Number → limiting Reactions → Balance equations

14. Limiting reactions (Higher)

The reactant that is completely used up in a chemical reaction is called **the limiting reactant**, because it limits the amount of products.

Example:



Calculate the mass of H_2 produced using 36g Mg (A_r , 24)?

Number of moles = mass \div A_r = 36g \div 24 = 1.5 mol

From the equation above, 1mol Mg forms 1mol H_2 .

Therefore, 1.5mol Mg will form 1.5mol H_2

Mass of H_2 = M_r x number of moles

$$= 2 \times 1.5$$

$$= 3\text{g.}$$

15. Using moles to balance equations (Higher)

By using the masses of the products and reactants, it is possible to work out the balancing numbers in an equation

Reactants	Products	Step 1: Equation	Step 2: Moles calculations
Sb = 488g Cl ₂ = 426g	SbCl ₃ = 914g	Sb + Cl ₂ → SbCl ₃	Sb = 488 / 122 = 4 Cl ₂ = 426 / 73 = 6 SbCl ₃ = 914 / 228.5 = 4

Step 3: Simplify the ratio	Step 4: Balanced symbol equation
4:6:4 2:3:2	2 Sb + 3 Cl ₂ → 2 SbCl ₃

16. Percentage yield

The **actual yield** is the recorded amount of product obtained
The **theoretical yield** is the amount of product that would be obtained under perfect practical and chemical conditions.

$$\text{Percentage yield} = \frac{\text{actual yield}}{\text{theoretical yield}} \times 100$$

For example: Copper(II) sulfate may be prepared by the reaction of dilute sulfuric acid on copper(II) oxide.

A student prepared 1.6 g of dry copper(II)sulfate crystals.

Calculate the percentage yield if the theoretical yield is 2.0 g.

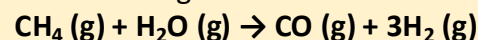
- Actual yield of copper(II)sulfate = 1.6 g
- Percentage yield of copper(II)sulfate = (1.6 / 2.0) x 100
- Percentage yield = 80%

17. Atom Economy

Atom economy studies the amount of **reactants** that get turned into useful products.

$$\text{Atom economy} = \frac{\text{RFM of useful product}}{\text{RFM of total products}} \times 100$$

Hydrogen gas is obtained from methane in a process called steam-methane reforming. The reaction is as follows:



Calculate the atom economy of this reaction.

RFM of products = CO + 3H₂ = (12+16+6) = 34

RFM of desired product is 6. (The Hydrogen)

$$(6/34) \times 100 = 17.6\%$$

18. Volume of gases

Avogadro's Law states that at the same conditions of **temperature** and **pressure**, equal amounts of gases occupy the **same volume** of space

At room temperature and pressure, the volume occupied by one mole of any gas was found to be **24 dm³** or **24,000 cm³**

$$\text{Amount of gas (moles)} = \frac{\text{Volume}}{24}$$

Name of Gas	Volume of Gas	Amount of Gas
Methane	225.6 dm ³	(225.6 \div 24) = 9.4 mol
Carbon Monoxide	7.2 dm ³	(7.2 \div 24) = 0.3 mol

$$\text{Amount of volume} = \text{moles} \times 24$$

What is the volume of 154 g of nitrogen gas at RTP?

1) Calculate moles

2) Calculate volume

$$1) \text{ Moles} = \frac{\text{Mass}}{\text{RFM}} = \frac{154\text{g}}{28} = 5.5 \text{ moles}$$

$$2) 5.5 \times 24 = 132\text{dm}^3$$



- Metals are ordered in a reactivity series from most to least reactive.
- Metals and bases react with acid to form salts.
- Salts can be produced by filtration and crystallisation.

Reactivity series → displacement → acids and alkali's → salts

1. Reactivity series

↑ increasing reactivity

potassium
sodium
calcium
magnesium
aluminium
carbon
zinc
iron
tin
lead
hydrogen
copper
silver
gold
platinum

Metals more reactive than carbon:
Electrolysis

Metals less reactive than carbon:
Reduction with carbon

Unreactive metals: doesn't need to be extracted.

2. Displacement reaction

A more reactive metal will **displace** a less reactive metal.



Displacement reactions are **redox reactions** where:

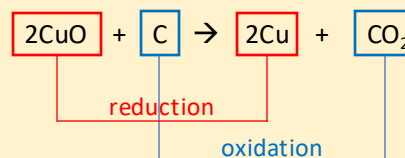
- One element is **oxidised** (loses electrons or gains oxygen)
- One element is **reduced** (gains electrons or loses oxygen).

Oxidation is **Loss** Reduction is **Gain**

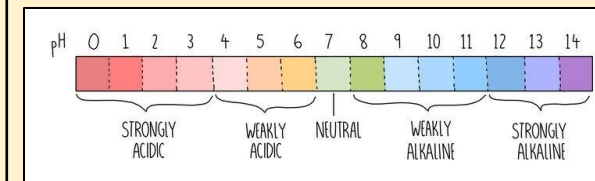
3. Reduction by carbon

An ore is a **compound of a metal** (usually a metal oxide) that is found naturally in the **earth's crust**.

copper oxide + carbon → copper + carbon dioxide



4. Neutralisation



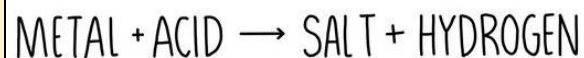
The **pH Scale** is measure of concentration of hydrogen ions.

All acids contain hydrogen ions (H⁺)
All bases contain hydroxide ions (OH⁻)

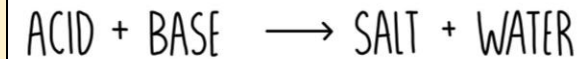
5. Salts (Metal + Acid)

We can use the reactions of **metals** with **acids** to tell us how reactive that metal is.

The more vigorously it reacts, the more reactive the metal.



6. Salts (Bases + Acids)



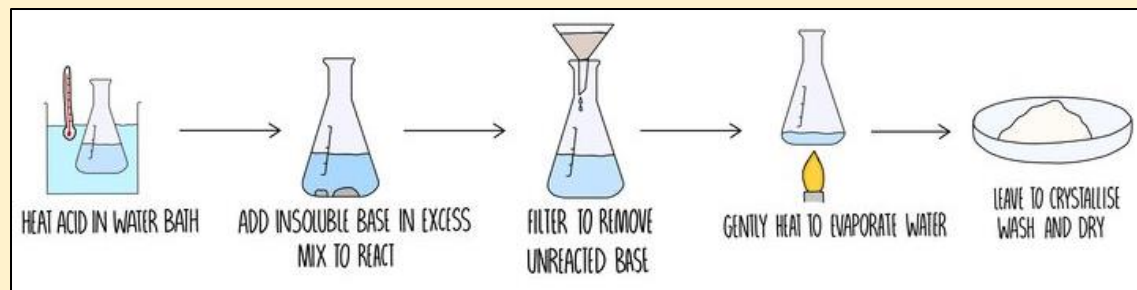
Acids:

- Hydrochloric acid = Chloride salt
- Sulphuric acid = Sulphate salt
- Nitric acid = Nitrate salt

Bases:

- Metal oxides
- Metal hydroxides
- Metal carbonates

7. Required Practical



Heat the acid – to increase the rate of a reaction.

Add base in excess – to ensure all the acid has reacted.

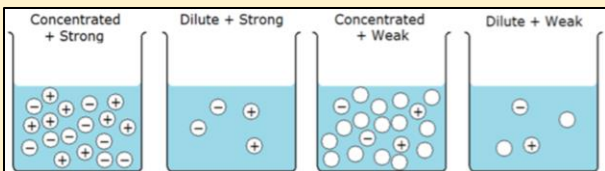
Solid in excess rather than a liquid – you can filter a solid to separate it but it is not as easy to separate excess liquid.



- Electrolysis can be used to split ionic compounds into elements
- Non-metals are negative and attract to the positive.
- Metals are positive and attract to the negative.

Strong and weak acids → electrolysis → half equation

8. Strong and Weak acids (HT only)



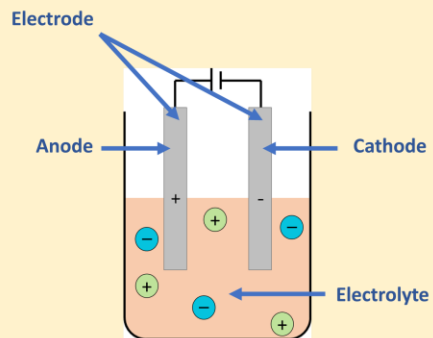
Concentration = lots of particles

Dilute = few particles

Strong = full **dissociated**

Weak = partially **dissociated**

9. Electrolysis



Ionic compounds can conduct electricity when **molten** or **aqueous** as the **ions** can move and carry the charge.

10. Electrolysis of molten compounds.

Metals form positive ions

- Positive metal ions are attracted to the negative electrode
- Ions gain electrons and discharge to form a neutral atoms

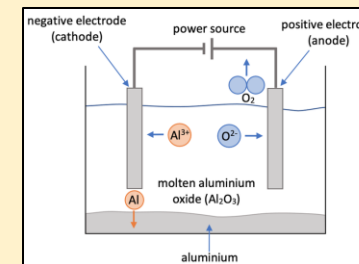


Non-metals form negative ions

- Negative non-metal ions are attracted to the positive electrode
- Ions lose electrons and discharge to form a neutral atoms



11. Electrolysis of Aluminium Oxide



Cryolite is added to lower the m.p

Electrodes need to be continually replaced due to oxygen being attracted to the + electrode and forming carbon dioxide gas.

12. Electrolysis of aqueous solutions

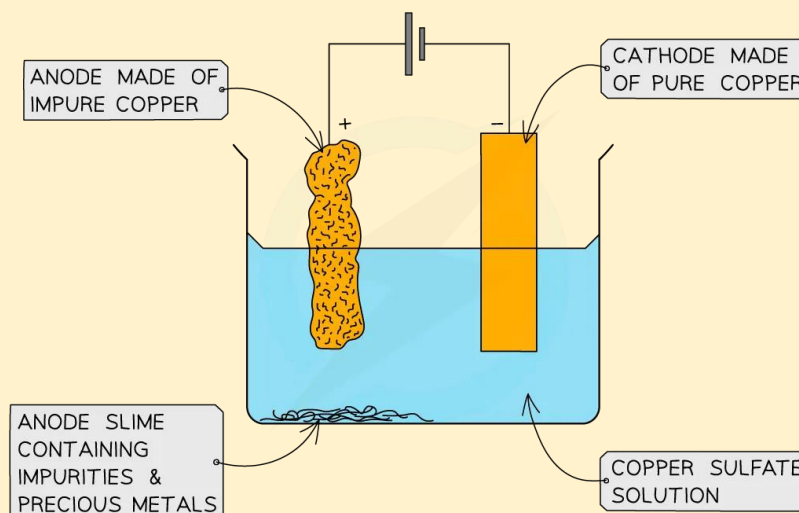
Formed at the positive:

If a halogen is present in the salt (F, Cl, Br or I) then that is made, if a halogen isn't present then oxygen is made.

Formed at the Negative:

A choice between hydrogen and the metal – which ever is least reactive.

13. Required Practical – Copper Sulphate



14. Half equations

REDUCTION AT THE CATHODE:

GENERAL EQUATION: $X^+ + e^- \rightarrow X$

EXAMPLE: $2H^+ + 2e^- \rightarrow H_2$

OXIDATION AT THE ANODE:

GENERAL EQUATION: $X^- \rightarrow X + e^-$

EXAMPLE: $2Cl^- \rightarrow Cl_2 + 2e^-$



- Energy is measured in Joules (J).
- Energy can be transferred between stores by heating, radiation, mechanical and electrical work.
- Systems that can store large amounts of energy are called energy resources.

Year 10 – Science- Energy (P1)

Energy stores → Changes in energy → Energy demands

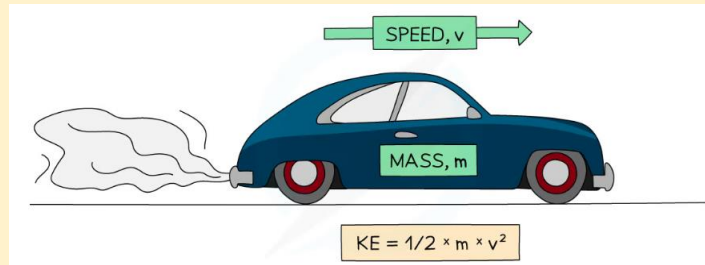
1. Energy stores

Conservation of energy:
Energy cannot be created or destroyed; it can only be **transferred** from one store to another



2. Kinetic Energy

- If an **object speeds up**, energy is transferred to its kinetic store
- If an **object slows down**, energy is transferred away from its kinetic store



3. Elastic Potential Energy

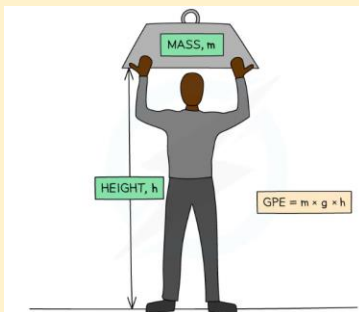
The energy that is stored in a spring when you squash or stretch it.

$$E_e = \frac{1}{2} \times k \times e^2$$

elastic potential energy (E_e) Joules, J
spring constant (k) - in newtons per metre, N/m
extension (e) - in metres, m

4. Gravitational Potential Energy = $m \times g \times h$

If an object is lifted up, energy is transferred to its gravitational potential store
If an object falls, energy will be transferred away from its gravitational potential store



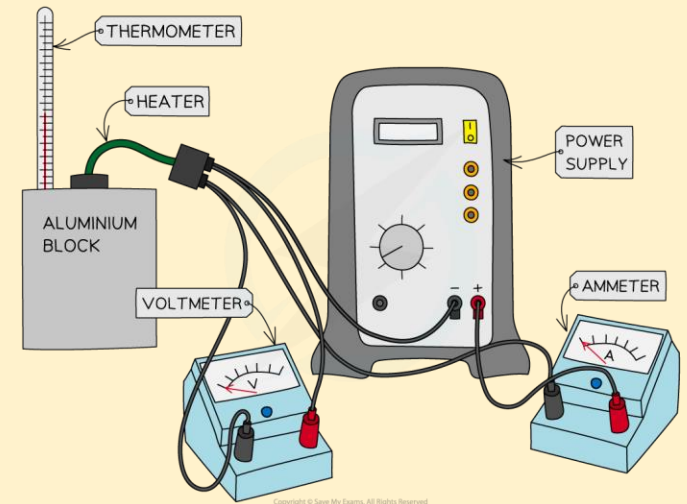
5. Specific Heat Capacity

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

$$\Delta E = mc\Delta\theta$$

- ΔE = change in energy, in **joules (J)**
- m = mass, in **kilograms (kg)**
- c = specific heat capacity, in **joules per kilogram per degree Celsius (J/kg °C)**
- $\Delta\theta$ = change in temperature, in **degrees Celsius (°C)**

5. Specific Heat Capacity- Required Practical





- Energy cannot be created or destroyed, only transferred
- Energy can be transferred between stores by heating, radiation, mechanical and electrical work.
- Systems that can store large amounts of energy are called energy resources.

Energy stores → Changes in energy → Energy demands

7. Changes in energy

Energy can be transferred via different **pathways**:

- Heating by particles
- Heating by radiation
- Mechanical work done by forces
- Electrical work done when a current flows

8. Power

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

$$\text{Power} = \text{Energy Transferred} / \text{Time}$$

$$\text{Power} = \text{Work Done} / \text{Time}$$

Power – watts, W

Energy – joules, J

Work done – joules, J

Time – seconds, s

9. Efficiency

When energy is transferred between different stores, not all of it is transferred into a useful form of energy. This energy spreads out to the surroundings and is lost - we say that the energy is dissipated.

$$\text{EFFICIENCY} = \frac{\text{USEFUL ENERGY OUTPUT}}{\text{TOTAL ENERGY OUTPUT}} \times 100$$

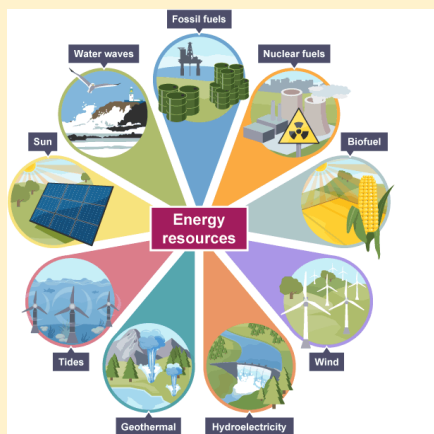
10. Reducing unwanted transfers

- lubrication
- thermal **insulation**.



The higher the thermal conductivity of a material the higher the rate of energy transfer by conduction across the material.

11. Energy demands



- A **renewable** energy resource is one that is being (or can be) replenished as it is used whereas **non-renewables** can't be used again once used up. For example - coal, oil and natural gas.
- The uses of energy resources include transport, electricity generation and heating.
- Burning fossil fuels releases carbon dioxide, adding to the greenhouse effect, and sulphur dioxide which causes acid rain.



- The current through an ohmic conductor is directly proportional to the p.d. across the resistor.
- Series circuits = current is the same, p.d. is shared
- Parallel circuits = current is shared, P.d. is the same

Year 10 – Science – Electricity (P2)

Circuits & Symbols → I-V Characteristics → V=IR & Q=It → Required Practical

1. Circuit Symbols

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

2. Series Circuits

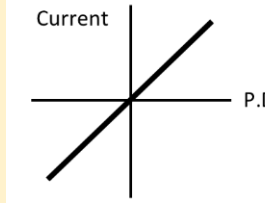
- **Current:** Same throughout the circuit
- **Potential difference:** Shared between the components
- **Total resistance** $R_{total} = R_1 + R_2$

3. Parallel Circuits

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

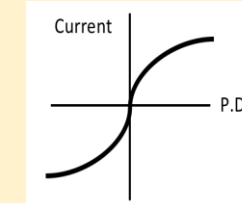
4. I-V Characteristics Resistors

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



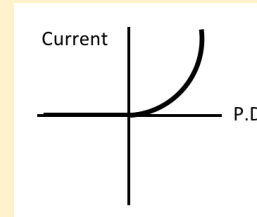
Filament Lamp

The **resistance** increases as the temperature increases.



Diode

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



5. Quantities

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

6. Current, Resistance and Potential Difference (p.d.)

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

$$P.D. = \text{Current} \times \text{Resistance}$$

$$V = I \times R$$

7. Electrical Charge and Current

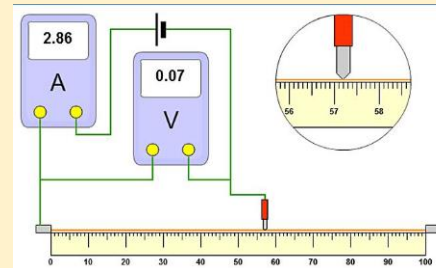
- Electric current is a flow of electrical charge.
- The size of the electric current is the rate of flow of electrical charge.

$$\text{Charge Flow} = \text{Current} \times \text{Time}$$

$$Q = I \times t$$

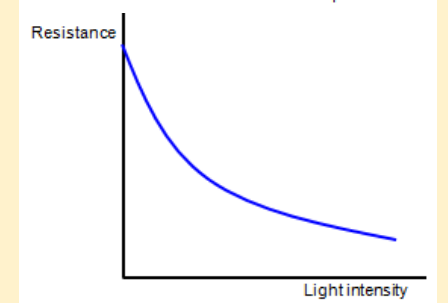
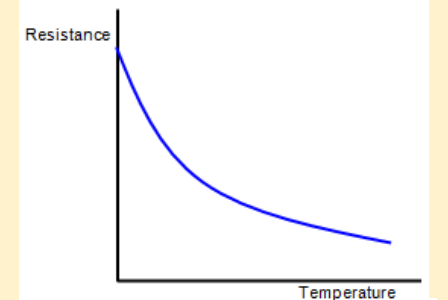
8. Required practical

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



9. Thermistors and Light Dependent Resistors

- **Resistance** of a **thermistor** decreases as the temperature increases.
- The **resistance** of an **LDR (Light Dependent Resistor)** decreases as light intensity increases.



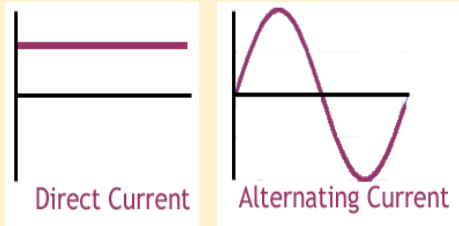


- Mains electricity is an ac supply
- The national grid is a system of cables and transformers that links power stations to consumers

AC DC → Mains Electricity → Equations → National Grid

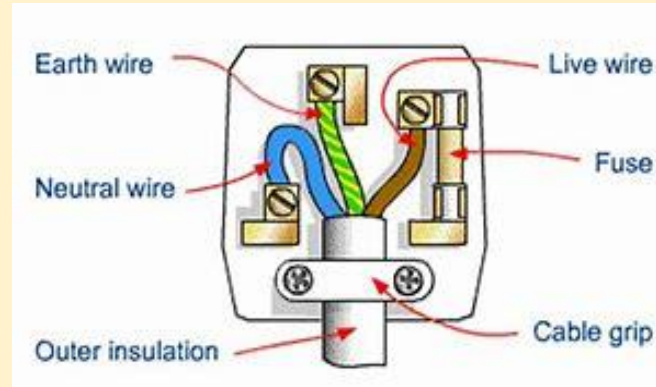
10. Direct and Alternating Potential Difference

- In the United Kingdom, the domestic electricity supply has a **frequency of 50 Hz** and **potential difference is 230 V_r**.



11. Mains Electricity

- Most electrical appliances are connected to the mains using **three-core cable**.



12. Energy Transfers in Everyday Appliances

- The amount of **energy** an appliance transfers depends on how long the appliance is switched on for and the **power** output of the appliance.
- Often the power of a domestic appliance is measured in kW. There are 1000W in 1kW.

$$\text{Energy Transferred} = \text{Power} \times \text{Time}$$

$$\text{Energy Transferred} = \text{Charge} \times \text{P.D}$$

13. Power

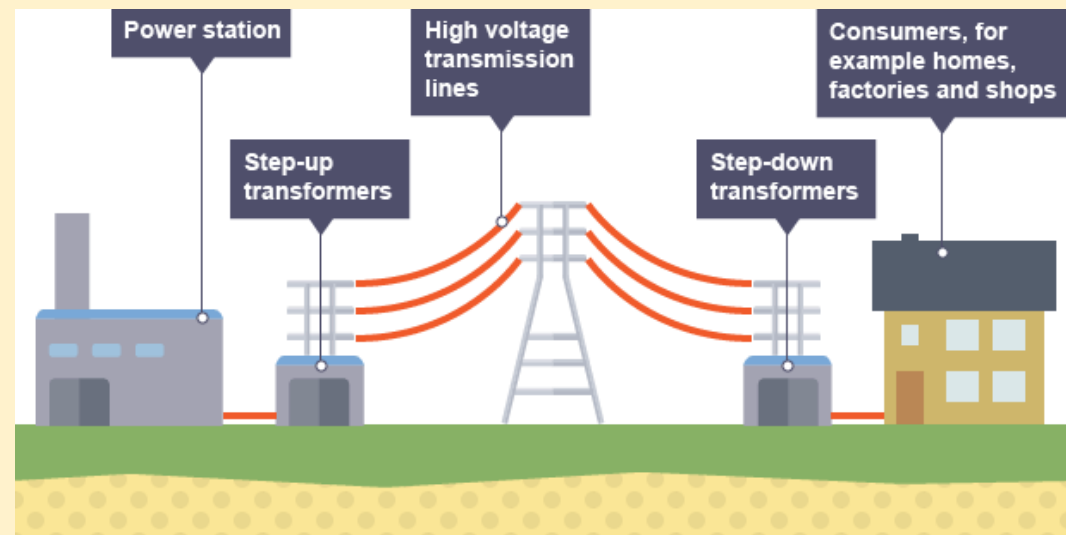
- The rate of **energy** transfer (power) in any circuit is related to the **potential difference** across the circuit and the current through it.

$$\text{Power} = \text{P.D.} \times \text{Current}$$

$$\text{Power} = (\text{Current})^2 \times \text{Resistance}$$

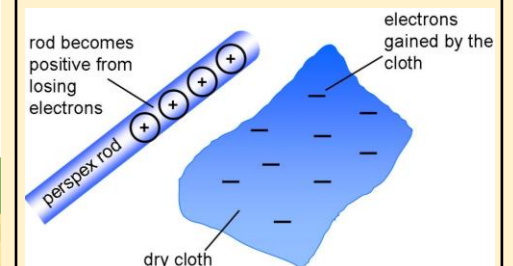
14. National Grid

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



15. Static Electricity (TRIPLE)

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





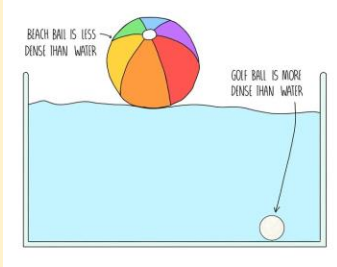
- Particles can change state by either cooling down or becoming hotter.
- Density of an object depends on the mass and volume of the object.

Year 10 – Science - Particle Model of Matter (P3)

Density → Density RP → Changes of state → Internal energy → SHC → SLC

1. Density

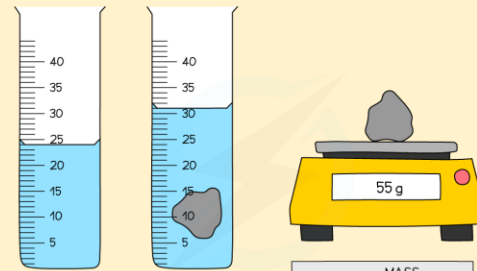
The density of an object will determine whether it **floats or sinks in water**.



$$\text{Density (Kg/m}^3\text{)} = \frac{\text{Mass (Kg)}}{\text{Volume (m}^3\text{)}}$$

2. Density RP (Example 1)

WORKED EXAMPLE: WHAT IS THE DENSITY OF THE OBJECT? IS THE MATERIAL MADE FROM IRON, WOOD OR POLYSTYRENE?



e.g. VOLUME OF OBJECT = 31 - 24 = 7cm³

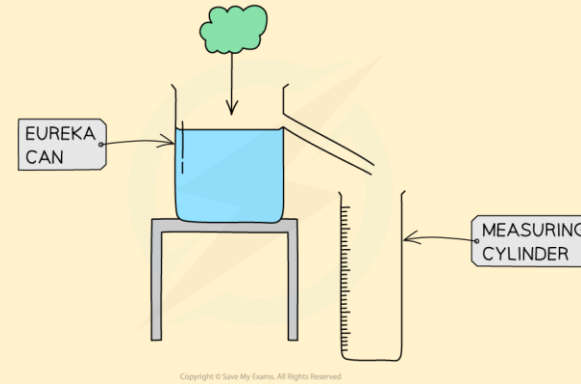
$$\text{DENSITY} = \frac{\text{MASS}}{\text{VOLUME}}$$

$$= \frac{55}{7}$$

$$= 7.9 \text{ g/cm}^3$$

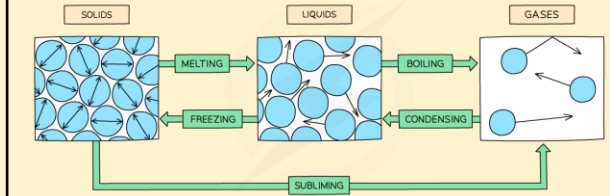
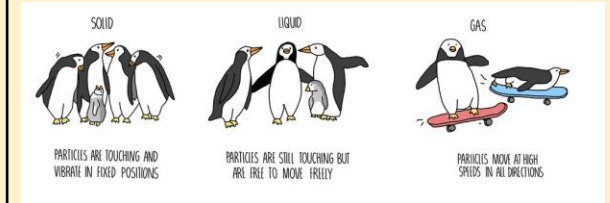
WE SAW EARLIER THAT THIS IS THE DENSITY OF IRON, SO THE OBJECT IS MADE FROM IRON.

2. Density RP (Example 2)



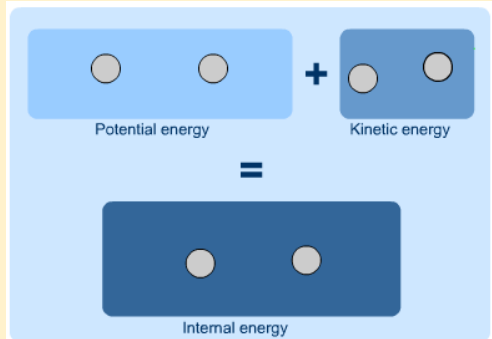
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3. Changes of state



4. Internal Energy

Internal energy is a measure of how much energy a substance has. It is made up of two different stores of energy: **kinetic** and **potential**.



5. SHC – Specific Heat Capacity

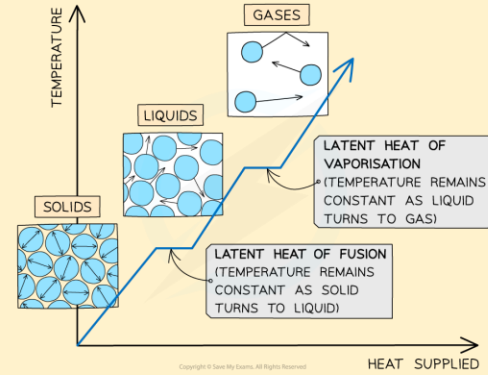
Specific heat capacity refers to the **amount of energy** needed to increase the temperature of **one kilogram** of an object by **1 °C**. Different materials have different heat capacities, which means they require different amounts of energy to heat up

$$\Delta Q = mc\Delta T$$

CHANGE IN THERMAL ENERGY (J) = MASS (kg) × SPECIFIC HEAT CAPACITY (J/kg °C) × CHANGE IN TEMP (°C)

6. SLH – Specific Latent Heat

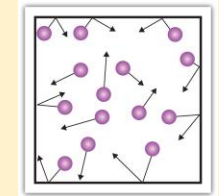
Specific latent heat is defined as the amount of energy required to change the state of 1 kg of a substance with no change in temp.



7. Particle motion in a gas

The particles of a gas are in constant random motion. The **temperature** of a gas is determined by the average **kinetic** energy of the particles.

All gases exert a pressure on the walls of their container. This is caused by the particles colliding with the container walls.



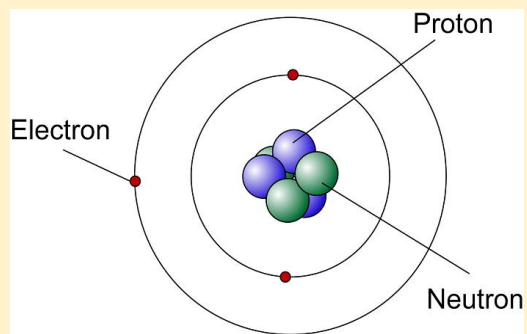


Particle	Mass (amu)	Charge
Proton	1	+1
Neutron	1	0
Electron	0	-1

Structure and Development of an Atom → Atomic/ Mass Number → Isotopes

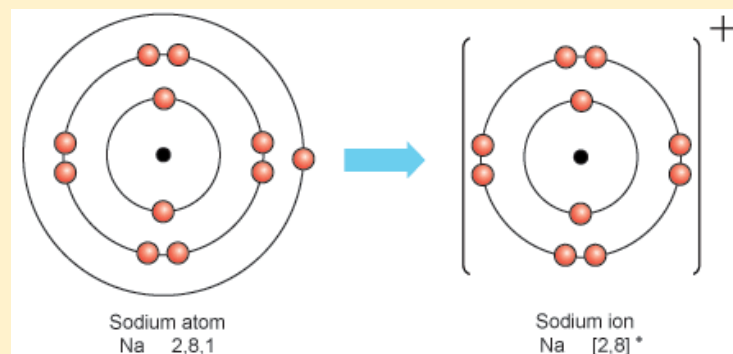
1. The Structure of an Atom

Atoms have a radius of about $1 \times 10^{-10} \text{m}$. In an atom the number of electrons is equal to the number of protons in the nucleus and atoms have no overall electrical charge.



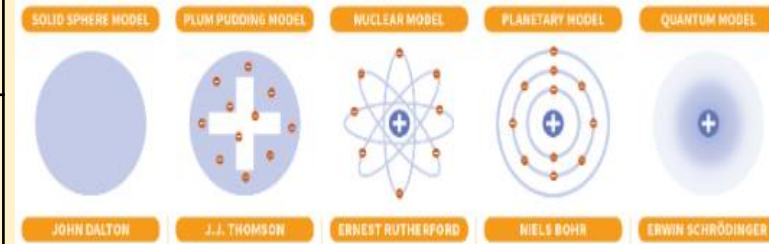
2. Ions

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



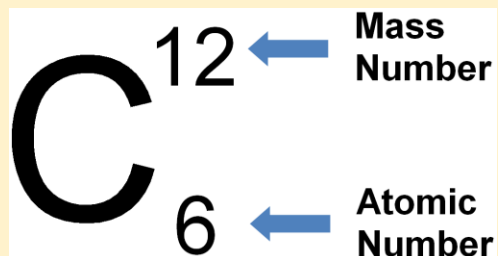
5. Development of the Model of the Atom

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



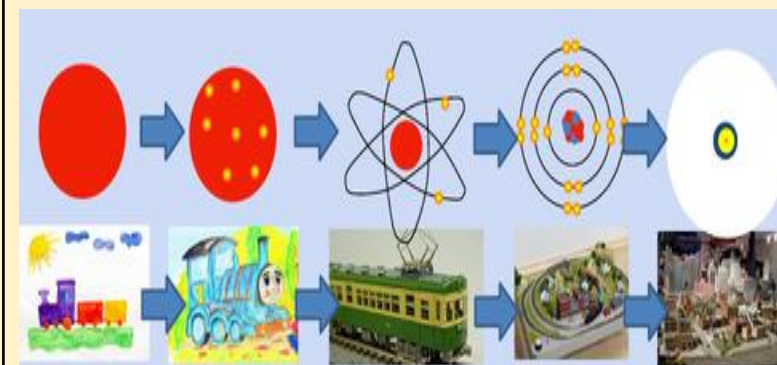
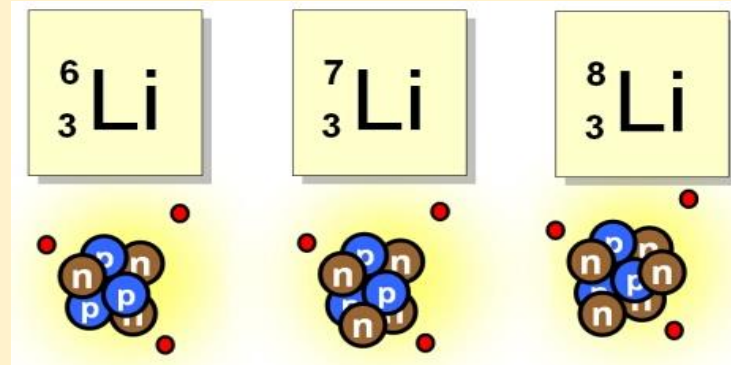
3. Mass Number and Atomic Number

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



4. Isotopes

An isotope is an atom of the same element with a different number of neutrons (Same atomic number but different mass number)





ALPHA PARTICLES
can be blocked by a piece of paper

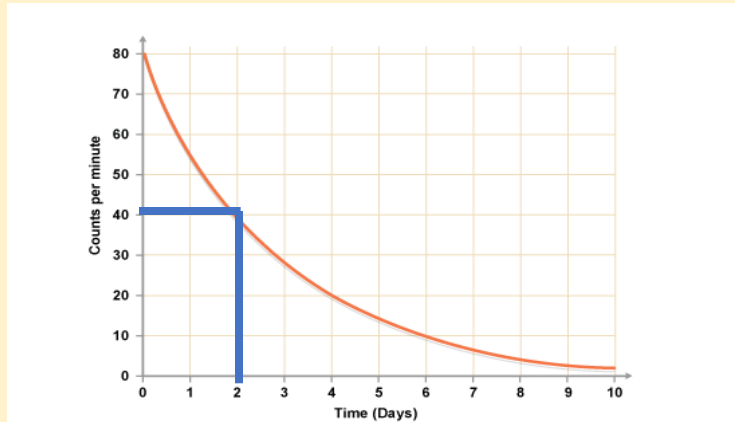
BETA PARTICLES
can be blocked by a layer of aluminum foil

GAMMA RAYS
can be blocked by concrete or lead

Half- Life → Three types of Radiation → Contamination/Irradiation

6. Half-Life

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



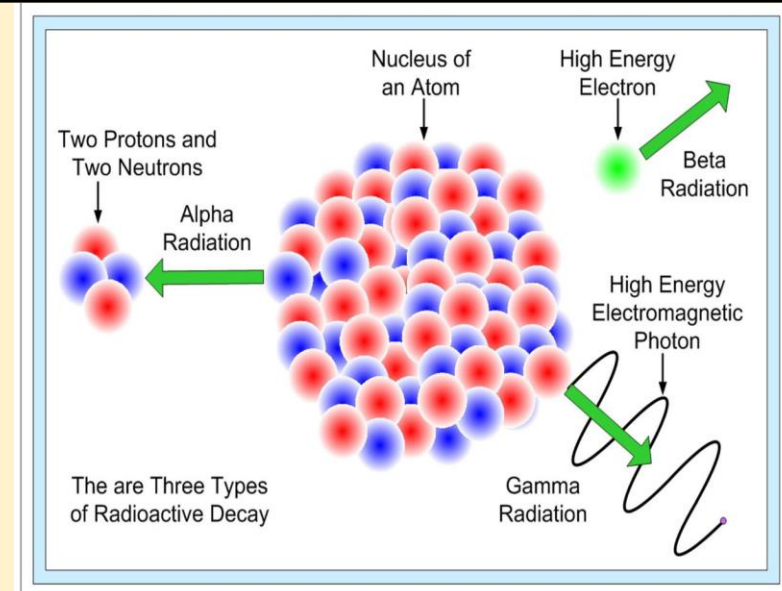
7. Contamination

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



Irradiation

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

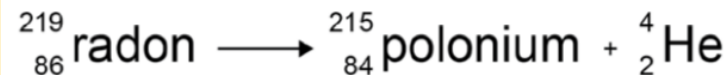


8. Alpha Decay

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



The ${}^4_2\text{He}$ is the symbol for the alpha particle. Notice that the mass number and atomic number are balanced on each side.

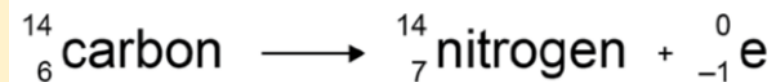


9. Beta Decay

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



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



10. Gamma Decay

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

Radioactive Decay and Nuclear Radiation

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



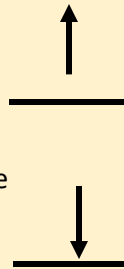
Episode 1: What is Global atmospheric circulation?

Latitude

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

What is air pressure?

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



How does air circulate globally?

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

Episode 2: Where are tropical storms distributed?

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



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

Episode 3: Why do tropical storms form?

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

Why do tropical storms have a seasonal pattern?

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

Why do tropical storms lose energy?

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

Episode 4: What are the features of a tropical storm?



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

Episode 5: What is the link between tropical storms & climate change?

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



Episode 6: How can we manage tropical storms?

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

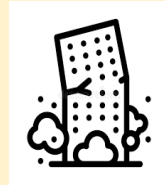
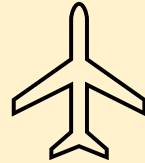
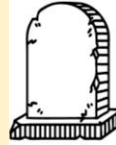


Episode 7: What were the effects of Typhoon Haiyan?

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

Primary Effects

- 6,200 people died.
- 29,000 injured.
- 90% of the city of Tacloban was destroyed.
- Tacloban airport was badly damaged.
- Over 1 million homes were destroyed.
- 1.1. million tonnes of crops were destroyed.
- Water supply got contaminated.



Secondary Effects

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

Environmental effects

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



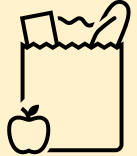
Year 10 – Geography – Weather Hazards

Episode 8: What were the responses to Typhoon Haiyan?

Immediate responses

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

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



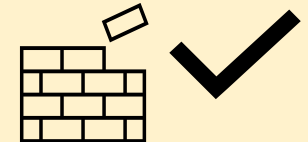
Remember these responses were partially successful.

- **Evacuation** – over 1 million people were evacuated. However, some people fled to Tacloban Stadium and dies when it flooded.
- **Aid** – all the help sent over helped people. However, there were delays due to the airport being damaged and the roads being blocked due to landslides.

Long term responses

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

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



Remember these responses were partially successful.

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



Episode 9: What are the causes of climate change?

<p>Natural Cause – Volcanic eruptions Release CO₂ into the atmosphere, increasing temperatures. However, the ash that goes into the atmosphere can reduce temperatures on a temporary basis</p>	
<p>Natural Cause – Orbital Change On a circular orbit the earth is closer to the sun increasing temperatures. On an elliptical orbit the earth is further from the sun decreasing temperatures.</p>	
<p>Human Cause – Deforestation Removal of trees causes less carbon to be absorbed as the carbon sink is removed. When burnt stored carbon is also released.</p>	
<p>Human Cause – Burning Fossil Fuels We burn coal oil and gas to generate electricity. This produces CO₂,</p>	
<p>Human Cause - Agriculture Keeping animals in large quantities for meat production or dairy products produces a lot of methane.</p>	

What causes the temperature to increase?

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

Year 10 – Geography – Weather Hazards

Episode 10: What are the effects of climate change?

Effects

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



Evidence

Short term	Long term
<ul style="list-style-type: none"> • Sea levels rise. • Ice caps melting. • More extreme weather. • Increase in global temperatures. • Higher CO₂ concentration in the atmosphere. 	<ul style="list-style-type: none"> • Pollen analysis. • Tree rings.

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

Mitigation

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

Adaptation

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

Episode 12: Is the weather in the UK getting more extreme?

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



Evidence

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

Episode 13: How does extreme weather affect the UK?

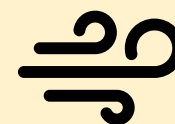
Beast from the East – a heavy snow event

Cause: Winds travelling from the east in Siberia brought cold air, which picked up moisture from the North sea leading to heavy snow.

Social impacts: over 8000 car accidents in 3 days, schools closed for 3 days, rail services and flights cancelled.

Economic Impacts: lorries trapped on motorways for 36 hours, damage to crops and livestock in rural areas affecting farmers, rail services and flights cancelled.

Management: councils sent out gritters and snow ploughs, emergency services rescued stranded people, stranded drivers given foil blankets, red weather warnings issued, trapped Greggs lorry gave out free food.





Episode 1: What interactions are found in small scale ecosystems?

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

Food Webs

Producer is a plant that gains its energy from the sun through photosynthesis.

Primary consumers are creatures that eat producers.

Secondary consumers are creatures that eat primary consumers

Decomposers break down dead plants and animals and return the nutrients to the soil.

Nutrient Cycle

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

What is biomass?

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

Why will the amount biomass change?

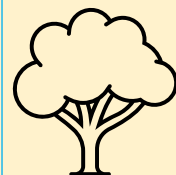
- The entire organism is not digested e.g. parts such as roots, bones, or feathers aren't eaten.
- Loss of energy through movement or respiration.

Year 10 – Geography – Living World

Episode 2: What are the characteristics of global ecosystems?

1. Hot deserts

- 30° north and south of the equator.
- Very hot and dry (less than 250mm of rain per year)
- Plants: cacti.
- Animals: lizards, snakes & camels.



2. Deciduous forest

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

3. Coniferous Forest

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

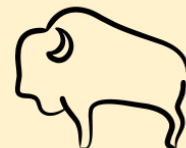


4. Tropical grassland

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

5. Temperate grassland

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



6. Mediterranean

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

Episode 3: What are the characteristics of tropical rainforests

Climate

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



Soil

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

How is the rainforest interdependent?

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

Episode 4: How have plants & animals adapted to tropical rainforest conditions?

Layers of the Rainforest

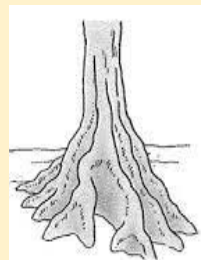
Emergent	Highest layer with trees growing between 30 - 50 metres tall, Have a wider base.
Canopy	Continuous layer of leaves and branches 15 – 30 metres high.
Under Canopy	Consists of trees that reach 10 -15 metres high.
Forest floor	Lowest layer with small trees that have adapted to living in the shade.



Episode 4: How have plants & animals adapted to tropical rainforest conditions?

Plant adaptations

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



Animal adaptations

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

Rainforests have high biodiversity because:

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

Episode 5: What are the causes and effects of deforestation?

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



Causes

Logging

Timber companies cut down trees like mahogany to sell to other countries to make furniture.



Mineral Extraction

Minerals like gold are found under the Amazon. To get to the minerals under the ground the trees are cut down.



Agriculture

Cattle Ranching involves clearing an area of rainforest then rearing cattle on the land. Palm oil plantations also take over the land.

Year 10 – Geography – Living World

Effects of deforestation

• **Soil Erosion**

They erode as the roots no longer hold them in place.

• **Soil becomes less fertile**

They become less fertile as more nutrients are washed away by heavy rainfall.

• **Climate Change** – Trees are a carbon sink as they absorb CO2 from the atmosphere. With fewer trees more CO2 stays in the atmosphere.

• **Economic Development**

Countries make money from exporting products and the industries also employ a lot of people.

Episode 6: How can tropical rainforests be managed sustainably?

Why are tropical rainforest valuable?

- Biodiversity – over 50% of the world's plants and animals are found in tropical rainforests.
- They act as carbon sinks and absorb large amounts of CO2, reducing global warming.
- Medicine – 25% of all medicines come from rainforest plants.
- Indigenous tribes live in the rainforest.
- Reduces soil erosion, as the roots of the trees bind the soil together.

Strategies

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

Episode 7: What are the characteristics of cold environments?

- Polar environments are the coldest place on Earth, located within 66.5° - 90° north (Arctic) and 66.5° - 90° south of the equator (Antarctica).



- Winters are long and cold, with annual average temperatures below freezing.
- Polar environments have little or no soil.
- Tundra environments are found in the northern hemisphere, south of the ice caps. It is located above 60° north of the equator.
- Tundra environments are cold (-6°C and -12°C) windy & have little precipitation.
- During winter, the top layer of soil freezes, and in summer, it thaws.
- Below this active top layer is permafrost. The soil is thin and lacks nutrients.



Interdependence

- In cold environments the indigenous people rely on the fish as the main part of the diet.
- Moss is used for shelter and to provide warmth by Arctic birds.

Episode 8: How have plants and animals adapted to survive in cold environments?

Cold environments have low biodiversity because:

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



Episode 8: How have plants and animals adapted to survive in cold environments?

Arctic Foxes

Thick fur on their bodies and feet to keep them warm. Their fur changes colour with the seasons to provide camouflage.



Polar Bears



1. Layer of blubber to keep them warm forms over the summer and use it as an energy store in the winter.
2. Small ears to reduce heat loss.
3. Have front paws that are webbed to help with swimming.
4. Thick white fur to keep them warm and provide camouflage.
5. Black nose and foot pads to retain heat.

Plant adaptations

Cotton grass

- Low lying, which helps it reduce moisture loss by drying winds.
- It has thin leaves which help reduce water loss by transpiration.
- It has shallow roots to access nutrients and water close to the surface within the active layer of soil.

Cushion plants

- Low growing, which helps them retain moisture from drying winds.
- They trap airborne dust, which provides a source of nutrients.

Arctic poppies

- Retain heat through their hairy stems.

Year 10 – Geography – Living World

Episode 9: How do cold environments provide opportunities and challenges?

Svalbard is a large group of islands located in northern Europe, halfway between Norway and the North Pole.



It has a human population of 2,700. With 2,300 living in Longyearbyen. Svalbard has remote terrain of glaciers and tundra with polar bears.

Opportunities	Challenges
<ul style="list-style-type: none"> • Tourism - 70,000 people visited in 2011, of which 30,000 arrived on cruise ships. • Adventure tourism is a growth area e.g. kayaking, hiking and riding snowmobiles • Fishing grounds for over 150 species of fish. • Coalmining provides jobs and a source of energy. • Energy - a new hydrogen power plant, which will generate clean electricity and solar energy during the summer when there are 24 hours of sunlight. 	<ul style="list-style-type: none"> • Extreme temperature - Winter temperatures can drop below -30°C & limited sunlight in the winter. • Inaccessibility - Very remote region, which need planes and ships to access. Very few roads outside of the main town, so they have to cross frozen rivers in winter. • Permafrost – if the top surface of the permafrost melts it becomes unstable and could lead to collapsed buildings.

Episode 10: How are cold environments at risk from economic development?

Many of the world's cold environments are considered as wilderness areas. Wilderness areas are remote, unspoiled parts of the world.

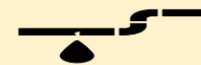


Why do wilderness areas need protecting?

- **Fragile** - When damaged by humans, can take a significant amount of time to recover.
- **Inhabited by indigenous people** and their culture depends on the preservation of the natural environment.
- **Home to a range of species**, many of which are unique and could be used in future medicines.
- **Habitat for animal species.**
- **Risk of melting** – due to climate change.
- **Permafrost may melt** releasing huge volumes of methane.

What strategies can be used to protect cold environments?

- **Technology** - use of stilts to raise the Trans-Alaskan pipeline above the ground and insulation of the pipe, to reduce the risk of thawing permafrost.
- **International agreements** like the Antarctic Treaty to ensure it remains undeveloped.
- **Conservation groups** including the Worldwide Fund for Nature (WWF) work with governments and communities to protect biodiversity across the Arctic.
- **Government action** - Since oil was found in Alaska in the US government has been protecting the environment. The Western Arctic Reserve has been set up in the north of Alaska protecting the area from oil and gas extraction.





Episode 1: How do waves shape the coastline?

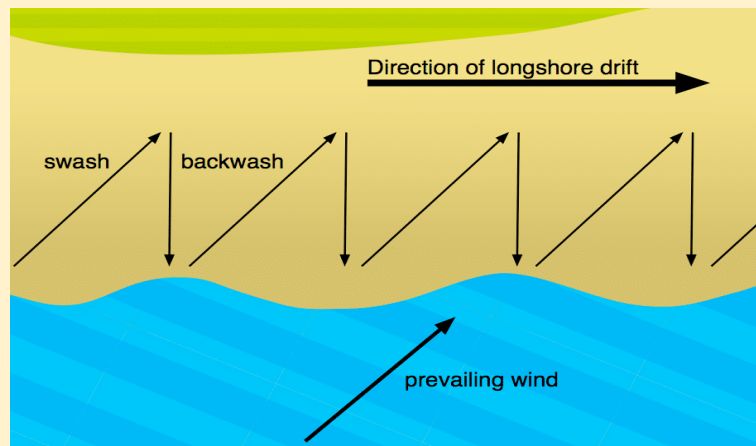
Destructive waves have higher energy and are steeper and higher. Their backwash is stronger than their swash. This results in erosion.

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

Erosion processes

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

Longshore drift



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

Deposition

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

Episode 2: What physical processes affect the coast?

Freeze thaw weathering

Water enters cracks, freezes and expands putting pressure on the rock. The ice thaws, releasing the pressure. Process repeats and the rock breaks.

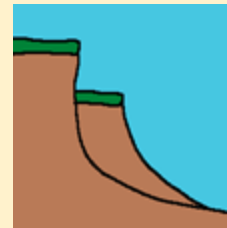
Mass Movement

The downward movement of rock, mud or soil due to gravity.

Sliding
where cliffs fall in a straight line.

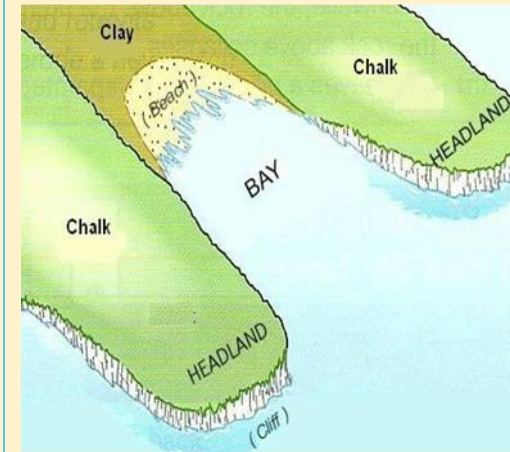
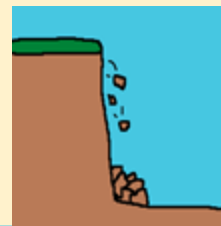


Slumping
where cliffs fall in a curved line.



Rockfalls

Pieces of rock fall down a cliff.



Episode 3: How does geology affect the coastline?

Headland and Bays

- Formed where alternating bands of hard rock and soft rock.
- Hard rock erodes more slowly as it is more resistant. An example is chalk.
- Cliffs of hard rock stick out forming a headland.
- The softer rock erodes more quickly as it is less resistant. An example is clay.
- It curves inwards and creates a bay.

Episode 4: How does erosion create coastal landforms?

Cave, arch, stack and stump

- These features are created in the headland.
- **Crack – cave** is formed by hydraulic power
- **Cave – Arch** is formed by hydraulic power & abrasion, caves deepen, erode through back of cave, breaking through the headland
- **Arch – Stack**: weathering weakens the top of the arch, waves attack and erode arch sides weakening its structure. The roof collapses due to gravity as there is no support.

Where are they located in the UK?

- **Headland**: Flamborough Head, Yorkshire
- **Bay**: Bridlington, Yorkshire
- **Arch**: Durdle Door in Dorset
- **Stack**: Old Harry in Dorset

Wave Cut Platforms

- Waves and rocks crash against the foot of the cliff face.
- The base of the cliff is eroded away, leaving a wave-cut notch.
- The unstable cliff collapses.
- With repeated erosion, the cliff retreats to form a wave-cut platform.

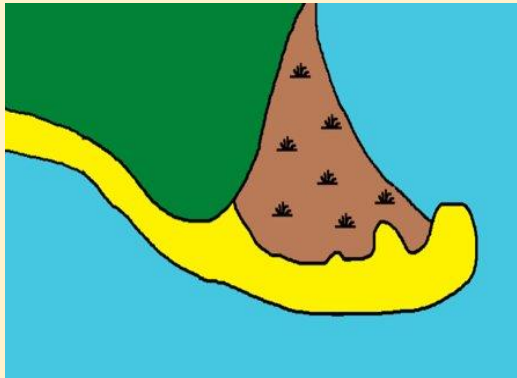




Episode 5: How does deposition create coastal landforms?

Spits are long narrow stretches of sand or shingle that extend from the land.

- The sand is transported by longshore drift past the point where the land ends.
- The waves lose energy, and the material is deposited.
- This builds up to form a spit.
- The spit can sometimes have a curved end which is formed because of strong cross winds.
- The area behind the spit is sheltered and so deposition occurs. A salt marsh may form.



Bars form when a spit joins two headlands together, trapping water in a lagoon behind it.

Beaches

- A sandy beach usually forms in a sheltered bay.
- Low energy constructive waves transport material to the shore.
- As the swash is stronger than the backwash, material is moved onto the shore.
- This process repeats itself and the sediment (sand) builds up.

Sand Dunes

These are small ridges of sand found at the top of the beach.

- To form they need a large supply of sand, a large flat beach, onshore wind and an obstacle for the dune to form against.
- Wind transports sand across the beach via saltation (bouncing of particles by the wind).
- Deposition occurs around obstacles such as rocks or seaweed.
- Over time the sand builds up creating small dunes.
- These dunes are stabilised by vegetation such as marram grass and the long roots bind the soil together.



Year 10 – Geography – Coastal Landscapes in the UK

Episode 6: How does hard engineering protect the coast?

Sea Wall: curved concrete wall to reflect the wave energy. They will last a long time, but it is expensive to build.

Rock Armour: large granite boulders placed at the base of a cliff to absorb wave energy. They will last a long time but are very expensive as rocks need importing from Scandinavia.

Gabions: pebbles placed in metal cages that are then placed on the cliff to absorb wave energy. These are cheap to build, but the metal cages will rust and break, meaning more rocks are there which can lead to abrasion.

Groynes: wooden or rock structures built at right angles down the beach. These stop longshore drift and build up a beach. These create large beaches to attract tourists but increase erosion further along the coast.

Episode 8: How is the Holderness coast managed?

- The Holderness coast is in the northeast of England.
- It is the fastest eroding coastline in Europe, with an average erosion rate of 2 metres per year.
- Mableton is a small village on the coast.
- It needs protecting due to the Seaside caravan park losing land, large areas of farmland being lost, houses are close to collapse and the main road (B1242) that links places along the coast.
- They built rock armour and two rock groynes at a cost of £2million.
- The defences worked at Mableton as the erosion rate reduced.
- However, the groynes led to erosion increasing south of Mableton to 10 metres per year.

Episode 7: How does soft engineering protect the coast?

Beach nourishment: addition of sediment onto the beach, which is dredged from the seabed. This creates a wider beach but can damage habitats on the seabed.

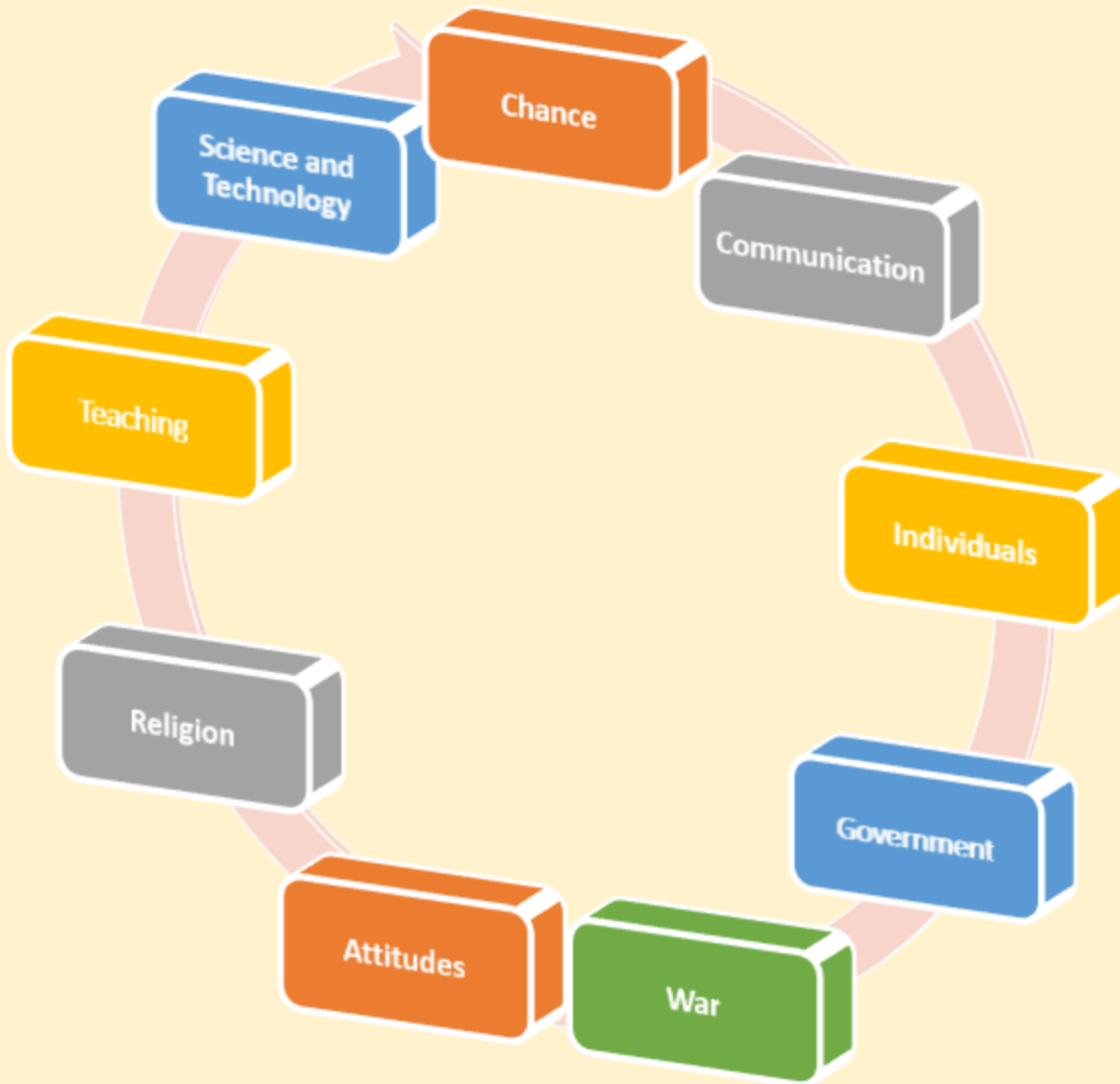
Beach reprofiling: moving sediment from the lower part of the beach to the upper part to make it steeper. This reduces wave energy but needs repeating regularly.

Dune regeneration: action taken to build up the sand dune. Areas can be fenced off and additional marram grass planted. This process can take a long time but is cheap and maintains bird habitats.

Managed retreat: remove current defences and allow the land to flood behind it. This can create a saltmarsh providing habitats and a buffer against erosion. However, compensation needs paying to the landowner.

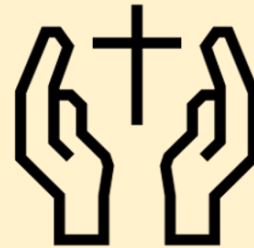


Reasons for change and Continuity in Medicine (1250-today) - C.C.I.G.W.A.R.T.S



Year 10 – History – Medicine Through Time

Episode 1 – Why did people think they got ill during the Medieval Period (1250-1500)?



The Church was all powerful as people believed in heaven and hell. The Church supported Galen who had written over 350 books 1500 years before.

- Thought God caused illness as punishment for their sins - People prayed or whipped themselves (flagellants) to ask god's forgiveness. King's touch was a cure for Scofula – Edward I touched 2000 people a year. Others = Astrology.
- Continued to believe in Hippocrates ideas of the 4 Humours – Your body was made of 4 humours (blood, black bile, yellow bile and phlegm). You became ill because your humours were out of balance. Solution: Bleeding, bathing and Purging to BALANCE the Humours.
- Understood the link between DIRT and disease. Believed in the MIASMA. Therefore would try and purify the air by spreading sweet herbs.
- Regimen Sanitatis – Encouraged bathing and exercise.

Who provided treatment?

- Physicians – trained in universities in the works of Galen and Hippocrates. Carried out treatments using the 4 humours. Very rare (less than 100 by 1400) and expensive – Only available to the rich.



- Barber Surgeons – Simple procedures like blood letting, amputations and removing teeth. No formal training – instead learnt from experience.
- Apothecaries – Sold herbal remedies and passed on knowledge about local treatments. One was theriaca which contained 70 ingredients from ginger to opium.
- Majority of people treated in the home by women. Knowledge passed down.
- By 1400 there were 500 hospitals across the country. By 1500 there were around 1,000. Most would only have 5-6 beds, with St Leonard's in York unusually large with over 200 beds. Around 30% were owned by the church, although many of the other charitable hospitals were also run by the church



Episode 2 – Medieval Medicine: How did people try and treat the Black Death? (1348)

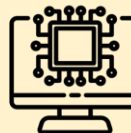
- Killed **40%** of England's population
- Believed it was caused by god – praying, candles and **flagellants**, Miasma – Use of herbs. King Edward III ordered the streets be cleaned, The Planets and the Four Humors..
- People moving to an area had to quarantine for 40 days.

Episode 3 – How far did Medicine Progress during the Renaissance (1500-1700)?

- **1440 – Printing Press** – Ideas could now be copied and shared more easily. **Reduced the power of the church.**
- **1543 – Vesalius writes "Fabric of the Human Body"** - By dissecting the bodies of criminals he was **able to correct 300 of Galen's mistakes** (including the jaw is one bone, not two).
- **1628 - William Harvey** proved that the **heart is a pump and that blood circulates**. Galen is wrong.
- **1660 – Royal Society** founded. Gave people a place to discuss ideas – published journal - "**Philosophical Transactions.**"



- **1676 – Thomas Sydenham** proposes that diseases have a species (studied scarlet fever). **Diseases are therefore different and need treating differently.**
- 1683 – **Leeuwenhoek invents a microscope** and observes microbes.
- BUT – Still practiced 4 Humors and believed in supernatural, eg: King's Touch for Scofula.



Episode 4 – How far had treatment progressed between the Black Death and Great Plague (1665).

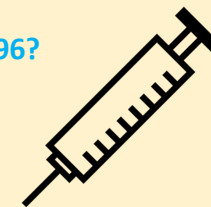
- Killed 65,000 (**15% of London's population**)
- People were prevented from leaving London
- Some **blamed cats and dogs** – Lord Major ordered cull
- Miasma – used strong smelling herbs – **King Charles II ordered bonfires be lit throughout London.**
- Plague Victims were locked up for **40days** with a red cross painted on the door.
- Burials took place at night,



Year 10 – History – Medicine Through Time

Episode 5 – Industrial Medicine: How did Jenner develop the first vaccination in 1796?

- Inoculation introduced by Lady Montague – but dangerous and expensive.
- Jenner observed that **milkmaids who got cow pox didn't get small pox.**
- Tested his idea **24 times** (first was on James Phipps).
- Recorded ideas – but couldn't explain.
- Criticised by Inoculators who would lose money and the church who said it was against God's will.
- Supported by Napoleon and the Royal Family.
- Government made the **vaccine compulsory** in the **1852 – enforced through fines** from the 1870s.



Episode 6 – How far did Medical care improve during the Industrial Period (1750-1900)?

- **Anaesthetics** – Laughing Gas (1799) and Ether (1846). Ether irritated the lungs and was flammable.
- **1847: Simpson** discovered **Chloroform** was effective by testing on himself.
- Hard to control the dosage – Hannah Greener died from an overdose (1848) - **John Snow invents inhaler to control dosage.**
- Used by Queen Victoria - "that blessed chloroform".
- **Antiseptic – Joseph Lister** used **Carbolic Acid** in 1865. Soaked bandages, equipment and hands.
- **Death rate reduced from 45% to 15%.**





Year 10 – History – Medicine Through Time

- **Florence Nightingale** – nurse at the military hospital in Scutari during the Crimean War (1853-56).

- Insisted that the wards were cleaned and that soldiers were given fresh food, fresh bedding and fresh air (**believed in the MIASMA**). Death rate reduced from **42% to 2%**.
- 1859 – Published her "Notes on Nursing"
- 1860 – Set up her school of nursing

Public Health

- **1848 Public Health Act** - Told towns to clean the streets, provide sewage and waste disposal, access to clean drinking water **and appoint a board of Health of Overseas. NOT COMPULSORY – very few enacted due to Laissez Faire.**
- **1875 – As above but COMPULSORY**

Episode 7 – How did beliefs about the causes of illness change during the Industrial Period?

- **1854 – John Snow** able to prove that **Cholera** was caused by **dirty drinking water** by **MAPPING** the deaths. Result he managed to get the handle of the Broad Street Pump removed – But most continued to think it was caused by Miasma.
- **1861 - Louis Pasteur** publishes his **Germ Theory**. This said that **Germs were in the air and that Germs cause decay and illness. Spontaneous Generation = WRONG**
- **1882 – Robert Koch** discovers the **SPECIFIC germs** which caused **TB. 1883** he discovered the **SPECIFIC germ** which caused **Cholera**. He was able to do this by growing them on Agar Jelly and staining them. This could then be used to **develop Vaccines**.



Episode 8 – How has treatment improved during the 20th Century.

Magic Bullets

- **1910 – Salvarsan 606 (Ehrlich)** - Treated Syphilis.
- But was painful to take and slow to work – solution
- **1911 – Neo-Salvarsan.**
- **1932 – Prontosil (Domagk)** - Treated blood poisoning. **He tested on this own daughter.**

Penicillin

- **1928 – Alexander Flemming** goes on holiday. Whilst away mould grows on his petri dishes. **Notices that the mould has killed the bacteria** he is studying.
- **Records Ideas.**
- **1940 - Florey and Chain** test penicillin on mice. Get grants of the **British (£25) and American governments**
- **1941 - Conduct human trials.** It works but test subject dies when they run out.
- **1942 – US government give interest free loans, so companies start mass producing penicillin.**
- 1944 – 2 million doses given during D-Day.

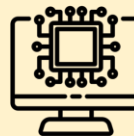
Episode 9 – How has technology helped improve medicine

DNA

- **1951 – Franklin photographs DNA**
- **1953 – Watson and Crick** discover the double helix structure of DNA. Now able to track and treat genetic diseases, by identifying genes which cause disease.
- **1990s – Human Genome Project** = attempts to map entire human genome – All the DNA in a person's body.
- However - **lung Cancer** – only **5% live more than 10 years** after diagnosis. This is due to how difficult it is to diagnose early.

Technology used in diagnosis

- **1895 – Rontgen discovers X-rays.**
- **1880s – Blood Pressure Monitors**
- **1900s – Endoscopes and ECGS** – allow drs to see inside and monitor patients without the need to open them up.
- 1930s – Blood Tests
- 1940s – Ultrasound - No radiation.
- **1970s – CT scans and MRI – More detailed image/ map soft issue.**



Episode 10 – What impact has the government had on medicine in the 20th Century.

Life-Style Campaigns

- **1960s – Tobacco banned from TV advertising**
- **2007 – smoking ban** banned smoking in public places. Built on earlier laws which banned the advertising of tobacco.
- Increased focus on preventing people getting ill – Change for Life/ Couch to 5K.

The NHS

- **1948 – NHS** set up. It provided healthcare which is free at the point of delivery. Paid for by National Insurance.
- **Before 1948 8 million people hadn't ever visited a drs..**



Episode 1 – How do we judge a source's usefulness?

- **The CONTENT is always useful as it TEACHES you something** – What does it teach you? How Does it teach you this?
- **NOP:** What is the source? Where does it come from? Why was it produced – Does this make the source **MORE or LESS useful** for my enquiry?
- **Knowledge:** What do you know about this topic? Does this make the source **MORE or LESS useful** for my enquiry?



Episode 2 – How significant were early 20th century medical developments?

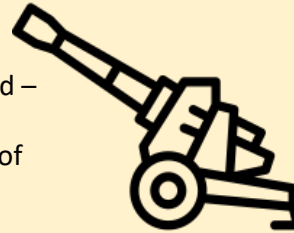
- **1895 – X-Rays** Discovered by Rontgen
- 1900 – Majority of operations carried out using **ASEPTIC METHODS.**
- **1901 – Blood Groups** discovered by Landsteiner
- **1915 – Sodium Citrate** added to blood – stops it from **coagulating.**



Episode 3 – How did the Trench design and battles affect medical treatments?

- Trenches consistent of the frontline, support trench (80 meters back), reserve trench (100 meters back) and Communications trenches – zig zag, linked the trenches. They were separated by **No-Mans land an area up to 200 meters wide.**

- First Battle of Ypres (1914) – 50,000 killed
- **Second Battle of Ypres (1915) - Gas** used for the first time. This killed only about **6000** soldiers as **strategies were quickly developed.**
- Hill 60 – 450 tones of explosives used – killed 10,000 German Soldiers.
- **Battle of Cambrai (1917)** - First use of tanks and **portable blood banks.**



Episode 4 – What were the biggest problems faced by soldiers on the Front?

- **Trench Foot** – caused by standing in water for too long. Feet would be amputated. **Solution = change socks x3, rub feet with whale oil and daily inspections.**
- **Trench Fever** – **caused by lice**, not life threatening, but could hospitalize. **Solution = wash with hot water and disinfect clothing.**
- Shrapnel Wounds – 58% of injuries.
- Shell Shock – caused by heavy artillery.
- **Gas** – Mustard and Chlorine gas. **Solution = Urine soaked cotton pads and from 1916 gas masks. This meant that gas only killed 6000 during the whole of the war.**



Episode 5 – How were injured soldiers treated on the Western Front

- **RAMC** – ran the CHAIN OF EVACUATION. Number increased to **13,000** by the end of the war.
- **FANY** – Volunteers. Helped on the Chain of Evacuation and **drove the ambulances. Entirely made up of women.**



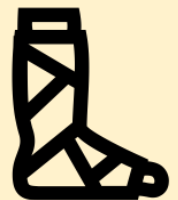
Year 10 – History – Historic Environment: The Western Front

Chain of Evacuation:

- **Stretcher Bearers** – Worked in **groups of 4** to collect injured soldiers from no-mans land.
- **Regimental Aid Posts** - 200 meters back – **Emergency First Aid.**
- **Dressing Stations** - 400 meters – 1 miles back - Staffed by 10 medical officers – **Triaged and treated more serious injuries**
- **Transported by either motor ambulance or horse drawn ambulance. Bumpy – could cause further injuries.**
- **Casualty Clearing Station** - More specialist care eg: **gas.**
- **Transported to BASE HOSPITALS by railway or canal boat (many train tracks destroyed by artillery).**
- Base Hospitals – Specialist care eg: brain surgery.
- **Underground hospital at Arras** had **space for 700 beds**, it also had electricity and running water. Damaged by a shell during Battle of Arras.

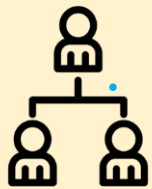
Episode 6 – How successful were experiments for treating injured soldiers?

- **Carrel-Dakin method (1917)** – prevented gas-gangrene infections by washing wound with sterilized salt.
- **Thomas Splint (1915)** - **kept leg completely straight. Reduced the death rate from a broken femur from 80% to 20%.**
- Mobile X-Rays – prevented unnecessary travel. But very fragile.
- **Blood Transfusions – Done at the Battle of Cambrai (1917) - Robertson.**
- Gillies – Plastic Surgery (had to be done at home).
- Cushing – Brain Surgery using magnets.





Episode 1 – What were the key features of Anglo-Saxon Society?



- **Hierarchy – King at the top.** He was responsible for: making laws (writs), taxes, minting the silver penny and defense (**raising the Fyrd**).
- **Earls - 6** in total. Ensured kings laws were followed and raise men for the Fyrd. **Part of the WITAN alongside the Archbishops. (king's advisors and chose the next king).**
- **Thegns** - Lower nobility (1% of the population).
- **Ceorls** – Freemen (10%) of the population
- **Peasants – 70% of the population. Farmed the lords land 3/4 times a week and then their own.**
- **Slaves** - 10%.
- England split into 40 shires, Each had a SHIRE REEVE – collected taxes, carried out justice and raised the Fyrd.

The Legal System:

- Tithings – Men over 12 grouped together (10). Responsible for each other.
- Hue and Cry - Whole village had to search for Criminal.
- **Trials – Trial by Jury knew both victim and offender. Trial by Ordeal: God would decide.**

Village/ Town life:

- **90% lived in villages** – One room houses made of Wattle and Daub. **Lived off the land**
- 10% in town (Burhs – walled towns): Exchange economy.

The Church

- **Archbishop of Canterbury (Stigand) and Archbishop of York (Ealdred) were equal.**
- Owned 25% of land.
- Powerful as **people believed in Heaven and Hell.**

House of Godwin:

- **Richer than the King (£8500 vs. £6000).**
- Harold Godwinson (Earl of Wessex), Tostig (Earl of Northumbria). Rewarded by Edward for defeating the French.
- **Edith Godwin - married to Edward the Confessor.**
- 1064 – Harold went on an **Embassy to Normandy** - allegedly **swore an oath of loyalty to William (Duke of Normandy) on holy relics.**

Rebellion against Tostig (1065):

- Northumbria different from Wessex. Viking settlers, Danelaw, different language. Tostig was a southerner. Northerners had always governed Northumbria.
- Tostig allowed Malcom III (Scotland) to invade, **taxed heavily**, brought in southern laws, assassinated high-born rivals.
- Rebels march on York, kill 7 Housecarls. Morcar = leader.
- **Harold met with Rebels, agreed to terms. Replaced Tostig with Morcar**
- Tostig exiled – **Later allies with Harald Hardrada**

Episode 2 - Why was there a succession crisis after the death of Edward the Confessor?

- Edward the Confessor dies (Jan 1066) - No children/ no obvious heir. **4 claimants to the Throne**
- **Harold Godwinson** - English, Edward's Brother-in-Law, strong soldier, claimed Edward promised him the throne on his death bed – **Picked by the WITAN and crowned on the day of Edward's funeral.**
- **William, Duke of Normandy - Related to Edward**, claimed that Edward had promised him the throne.
- **Harald Hardrada – Claimed his father was promised the throne by the previous king.**
- Edgar Atheling – Edward's Great Nephew, But only 14 so considered too young.



Year 10 – History – Anglo-Saxon and Norman England

Episode 3 – How significant were the Battles of Gate Fulford and Stamford Bridge?

- **Harold positioned troops on the South Coast** – thought William would attack, but he was delayed by the wind (wrong direction). Sent Fyrd home for the harvest.
- September - **Harald Hardrada invaded with 7500 soldiers (300 ships).**
- **Gate Fulford (20th Sept) - Hardrada defeats armies of Edwin and Morcar by splitting army in two and using one to attack from behind. Edwin and Morcar unable to fight at Hastings.**
- Godwinson raises the Fyrd and marches **300km in 5 days** - catches Hararada by surprise.
- Stamford Bridge (25th Sept) - Hardrada unarmoured and outnumbered as rest of soldiers were back at their ships. Both Hardrada and Tostig killed.
- **Olaf, son of Hardrada submit to Godwinson who allows him to return home – only needs 24 ships.**



Episode 4 – Why did William win the Battle of Hastings (14th Oct 1066)?

- **Luck** – William arrived whilst Godwinson was in the North. Instead of marching to him, William set about attacking Wessex. Best soldiers injured at Gate Fulford and Stamford Bridge,
- **William's Leadership** – Had a papal banner (god was on his side), Army made up of **2000 mounted knights** and professional soldiers (7500). He took his helmet off when there were rumours he'd been killed. He ordered the feigned retreat and also had scouts which meant Godwinson couldn't catch him by surprise.
- **Godwinson's mistakes** – fought in the shield wall so couldn't control army, **majority of the soldier were the Fyrd so lacked discipline. He'd marched his army south very quickly.**



Episode 5 – How was William able to control England after the Battle of Hastings?

1 - Submission of the Earls:

- Witan initially made **Edgar Atheling king**.
- William marched his army to London.



• **Marched via Dover (port) , Canterbury and Winchester (Home to the Royal Treasury) – took control of these**

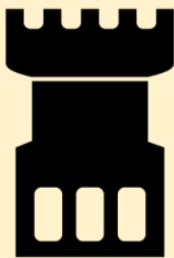
- Earls (Edwin, Morcar, Edgar Aethling and Stigand submitted to William at Berkhamsted.
- William crowned Christmas Day, 1066.

2 - Marcher Earldoms:

- **Chester, Shrewsbury and Hereford** (William FitzOzburn) – Given to loyal Normans – border with Wales.
- **Smaller so easier to control** – Earls were given extra powers such as building castles and making towns. They also didn't need to pay taxes to the king.

3 – Motte and Bailey Castles:

- **Made of wood** so quick and easy to build – **Built 500** during his reign.
- Showed off the power of the Normans – William built a castle at Dover after the Battle of Hastings.
- Built 32km apart. This is because a **Norman army could march 32km in a day. REINFORCEMENTS**



3 – Land Holding etc:

- Introduced **Feudal System** – Land given in exchange for **Homage and Knight's Service (40 days)**. Breaking this meant land was forfeit. Peasants (Villeins were now tides to the land and were given plots in exchange for farming the demesne).
- **188 Norman Tenants in chief owned 50% of the land.**
- Other methods included: Crown wearing ceremonies, control of coinage, journey around England and appointing senior church leaders

Year 10 – History – Anglo-Saxon and Norman England

Episode 6 – How did William put down resistance from the Saxons?

1 – Revolt of Edwin and Morcar (1068):

- Edwin and Morcar had been taken to Normandy following William's coronation.
- When returned in 1068 they went north and attempted to raise an army against William.
- William sent his army north. En route they **built castles in Warwick, Nottingham and York** as a display of strength. The revolt collapsed.



2 – Revolt in the North (1069):

- Rebels from Northumbria joined forces with **Edgar the Aethling** who had the backing of Malcolm III of Scotland.
- **King Sweyn of Denmark also sent a fleet of ships – But he arrived late..**
- **Robert Cumin** became the new earl of Northumbria. In January 1069 he went north and attacked towns and villages on his way. At Durham he was warned to stop but didn't and his troops were slaughtered. He took refuge in the bishop's house but **rebels set fire to it and he was killed when forced out by the flames.**
- Soon after Cumin's murder, a similar uprising happened in York which killed the governor and many Norman troops. Edgar and his supporters arrived from Scotland and joined the rebels.
- Word got to William and he arrived quickly. York was laid to waste,
- Edgar escaped back to Scotland. A new castle was quickly built and FitzOsbern was left in charge of the North.
- William paid the Danes a lot of money to leave and started the **'Harrying of the North' (total destruction). Burning crops, killing livestock leading to mass starvation.**

3 – The Harrying of the North (1069-70):

Why?

- **-Revenge for the death of Robert Cumin**
- Rebels refused to meet in open battle. William's response made it impossible for anyone, including rebels, to stay in the area.
- **-Rebellion triggered rebellions elsewhere in the country.**
- **-Threat of a Danish invasion –King Sweyn.**

Short Term Impact:

 As many as **100,000** people died.

- **-Without crops to live on, livestock to slaughter and eat, and little protection from the cold winter people starved or froze to death.**
- **-William's troops also destroyed seed for next year's crops. Thousands of refugees fled the region.**
- **-There were reports of cannibalism and of people selling themselves into slavery for food.**

Long Term Impact:

60% of Yorkshire = wasteland

- 80,000 and 150,000 fewer people than in January 1066.

-Removing large numbers of Anglo-Danes from Northumbria had a lasting impact on the chances of Danish invasion.

-For William it was a turning point. He no longer tried to win over the Anglo-Saxon aristocracy, he decided to replace them.

-The Harrying was widely **criticised, including by the pope**. William devoted much time and money to the Church for the rest of his reign in order to make amends for what he had done.





4 – Hereward the Wake (1071)

- Danes returned - set up in Ely. Alliance with local rebel leader Hereward the Wake. Hereward was a thegn and had been exiled under Edward and returned to find all his land had been given to a Norman.



The Archbishop of Peterborough was also replaced by a Norman. Hereward began fighting a guerrilla war against the Normans. Hereward was also joined by Morcar and his men.

- The Normans captured Ely.
- Morcar captured, Hereward escaped.
- The defeat of rebels at Ely marked the end of large-scale Anglo-Saxon rebellions.

Episode 7 – How did William put down Norman Resistance (1075 – Revolt of the Norman Earls)?

- **Ralph de Gael, Roger de Breteuil and Waltheof**, Earl of Northumbria. Wanted to overthrow William and divide the kingdom as they resented the loss of land and privilege..
- Ralph asked the Danes for help and there was support from Normandy's rivals, Brittany and France - both wanted to weaken Normandy.
- **The events of the revolt** - Ralph married Roger de Breteuil's sister. Here Ralph and Roger recruited Waltheof. The rebels timed their revolt when William was in Normandy, with Archbishop Lanfranc in charge of England.
- **Revolt did not get widespread support and Danes arrived late. The revolt was defeated before it really began:**
- **Waltheof changed his mind and informed Lanfranc.** Lanfranc tried to communicate with Roger, but when this failed he excommunicated Ralph and used the army to block Roger in Hertfordshire and Ralph in East Anglia – prevented them joining up.
- Ralph escaped to Brittany and his followers either blinded or banished, **Waltheof, executed May 1076**, Roger was imprisoned for life.

Year 10 – History – Anglo-Saxon and Norman England

Episode 8 – How did life change under the Normans?

- **After 1075 William spent 80% of his time in Normandy.** He therefore had regents who ran the country whilst he was away. **His 3 regents were Odo, Lanfranc and William Fitzosburn.**
- William increased the number of Earldoms and made them smaller. Earls were also expected to pay homage and their lands were forfeit if they broke this eg: Revolt of 1075.
- Thegns destroyed and replaced by Tenants in Chief.
- Norman's thought slavery was wrong and therefore freed many slaves.
- Kept the same legal system as Saxons, but also introduced Trial by Combat and the Murdrum Fine.
- **Introduced the Forest Laws – these banned anyone from hunting or collecting wood from the Royal Forest. Punishments included fine, mutilation (blinding, fingers being chopped off) and potentially execution.**
- Domesday Book (1086) - Recorded details of what everyone owned and compared to the time of Edward's reign. Allowed William to know what taxes could be collected and the information required to raise an army in case of Danish invasion.
- **Norman Aristocrats – spoke French, threw out many Saxon relics and passed all land and titles to the eldest son (as long as William agreed).**

Episode 9 – How far did the Church change under William?

- **Stiegand** accused of pluralism (in charge of two areas) and simony (selling church offices) – **REMOVED and replaced by Lanfranc.**
- **Made Archbishop of Canterbury more important than Archbishop of York.**
- Established Church Courts (1076)
- Built large Cathedrals in town such as Lincoln.
- Held more regular church councils to discuss and impose Church reforms.
- Introduced Archdeacons who were responsible for policing - making sure priests were carrying out their responsibilities.
- Increased the number of Monasteries.
- **By 1087 all Bishops came from Normandy except Wulfstan of Worcester.**

Episode 10 – Why was there a succession crisis after William's death in 1087?

1– Bishop Odo

- William's half brother. Had supported The Norman Invasion and was richly rewarded – Only William had more land than Odo, **made Earl of Kent in 1067.**
- Acted as William's regent.
- **Was imprisoned when he attempted a military excursion to Italy against William's wishes. Only released on William's deathbed.**

2– Robert's Revolt (1077-80)

- William's oldest son asked William to make him Duke of Normandy – William refused.
- **Robert and a group of followers attacked William's castle in Rouen. His followers were sons of William's Tenants in Chief.** Although this failed Robert was given a castle at Gerberoi and knights by the rulers of Flanders and France (William's enemies).
- 1079 – During a fight Robert unhorses William.
- **William gave in and made peace and confirmed Robert as his heir to Normandy – BUT NOT ENGLAND – This was given to 2nd son William Rufus – against Norman tradition.**

3 – Rebellion of 1088

- William died 1087 – Robert = Duke or Normandy, William Rufus = King of England - This caused issues as Tenants in Chief now had to swear homage to two lords.
- **Odo tried to persuade T in C's to support Robert as he was easier to control.** As such many failed to attend William Rufus' Easter court in 1088.
- William Rufus marched to Rochester Castle where Odo was planning the rebellion and captured it – Odo arrested.
- **Rebellion also failed as Robert never left Normandy. Odo was exiled to Normandy.**





Nature of God

Omnipotence – All powerful

Miracles – Calmed a Storm

Creator – made everything

Omniscience – All knowing

Omnibenevolent – All loving

Agape – God’s self-sacrificing love for all

Prodigal Son – The Lost Son

“My son,’ the father said, ‘you are always with me, and everything I have is yours. ³² But we had to celebrate and be glad, because this brother of yours was dead and is alive again; he was lost and is found.”

“For God so loved the world that he gave his one and only Son, that whoever believes in him shall not perish but have eternal life.” (John 3)

“You have heard that it was said, ‘Love your neighbour and hate your enemy.’ ⁴⁴ But I tell you, love your enemies and pray for those who persecute you” (Matt 5) The Sermon on the Mount

Just – Fair

So in everything, do to others what you would have them do to you, for this sums up the Law and the Prophets.” (Matt 7:12)



Problem of Evil & Suffering

The Inconsistent Triad

Evil and suffering could make Christians question God’s

omnipotence, **omnibenevolence**, or His **omniscience**. For example:

- If God was all-powerful, wouldn’t He stop natural disasters?
- If God was all-loving, wouldn’t He stop suffering?
- If God was all-knowing, wouldn’t He know that people were going to do something evil and stop them?

Moral Evil:



Natural Evil:



The Suffering of Job:



Creation



Fundamentalists – regard the words of the Bible as being the true voice of God. For example, when reading the **creation** story in **Genesis**, fundamentalists would believe that the world was literally created in seven days.

Conservatives - believe that the Bible was written by humans who were inspired by God.

Liberals - regard the Bible as words that have been written about God. Although these are a good guide for Christians in understanding their faith, they might interpret passages differently to fit modern society.

“We believe in one God, the Father, the Almighty, maker of heaven and earth, of all that is, seen and unseen. We believe in one Lord, Jesus Christ, the only son of God, eternally begotten of the Father, God from God, Light from Light, true God from true God.”

Nicene Creed

“In the beginning God created the heavens and the earth. ² Now the earth was formless and empty, darkness was over the surface of the deep, and the Spirit of God was hovering over the waters. ³ And God said, “Let there be light,” (Genesis 1)

Resurrection



I believe in the Holy Spirit, the holy catholic Church, the communion of saints, the forgiveness of sins, the resurrection of the body, and the life everlasting. Amen. (Apostles Creed)

Roman Catholics believe in Purgatory, it is a place of purification for the soul.

“So will it be with the resurrection of the dead. The body that is sown is perishable, it is raised imperishable;” (1 Corinthians 15)

“And if Christ has not been raised, your faith is futile; you are still in your sins.” (1 Cor)

“Therefore go and make disciples of all nations, baptizing them in the name of the Father and of the Son and of the Holy Spirit,” (Matt)

The Trinity

God the Son. God on earth in the body of Jesus. Here to save the sins of mankind.

God the father. The maker of heaven and earth. God the Holy spirit – this is how God is still present on the earth today.



Christians believe God is within us, guiding us and giving us courage.





Judgement



The Rich Man and Lazarus: ‘If they do not listen to Moses and the Prophets, they will not be convinced even if someone rises from the dead.’” (Luke)



The Sheep and the Goats: “The King will reply, ‘Truly I tell you, whatever you did for one of the least of these brothers and sisters of mine, you did for me.’ (Matt)

Nicene Creed: “He will come again in glory to judge the living and the dead, and his kingdom will have no end.”



Heaven	Hell
Heaven is described as eternity in the presence of God, as Heaven is a state of being rather than a physical place. Heaven is the ultimate aim for all Catholics, so that their soul can be reunited with God and united with Christ.	Hell has traditionally been depicted as a place of eternal fire that symbolises pain and suffering. This is seen as the result of the refusal to accept the happiness that God wants people to share with him. Hell is the opposite of Heaven - it is eternity in the absence of God.



Incarnation



The **incarnation** is the Christian belief that God took human form by becoming Jesus. Incarnation literally means ‘to take on flesh’. For Christians, the incarnation shows that Jesus was fully God and fully human. It is an essential part of belief in the **Trinity**, and in many ways it forms the basis of Christianity.

Through the incarnation of Jesus, humans were able to start repairing their damaged relationship with God. This relationship had been imperfect since Adam and Eve disobeyed God. Through Jesus’ incarnation, God began the process of **salvation** from sin, making it possible for humans to have a full relationship with him and go to Heaven.

“For God so loved the world that he gave his one and only Son, that whoever believes in him shall not perish but have eternal life.” (John 3)

Influence on believers:

Mother Teresa – helped the poor & orphans.

Father Kolbe – took someone’s place in Auschwitz so that they could survive.



Crucifixion

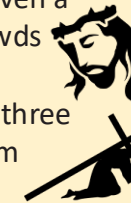
Jesus’ crucifixion is a culmination of a series of events including:

- his entry into Jerusalem on a donkey
- the Last Supper
- the betrayal of Judas
- two trials



After Jesus was sent to Pontius Pilate, Pilate offered the choice of who to condemn to death to the crowd, as was tradition. The crowd chose to free Barabbas, a well-known criminal, thereby condemning Christ to death.

He was whipped, stripped of his clothes and given a crown of thorns and a robe to wear as the crowds mocked him. He was given his cross to carry to Golgotha where he was to be crucified. He fell three times on the path, and a man called Simon from Cyrene was forced to help him carry the cross. At Golgotha, his clothing was split amongst the guards, and he was crucified between two criminals with a sign reading ‘The king of the Jews’ placed above his head.



At noon the sky went dark and three hours later Jesus cried out, Eli, Eli, lema sabachthani?, which means, “My God, my God, why did you abandon me?” (Matthew 27:46).



He was offered wine, but he took his final breath and died. At that moment the veil in the temple tore in two and the Earth shook.

Salvation

For this salvation to happen;

- God gave his only son, Jesus, so that all humans could be saved.
- Jesus was a perfect human - he had no sin.
- God placed the sins of the world upon him at his crucifixion.
- Jesus’ actions meant that there was **reconciliation** between God and humanity - his death atoned or made up for human sin.

Salvation through law



Some Christians believe that people can achieve salvation by following God’s teachings and carrying out good deeds that will please God. An example is caring for those who are less fortunate or giving to charity.

Salvation through grace



Grace is the unconditional love that God has for everyone. Salvation does not need to be earned. Instead, it can be achieved by believing in God and his son Jesus Christ.

Salvation through spirit



The **Holy Spirit** helps Christians to follow the teachings of God, and God recognises that everyone will sin but that they will turn to God in repentance (Acts 20:21). This means that, despite sinning, humans will try to make amends and ask for forgiveness by agreeing that God exists.





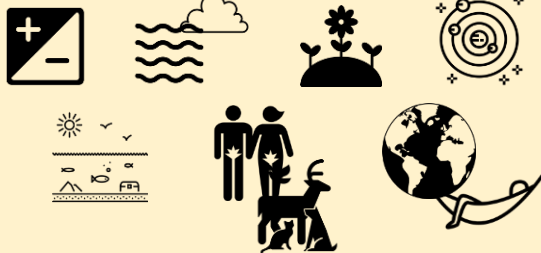
Science V Religion

Scientists make a hypothesis, test and observe to make a truth. They are open to further development and their answers are conditional.

Religious truth come from Holy Books, prophets and God telling them. Religion is open to interpretation but the truth of religion is considered to absolute and relevant for all times.

Religion looks at **WHY**, Science looks at **HOW**.

Creation



"In the beginning God created the heavens and the earth. ²Now the earth was formless and empty, darkness was over the surface of the deep, and the Spirit of God was hovering over the waters. ³And God said, "Let there be light," (Genesis 1)



Big Bang



The Big Bang theory is a scientific approach to answering the question of how the world began. In answering this question, the Big Bang theory removes the need for a creator.

Put simply, the theory states that around 14 billion years ago all matter and energy in the universe was at a point of infinite density and temperature. It then expanded rapidly. Eventually stars, galaxies and planets formed. This expansion was the beginning of time and continues to this day.

The Big Bang theory is supported by evidence that space is expanding, including the **redshift** of light from distant galaxies and the existence of cosmic **background radiation** in all directions.

It is thought planet Earth was formed around 4.6 billion years ago from dust and gas left after the Sun formed. As Earth gradually cooled, creating conditions in which life was possible, living things appeared.



Evolution



Survival of the Fittest – The species that adapted would survive

Natural Selection – nature selects the species which survive.

Adaptation - How living things are specialised to suit their environment.

Evolution - The process by which living things can gradually change over time.

Inheritance - The process of passing on features from parents to offspring.

Species - A group of living things with very similar characteristics. They can breed together to make more living things of the same type.

Variation - The differences between living things in a species.



Environment



Stewardship – Looking after something which isn't yours – Gods Creation

Dominion – In charge

Conservation – repair & protect animals and nature.

Fossil Fuel – Earths natural resources

Sustainable Energy – Energy that can be renewed



"God took the man and put him in the Garden of Eden to work it and take care of it." **Genesis 2:15**

"The earth is the Lord's, and everything in it, the world, and all who live in it." **Psalms 24:1**

- Hinduism teaches about **Ahimsa** – Non-Violence and that there should be a respect for all life.
- Islam teaches that: "**The world is green and beautiful, and Allah has appointed you His stewards over it**"
- Judaism teaches to "**Love your neighbour as yourself**" (Leviticus)
- Sikhism says "**that the universe comes into being by God's will**" – Guru Nanak.
- In Buddhism, the Dalai Lama says that "**destruction of natural resources results from ignorance, greed and lack of respect.**"

Animal Rights



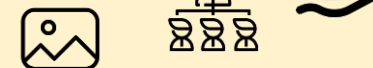
"God blessed them and said to them, 'Be fruitful and increase in number; fill the earth and subdue it. **Rule** over the fish in the sea and the birds in the sky and over every living creature that moves on the ground.'

(Genesis)

Stewardship – Humans were put on the earth to look after and protect it.

Dominion – To be in charge.

Image of God –



"So God created mankind in his own image in the image of God he created them; male and female he created them."

(Genesis)

Soul –

"Then the LORD God formed a man from the dust of the ground and breathed into his nostrils the breath of life, and the man became a living being." (Genesis)

Adam told to **name** the animals -

"So the man gave names to all the livestock" (Genesis)

"Everything that lives and moves about will be food for you. Just as I gave you the green plants, I now give you everything". Genesis 9:3

Halal – Muslim word for allowed. Used in the practise of slaughtering animals in Islam in the allowed ways.





Sanctity of Life



For **Christians**, human **life** is **sacred** and is a **gift** from God which is to be **respected** and **protected**. This teaching is called the **sanctity of life**. The Bible teaches that human beings are created in the **image** of God. It also teaches that **murder** is **forbidden**.



The Law

In 1967 abortion became legal in the UK before 28 weeks. In 1990 the Abortion Act reduced it to 24 weeks. The rule is that two registered doctors have to agree that there is a danger to the woman's mental or physical health, the foetus will be born with a physical or mental disability or the existing children would be put at risk.

Viable – A baby can survive at 23 weeks with medical care.

Pro-Life – the term used for opposing abortion stating that the foetus has a right to life.

Pro-Choice – the term used for supporting abortions, stating that it is the woman's right to decide what happens to her body.

Buddhists believe the key intention must be compassion.

Judaism & **Islam** agree that the woman's life takes precedence.

Catholics believe life begins at conception but will accept it to save the woman's life.

If abortions were made illegal then women would be forced to risk their lives and fertility and return to back street abortions.



Euthanasia



Euthanasia means 'gentle and easy death'. The term is used to describe the deliberate ending of a person's life for compassionate reasons because they are suffering, e.g. from a painful or incurable disease. It is illegal in the UK but some people are campaigning for Voluntary Euthanasia to be legalised.



Hippocrates was a doctor in ancient Greece who said he would never give drugs to end someone's life. Today all doctors sign the Hippocratic Oath when they are sworn in as a Doctor and it is the promise to preserve life.

"One who is in a dying condition is regarded as a living person in all respects". Judaism

"If anything is preventing the departure of the soul, such as the sound of banging nearby, as from chopping trees... one can remove them, as no act is involved, only the removal of the obstacle." Rabbi Moses Isserles



"You shall not murder." (Exodus)

"Love your neighbour as yourself." (Luke)



In February 2009, Pope Benedict XVI, the former leader of the Roman Catholic Church, made that Church's position on euthanasia very clear: Euthanasia is a false solution to the drama of suffering, a solution unworthy of man.

The Hospice Movement

• **Hospice** - this is where specialist medical staff look after the terminally ill. **Palliative** drugs are used to help ensure that the person does not suffer any more pain than is absolutely necessary. Staff are able to talk with patients about death and dying and any fears they may have. They are also available to support the family of the dying person.

- Many Christian denominations support the **hospice** movement. Hospices provide **palliative** care and support for a dying person and their families to help ease the pain of death and allow them to come to terms with the death.



Dame Cicely Saunders, the Christian founder of the voluntary hospice movement, believed that a person's dying months or years should be made as positive as possible and not cut off by euthanasia. She said, "We concern ourselves with the quality of life as well as with its length."

The aims of the hospice movement are:

- To help people face and come to terms with their death.
- To help people die in contentment rather than sadness or bitterness.
- To help families of patients come to terms with the coming bereavement, and to see their relatives appreciate or even enjoy the final time of their lives.
- To improve the quality of life of patients.
- To be available to all - regardless of belief, culture or even ability to pay.
- To carry out the greatest commands of Jesus (in Matthew 22: 37-39).
- To provide a much better alternative than euthanasia or dying alone.

Life After Death

Buddhism believes in a rebirth cycle called Samsara and that there is no permanent soul. They believe in Karma effecting your next rebirth, based on your own actions. Buddhists hope to achieve enlightenment called Nirvana. They follow the rules of the Buddha called the Eightfold Path which teaches them to let go of everything and to stop wanting and only then will they reach their goal.



Hindus and **Sikhs** beliefs are similar to Buddhist in that they believe the soul – atman, will be born many times, with the aim of returning to Brahman – God.

Christianity & **Islam** both believe that this life is preparation for the next life and follow their religions rules to achieve paradise.

I believe in the resurrection of the body and life everlasting. (Apostles Creed)



Jesus said, I am the resurrection and the life. He who believes in me will live, even though he dies. (John)

Humanists do not believe in an afterlife and believe we have one life only, that we must live to the fullest.





Sunni & Shi'a Muslims

Islam means submission in Arabic. Allah is the creator and has revealed himself through history to many peoples through prophets. God's final and greatest revelation comes in the form of the Qur'an to Prophet Muhammad. 1.6 billion Muslims worldwide – 2nd largest religion. 4.5% of UK is Muslim.

Sunnis	Shias
Religious guidance only from Qur'an & Hadith.	God guided Prophet to appoint Ali.
No religious hierarchy – no Imams appointed by God.	Leadership of Muslim community is continued through 12 Imams – divinely appointed from Prophet's relatives.
Caliph should come from companions not relatives	Last (12 th) Imam will appear at end of world as Mahdi (chosen one)

The Ummah is the worldwide community of Muslims. All Muslims are equal, whatever, language, race or nationality. 'All people are equal as the teeth of a comb.' Hadith. 87-90% of Muslims are Sunni. 10-13% are Shi'a (mostly Iran). Sunnis & Shi'a share most beliefs but have some significant differences in understanding, laws and practices.

Split - Shias believe first Caliph (leader) should have been Ali but Sunnis believe it should have been Abu Bakr. Sunnis believe Muhammad said Abu Bakr should be Caliph but Shi'a dispute that since Ali was a relative it should be inherited. Husayn, Ali's Son, should have been next in line but was murdered by Sunni ruler at Battle of Karbala.

Husayn was beheaded and is mourned by the Shi'a.

Six Articles of Faith



1. Belief in one God (Tawhid) This means oneness of God. Muslims believe that no being is like Allah.



2. Belief in angels Muslims believe that God's greatness means he cannot communicate directly with humans. Instead, God passed messages, called **risalah**, to his prophets via the angels, who were his first creation and who always obey him.



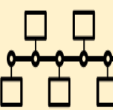
3. Belief in holy books The holy books of Islam should be respected. This is especially true of the Qur'an, which is the unchanged word of Allah, revealed to the Prophet **Muhammad**.



4. Belief in the prophets Allah is believed to have communicated with the prophets, through the angels. Muslims believe the prophets should be respected but never worshipped.



5. Belief in the Day of Judgement and the afterlife (Akhirah) Muslims believe that life on Earth is a test and that, after they die, they will be judged by God and sent to either Paradise or Hell.



6. Belief in predestination (Al-Qadr) This means that everything in the universe follows Allah's masterplan – Muslims believe that Allah has decided everything that happens. This shows the importance of God's will.

Year 10 – RSMS - Islam: Beliefs & Teachings

Five Roots of Usul ad-Din

Principles that underpin belief

The Ten Obligatory Acts

If a Muslim accepts them all, then they are Shi'a.



Tawhid – oneness of God

Resurrection – The Day of Judgement

Adalat – Justice
"Indeed Allah Commands you towards Justice"

Imamate - Leadership
Shi'a believe the 12 imams would succeed Muhammad.

Prophethood – Shi'a's believe Allah sent messengers to guide people to the right path – a peaceful way of life.

Nature of Allah

• **Transcendent** – Allah is above and beyond anything that exists in the world.

• **Fair and just** - Allah judges everyone equally.

• **Immanent** - Allah is close to every human and within all things on Earth.

• **Omnipotent** - Allah is all-powerful.

• **Beneficent** - Allah is all-loving.

• **Merciful** - Allah shows compassion and **mercy**, and he forgives people.



Risalah



Risalah, meaning prophethood or the belief in prophets, is a basic **article of faith** for Muslims.

"Say, [O believers], "We have believed in Allah and what has been revealed to us and what has been revealed to Abraham and Ishmael and Isaac and Jacob and the Descendants and what was given to Moses and Jesus and what was given to the prophets from their Lord. We make no distinction between any of them, and we are Muslims [in submission] to Him." (Qur'an 2)

Muhammad - Seal of the prophets. Last and Greatest of the prophets. Only miracle that he performed was receiving Qur'an.

Adam - Father of the human race. Formed from handfuls of different colour soil. Represents diversity of humanity. Adam disobeyed God by being tempted by devil to eat fruit. Banished to earth but Adam confessed, was forgiven, made prophet. Adam was 1st man to build the Ka'ba.

Ibrahim (Abraham) - A hanif and one of the greatest prophets. Born to family of polytheist but rejected it and became a Muslim. Two sons – Ishma'il – ancestor of Prophet Muhammad – and Ishaq (Isaac)

Musa (Moses) - Teachings of Ibrahim were lost so new prophet had to be sent. Musa led Israelites out of slavery in Egypt.

Dawud (David) - One of Israel's greatest Kings, made Jerusalem a holy place for Muslims. He received God's word (Zabur) as hymns of praise.

Isa (Jesus) - 2nd most important prophet. Miracle of virgin birth accepted. Miracles of Jesus recognised and holy book of Injil recognised. Isa not Son of God and Muslims reject Trinity, Jesus didn't die.



Prophets



- **Muhammad:** Role model for Muslims, performed no miracles but is the perfect example of a human being.
- **Mecca:** Muhammad born in Mecca in 570CE. Age 6 became an orphan. Worked as a shepherd (emulated Ibrahim/Dawud/Musa). Twenties – met Khadija whilst working for her. Khadijah proposed to him. Had 4 daughters and 2 sons. Prophet became troubled by corruption and polytheism of Mecca.
- Laylat-ul-Qadr – Night of Power
- Muhammad spent time alone in prayer and one night in 610CE –he was praying in a cave near Makkah – had an experience that would change his life. Angel Jibril appeared to him and ordered him to recite. 1st revelation of the Qur’an, revelations would continue for next 23 years until Muhammad’s death.
- The message Muhammad brought to Mecca was that there was only one God who needed to be worshipped because of judgement. Message was not received well and he was ridiculed. Faced a lot of opposition.
- Medina - Hijrah
- Muhammad and the early Muslims moved to Medina in a migration called the Hijrah.
- Muhammad fought many battles versus Meccans including Battle of Uhud/Trench.
- **Adam:** The first human, ‘Father of mankind’, Allah “blew life into his soul”, Angels were ordered to bow to him. Given Hawwa (Eve) as a companion but they ate the fruit and were banished to earth. He built the first Ka’ba.
- **Ibrahim:** Devout man to preached against the worship of idols. He did not burn when he was set on fire. Was prepared to sacrifice his son. Rebuilt the Ka’ba with Ismail.



Holy Books

Most important source of authority for Muslims. Complete and perfect book of guidance for all humans. Revealed by God to Prophet Muhammad through Angel Jibril. Written in Arabic and final compilation by Caliph Uthman shortly after Prophet’s death (632AD). Unchanged and literal word of God. **Qur’an** is known as Umm-ul-Kitab ‘Mother of Books’. Qur’an is a sacred and holy text which is free from distortion unlike other holy books. Qur’an has always existed and was written in Arabic on tablet of stone in heaven. Qur’an is guide for life, teaches everything, learn by heart in Arabic.

Sunnah is the inspiration of the life of the Prophet. His life is an example and a guide for all Muslims. 2nd most important source of authority. Muslims know about Sunnah largely through the Hadith. Hadith are many books containing the sayings and actions of the Prophet recorded by family and companions.

Shariah uses Islamic sources of authority (Qur’an, Hadith). Sets out moral and religious rules that Muslims must follow. Shariah is incorporated in the law in many Muslim majority countries. Shariah defines what is halal and what is haram. Shariah covers many everyday issues –food, clothing, crime, money, sex and relationships. E.g. It is Haram to murder, drink alcohol, cohabit. It is Halal to eat chicken (halal) and vegetables.

Kutub – four other holy books from Jewish and Christian traditions. Originally true revelations from God but have been corrupted over time because not properly written down. Can’t be trusted, nothing like Qur’an in terms of authority.

- Sahifah (Scrolls of Ibrahim) lost
- Tawrat (Torah)
- Zabur (Psalms)
- Injil (Gospels)



Angels

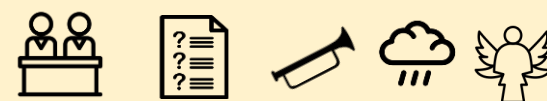
Most Muslims believe that angels were created before humans with the purpose of following the orders of Allah and communicating with humans. Angels are **immortal**, are made of light and have wings. They are pure and cannot sin. They obey and serve Allah at all times.

“They exalt him night and day and do not slacken” **Qur’an 21:20**

The role of angels

- They act as messengers to the **prophets**.
- They take care of people.
- They record everything a person does, and this information is used on the **Day of Judgement**.
- **Izrail**, the Angel of Death, takes people’s souls to God when they die.
- They welcome Muslims into Paradise and also supervise the pits of Hell.
- **Angel Jibril** (known in Christianity as the Angel Gabriel) always brings good news. He is mentioned in both the Qur’an and the **Hadith**. He revealed Allah’s words (the Qur’an) to **Muhammad** on the **Night of Power** so he is known as the **Angel of Revelation**. He played a vital role in communicating the final version of Islam to humanity.

Kiraman & Katibeen Nakir & Munkir Israfil Mika’il Jibril



Akhirah



- **Akhirah** is everlasting life after death.
- Muslims regard life on Earth as a test from Allah, to prepare them for eternal life. Importantly, though, Muslims believe that Allah will not test them beyond their limits. This encourages Muslims to take responsibility for their actions.
- **On Day of Judgement**, the dead will be **resurrected** for judgement by God. All people will receive God’s reward or punishment according to their beliefs and actions. The good will be rewarded with eternal life in Paradise, or Jannah, while the bad will be punished by going to a Hell of fire and torment, called **Jahannam**.
- Muslims believe they can enter Paradise by living according to the teachings of the Qur’an. Therefore, obeying the rules set by Allah is of ultimate importance for Muslims. Most Muslims believe that, as Allah is forgiving and merciful, he will pardon those who are truly sorry for their sins if they have done some good in their lives. However, many Muslims believe that some sins, such as **shirk**, are unforgivable.



Jannah & Jahannam

After death, most Muslims believe that the soul will enter Barzakh, a state of waiting, until the Day of Judgement.

- When a person dies, their soul is taken by Azra’il, the Angel of Death.
- God sends to angels to question the waiting soul. They ask: Who is your Lord? What was your life like? Who is your prophet?





Il / Elle s'appelle Il / Elle a ... ans.		
Il / Elle est Je le / la trouve	(très) (vraiment) (toujours) (trop)	sérieux / sérieuse. travailleur / travailleuse. sympa. amusant / amusante. embêtant / embêtante. méchant / méchante. bavard / bavarde. timide. gentil / gentille. drôle. heureux / heureuse. triste. ennuyeux / ennuyeuse. paresseux / paresseuse.
Je n'aime pas J'aime J'adore	...	parce qu'il / elle est ... parce que je le / la trouve ...

Je m'entends bien avec...	Il / Elle est...
Je ne m'entends pas bien avec...	strict(e)
Je me dispute avec...	méchant(e)
Je n'aime pas...	embêtant(e)
J'aime...	gentil / gentille
J'adore...	paresseux / paresseuse

Mon frère Ma sœur Mon cousin	est	plus moins aussi	drôle(s) / sympa(s) timide(s) / strict(e)(s) amusant(e)(s)	que ...
Mes parents	sont		intelligent(e)(s) gentil(s) / gentille(s) travailleur(s) / travailleuse(s) paresseux / paresseuse(s)	
			pire(s) / meilleur(e)(s)	

Je me marierai.	
Je ne me marierai pas.	
On	se mariera. entrera dans un PACS.
Je J'	aiderai / achèterai... rencontrerai / voyagerai / ferai... trouverai / travaillerai... gagnerai beaucoup d'argent.
J'aurai Je voudrais	des enfants / beaucoup d'ami(e)s. un bon travail / une grande maison.



Describing People — Appearance

la personne	<i>person</i>
l'adulte (m/f)	<i>adult</i>
l'enfant (m/f)	<i>child</i>
le garçon	<i>boy</i>
la fille	<i>girl</i>
l'ado (m/f),	<i>teenager,</i>
l'adolescent(e)	<i>adolescent</i>
l'homme (m)	<i>man</i>
la femme	<i>woman</i>
la dame	<i>lady</i>
jeune	<i>young</i>
vieux / vieil / vieille	<i>old</i>
le visage	<i>face</i>
les yeux (m)	<i>eyes</i>
les cheveux (m)	<i>hair</i>
long(ue)	<i>long</i>
court(e)	<i>short</i>
grand(e)	<i>tall, big, large</i>
petit(e)	<i>short, small, little</i>
la taille	<i>size, height</i>
joli(e)	<i>pretty, attractive</i>
beau / bel / belle	<i>beautiful</i>
la couleur	<i>colour</i>

noir(e)	<i>black</i>
blanc(he)	<i>white</i>
brun(e)	<i>brown</i>
rouge	<i>red</i>
bleu(e)	<i>blue</i>
vert(e)	<i>green</i>
ressembler à	<i>to look like</i>
se ressembler	<i>to look alike</i>
l'air (m)	<i>air, appearance</i>
gris(e)	<i>grey</i>
grandir	<i>to get bigger, get taller, grow</i>

Higher

My Family and Friends

la famille	<i>family</i>
familial(e)	<i>family (adj.)</i>
la génération	<i>generation</i>
le membre	<i>member</i>
le parent	<i>parent</i>
le père	<i>father</i>
la mère	<i>mother</i>
le beau-père	<i>step-father, father-in-law</i>
la belle-mère	<i>step-mother, mother-in-law</i>
la fille	<i>daughter</i>
le fils	<i>son</i>
le frère	<i>brother</i>
la sœur	<i>sister</i>
l'oncle (m)	<i>uncle</i>
la tante	<i>aunt</i>
le cousin / la cousine	<i>cousin</i>

l'animal (m)	<i>animal, pet</i>
les animaux (m)	<i>animals, pets</i>
le chien	<i>dog</i>
l'ami(e)	<i>friend</i>
s'entendre (avec)	<i>to get on, get along (with)</i>
rencontrer	<i>to meet, run into</i>
proche	<i>nearby, close</i>
connaître	<i>to know, be familiar with</i>
passer	<i>to spend time, pass</i>
parler	<i>to speak, talk</i>
chatter / tchatter	<i>to chat (online)</i>
discuter	<i>to discuss, talk about</i>
aider	<i>to help</i>
l'aide (f)	<i>help</i>
comprendre	<i>to understand</i>
encourager	<i>to encourage</i>
entendre	<i>to hear</i>
écouter	<i>to listen</i>
excuser	<i>to excuse, forgive</i>
s'excuser	<i>to apologise</i>
la maman	<i>mum, mummy</i>
la connaissance	<i>acquaintance</i>
unique	<i>unique</i>
garder	<i>to take care of, look after, keep</i>
le lien	<i>link, bond</i>
soutenir	<i>to support</i>
permettre	<i>to allow, permit</i>
(avoir) permis	<i>(to have) allowed, (to have) permitted</i>
manquer	<i>to miss</i>
l'oiseau (m)	<i>bird</i>

Higher

Describing People — Personality

la personnalité	<i>personality</i>
le sentiment	<i>feeling</i>
timide	<i>timid, shy, bashful</i>
bavard(e)	<i>chatty, talkative</i>
fier / fière	<i>proud</i>
drôle	<i>funny</i>
gentil(le)	<i>kind</i>
sympa, sympathique	<i>nice, kind, friendly</i>
agréable	<i>pleasant, nice, agreeable</i>
calme	<i>calm, quiet</i>
fort(e)	<i>strong, loud</i>
embêtant(e)	<i>annoying</i>
méchant(e)	<i>nasty, naughty, mean</i>
inquiet / inquiète	<i>worried, anxious</i>
sérieux / sérieuse	<i>conscientious, responsible</i>
travailleur / travailleuse	<i>hard-working</i>
paresseux / paresseuse	<i>lazy</i>
ennuyeux / ennuyeuse	<i>boring</i>
strict(e)	<i>strict</i>
spécial(e)	<i>special</i>
intelligent(e)	<i>intelligent</i>
la colère	<i>anger</i>
l'indépendance (f)	<i>independence</i>
patient(e)	<i>patient</i>
vif / vive	<i>lively</i>
la blague	<i>joke</i>
le type	<i>type, guy</i>
le respect	<i>respect</i>
respecter	<i>to respect</i>
sembler	<i>to seem</i>
se sentir	<i>to feel</i>
la responsabilité	<i>responsibility</i>
responsable	<i>responsible</i>
libéral(e)	<i>liberal</i>
sensible	<i>sensitive</i>
indépendant(e)	<i>independent</i>

Higher



The perfect tense : irregular past participle

Infinitive	Perfect tense	English
avoir	j'ai eu	I had
être	j'ai été	I was
faire	j'ai fait	I did / I have done
mettre	j'ai mis	I put / I have put
prendre	j'ai pris	I took / I have taken
courir	j'ai couru	I ran / have run
lire	j'ai lu	I read / I have read
rire	j'ai ri	I laughed / I have laughed
voir	j'ai vu	I saw / I have seen
recevoir	j'ai reçu	I received / I have received
boire	j'ai bu	I drank / I have drunk
écrire	j'ai écrit	I wrote / I have written

The **past participles** of **the modal verbs** *devoir*, *pouvoir* and *vouloir* are **dû**, **pu** and **voulu**.

As in the present tense, **these verbs are followed by a verb in the infinitive**.

Elle a dû s'entraîner dur. She **had** to train hard.

Enfin, j'ai pu rester à l'hôtel. At last, I **was able to** / I **could** stay at the hotel.

Hier, nous avons voulu essayer un nouveau sport. Yesterday we **wanted** to try a new sport.

Reflexive verbs

se relaxer (to relax)	
je me relaxe	nous nous relaxons
tu te relaxes	vous vous relaxez
il / elle / on se relaxe	ils / elles se relaxent

Le week-end dernier, je suis allé(e)	à Londres / Manchester / Édimbourg ... en ville voir un film à un festival au concert de Taylor Swift ...	avec	mes amis. ma famille.
On a	visité toute la ville. fait beaucoup de promenades. fait des courses. mangé des frites. couru sur la plage. beaucoup ri.		
On a vu	des sites historiques, comme ... un film au cinéma.		
C'était	génial / fantastique / parfait!		
J'ai	beaucoup aimé. adoré.		

Récemment, Pendant les vacances, Le week-end dernier,	j'ai	fait	du	zorbing / kayak / canyoning / surf ...
		joué	au	bubble foot / hockey sur glace ...
C'était	fantastique / passionnant / excellent / extraordinaire / très drôle ...			
Tu devrais essayer ce sport parce que / qu'	c'est très amusant. c'est assez facile et pas très cher. on peut rencontrer beaucoup de nouvelles personnes. ça donne une vraie poussée d'adrénaline. je l'adore!			



Music

la musique	<i>music</i>
jouer (de)	<i>to play (an instrument)</i>
l'instrument (m)	<i>instrument</i>
apprendre (à)	<i>to learn (to)</i>
chanter	<i>to sing</i>
le chanteur / la chanteuse	<i>singer</i>
la chanson	<i>song</i>
les paroles (f)	<i>lyrics</i>
écouter	<i>to listen (to)</i>
la radio	<i>radio</i>
le concert	<i>concert</i>
le membre	<i>member</i>
le groupe	<i>group</i>
populaire	<i>popular</i>
Internet (m)	<i>internet</i>
télécharger	<i>to download</i>
essayer (de)	<i>to try, attempt</i>
le rythme	<i>rhythm, rate</i>
le genre	<i>type, kind, sort</i>

Going Out

sortir	<i>to go out, exit, take out, release</i>
libre	<i>free</i>
le temps	<i>time, weather</i>
le temps libre	<i>free time</i>
le shopping commercial(e)	<i>shopping commercial, shopping (adj.)</i>
le centre commercial	<i>shopping centre</i>

Cinema, Theatre and TV

le cinéma	<i>cinema</i>
regarder	<i>to watch, look at</i>
voir	<i>to see</i>
le film	<i>film</i>
le billet	<i>ticket</i>
le film d'action	<i>action film</i>
l'histoire d'amour (f)	<i>romance</i>
l'action (f)	<i>action</i>
l'acteur / l'actrice	<i>actor / actress</i>
le personnage	<i>character</i>
la pièce	<i>play</i>
le théâtre	<i>theatre, drama</i>
passionnant(e)	<i>exciting, thrilling</i>
célèbre	<i>famous</i>
la star	<i>star, celebrity</i>
la célébrité	<i>celebrity</i>
montrer	<i>to show</i>
rire	<i>to laugh</i>
la télé(vision)	<i>television, TV</i>
l'émission (f)	<i>TV programme</i>
le programme	<i>schedule</i>
l'écran (m)	<i>screen</i>
la réalité	<i>reality</i>
la télé-réalité	<i>reality TV</i>
l'effet (m)	<i>effect</i>
les effets spéciaux (m)	<i>special effects</i>
la scène	<i>stage, scene</i>
le titre	<i>title</i>
la série	<i>series</i>
diffuser	<i>to broadcast</i>
la pub(licité)	<i>advert</i>

Sport

faire	<i>to do (a sport)</i>
le sport	<i>sport</i>
l'exercice (m)	<i>physical exercise</i>
la santé	<i>health</i>
actif / active	<i>active, energetic</i>
sportif / sportive	<i>athletic, competitive, sporty, sporting</i>
lancer	<i>to throw, launch</i>
le vélo	<i>bike, bicycle</i>
la natation	<i>swimming</i>
marcher	<i>to walk</i>
la promenade	<i>walk</i>
courir	<i>to run</i>
danser	<i>to dance</i>
monter	<i>to climb, go up</i>
participer (à)	<i>to take part (in), participate (in)</i>
la participation	<i>participation</i>
le centre	<i>centre</i>
le centre sportif	<i>sports centre</i>
la piscine	<i>swimming pool</i>
la course	<i>race</i>
le Tour de France	<i>the Tour de France</i>
nager	<i>to swim</i>
pratiquer	<i>to do, play, practise</i>
le terrain	<i>ground, terrain</i>
le terrain de sport	<i>sports field</i>
régulièrement	<i>regularly</i>

Sport — Team Sports

le foot(ball)	<i>football, soccer</i>
le match	<i>match</i>
la partie	<i>game, match, part</i>
l'événement (m)	<i>event</i>
le concours	<i>competition</i>
le jeu	<i>game</i>
l'équipe (f)	<i>team</i>
le stade	<i>stadium, stage</i>
gagner	<i>to win, earn, gain</i>
perdre	<i>to lose</i>
dangereux / dangereuse	<i>dangerous</i>
la concurrence	<i>competition (rivalry)</i>
la vitesse	<i>speed</i>
blessé	<i>to hurt, injure</i>
se blesser	<i>to hurt oneself, injure oneself</i>

Higher

Other Hobbies

le passe-temps	<i>hobby</i>
l'intérêt (m)	<i>interest</i>
intéresser	<i>to interest</i>
s'intéresser (à)	<i>to be interested in</i>
le jeu vidéo	<i>video game</i>
l'activité (f)	<i>activity</i>
lire	<i>to read</i>
le livre	<i>book</i>
la lecture	<i>reading</i>
le roman	<i>novel</i>
se relaxer	<i>to relax</i>
la photo	<i>photo</i>
l'ordinateur (m)	<i>computer</i>
l'ami(e)	<i>friend</i>
le copain	<i>friend, boyfriend</i>
la copine	<i>friend, girlfriend</i>
la passion	<i>passion</i>
le chapitre	<i>chapter</i>
dessiner	<i>to draw</i>

Higher



Ma célébrité préférée, c'est ...	parce qu'	il / elle	est	sympa. beau / belle. drôle. intelligent(e)
				fait beaucoup pour les autres. chante / danse / joue très bien ...

As-tu une célébrité préférée?

Ma musique préférée, c'est	le rock / le jazz / la musique classique / le hip-hop / la pop ...
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J'écoute de la musique	sur	mon portable. mon ordinateur ...
	quand	je fais mes devoirs. je cours ...
	avec	mes amis ...

Je trouve les réseaux sociaux	terribles excellents dangereux ...	parce qu'	on peut rester en contact avec ses amis. il est facile de partager des nouvelles. on peut avoir rapidement accès à des informations et à l'actualité. il y a trop de publicité. il y a des problèmes de confidentialité. il y a beaucoup de harcèlement en ligne.
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Pour devenir célèbre,	je	créerais un blog. ferais du travail bénévole / du bénévolat. chercherais d'autres personnes avec les mêmes centres d'intérêt que moi. visiterais et lui demanderais des conseils. ferais des recherches sur Internet pour étudier ... travaillerais dur.
		j'irais voir à son travail.

Il serait important	de créer quelque chose de différent. d'être créatif. d'avoir de la chance. de faire toujours de son mieux.
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Cette célébrité s'appelle...	
C'est un / une Il / Elle est	acteur / actrice. influenceur / influenceuse. écrivain(e) / musicien(ne) / athlète. sportif / sportive.
Il / Elle sait	écrire / parler / chanter / courir / jouer... communiquer / exprimer des idées.
Il / Elle gagne Il / Elle a gagné	beaucoup de médailles / un prix.
Il / Elle est devenu(e) champion(ne) de...	
Il / Elle travaille Il / Elle a travaillé	dans la politique / le cinéma / le sport / la musique. comme bénévole.
Il / Elle participe à	des concours (internationaux).
Il / Elle a étudié en / au...	

Quand on est une célébrité,	on peut	gagner beaucoup d'argent. voyager beaucoup / dans le monde entier. devenir très riche. avoir une vie vraiment intéressante. avoir un grand nombre de fans. rencontrer des gens passionnants. être triste malgré son succès.
	on ne peut pas	avoir de vie privée.
	on doit	travailler dur. partager sa vie personnelle avec le public.
Être une célébrité, c'est	dur / difficile / embêtant ... fantastique / génial ...	parce qu'on peut / ne peut pas / doit ...



Favourite Celebrities

célèbre	<i>famous</i>
la célébrité	<i>celebrity</i>
la star	<i>star, celebrity</i>
le personnage	<i>character, individual, person</i>
la personnalité	<i>personality</i>
l'identité (f)	<i>identity</i>
la génération	<i>generation</i>
suivre	<i>to follow</i>
l'auteur(e)	<i>author</i>
l'influenceur / l'influenceuse	<i>influencer</i>
l'acteur / l'actrice	<i>actor</i>
le chanteur / la chanteuse	<i>singer</i>
chanter	<i>to sing</i>
la chanson	<i>song</i>
la musique	<i>music</i>
les paroles (f)	<i>lyrics</i>
écouter	<i>to listen to</i>
voir	<i>to see</i>
regarder	<i>to watch</i>
le concert	<i>concert</i>
le spectacle	<i>show, sight</i>
le tour	<i>tour, turn</i>
le groupe	<i>group</i>
le sport	<i>sport</i>
l'équipe (f)	<i>team</i>
jouer (à un sport)	<i>to play (a sport)</i>

la politique	<i>politics</i>
la mode	<i>fashion, way</i>
le style	<i>style</i>
porter	<i>to wear, carry</i>
le rôle	<i>role</i>
le héros / l'héroïne	<i>hero</i>
la voix	<i>voice</i>
la série	<i>series</i>
la scène	<i>stage, scene</i>
la tournée	<i>tour, round</i>
présenter (à)	<i>to present, show, introduce someone (to someone else)</i>
représenter	<i>to represent</i>
diriger	<i>to direct, guide</i>
se diriger	<i>to make one's way</i>
inspirer	<i>to inspire</i>
s'inspirer (de)	<i>to be inspired (by)</i>
respecter	<i>to respect</i>

Higher

Celebrity Life — Career and Lifestyle

la carrière	<i>career</i>
les médias (m)	<i>media</i>
Internet (m)	<i>internet</i>
la vidéo	<i>video</i>
la photo	<i>photo</i>
le selfie	<i>selfie</i>
la télé(vision)	<i>TV, television</i>
la réalité	<i>reality</i>
l'émission (f)	<i>TV programme</i>
le cinéma	<i>cinema</i>
le film	<i>film</i>
le journal	<i>newspaper</i>
les journaux (m)	<i>newspapers</i>
l'article (m)	<i>article</i>
l'influence (f)	<i>influence</i>
la société	<i>society</i>
culturel(le)	<i>cultural</i>
le mariage	<i>marriage, wedding</i>
riche	<i>rich</i>
l'argent (m)	<i>money</i>
local(e)	<i>local</i>
national(e)	<i>national</i>
international(e)	<i>international</i>
voyager	<i>to travel</i>
le / la porte-parole	<i>spokesperson</i>
le public	<i>public, audience</i>
la presse	<i>the press</i>
l'établissement (m)	<i>establishment</i>
la marque	<i>brand, mark</i>
l'image (f)	<i>picture, image</i>
la richesse	<i>wealth</i>
puissant(e)	<i>powerful</i>
principal(e)	<i>main</i>
réel(le)	<i>real</i>

Higher

Celebrity Life — Positives and Negatives

positif / positive	<i>positive</i>
spécial(e)	<i>special</i>
populaire	<i>popular</i>
extraordinaire	<i>extraordinary</i>
fier / fière	<i>proud</i>
le succès	<i>success</i>
le prix	<i>prize, price</i>
l'occasion (f)	<i>opportunity</i>
la sécurité	<i>safety</i>
négatif / négative	<i>negative</i>
l'inquiétude (f)	<i>worry, anxiety</i>
public / publique	<i>public (adj.)</i>
l'annonce (f)	<i>announcement</i>

bénéficier (de)	<i>to benefit (from)</i>
reconnaître	<i>to recognise</i>
l'ouverture (f)	<i>opening</i>
unique	<i>unique</i>
la victime	<i>victim</i>
le scandale	<i>scandal, uproar</i>
secret / secrète	<i>secret (adj.)</i>
la honte	<i>shame</i>
la critique	<i>criticism, critic</i>
critiquer	<i>to criticise</i>
déclarer	<i>to announce, report</i>
annoncer	<i>to announce, make public</i>

Higher



Je regarde J'aime regarder	des films des séries	à la télé. sur mon portable.	
J'aime utiliser J'adore utiliser J'utilise	des outils de streaming en ligne mon ordinateur / mon portable les réseaux sociaux	pour	écouter la radio tchatter avec mes amis. télécharger de la musique.
Je vais sur Je surfe sur	Internet les réseaux sociaux	pour	chercher des informations. poster des photos. parler avec mes amis. faire mes devoirs.
Je ne lis pas	de magazines de journaux	parce que car	c'est ennuyeux. c'est cher.
Je lis	des magazines des journaux		c'est informatif. j'adore lire la vie des célébrités.

Normalement, je / j'	regarde / fais / télécharge écris / lis discute envoie consulte télécharge / écoute joue fais recherche	des vidéos / photos / films. mes e-mails / mon blog. avec mes amis. des photos. des sites Web. de la musique / des podcasts. à des jeux vidéo. mes devoirs. des informations.	
Hier, j'ai	regardé / fait / lu / joué / téléchargé / écouté...		
Je déteste Je n'aime pas	les réseaux sociaux les applis de...	parce qu'ils / elles sont	ennuyeux / ennuyeuses. dangereux / dangereuses. chers / chères.

Ne téléchargez rien de dangereux.
Ne partagez pas de photos ou de vidéos privées.
Ne cliquez pas sur des liens suspects.
Ne donnez jamais vos informations bancaires en ligne.

Hier,	j'ai	utilisé	mon portable / mon ordinateur (portable) / mon smartphone.		
		téléchargé	des chansons / un film / un podcast.		
		passé beaucoup de temps	sur	les réseaux sociaux / Internet.	
			surfé		
		joué	à des jeux vidéo.		
		discuté	avec	mes amis / ma famille.	
		lu / visité	un blog / des sites Web.		
Normalement,	je / j'	utilise / télécharge / passe / surfe / joue / discute / lis ...			
Demain,	je vais	utiliser / télécharger / passer / surfer / jouer / discuter / lire ...			

Malheureusement, en ligne, il y a des dangers comme	les virus informatiques. le vol d'identité par des pirates informatiques. de la fraude. des cyberintimidateurs.
Il faut	être vigilant / attentif! regarder / vérifier l'adresse d'origine avant d'ouvrir un e-mail. utiliser des mots de passe forts. vérifier les sources des informations avant de les croire.



Technology

la technologie	<i>technology</i>
l'appareil (m)	<i>device, apparatus</i>
le portable	<i>mobile phone, laptop</i>
le téléphone	<i>telephone</i>
le numéro	<i>number</i>
l'ordinateur (m)	<i>computer</i>
l'écran (m)	<i>screen</i>
la lumière	<i>light</i>
l'appli(cation) (f)	<i>app(lication)</i>
le mail / l'e-mail (m)	<i>e-mail</i>
le SMS	<i>SMS</i>
le message	<i>message</i>
envoyer	<i>to send</i>
recevoir	<i>to receive</i>
répondre (à)	<i>to answer, reply (to)</i>
enregistrer	<i>to record, save</i>
communiquer	<i>to pass on, communicate</i>
cliquer	<i>to click</i>
écouter	<i>to listen to</i>
l'outil (m)	<i>tool</i>
l'expert(e)	<i>expert</i>
marcher	<i>to work</i>
allumer	<i>to turn on</i>
recharger	<i>to charge (an appliance)</i>
casser	<i>to break</i>
l'appel (m)	<i>call</i>
rappeler	<i>to call back</i>
la réception	<i>reception</i>
l'évolution (f)	<i>evolution</i>
numérique	<i>digital</i>
technique	<i>technical</i>
puissant(e)	<i>powerful</i>
la puissance	<i>power</i>
l'objet (m)	<i>object, subject line</i>

The Internet — Going Online

l'Internet (m)	<i>internet</i>
la ligne	<i>line</i>
en ligne	<i>online</i>
le site	<i>site</i>
le blog	<i>blog</i>
le mot	<i>word</i>
sûr(e)	<i>safe, sure</i>
la sécurité	<i>security, safety</i>
protéger	<i>to protect</i>
voler (à...)	<i>to steal (from someone)</i>
le vol	<i>theft</i>
le danger	<i>danger</i>
dangereux / dangereuse	<i>dangerous</i>
la santé	<i>health</i>
l'action (f)	<i>action</i>
prendre	<i>to take</i>
jouer (à)	<i>to play (something)</i>
le jeu	<i>game</i>
facile	<i>easy</i>
rapide	<i>fast, quick</i>
télécharger	<i>to download</i>
découvrir	<i>to discover</i>
voir	<i>to see</i>
regarder	<i>to watch, look at</i>
le streaming	<i>streaming</i>
la télé(vision)	<i>television / TV</i>
l'émission (f)	<i>TV programme</i>
le film	<i>film</i>
la protection	<i>protection</i>
la victime	<i>victim</i>
le risque	<i>risk</i>
l'attaque (f)	<i>attack</i>
attaquer	<i>to attack</i>
le contenu	<i>contents</i>
la série	<i>series</i>
direct(e)	<i>direct</i>
directement	<i>directly</i>
diffuser	<i>to broadcast, diffuse</i>

Higher

Year 10 - French – Media and Technology / Celebrations vocabulary

The Internet — Online Shopping

le shopping	<i>shopping</i>
commercial(e)	<i>commercial, shopping (adj.)</i>
l'euro (m)	<i>euro</i>
la livre	<i>pound</i>
cher / chère	<i>expensive</i>
gratuit(e)	<i>free (of charge)</i>
acheter	<i>to buy</i>
payer	<i>to pay (for)</i>
vendre	<i>to sell</i>
la vente	<i>sale</i>
la pub(licité)	<i>advert</i>
la marque	<i>brand, mark</i>
le consommateur / la consommatrice	<i>consumer, customer</i>
renvoyer	<i>to resend, send back</i>
l'établissement (m)	<i>establishment, organisation</i>
l'achat (m)	<i>purchase</i>
annuler	<i>to cancel, undo</i>
livrer	<i>to deliver</i>

Higher

Social Media

social(e)	<i>social</i>
les médias (m)	<i>media</i>
le réseau	<i>network</i>
utiliser	<i>to use</i>
poster	<i>to post</i>
suivre	<i>to follow</i>
chatter / tchatter	<i>to chat (online)</i>
partager	<i>to share</i>
la photo	<i>photo</i>
la vidéo	<i>video</i>
le selfie	<i>selfie</i>
la conversation	<i>conversation</i>
le dialogue	<i>dialogue</i>

Higher

la communication	<i>communication</i>
la génération	<i>generation</i>
l'ado (m/f), l'adolescent(e)	<i>teenager, adolescent</i>
jeune	<i>young</i>
la jeunesse	<i>youth</i>
l'influence (f)	<i>influence</i>
l'influenceur / l'influenceuse	<i>influencer</i>
moderne	<i>modern</i>
populaire	<i>popular</i>
nouveau / nouvel / nouvelle	<i>new</i>
disponible	<i>available</i>
diminuer	<i>to lower, decrease</i>
inquiétant(e)	<i>worrying, disturbing</i>
l'inquiétude (f)	<i>worry, anxiety</i>
le souci	<i>worry, concern</i>
négatif / négative	<i>negative</i>
la fois	<i>time</i>
le compte	<i>account, count</i>
l'image (f)	<i>picture, image</i>
l'utilisation (f)	<i>use</i>
la communauté	<i>community</i>
s'inscrire (à)	<i>to join, enrol (in)</i>
unir	<i>to unite, join</i>
le débat	<i>debate</i>
réagir	<i>to react</i>
le commentaire	<i>comment, remark</i>
harceler	<i>to bully, harass</i>
souffrir	<i>to suffer</i>

Celebrations

célébrer	<i>to celebrate</i>
la fête	<i>party, festival</i>
l'événement (m)	<i>event</i>
l'anniversaire (m)	<i>birthday</i>
le cadeau	<i>present, gift</i>
le gâteau	<i>cake</i>
la fleur	<i>flower</i>
félicitations	<i>congratulations</i>
inviter	<i>to invite</i>
la surprise	<i>surprise</i>
surprendre	<i>to surprise</i>
familial(e)	<i>family (adj.)</i>
donner	<i>to give</i>
recevoir	<i>to receive</i>
ouvrir	<i>to open</i>
acheter	<i>to buy</i>
envoyer	<i>to send</i>
venir	<i>to come</i>
partager	<i>to share</i>
passer	<i>to spend time, pass</i>
se passer	<i>to happen</i>
crier	<i>to shout, scream, cry out</i>
apprécier	<i>to appreciate, like</i>
profiter de	<i>to make the most of</i>
offrir (à)	<i>to give (someone), offer (someone)</i>
féliciter	<i>to congratulate</i>
le bonheur	<i>happiness</i>
la joie	<i>joy</i>

Higher



Je trouve Noël À mon avis, Noël, c'est	(très) (vrai) me nt)	agréable ennuyeux excellent bon terrible	parce que/qu'	on reçoit beaucoup de cadeaux. on mange beaucoup / trop. nous sommes tous ensemble. on va à je (ne) peux (pas) nous (ne) célébrons (pas) ...
Ma fête préférée, c'est...				
Le jour de mon anniversaire, j'aime		manger du gâteau. ouvrir mes cadeaux. inviter des amis à la maison. jouer à des jeux. aller au restaurant / au cinéma.		
J'aime passer les occasions spéciales avec	ma famille mes amis mon frère ma sœur	parce que/qu'	nous allons nous pouvons ils / elles sont ... il / elle est ...	
Comment célèbres-tu ton anniversaire? Quel âge vas-tu avoir à ton prochain anniversaire? Qu'est-ce que tu aimes recevoir comme cadeaux? As-tu des traditions spéciales pour ton anniversaire?				

Mon jour / festival préféré, c'est...
Normalement, je vais... / je reste...
Je passe la journée avec...
Je mange... / Nous mangeons...
Je bois... / Nous buvons...
J'aime ce jour parce que...
L'année dernière, j'ai passé / nous sommes allé(e)s...
L'année prochaine, je vais aller / on va passer...

À Pâques, À Noël, Le jour de l'An, Le jour de son anniversaire, Le jour de la Saint-Valentin,	mon meilleur ami ma meilleure amie ma sœur mon frère	Aime préfère	préparer un grand repas. manger beaucoup de gâteaux. aller en ville. chanter des chansons. danser. rendre visite à ses / nos grands-parents.
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Year 10 - French –Special Occasions & Healthy Lifestyles- vocabulary

Customs and Festivals — Traditions

férié(e)	public holiday (adj.)
la tradition	tradition
traditionnel(le)	traditional
historique	historic
la culture	culture
culturel(le)	cultural
spécial(e)	special
le festival	festival
les vacances (f)	holiday(s)
la date	date
l'an (m)	year
l'année (f)	year
la société	society
la Fête Nationale	Bastille Day (French national holiday)
la Saint-Valentin	Valentine's Day
local(e)	local
national(e)	national
international(e)	international
rappeler (à)	to remind (someone)
se rappeler	to remember
francophone	French-speaking
unir	to unite, join
la diversité	diversity
l'humanité (f)	humanity
le roi	king

Customs and Festivals — Entertainment

le feu	fire
le feu d'artifice	firework display
la lumière	light
le défilé	parade, procession
la musique	music
danser	to dance
le concert	concert
la chanson	song
chanter	to sing
le spectacle	sight, show
regarder	to watch, look at
voir	to see
le bruit	noise
porter	to wear, carry
participer (à)	to take part (in)

Customs and Festivals — Religion and Identity

religieux / religieuse	religious
la religion	religion
croire	to believe
chrétien(ne)	Christian
musulman(e)	Muslim
juif / juive	Jewish
bouddhiste	Buddhist
Noël (m)	Christmas
Pâques (m)	Easter
l'Aïd (m)	Eid
l'église (f)	church
la mosquée	mosque
la synagogue	synagogue
le temple	temple
le pays	country
la région	region, area
français(e)	French
britannique	British
européen(ne)	European
canadien(ne)	Canadian
américain(e)	American

Food

la nourriture	food	
manger	to eat	
le produit	product	
la faim	hunger	
le pain	bread	
le poisson	fish	
la viande	meat	
le légume	vegetable	
le fruit	fruit	
le fromage	cheese	
les frites (f)	chips	
la glace	ice cream, ice	
le fast-food	fast food	
boire	to drink	
la boisson	drink, beverage	
la soif	thirst	
l'eau (f)	water	
le café	coffee, café	
le thé	tea	
le lait	le feu	fire
le vin	le feu d'artifice	firework display
le goût	la lumière	light
le repas	le défilé	parade, procession
le petit	la musique	music
le déjeuner	danser	to dance
le dîner	le concert	concert
l'entrée	la chanson	song
l'émergence	chanter	to sing
le feu	le spectacle	sight, show
le feu d'artifice	regarder	to watch, look at
la lumière	voir	to see
le défilé	le bruit	noise
la musique	porter	to wear, carry
le repas	participer (à)	to take part (in)
le petit		
le déjeuner		
le dîner		
l'entrée		
l'émergence		
le feu		
le feu d'artifice		
la lumière		
le défilé		
la musique		
danser		
le concert		
la chanson		
chanter		
le spectacle		
regarder		
voir		
le bruit		
porter		
participer (à)		
végan		
végétarien(ne)	vegetarian	
préparer	to prepare	
couper	to cut	
recommander	to recommend	
la recette	recipe	
la cuisine	cooking, kitchen	

Healthy and Unhealthy Living — Habits and Lifestyle

la santé	health
sain(e)	healthy
bon(ne)	good
mauvais(e)	bad
rester	to stay, remain
coucher	to put (someone) to bed
se coucher	to go to bed, lie down, sleep
dormir	to sleep

lever	to lift, raise
se lever	to get up, stand up
tôt	early
le lit	bed
se relaxer	to relax
fatigué(e)	tired
l'habitude (f)	habit
la fois	time (occasion)
la drogue	drug(s)
l'alcool (m)	alcohol
fumer	to smoke
la cigarette	cigarette
vapoter	to vape
la menace	threat
le danger	danger
dangereux / dangereuse	dangerous
tuer	to kill
la cause	cause
essayer (de)	to try, attempt (to)
éviter (de)	to avoid (doing something)
arrêter (de)	to stop (doing something)
difficile	difficult
le souci	worry, concern
l'inquiétude (f)	worry, anxiety
inquiétant(e)	worrying, disturbing
le tabac	tobacco
se reposer	to rest
prévenir	to let know, warn
empêcher (de)	to prevent (someone from)
risquer (de)	to risk (doing something)
le risque	risk
refuser (de)	to refuse (to)
causer	to cause
dépendre (de)	to depend (on)
persuader (de)	to persuade (to)

Healthy and Unhealthy Living — Sport and Exercise

l'exercice (m)	exercise
le sport	sport
sportif / sportive	athletic, sporty, competitive, sporting
jouer (à un sport)	to play (a sport)
le foot(ball)	football
courir	to run
marcher	to walk
la promenade	walk
danser	to dance
faire (de)	to do, play
la natation	swimming
l'activité (f)	activity
actif / active	active, energetic
l'effort (m)	effort
la forme	form, shape
peser	to weigh
la vie	life

fort(e)	strong
faible	weak
l'équipe (f)	team
garder	to keep, take care of, look after
bouger	to move
nager	to swim
l'esprit (m)	mind, spirit
mener	to lead

Higher

Higher



Key questions: Lesson 1-5

1-¿Adónde vas de vacaciones?

Where do you go on holidays?

2-¿Qué haces durante las vacaciones?

What do you do in your holidays?

3-¿Qué te gustaba hacer antes?

What did you used to like doing before?

4- ¿Qué prefieres hacer ahora?

What do you prefer doing now?

Holiday destinations

Voy de vacaciones a... *I go on holidays to....*

España *Spain*

México *Mexico*

Alemania *Germany*

Suiza *Switzerland*

Italia *Italy*



Turquía *Turkey*

Grecia *Greece*

Gales *Wales*

Francia *France*

Rumanía *Romania*

Estados-Unidos *USA*

Escocia *Scotland*

Inglaterra *England*

China *China*

Holiday activities

dormir *(sleep)*

leer *(read)*

descansar *(rest)*

nadar *(swimming)*

pescar *(fishing)*

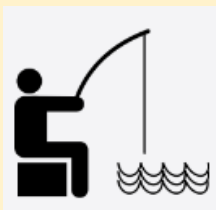
montar en bici *(go biking)*

montar a caballo *(go horse riding)*

sacar fotos *(take photos)*

tomar el sol *(sunbathe)*

visitar museos *(visit museums)*



ir a la playa *(go to the beach)*

ir al teatro *(go to the theatre)*

ir de compras *(go shopping)*

ir de paseo *(go for a walk)*



hacer deportes acuáticos *(do water sport)*

hacer escalada *(go climbing)*

hacer ciclismo *(do cycling)*

hacer senderismo *(go hiking)*

hacer turismo *(go sightseeing)*

Hacer surf *(do surfing)*



AO phrases

En general, me mola (+ verb)

In general, I like (+ verb)

Cuando puedo, suelo (+ verb)

When I can, I usually (+ verb)

Aunque no sea (+ adjective), suelo (+verb)

Although it is not (+adjective), I usually (+verb)

Cuando era pequeño/a, solía (+ verb)

When I was little, I used to (verb)

Antes, me gustaba (+verb)

Before, I used to like (+ verb)

(people/plural) opinan que...

(people/plural) think that...

Al escuchar lo que dice la gente

When listening to what people say

Key questions: Lesson 6-12

5-¿Adónde fuiste de vacaciones?

Where did you go on holidays?

6-¿Dónde te quedaste durante las vacaciones?

Where did you stay in your holidays?

7-¿Qué hiciste durante las vacaciones?

What did you do in your holidays?

8- ¿Tuviste algún problema en tus vacaciones?

Did you have any problem in your holidays?

**Holiday accommodations**

Me alojé/ me quedé en *I stayed in...*

Nos alojamos/nos quedamos en *We stayed in...*

un hotel cinco estrellas *a 5 stars hotel*

un hostel *a hostel*

una pensión *a B&B*

una caravana *a caravan*

un albergue juvenil *a youth hostel*

una tienda *a tent*

un parador *a luxury hotel*

la casa de mi amigo *my friend's house*

**Holiday disasters**

Con el coche *(with the car)*

Tener un accidente *(to have an accident)*

Tener un pinchazo *(to have a puncture)*

Hubo una colisión *(there was a crash)*

Ir al hospital / a la comisaría *(to go to hospital/police station)*

Chocar con *(to crash into)*

Tener una avería *(to have a breakdown)*

Esperar mucho tiempo *(to wait a long time)*

Llamar a un mecánico *(to call a mechanic)*



En el aeropuerto *(At the airport)*

Perder el vuelo *(to miss the flight)*

Perder el equipaje *(to lose the luggage)*

Perder el pasaporte *(to lose the passport)*

Perder las llaves *(to lose the keys)*

Llegar muy tarde *(to arrive very late)*

Tener un retraso *(to have a delay)*



Por desgracia
(unfortunately)

Por un lado
(on one hand)

Por otro lado
(on the other hand)



Grammar terms

Opinion verb

Verbs which express likes or dislikes, e.g. '*me gusta*'

Infinitive

The last 2 letters of the verb –er, -ir, or –ar
E.g. hablar - *to speak*, comer – *to eat*,



Conjugate

Taking off the infinitive and putting the verb into the correct tense and the correct pronoun

Present tense

Things that you do either now or as a habit, e.g. nado todos los días *I swim every day.*

Preterit

What you did at a specific time in the past, e.g. Ayer tomé el sol en la playa *Yesterday I sunbathed in the sun.*

Imperfect

What you used to do during a period of time, e.g. Cuando era pequeña, me gustaba comer helados *When I was little, I used to like eating ice cream*

Time phrases:

Hace tres meses *3 months ago*

El año pasado *last year*

Ayer *yesterday*

Siempre *always*

A veces *sometimes*

Nunca *never*

Present tense

Verbs	(I)	(he/she/it)	(we)
-AR	o	a	amos
-ER	o	e	emos
-IR	o	e	imos

Preterit tense



Verbs	(I)	(he/she/it)	(we)
-AR	é	ó	amos
-ER	í	ió	imos
-IR	í	ió	imos

Imperfect tense

Verbs	(I)	(he/she/it)	(we)
-AR	aba	aba	ábamos
-ER	ía	ía	íamos
-IR	ía	ía	íamos



PRESENT	(I)	(he/she/it)	(we)
Tener <i>to have</i>	Tengo	Tiene	Tenemos
Ir <i>to go</i>	Voy	Va	Vamos
Ser <i>to be</i>	Soy	Es	Somos
Hacer <i>to do</i>	Hago	Hace	Hacemos

<u>Preterit:</u>	(I)	(he/she/it)	(we)
Tener <i>to have</i>	Tuve	Tuvo	Tuvimos
Ser / Ir <i>to be/go</i>	Fui	Fue	Fuimos
Hacer <i>to do</i>	Hice	Hizo	Hicimos
Estar <i>to be</i>	Estuve	Estuvo	Estuvimos

<u>Imperfect:</u>	(I)	(he/she/it)	(we)
Ser <i>to be</i>	Era	Era	Éramos
Ir <i>to go</i>	iba	iba	Íbamos
Ver <i>to see/watch</i>	Veía	Veía	Veíamos

AO phrases

Lo bueno/mejor es...

The good / best thing is...

Lo malo/peor es...

The bad/worst thing is...

En el pasado, me gustaba...

In the past, I used to like...

Ojalá fuera más/menos (+ adjective)

I wish s/he/it was more/less (+ adjective)

Si me hubiera preguntado hace 5 años, hubiera dicho que (+ noun/verb) era (+ adjective)

If you would have asked me 5 years ago, I would have said that (+noun/verb) was (+ adjective)

Desde X años, me interesa más (+ noun/verb)

Since recently, I have been more interested in (noun/verb)



Key questions: Lesson 1-5

1-¿Cuáles son las diferencias entre tu insti y tu cole?

What are the difference between your primary and secondary school?

2-¿Qué tal tus asignaturas?

What are your subjects like?

3-Describe a tus profesores-
Describe your teachers



Las instalaciones Facilities

Había... *there was/were* Hay... *there is/are;*

Una piscina *a swimming pool*

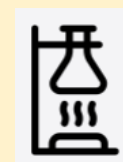
Una biblioteca *a library*

Un aula de informática *an IT room*

Un campo de fútbol *a football pitch*

Unos laboratorios *some labs*

Edificios modernos / antiguos *modern/ old buildings*



Los profesores Teachers

Paciente *patient*

Impaciente *impatient*

Tolerante *tolerant*

Severo *strict*

Listo *clever*

Tonto *stupid*

Trabajador *hardworking*

Perezoso *lazy*

Simpático *nice*

Estricto *strict*

Nos enseña bien
teaches us well

Tiene buen sentido de humor *has a good sense of humor*

Nunca se enfada
never gets angry

Nos da consejos
gives us advice



El día escolar The school day

De la mañana *(in the morning)*

De la tarde *(in the afternoon)*

De la noche *(in the evening)*

Llego a las ocho *(I arrive at 8am)*

Las clases empiezan a las nueve *(Classes start at 9am)*

El recreo *(the break)*

El descanso para almorzar *(Lunch break)*

Las clases terminan a las tres y diez *(classes finish at 3.10pm)*



Las asignaturas Subjects

Las lenguas / Los idiomas *(languages)*

El francés *(French)*

El español *(Spanish)*

El inglés *(English)*

Las matemáticas *(maths)* La religión *(RE)*

Las ciencias *(sciences)* La educación física *(PE)*

La biología *(biology)* La química *(chemistry);*

La tecnología *(DT)* La física *(physics)*

La informática *(IT)* La historia *(history)*

El teatro *(drama)* La geografía *(geography)*

El dibujo *(art)*



Key questions: Lesson 6-12

1-¿Cuáles son las las normas en tu insti?

What are the rules in your school?

2-¿Cómo es tu uniforme?

What is your uniform like?

3-¿Hay actividades extraescolares en tu insti?

Are there any extracurricular clubs in your school?

Las opinions *The opinions*

Las normas son.... *the school rules are...*



tontas *silly*

necesarias *necessary*

anticuadas *old fashioned* útiles *useful*

severas *strict*

para fomentar la buena disciplina

for promoting good discipline

limitar la libertad de expresión

for limiting freedom of expression

para fastidiar a los alumnos

for annoying the pupils

para sacar buenas/malas notas

getting good/bad grades

Las normas *School rules*

Tienes que... *You have to* se debe... *You must*

Hay que... *You ought to* está prohibido *It's forbidden*

Comer chicle *to eat chewing gum*

Usar el móvil *use your phone in class*

Dañar las instalaciones *damage the facilities*

Ser agresivo or grosero *to be aggressive or rude*

Respetar a los demás *to respect others*

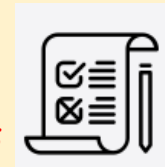
Correr en los pasillos *to run in the corridors*

Llevar piercings *to wear piercings*

Ser puntual *to be punctual*

Respetar el turno de palabra *to wait your turn to speak*

Mantener limpio el patio *to keep the quad tidy*

**Las actividades extraescolares** *Extra-curricular activities*

Soy miembro de *I am a member of*

Voy al club de *I go to the club of*

ajedrez *chess* teatro *drama*

periodismo *journalism*

lectura *reading* fotografía *photography*

natación *swimming*

**El uniforme** *The uniform*

Tengo que llevar *I have to wear*

Llevo *I wear*

Un jersey *a jumper*

Un vestido *a dress*



Una camisa *a shirt*

Una camiseta *a T-shirt*

Una chaqueta *a blazer*

Una corbata *a tie*

Una falda *a skirt*

Una sudadera *a hoodie*

Una mochila *a rucksack*

Unos pantalones *trousers*

Unos calcetines *socks*

Unos zapatos *shoes*



Unas medias *tights*



Key questions: Lesson 6-12

1-Describe a tu familia

Describe your family

2-¿Te llevas bien con tu familia?

Do you get on well with your family?



El carácter *Personality*

optimista *optimist* pesimista *pesimistic*

enérgico *energetic* tranquilo *calm*

paciente *patient* Impaciente *impatient*

generoso *generous* comprensivo

understanding

Las relaciones positivas

Positive relationships

Me llevo bien con *I get on well with*

Nos llevamos superbién con

We get on very well with

Me divierto con *I have fun with*

Nos divertimos siempre *We always have fun*

Me apoya *s/he supports me*

Me acepta como soy *s/he accepts me as I am*

Me hace reír *s/he makes me laugh*

Nunca me critica *s/he never criticises me*

Tenemos mucho en común *we have a lot in*

common



Las relaciones negativa *Negative*

relationships

No me llevo bien con *I don't get on well with*

Nos llevamos como el perro y el gato

We fight like cat and dog

Me peleo con *I argue with*

... me vuelve loco/a ... *drives me crazy*

Me irrita *s/he irritates me*

Es insoportable *s/he's annoying*

Se burla de mí *s/he makes fun of me*

Somos como el día y la noche

We are like night and day



El físico *Physical description*

Tengo el pelo *I have ___ hair*

Tiene el pelo *s/he has ___ hair*

liso *straight*

ondulado *wavy*

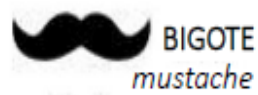
rizado *curly*

Tengo los ojos *I have ___ eyes*

Tiene los ojos *s/he has ___ eyes*

Llevo *I have/wear*

Lleva *s/he has/wears*



CASTAÑO brown

RUBIO blonde

PELLIROJO ginger

NEGRO black

LARGO long

CORTO short

MARRONES brown

AZULES blue

NEGROS black

VERDES green

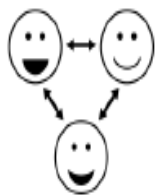
GRISES grey










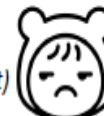
Reflexive verbs

- Reflexive verbs describe actions we do to ourselves.
- They are useful verbs when describing your relationships with others.
- They are formed in the same way as regular present tense verbs but they include a reflexive pronoun.
- The pronoun comes before the verb and changes according to the person.

	Reflexive Pronoun	Presente Tense
1	me	llevo
2	te	llevas
3	se	lleva
4	nos	llevamos
5	os	lleváis
6	se	llevan



Example of reflexive verbs:

 llevarse bien (con) to get on well (with)	↔	llevarse mal (con) to clash (with)	
 divertirse (con) to have fun (with)	↔	pelearse (con) to argue (with)	
 reírse (con) to laugh (with)	↔	quejarse de to complain about	
 reconciliarse con to make up with	↔	enfadarse (con) to get annoyed (at)	

AO phrases

Me ayuda + verb

He/she helps me to + verb

Ojalá fuera más/menos + adjective

I wish he/she was more / less + adjective

Lo peor / Lo mejor es que

The worst/ best thing is that

Cuando era pequeño/a, solía (+ verb)

When I was little, I used to (verb)

Antes, me gustaba (+verb)

Before, I used to like (+ verb)

Lo que me molesta es que...

What annoys me is that...

A veces puede ser + adjective

Sometimes, he/she can be + adjective

PRESENT	(I)	(he/she/it)	(we)
Divertirse	Me divierto	Se divierte	Nos divertimos
Pelearse	Me peleo	Se pelea	Nos peleamos
Reírse	Me río	Se ríe	Nos reímos
Enfadarse	Me enfado	Se enfada	Nos enfadamos



WJEC Level ½ Vocational Award in Performing Arts – Dance (Technical Award)

Unit 1 Performing 60 Marks

For this unit you need to choose an existing piece of musical theatre and perform it to an audience. You will be given a brief to work to.

You will experience a range of musicals demonstrating creativity, key features and stylistic qualities.

Musicals developed from light opera in the early 20th century. Early musicals were influenced by jazz and swing music while lots of musicals from the 1970s onwards used rock music.

MUSICAL THEATRE A musical is a play or a film in which singing, acting and dancing play an essential and equal part. The story and emotional content of a musical display's key features such as, humour, pathos, love and anger and are communicated through words, music, movement, narrative structure and catchy songs. An extravagant set & costumes are used, and the cast perform with large characterisations, gestures and facial expressions.



List of popular Musicals

Grease, All That Jazz, Mamma Mia, Greatest Showman, Lion King, Bugsy Malone, We Will Rock You, Anything Goes, Little Shop Of Horrors, SIX, Cabaret, Everybody's talking about Jamie, 42nd Street, Frozen, Hamilton, Moulin Rouge and Matilda.

HAIRSPRAY is an American musical, is it set in the 1960's in Baltimore. Hairspray tells the story of a young lady named Tracy whose dream is to dance on The Corny Collins Show. Tracy wins a role on the show leading to social change as she campaigns for the show's integration.



HAIRSPRAY

Dance style: (1960's Dance styles) The styles of dance in Hairspray are 1960's styles of dance including The Madison which is a line dance that features a regular back-and-forth pattern interspersed with called steps and The Twist which is a style inspired by rock and roll music which involves swivelling the hips.

Key extracts include:

Nicest Kids in Town and You Can't Stop the Beat.

Key Themes/Features:

- Equality
- Social Change



Musical Theatre Core elements

A musical theatre dancer must be able to adapt their dance skills to express the dramatic context of the performance piece. Musical theatre performers must be able to demonstrate the following five core elements:

Rhythm: rhythm is vital for a dancer, when you listen to a piece of music, the beat gives the timing of the song. How well you move your body to the beat depends on your rhythm.

Control of body and spatial awareness: An excellent dancer will understand how their body moves and will be able to control each action and movement. Dancers need to be aware of their own personal space as well as others and know all their formations and changes

Fluidity: Making sure the line of the body is in specific position and all movements are smooth, seamless and executed correctly.

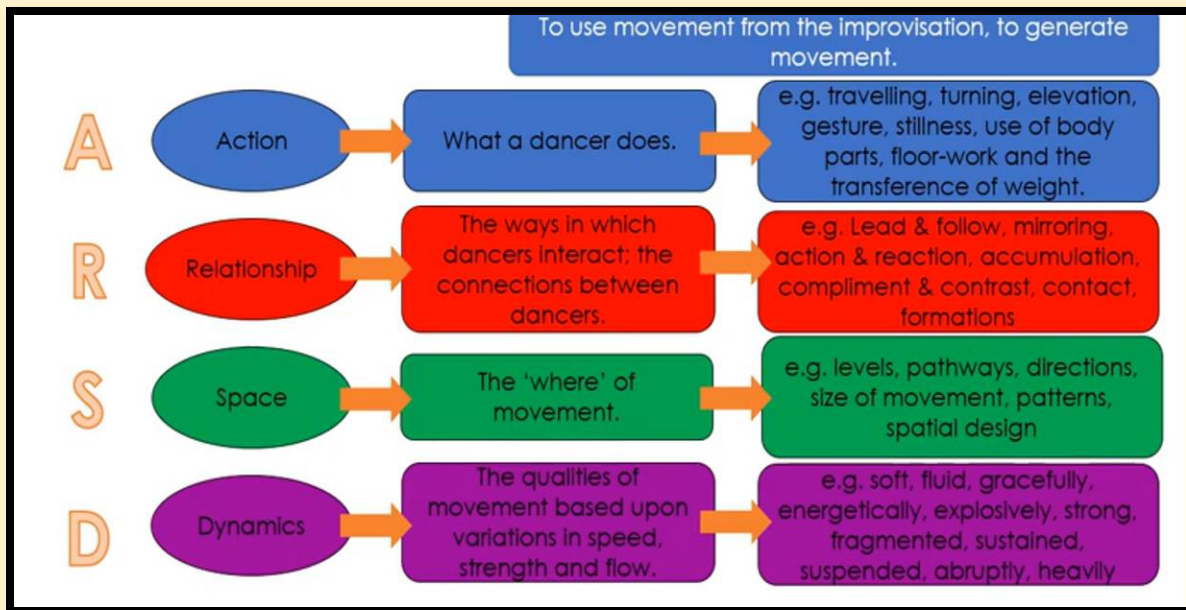
Musicality: A dancer's level of musicality informs how they hear, interpret and dance to the music. The dancer must convey the emotion and mood of the song through the music, facial expressions and stylistic qualities of the dance style.

Response to style: As a musical theatre dancer, you need to be able to adapt your dance skills to suit the style of the show or performance.



Choreography

Actions Relationships Space Dynamics



Choreographic devices

Motif and development
 Repetition
 Contrast
 Highlight
 Climax
 Unison
 Canon
 Retrograde



Communication

Intention
 Mood
 Meaning
 Ideas
 Theme
 Style / fusion



Effects on choreography outcomes

Mood and atmosphere
 Structure
 Relationship to theme and idea
 Contrast and variety



Stimulus	Inspiration for an idea or movement phrase.
Motif	An idea that is repeated and developed throughout the dance.
Originality	The ability to think independently and creatively to realise artistic intentions.
Relationships	The way in which dancers interact with each other,
Climax	The most significant moment of the dance.
Ensemble	The group of performers who sing and dance together but are not principal characters.
Cast	The group of actors, singers and dancers who perform in the show.
ARSD	Actions, relationships, space, dynamics
Overture	The instrumental introduction to a musical.
Blocking	Setting and practicing of choreography and positioning on stage.



Rehearsal Techniques

There are various dance rehearsal styles, depending on the type of dance and the preferences of the choreographer and dancers. Here are some rehearsal methods you will be using:

Technique-Based Rehearsals: These focus on mastering specific dance techniques, such as ballet, contemporary, jazz, or hip-hop. Dancers practice and refine their movements, often using mirrors for feedback.

Improvisational Rehearsals:

Dancers explore movement and choreography through improvisation. This can lead to creative and unique dance pieces.

Conceptual Rehearsals: Choreographers may guide dancers in understanding the emotional or thematic elements of a piece, helping them convey a specific mood or story.

Blocking Rehearsals: Common in theatre and musical productions, these rehearsals involve setting and practicing the choreography and positioning of dancers on stage.

Run-Through Rehearsals:

Dancers perform the entire routine or dance piece from start to finish to ensure the overall flow and timing.

Drilling and Repetition: Dancers repeat specific movements or sequences to build muscle memory and improve precision.

Costume and Prop Rehearsals: These rehearsals involve practicing with the costumes and props that will be used in the performance.

Dress Rehearsal: A full performance with hair, costume, lights & sound.

The choice of rehearsal style depends on the dance genre, the goals of the rehearsal, and the artistic direction of the choreographer.



Year 10 - Dance – Performing & Creating

Choreographers

Wayne McGregor, CBE is a British choreographer and director who has won multiple awards. He is the Artistic Director of Studio Wayne McGregor and Resident Choreographer of The Royal Ballet.

Wayne's choreographic approach

Creative expression

Physical thinking

Exploring movements through artistry, thought and partnership.



Bob Fosse Robert Louis "Bob" Fosse (June 23, 1927 – September 23, 1987) was an American dancer, musical theatre choreographer, director, screenwriter, film director and actor. He won 8 Tony Awards for choreography, 3 Emmy and 1 Bafta awards, Academy Awards, for his direction of Cabaret.

Choreographic approach & Intension

- Fosses' routines must tell a story.
- Detailed isolated movements.
- Character driven dance, infused with a character and story.
- Created a number of climax within his choreography.
- Fosse used his imperfections to create his own technique & style such as,
- Pigeon toes, turned in knees, bad posture, rolled shoulders & back bends, balding, wear bowler hats.

Stylistic Features:

- Sound effects, clapping, stamping feet. Fsss sounds.
- Shoulder rolls.
- Finger stretching.
- Elements of surprise.
- Angular posturing & percussive rhythms.





Performing Arts: Drama course summary

Unit 1: Performing

What's assessed

- The process of rehearsing and refining performance
- Performance from an existing piece of professional work (script)

How it's assessed

- Portfolio
 - Performance
- 60 marks
30% of total qualification



Component 2: Creating

What's assessed

- The process of creating devised drama
- Performance of your devised drama
- Analysis and evaluation of own work

How it's assessed

Portfolio
Devised performance
60 marks
30% of total qualification



Component 3: Performing Arts in Practice

What's assessed

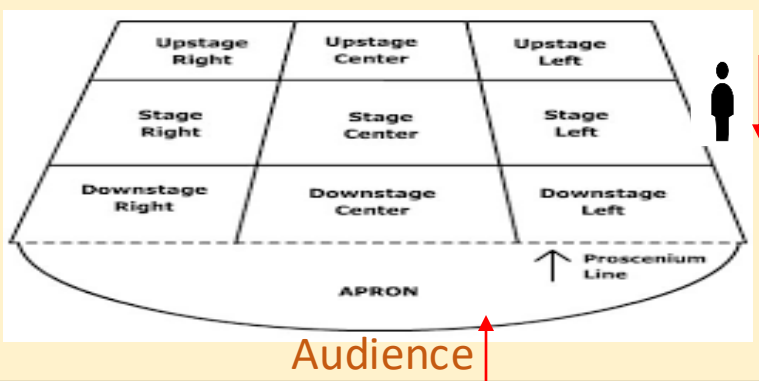
- Understanding the business and management sector of the performing arts industry.
- The process of responding to an industry commission.

How it's assessed

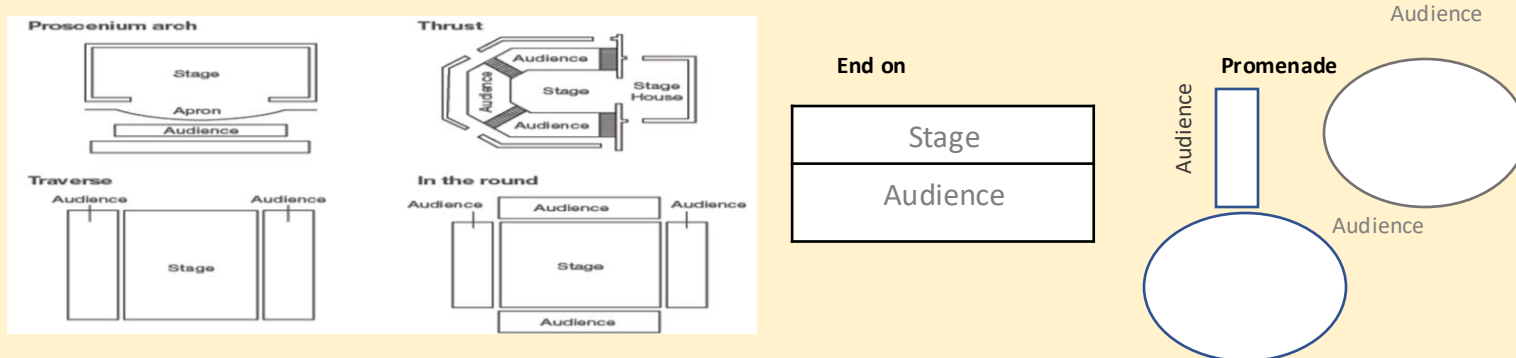
Planning performance work and a pitch
Evaluation and reflection
80 marks in total
40% of total qualification



Stage positioning



Staging configurations





Key terminology (Part 1)

Elements of Drama

Forms that make the story dramatic

- Dramatic tension
- Atmosphere and Mood
- Relationships between characters
- Character
- Form
- Style
- Language
- Sub-text
- Character motivation and interaction
- Pace and rhythm
- Dramatic climax and anti climax
- Stage directions
- Space
- Structure

Roles

Jobs within professional theatres

- playwright
- performer
- understudy
- lighting designer
- sound designer
- set designer
- costume designer
- puppet designer
- technician
- director
- stage manager
- theatre manager

Styles

Ways to convey the forms

- Naturalism
- Realism
- Expressionism
- Absurdity and surrealism
- Epic Theatre
- Political Theatre
- Melodrama
- Theatre of cruelty
- Physical Theatre
- Poor Theatre
- Immersive Theatre
- Forum Theatre
- Theatre in education (TiE)

Drama mediums

Theatral forms to help communicate meaning

- costume
- Masks
- Make-up
- Space and spatial relationships on stage
- Actor and audience configuration
- Relationships between performers an audience
- Hair and make-up
- music and sound
 - lighting
 - set
 - props
- Physical skills: movement, mime and gesture, posture, body language, gait
- voice skills: tone, pitch, pace, volume, intonation, accent
- Language

Explorative Strategies

Ways of exploring character/text/stimuli

- Thought tracking
- Conscience Tunnel
- Hot seating
- Role on the wall
- Forum Theatre
- Lecoq's seven states of tension
- Stanislavski's Magic if
- Stanislavski's Emotion Memory
- Stanislavski's Given Circumstances
- Stanislavski's Units and Objectives

Performance conventions

Ways of telling the story on stage

- Aside
- Drama Conventions
 - Slow motion
 - Soliloquy
 - Narration
- breaking into song
 - Chorus
- Cross cutting
 - Placards
 - Multi-role
- music underscore
- Marking the moment

Genre

Different types of play-texts

- Comedy
- Tragedy
- Melodrama
- Farce
- Tragicomedy
- Morality Play
- Theatre of the absurd
- Play
- Opera

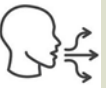











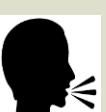





Form

Categories for theatre performances





- Comedy
- Tragedy
- Melodrama
- Drama
- Farce
- Musical



Performance skills are the techniques used by the actor/actress. They are split into two categories – Vocal and Physical skills.

Vocal skills		Physical skills	
TONE: How you show the emotion of a character.		FACIAL EXPRESSION: Using your face to show how a character is feeling.	
PACE: The speed that you speak at		POSTURE: The way that you stand with the focus on the alignment of your back.	
PITCH: How high or low your voice is.		GESTURE: A movement (of the head, arm, hand, leg or foot which communicates a specific meaning.	
PAUSE: A break in speaking; a period of silence.		GAIT: The way that you walk.	
VOLUME: The loudness or quietness of your voice.		Body language: Includes posture, stance and the placement of the arms to convey a character's feelings or personality.	
ACCENT: The way you show what country or region a character is from by their use of vocabulary and the way they pronounce words.		EYE CONTACT: Choosing to look at a specific performer, object, audience member or direction.	
PROJECTION: The amount of tension in your voice. This is not the same as volume – you can have large vocal power at a low volume.		Movement: The way that a character moves their head, body, arms and legs.	
ARTICULATION: The way that you pronounce each letter in a word. If using a high level of articulation, you would pronounce every letter in every word. abcde...		CONTROL: Being able to execute a specific and precise movement	
INTONATION: the rise and fall of the voice in speaking.		TENSION: How tightly you are holding your muscles.	



Context	Practitioners	Connectives	Rehearsal techniques
<p>The context is all the information about when the play was written, including:</p> <ul style="list-style-type: none"> • The writer • The year the play was written • <i>When and where</i> it is set • Theatrical conventions during the time the play was set <p>The three contexts include:</p> <ul style="list-style-type: none"> ✓ Social – the behaviours and attitudes of those that attended the theatre during the time the play was written. ✓ Historical – Major historical events that impacted people that attended the theatre during the time the play was written. ✓ Cultural - Beliefs, practices and lifestyle of those that attended the theatre during the time the play was written. 	<p>Konstantin Stanislavski </p> <p>Style of theatre: Realism – portraying real life on stage</p> <ul style="list-style-type: none"> • Realistic setting, lighting and costume. • Chronological timeline. • Symbolism – using objects that represent something. <p>https://www.youtube.com/watch?v=ALzXCZlqod <u>o</u></p> <p>Bertolt Brecht </p> <p>Style of theatre: Epic - drawing the audience’s attention to the technical aspect of theatre</p> <ul style="list-style-type: none"> • Non-linear structure • Placards – additional messages • Montage <p>https://www.youtube.com/watch?v=AXCUbqtZyS <u>s</u></p> <p>Antonin Artaud </p> <p>Theatre of cruelty – freeing individual’s subconsciousness by shocking them out of suppression</p> <ul style="list-style-type: none"> • Actor/audience relationship • pulsating lighting effects (sensory) • Symbolism <p>https://www.youtube.com/watch?v=Vvcg5YgvG3 <u>M</u></p>	<p>Adding: and, also, as well as, moreover, furthermore, besides, in addition.</p> <p>Cause and effect: because, so, therefore, thus, consequently, as a result of.</p> <p>Sequencing: next, then, first, second,.... finally, meanwhile, after.</p> <p>Comparing: equally, in the same way, like, similarly, likewise, as with, as compared with.</p> <p>Contrasting: whereas, instead of, alternatively, otherwise, unlike, on the other hand, in contrast.</p> <p>Qualifying: however, although, unless, except, if, as long as, apart from, yet, despite.</p> <p>Emphasising: above all, in particular, especially, significantly, indeed, notably, most of all.</p> <p>Illustrating: for example, such as, for instance, as revealed by, in the case of, as shown by.</p>	<ul style="list-style-type: none"> • Thought tracking • Off text improvisation • Conscience Tunnel • Hot seating • Role on the wall • Peer review • Speed run • Mime • Freeze frames • Status exercises • Forum Theatre • Lecoq’s seven states of tension • Stanislavski’s Magic if • Stanislavski’s Emotion Memory • Stanislavski’s Given Circumstances • Stanislavski’s Units and Objectives • Brecht’s gestic exploration • Artaud’s Theatre of cruelty – lighting and sound 



Year 10 – Music – Elements of Music

<u>Instrumentation (Orchestral)</u>	<u>Articulation</u>	<u>Melody</u>	<u>Texture</u>
<p>Keyboard instruments Piano • Harpsichord • Organ</p> <p>Strings Violin • Viola • Cello • Double Bass • Harp</p> <p>Brass Trumpet • French Horn • Trombone • Tuba</p> <p>Woodwind Piccolo • Flute • Clarinet • Oboe • Bassoon</p> <p>Unpitched Percussion Timpani • Snare/Bass Drum • Chimes • Tambourine • Cymbals • Gong • Triangle</p> <p>Pitched Percussion Xylophone • Glockenspiel</p>	<p>General Staccato • Legato • Accent • Sforzando • Glissando • Vibrato</p> <p>Strings Arco • Tremolo • Pizzicato</p> <p>Brass/woodwind Tongued • Slurred</p> <p>Guitar/Bass Picked • Strummed • Slide • Bend</p> <p>Voice Melismatic • Syllabic • Portamento</p> <p>Ornaments Trill • Turn • Mordent • Acciacatura • Grace Note</p>	<p>Movement Stepwise • Skips • Leaps • Ascending • Descending • Rising • Falling • Scalic</p> <p>Tonality Major • Minor • Atonal</p> <p>Rhythm Long notes • Short notes • Fast notes • Semibreve • Minim • Crotchets • Quavers • Semiquavers • Triplets • Dotted notes.</p> <p>Imitation • Sequence • Repeat/Repetitive • Low/high pitch • Narrow/Wide Range • Balanced Phrases • Riff • Microtonal • Motifs • Hook • Interval • Octave • Improvisation</p>	<p>Thick/thin layers Monophonic – one single melodic line</p> <p>Polyphonic – interweaving parts</p> <p>Homophonic – melody with accompaniment</p> <p>Unison – playing/singing the same notes/rhythm</p> <p>Counter melody – the second most important melody</p> <p>Drone - a sustained note</p> <p>Pedal note – a note that remains the same despite the harmony changing.</p>
<u>Dynamics</u>	<u>Rhythm</u>	<u>Harmony</u>	<u>Tempo</u>
<p>Fortissimo – very loud Forte – loud Mezzo forte – moderately loud Piano – soft Mezzo piano – moderate/soft Pianissimo - very soft Crescendo – gradually gets louder Diminuendo - gradually gets softer</p> 	<p>Long notes Short notes Fast notes Semibreve – 4 beats Minim – 2 beats Crotchets – 1 beat Quaver – ½ beat Semiquaver – ¼ beat Triplets Dotted notes Syncopated Ostinato – a repeated pattern Polyrhythm Cross rhythm</p> 	<p>Major chords Minor chords 7th chords Chromatic Dissonant Arpeggios Broken Chords Block Chords Modulation Power Chords Tonic - I Dominant - V Subdominant - IV Harmonic rhythm</p> 	<p>Steady Pulse No Clear Pulse/Free of Time Largo – slow Adagio – slow Andante – walking pace Moderato – moderate Allegro – quick Vivace – fast Presto – fast Rubato – pulling back the tempo and making up the time as the piece goes on. Accelerando – gets quicker Rallentando – gets slower</p> 



PERFORMING

PLAN

Composer - a person who writes music.
Genre - a style of music (i.e. rock, pop, funk, rap etc).
Intended mood - chosen feeling evoked by the music.
Performer - a person who entertains an audience
Reflective Journal - a personal record of learning experiences.
Refining - make improvements and changes to improve the final product.
Rehearsal - practice session used to prepare for a performance.
Rehearsal Schedule - a plan for breaking down larger activities/goals.
Skills audit - an assessment of skills/abilities.
Target Audience - a particular group of people which a product is aimed at.
Target Setting - setting goals in order to improve.
Themes - the subject of the music - what the lyrics are about .

PRESENT

Accuracy - the quality or state of being correct or precise (in relation to the music).
Coordination - skills and techniques working together efficiently and effectively.
Communication - connecting with audience through musical expression.
Control - use of the musical instrument to produce the precise musical effects desired.
Interpretation - a stylistic representation of a piece of music.
Rhythm*
Pitch - high, mid or low. The notes in an instrument's range. (Intonation - the accurate pitching/tuning of a note.)
Dynamics*
Balance - between instrumental parts so that all instruments can be heard.
Expression - appropriate use of dynamics, phrasing, timbre and articulation to bring the music to life.
Technical skills - rudiments or skills specific to a music instrument and the different ways in which sounds can be produced.

EVALUATE

RESPONDING TO FEEDBACK

Why is feedback important?
Creates change (for the better) and inspires growth
Shows appreciation and celebrates successes
Provides clear goals and sets benchmarks



CREATING

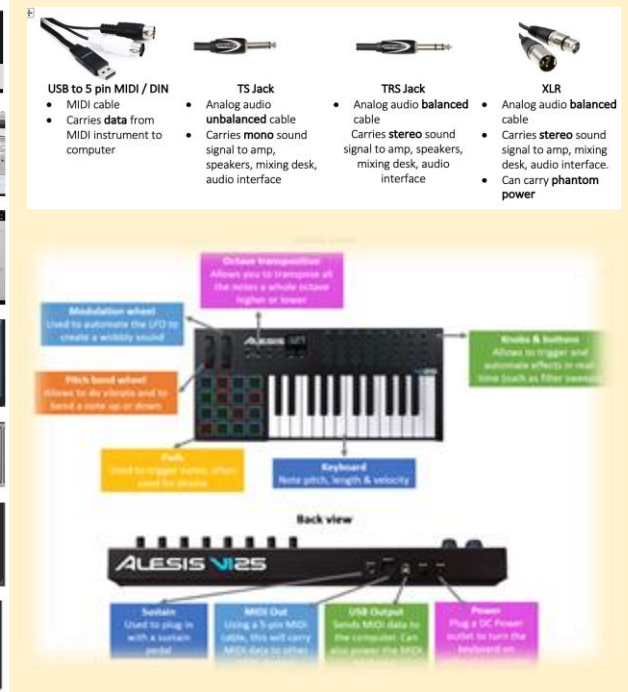
PLAN	<p>Audience - the assembled spectators or listeners at a performance Effect - the impact of the final outcome Genre* Ideas - starting points/topics used to create content Instrumentation - the musical instruments used in the piece - these may be specific to the style of the music. Occasion - event or time at which it takes place Purpose - the reason for which something is done Resources - materials, instruments that can be used to create an outcome. Social/Historical/Cultural/Political factors - context surrounding how, when, where and why a piece of music is created. Themes*</p>
PRESENT	<p>Process - the steps taken in order to create a piece of music. Elements of Music - melody, articulation, dynamics, texture, structure, harmony, instrumentation, rhythm, tempo, tonality Resources* <u>Devices:</u></p> <ul style="list-style-type: none">• Repetition - an exact copy of a musical idea.• Contrast - a change in musical content.• Imitation - a musical idea copied in another part/instrument.• Sequence - repetition of a musical idea at a different pitch.• Ostinato/riff - a musical pattern repeated many times.• Syncopation - 'off-beat' - accented notes on the weak beats.• Drone/pedal - a repeated note or note held throughout a passage of music.• Conjunct movement - pitch moves (mainly) in step.• Disjunct movement - pitch moves in leaps.• Motifs - a short melodic/rhythmic idea• Chord progression - a series of chords related to each other.• Modulation - the process of changing key.
EVALUATE	<p>How to respond to feedback Listen - make a note of the major components within their particular feedback. Understanding the intention behind their feedback and what concrete recommendations they're making for growth will help you form your response more effectively. Question - ask for more information/explanation if their responses aren't clear. Reflect - take time to think about the feedback and how you will respond to it Action Plan - what are you going to do to improve? How will you do this? What resources will you need?</p>



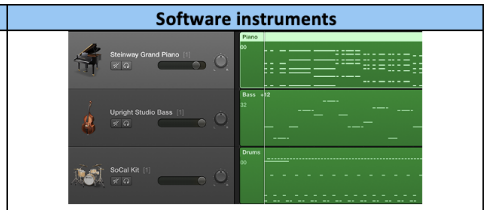
Year 10 – Music Technology – Unit 1: Performing



- Tracks (audio or MIDI)
- Regions
- Play-head
- Playback section
- Track controls (Mute, Solo, Record, Volume)
- Software instruments library
- Mixer window
- Audio region



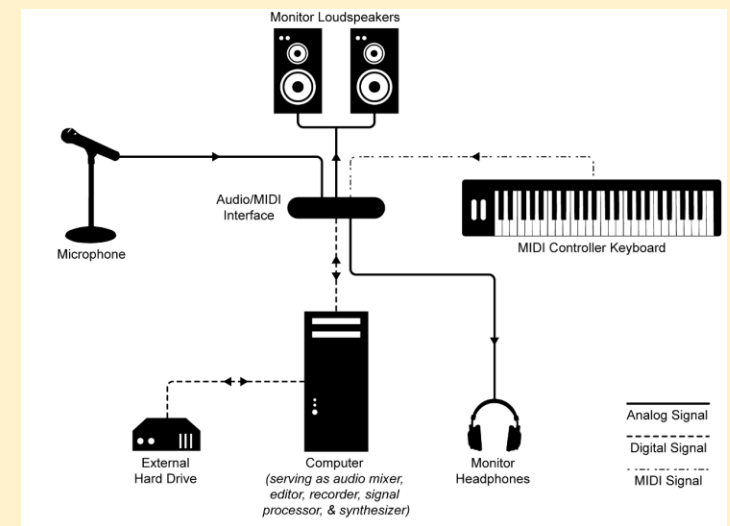
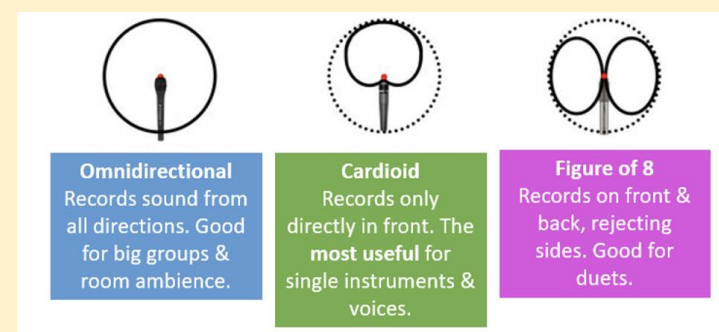
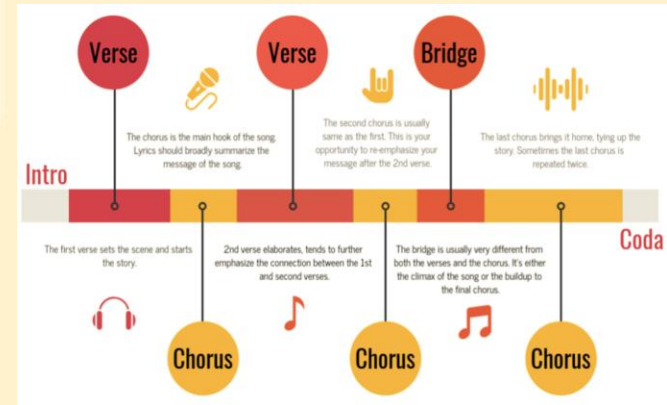
- Typically, a **real** instrument or voice
- Could be a track that has been bounced to audio
- You can see the sound wave
- You cannot edit individual notes



- Part of the DAW's VST (Virtual Studio Technology) **plugins**
- Software instruments are usually either synthesisers or samplers
- Software instruments read MIDI data, which is either inputted by a MIDI controller or by using the pencil tool
- You can edit each note individually, quantise them to be perfectly in time and change the velocity of notes

- Editing tools:
- Cut, copy, paste & loop
 - Time-stretch**
 - Speed up / slow down**
 - Reverse**
 - Autotune**

- Editing tools:
- Cut, copy, paste & loop
 - Change length & pitch of notes**
 - Quantise** (align the notes to a grid to make them in time)
 - Velocity** (how loud individual notes are)





TRAINING

Training methods	Definition
Continuous	Any activity or exercise that can be continuously repeated without suffering fatigue must last at least 20mins
Interval	Any training or exercise with periods of rest or recovery
Circuit	A series of exercises performed at work stations with periods of work and rest
Fartlek	'Speed play' Running at various speeds, intensities and terrains
Weight/Resistance	Exercise that involves working against some kind of force that resists the movement
Plyometrics	Repeated exercises (e.g. jumping) that are designed to create fast, powerful movements
High Intensity Interval Training (HIIT)	Periods of very high intensity training and rest

Principles of training FITT	Definition
Frequency	How often you train or how many reps/sets you do
Intensity	How hard or intense the training/exercise is.
Time	How long the training session/exercise lasts
Type	The type of training being used.

Principles of training SPOR	Definition
Specificity	Making training specific to the movements, skills and muscles used in an activity.
Progression	Gradually making the training harder as it becomes easier so fitness levels improve
Overload	Working harder than normal.
Reversibility	Training must be maintained to retain the levels of fitness. If training stops then fitness improvements will be lost

Component of fitness	Definition	Fitness Test
Cardiovascular Endurance	The ability of the heart and lungs to get oxygen to the working muscles to exercise without getting tired.	12 minute Cooper Run
Muscular Endurance	The ability of a muscle to sustain repeated contractions. To sustain activity without muscle fatigue.	60 second press up test
Speed	The ability to move your body or some parts of your body quickly.	30 metre sprint test
Strength	The extent to which a muscle or muscle group can exert force for a short period	Hand grip dynamometer
Power	The exertion of rapid muscular strength. Strength x speed.	Standing Long Jump test
Agility	The ability to move and change direction quickly whilst maintaining control.	Illinois Agility Test
Balance	The ability to maintain a body position whether still or moving. It involves maintaining the centre of mass over a base of support.	Stork Standing test
Flexibility	The range of movement possible at a joint.	Sit and Reach test
Co-ordination	The ability to use two or more body parts together (simultaneously) smoothly and efficiently.	Alternate hand wall toss test
Reaction time	The time taken from the onset of a stimulus to the start of the reactive movement.	Ruler Drop Test



INJURIES

Year 10 – CNAT Sport Science – Unit R180 Injuries

Soft tissue injury = damage to muscles, tendons and ligaments
 Hard tissue injury = damage to bones and cartilage
 Acute injury = caused by sudden impact/trauma

Chronic injury = an overuse injury caused by repetitive action

Acute Injuries	Definition	Symptoms	Treatment
Sprain	Over stretched ligament	Tenderness, pain, inflammation	PRICE, cryotherapy, massage, contrast therapy, electrotherapy, ultrasound
Strain	Over stretched muscle or tendon	Tenderness, pain	PRICE, cryotherapy, massage, contrast therapy, electrotherapy, ultrasound
Abrasion/graze	Skin damage caused by scraping skin against a playing surface	Pain, light bleeding, clear fluid leaking from wound	Apply pressure to stop bleeding, raise body part above heart, clean with water, apply plaster/dressing, take painkillers
Contusion/bruise	Blood vessels under the skin burst due to impact	Pain, tenderness, purple skin	Cool area with an ice pack for 10-15 minutes, take painkillers, cryotherapy
Laceration/cut	Skin damage caused by a sharp object leading to a tear or opening in the skin	Bleeding, pain, tenderness, inflammation	Apply pressure to stop bleeding, raise body part above heart, clean with water, apply plaster/dressing, take painkillers, bandaging
Blisters	Skin damage due to friction	Pockets of skin filled with fluid	Do not burst the blister, apply a padded plaster, take painkillers
Open fracture	Broken bone that has pierced the skin	Pain, tenderness, restricted movement	Cast, splint, sling, x ray to diagnose, surgery may be required, electrotherapy, hydrotherapy
Closed fracture	Broken bone that has not pierced the skin	Pain, tenderness, restricted movement	Cast, splint, sling, x ray to diagnose, surgery may be required, electrotherapy, hydrotherapy, cryotherapy,
Dislocation	Bone moves out of its correct position at a joint	Pain, obvious deformity, restricted movement	By medical staff immediately to prevent nerve and blood vessel damage, x ray to diagnose followed by manipulation, electrotherapy, hydrotherapy, cryotherapy,
Concussion	Trauma or damage to the brain	Headaches, nausea, dizziness, confusion, memory loss, loss of balance	Electrotherapy, rest

Chronic injuries	Definition	Symptoms	Treatment
Tendonitis	Inflammation and irritation of tendons	Pain, tenderness, reduced movement	PRICE, painkillers, massage, ultrasound, neoprene support
Epicondylitis	Inflammation of the epicondyle of the bone due to small tears in the tendon Lateral epicondylitis = Tennis elbow, Medial Epicondylitis = Golfer's Elbow	Pain, tenderness, reduced movement	PRICE, kinesiology tape
Shin splints	Inflammation of the tibia bone, tissue and muscles	Pain, tenderness	PRICE, cryotherapy, kinesiology tape
Stress fractures	Tiny cracks in the bone	Pain, tenderness	PRICE, kinesiology tape



Observe

Refine

Record

Develop

Present

Personal

Starting Point



How will you

AO1 – Artist Research

You need to select at least three artists from your exam paper that has been provided. Each artist research should take up to a minimum of one double page spread in your sketchbook.

AO2 – Exploring different mediums

You now need to think about developing your ideas and experimenting with a range of media.



be assessed?

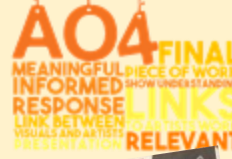
AO3 – Drawings, Ideas and Intentions

You will need to record your ideas through primary and secondary observations. You must have detailed, refined pencil drawings, photographs and written annotations, which support the development of your work?



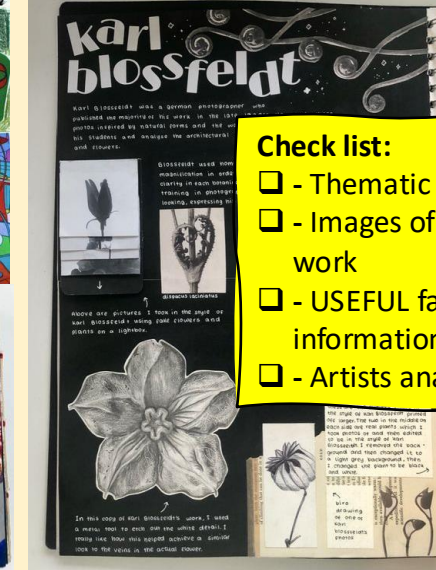
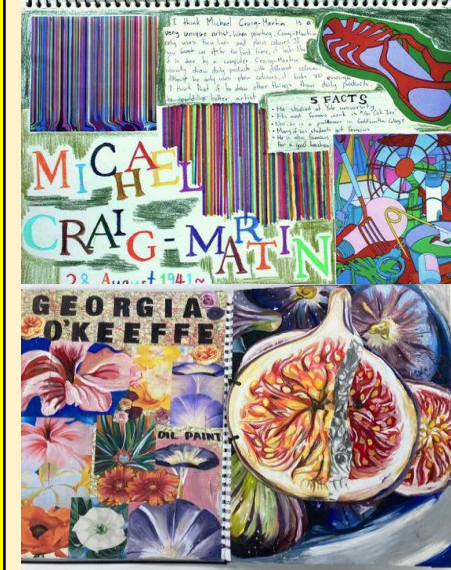
AO4 – Final Outcome

Final Piece: You need to use your artist research, your experiments and your recording to now develop and present a final piece. Try to create a minimum of 2 different designs and then carry out one in the 10 hours.



AO1 – Artist Research

ARTIST RESEARCH: You need to EXPLORE at least three artists that reflect the theme Mixed Media 'Natural and Man made'. Each artist research should take up to a minimum of one double page spread in your sketchbook.



- Check list:**
- Thematic Title
 - Images of the artists work
 - USEFUL factual information
 - Artists analysis

Mixed Media 'Natural and Man made'

What is Mixed Media?

/ˈmɪkst ˈmiːdi-ə/ art. a way of making art that uses different substances mixed together: The work of art was done in mixed media, and included wood shavings, pieces of metal, glue, and oil paint.

Within mixed media you will be exploring natural and man made forms.



Artists And Other Sources

- Jim Dine
- Karl Blossfeldt
- Michael Craig Martin
- Georgia O'keeffe
- Monami Ohno
- Kate Malone





Response

Sophisticated

Composition

Design

Primary

Secondary

AO2 – Evidence Required

EXPERIMENTING WITH MEDIA:
You now need to think about developing your ideas and experimenting with a range of media.



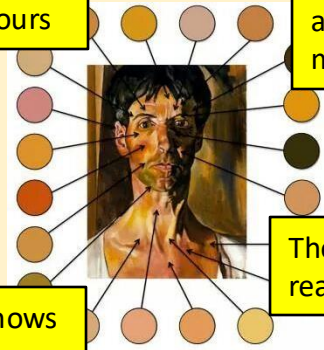
- Watercolour
- Acrylic
- Oil
- Oil Pastel
- Charcoal
- Biro Pen
- 3D Sculpture
- Mono Printing
- Intaglio Print
- Collage
- Photography

Think & Talk Like An Artist...

Talking like an artist is important, can you describe analyse and show an in-depth understanding of your own work and that of others.

The artist has used analogous colours

Paint has been applied to show mark making

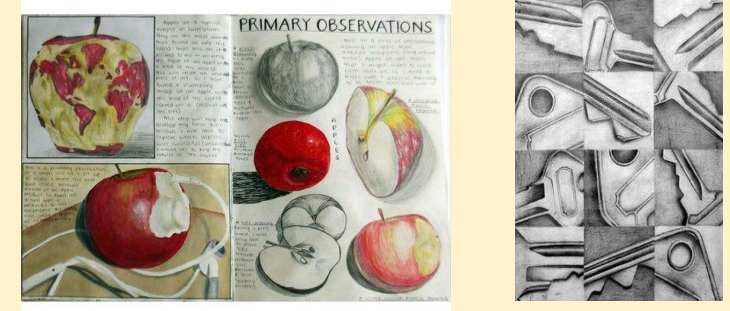


The image looks realistic

The portrait shows contrasting tones

AO3 - Recording

RECORDING: You will need to record your ideas through primary and secondary observations. You must have detailed, refined pencil drawings, photographs and written annotations, which support the development of your work?



As well as using sketches, paintings and drawings etc. you can evidence your ideas through notes. Alongside your artwork you should make sure that you are providing notes to help explain your thoughts and ideas.

Key Terminology

LINE	COLOUR	TEXTURE	SPACE	-tone
Straight	Primary	Actual	Positive	Tint
Curve	Secondary	Implied	Negative	Shade
Linear	Vibrant	Smooth	Distance	Contrast
Broken	Strong	Rough	Empty	Shadow
Jagged	Hue	Shiny	Deep	Highlight
Wavy	Soft	Jagged	Shallow	Dramatic
Thick	Harsh	Reflective	Open	Intense
Contour	Warm	Shandy	Hollow	Ombre
	Cool	Grainy	Atmosphere	

Composition — Refine - Mixed Media – Thumbnail Sketch

Subject Matter:

Describe everything you can see in the art work

Elements:

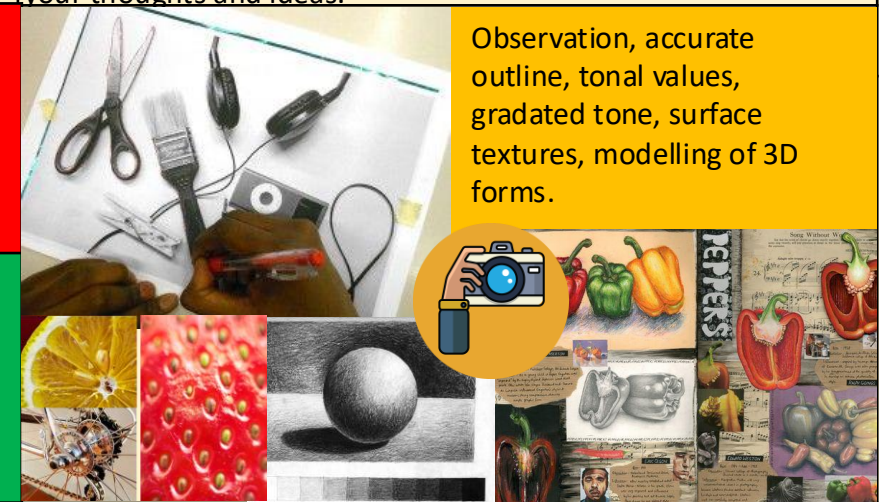
Which formal elements has the artist used?
Describe how they have used them

Media:

What materials, processes, skills and techniques have been used to create the art work?

Interpretation:

What is the message in the work?










Observation, accurate outline, tonal values, gradated tone, surface textures, modelling of 3D forms.



Key Vocabulary

Year 10 - Photography

Observational / Primary Source / Texture / Tone / Surrealism / Composition / Abstract

Formal Elements		Natural or Man-made	Natural and Man-made Artists	
Form	A 3D shape / to make something appear 3D.	<p>Natural and Man-made images investigates composition, lighting, still life, layering, manipulation and posed images. Also including surreal imagery and photographers that developed the original image to show texture, abstract forms and out of place results, in their post-production manipulation of photographs.</p> <p>Images are cropped, layered and show a variety of the Formal Elements in the final results. Some work has been created to show dark humour and out of place results. Others show depth, tone and perspective.</p>	<ul style="list-style-type: none"> • Edward Weston • Lucy Shires • Tommy Ingberg • Robert Rikchhoff • David Bailey 	 
Shape	The outline of an object.			  
Colour	The hue, tint or shade.	<h3>Key Terminology</h3> <p>Natural, Man-made, Symmetry, Surrealism, Studio Lighting, Organic Forms, Texture, Composition, Manipulation, Studio Lighting, Layers, Perspective</p>		
Tone	The light and dark (highlight – midtone – lowlight.)	<h3>Photography key vocab</h3> <p>Brightness - Brightness refers to the overall lightness or darkness of the image. Contrast - Contrast defines the range of tonal difference between the shadows and lights of an image. Hue - Photographers generally think of hue as referring simply to a specific colour. Saturation - Saturation refers to the colour intensity of an image. Monochrome – In monochrome photography, tones of a single colour are used to represent all the different colours within an image, usually tones of grey. Sensitivity - In photography sensitivity refers to a film or digital camera sensor's sensitivity to light. Leading Lines - Leading lines are lines that appear in a photograph that have been framed and positioned by the photographer to draw the viewer's eye towards a specific point of interest.</p>		
Line	Individual marks made on a surface.	<h3>Inspirational Trip</h3> <p>The Photographer's Gallery, London.</p>  		
Texture	The appearance of the surface.			
Pattern	Repeated motifs.			
<h3>Sentence Starters in Photography</h3> <ul style="list-style-type: none"> • My first impressions of this image are... • This piece of work is about... • I think the Photographer has created this piece by... • This image reminds me of... • The part that I find most interesting is... • I think this photograph is about... • This piece of work makes me feel... • The areas I like/don't like about this image are... • I could use the Photographer's ideas • in my work by... 				

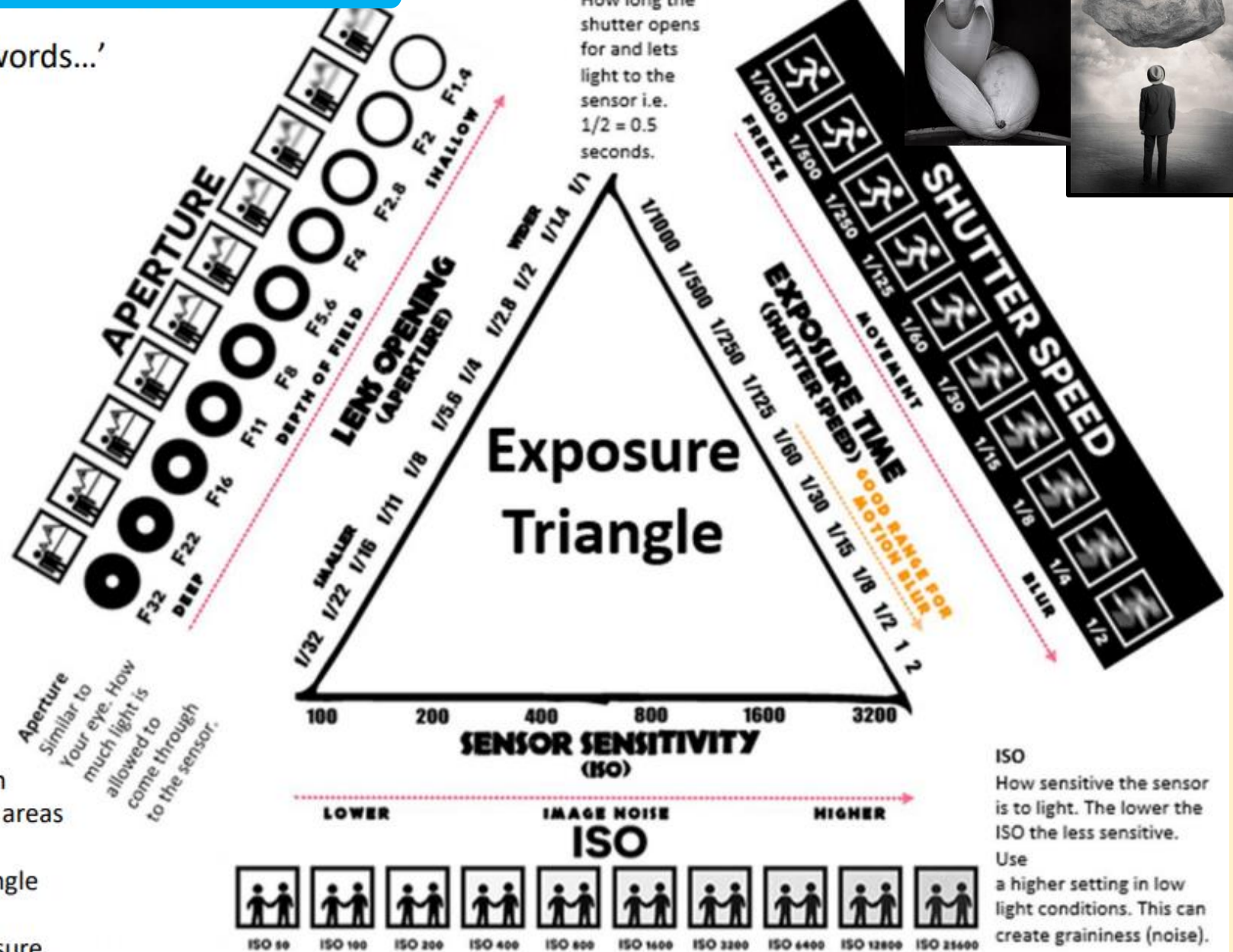
Year 10 - Photography

'A picture is worth a thousand words...'



Assessment Objectives – How we mark your work
 AO1 Artist Research and links with your own photos
 AO2 Experimentation and Editing
 AO3 Own Photos and Drawings
 AO4 Personal Response and overall quality

The Exposure Triangle is the relationship between the ISO, shutter speed and aperture. These three areas work together to create an actual exposure or photograph. It is referred to as the Exposure Triangle because when you adjust one element, another element MUST change to capture the same exposure.





Terminology



Exposure

Exposure is the amount of light captured by the camera. **Underexposed** is too dark/ not enough light. **Overexposed** is too bright/ too much light.



Photograms

A **photogram** is a photographic image made without a camera. It involves placing things on the surface of a light sensitive material and then exposing them to light. Traditionally this process has been done using photographic paper.

Light painting, painting with light, light drawing, or light art performance photography are terms that describe photographic techniques of moving a light source while taking a long exposure photograph, either to illuminate a subject or space, or to shine light at the camera to 'draw', or by moving the camera itself during exposure of light sources

Shallow Depth of Field

A **shallow depth of field** is the small or narrow area in an image that is in focus. Often, the background is blurred while only the subject stays in focus



Macro Photography

Macro photography is close-up photography of small subjects, including things like bugs and flowers. You can take macro pictures in a studio or outdoor environment so long as you are greatly magnifying your subject.



Light Painting



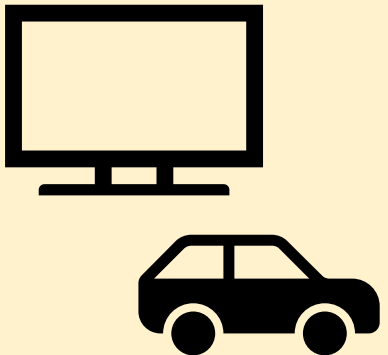


Purpose

The **Von Neumann Architecture** consists of the CPU and Memory which are interconnected and can both store instructions and data.

Embedded Systems

A computer system within a larger device. Embedded systems are used for a single task, you find them in smart watches, cars, smart TVs, washing machines etc.



General Purpose Systems

General purpose systems have multiple functions e.g. laptops, PCs etc.

The Fetch-Execute Cycle

- **Fetch** - Fetches an instruction from memory.
- **Decode** - Decodes the instruction.
- **Execute** - Carries out the instruction.
- *This cycle repeats billions of times / second.*

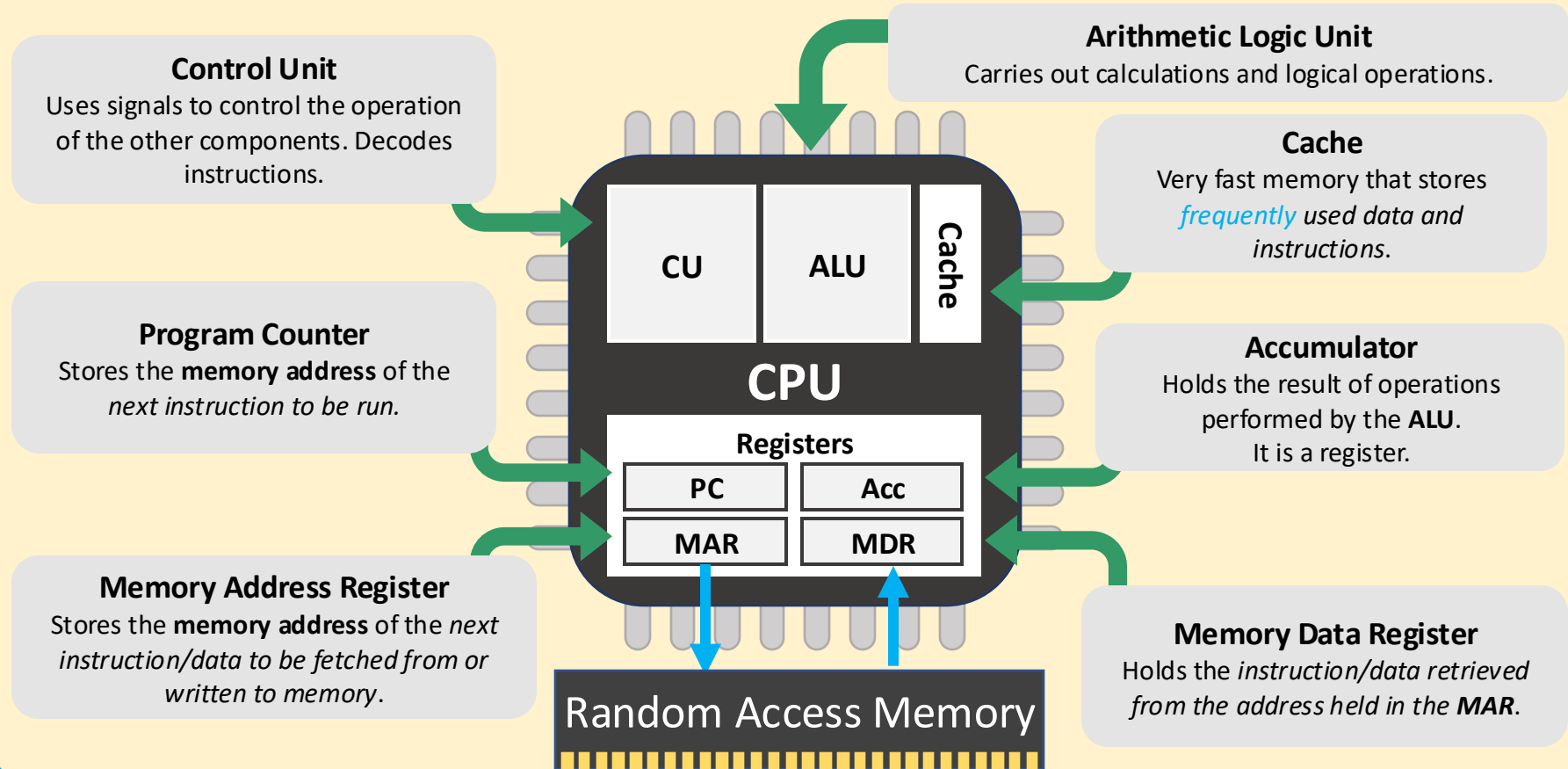
CPU Performance

Clock speed: How many fetch - execute cycles / second

Cache: Provides fast access to **frequently used data**.

Number of Cores: Each core is one processor, carrying out the fetch-execute cycle.

Register: A location within the CPU that stores addresses and data which can be accessed quickly.



VON NEUMANN ARCHITECTURE



MEMORY

Memory is storage that the *CPU can access directly* and is *faster than secondary storage*. There are two main types:

RAM (Random Access Memory)

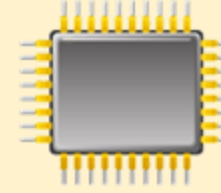


Used for storing data and instructions that are *currently in use*.

Volatile: Data is wiped when the computer is turned off.

Read and write: Data can be changed.

ROM (Read Only Memory)



Used for storing the boot program or BIOS that is used to start up the system.

Non-volatile: Data is kept when the power is turned off.

Read-only: Data cannot be changed or deleted.

Flash Memory - This is a special type of memory that is **non-volatile** like ROM and **easily writable** like RAM. However, it can't be used as a replacement for RAM as it is much **slower**. It is mainly used in secondary storage devices such as SSD's.

Virtual Memory
When the RAM is full, part of the secondary storage is used as RAM, so that the user can continue to open and use programs. Data will need to be transferred back to the RAM to be accessed by the CPU.

Secondary storage allows long-term storage of data. It enables the operating system, programs and data to be stored when not in use by the CPU. It is **non-volatile**. We compare storage devices by analysing their key characteristics: **capacity, speed, portability, durability, reliability and cost**. There are three different secondary storage technologies:

Optical: Data is stored on a reflective disc, which is read using a laser beam.

DVD & Blu-ray



Very cheap but relatively slow, limited capacity and not very durable - can be easily scratched.

Magnetic: Stores data by magnetising parts of a disc.

Hard Disk Drive



Relatively cheap and fast, high capacity but prone to damage due to moving parts.

Solid-state: Uses flash memory to store data. Features no moving parts.

Memory Stick & Solid-state Disk



Very fast, durable and reliable but more expensive than other options.

Misconception: A common misconception is that secondary storage backs up data. If a backup copy is created, then the device used to back it up would be classed as **tertiary storage!**



SECONDARY STORAGE



Year 10 - Computer Science - 1.2 Memory & Storage

DATA CAPACITY

The smallest unit of storage used in computer systems is 1 bit.

The capacity of memory and storage devices is measured in bytes.

A 1TB storage device can store up to **2,000,000** documents of 500KB each; or **125,000** audio files of 8MB each, or up to **1,000** videos of GB each.

1 byte (B) = 8 bits

1 kilobyte (KB) = 1,000 bytes

1 megabyte (MB) = 1,000 kilobytes

1 gigabyte (GB) = 1,000 megabytes

1 terabyte (TB) = 1,000 gigabytes

1 petabyte (PB) = 1,000 terabytes

Binary is a number system that only uses two digits: 1 and 0. All information that is processed by a computer is in the form of a sequence of 1s and 0s.

Humans use the **denary** number system (also known as **decimal**), which has 10 digits (0–9). Computers use the **binary** number system, which has two digits (0 and 1), which are used to represent the **on** and **off** states of a digital circuit.

Computers are made up of complex circuitry. These consist of billions of transistors that act as switches and they can only be in one of two states: ON (1) or OFF (0).

Place Values	128	64	32	16	8	4	2	1	
Binary Number	0	0	0	0	0	1	1	1	$4 + 2 + 1 = 7$

The place values go up in multiples of two as you go from right to left.

BINARY

BINARY CONVERSION

Denary to Binary

Example: convert 63 to binary.

Write out the place values

128	64	32	16	8	4	2	1
0	0	1	1	1	1	1	1

Put 1s below the place values that add up to the number you are converting

Binary to Denary

Example: convert 01110000 to denary.

Write out the place values above the binary number

128	64	32	16	8	4	2	1
0	1	1	1	0	0	0	0

Add together the place values of the columns with a 1 in: $64 + 32 + 16 = 112$



Most & least significant bit

In a binary number, the **most significant bit** is furthest to the left and the **least significant bit** is the furthest to the right.

BINARY ADDITION

To add two **binary** numbers together write the first number above the second and work from right to left, following these rules:

Rules:

- 0 + 0 = 0
- 0 + 1 = 1
- 1 + 1 = 0 carry 1
- 1 + 1 + 1 = 1 carry 1

$$\begin{array}{r}
 1\ 1\ 1\ 1 \leftarrow \text{Carries} \\
 0\ 1\ 1\ 0\ 1 \\
 +\ 0\ 0\ 1\ 1\ 1 \\
 \hline
 1\ 0\ 1\ 0\ 0
 \end{array}$$

Overflow

An **overflow** happens when there is a carry in the last column. There isn't enough room to hold the result and the wrong answer is stored.

$$\begin{array}{r}
 1\ 1 \\
 1\ 1\ 0\ 0\ 1 \\
 +\ 1\ 0\ 0\ 1\ 1 \\
 \hline
 1\ 0\ 1\ 1\ 0\ 0
 \end{array}$$

Binary is hard for humans to write and remember, so **hexadecimal** was developed to make things easier. **Hexadecimal** has 16 digits: the numbers 0 to 9 and the letters A to F to represent the values 10 to 15.

0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
										(10)	(11)	(12)	(13)	(14)	(15)

Binary to Hexadecimal

Example: convert 11110011 to hexadecimal.

Split the **binary** number into two groups of four (two nibbles) and convert each to **hex**.

1	1	1	1	0	0	1	1
F				3			

Hexadecimal to Binary

Example: convert D8 to binary.

Convert each **hex** digit to a four-digit **binary** number and join them together.

D				8			
1	1	0	1	1	0	0	0

The easiest way to convert a **hex** number to **denary** and vice versa is to convert it to **binary** first.

Alternate method:

To convert from denary to Hex **divide by 16**.

e.g. convert 74 to hex
 $74 / 16 = 4$ remainder **10**.
 $74 = 4A$

To convert from hex to denary, **multiply by 16**.

e.g. convert 5E to denary:
 $5 \times 16 = 80$
 $80 + E(14) = 94$
 Therefore, $5E = 94$

HEXADECIMAL



Binary shifts provide an easy way to *divide and multiply* binary numbers by powers of 2.

A left shift of two would multiply the original binary number by 4 (2^2 or 2×2).

A left shift of three would multiply the original binary number by 8 (2^3 or $2 \times 2 \times 2$).

	128	64	32	16	8	4	2	1	
Original Number	0	0	0	0	1	1	1	0	= 14
← Left Shift of 1 ($\times 2$)	0	0	0	1	1	1	0	0	= 28
→ Right Shift of 1 ($\div 2$)	0	0	0	0	0	1	1	1	= 7

Any empty spaces after shifting should be filled with 0s.

Compression uses algorithms to reduce a files size. Compression is often needed when storing or transmitting data as it *reduces* the amount of storage space and transmission time required i.e. files can be uploaded and downloaded faster!

Lossless

Reduces the size of the file *without permanently removing any data*. This means the original file can be restored.

Good for text as, if the data was removed permanently, it wouldn't make sense.



Lossy

Reduces the size of the file by *permanently removing parts of the data*. This means the original file cannot be restored.

Good for images, video and audio as some data can be removed by **reducing quality**.



Example:

The image at the top has been saved in a **lossless** format whereas the image below has been saved in a **lossy** format.

You can see that the **quality of the image below** has reduced because data has been permanently removed.



What do you notice about the denary values of the ASCII character set below for the letters A, B, and C?

They increase by one! Therefore, we know D would be 68 (1000100) and F would be 70!

SOUND

Sound takes the form of an analogue wave.

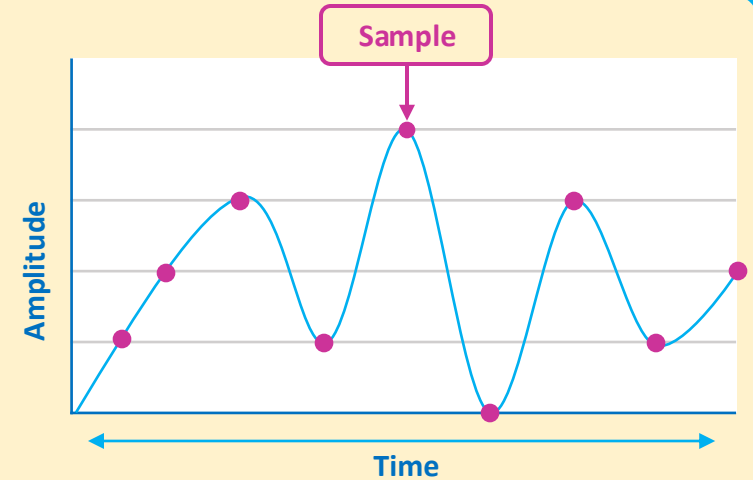
Sampling is used to digitise sound, the amplitude (height) of the wave is measured at set intervals and stored as binary.

Sampling Rate: the number of **samples** taken per second, *measured in Hertz (Hz)*.

Bit Depth: the number of bits used to store each **sample**.

Bit rate: the number of bits required to store *one second of sound*.

Increasing the **sampling rate** and **bit depth** improves the quality of the sound but also increases the file size.



Computers represent characters by assigning each character a **binary code**. The system used to assign each character to a **binary code** is known as a **character set**. A **character set** is all the characters that a computer can understand and display.

CHARACTERS

ASCII

7 bits per character - Supports 128 characters

The **American Code for Information Interchange**. Supports enough characters for the *English alphabet*.

Code	Character	Denary
1000001	A	65
1000010	B	66
1000011	C	67

Extended ASCII

8 bits per character - Supports 256 characters

It includes the additional characters and punctuation needed for languages such as Spanish.

Code	Character
11100001	á
11101101	í
11110011	ó

Unicode

16 bits per character - Supports 65,536 characters

The number of characters available enables the characters used in *all languages* around the world to be supported - even emoji's!

Code (Hex)	Character
03CD	ú
03CE	ó
0401	Ě

The latest version of Unicode can support up to 143,859 characters!

Α β μ Æ é





Calculating file sizes:

Image file size formula:

image file size = colour depth
x image height (px) x image
width (px)

Text file size formula:

text file size = bits per
character x number of
characters

Sound file size formula:

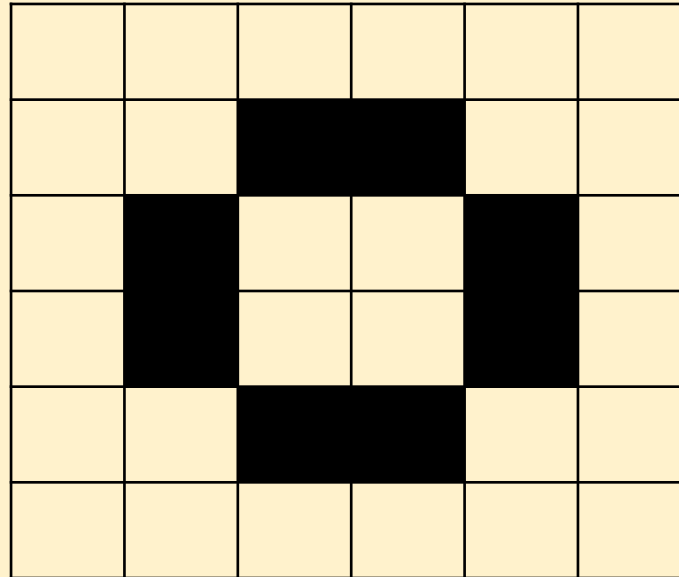
sound file size = sample rate x
duration (s) x bit depth

Sound worked example:

- Sample rate = 3
- Duration = 1 minute 30 seconds
- Bit depth = 2

$$3 \times 90 \times 2 = \mathbf{540 \text{ bits}}$$

Computers represent bitmap images using a grid of squares called **pixels**. Each **pixel** is one colour and is represented by a unique binary number.



1,1,1,1,1,1

1,1,0,0,1,1

1,0,1,1,0,1

1,0,1,1,0,1

1,1,0,0,1,1

1,1,1,1,1,1

The number of bits used to store each pixel is known as the **colour depth**.

The **colour depth** of this image is one bit. This means it can represent *two colours* (black and white).

The **resolution** of an image is the total number of **pixels**.
The **resolution** of this image is: $6 \times 6 = 36$.

$$\mathbf{\text{Resolution} = \text{Width} \times \text{Height}}$$

The **size** of an image can be calculated using:

$$\mathbf{\text{Size} = \text{Colour Depth} \times \text{Resolution}}$$

The **size** of this image is: $1 \times 36 = 36$



8-bit Color Depth



24-bit Color Depth

The impact of an **increase in colour depth** and **resolution** results in more pixel information and **creates a higher-quality image**.

But this does increase the size of the file.

Metadata is data about data.

Metadata is needed for images so that the computer can recreate and display the image from the binary data in the file.

Image metadata would include:

- the width and height
- the colour depth
- the colour palette (colours used to create the image i.e. red = 01, blue = 10).
- Date and time
- File type



Variables & Constants

A **variable** is a *named location in memory* that can hold a value, which can be accessed or changed at any point in the program.

```
name = "Tom"
```

This example code creates a variable called 'name', which contains 'Tom'.



A Constant are similar to a **variable** except the value is set at the start of the program and *can't be changed while the program is running.*

```
const vat = 20
```

This example code creates a **constant** called 'vat', which contains '20'. In Python: **vat = 20**.

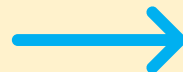
The = sign is the assignment operator used to assign a value to a variable or constant.

Sequence

A **sequence** is a set of commands that are executed once in the order they appear.

```
name = input ("Enter name: ")
print ("Hello", name)

movie = input("Favourite movie? ")
print (movie, "is my favourite too!")
```

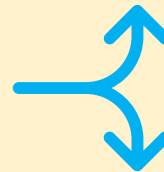


Selection

Selection uses a condition to decide the *path that will be taken through the program.*

```
num_1 = int(input("Enter a number: "))
num_2 = int(input("Enter a number: "))

if num_1 > num_2:
    print(num_1)
elif num_1 < num_2:
    print(num_2)
else:
    print("They are equal")
```



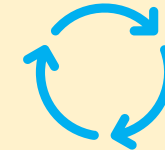
Iteration

Iteration enables a group of commands to be repeated a set number of times or until a condition is met. There are two types of **iteration**:

- **Count-controlled loops** repeat a group of commands a *set number of times*.
- **Condition-controlled loops** repeat a group of commands *until a condition is met*.

This algorithm uses a **for loop** to output the numbers from 1 to 10. **For** loops have an inbuilt counter that increments automatically.

```
for i in range (1,11):
    print(i)
```



```
x = 1
while x <= 10:
    print(x)
    x = x + 1
```

This algorithm uses a **while loop** to output the numbers from 1 to 10. The **condition** in a **while loop** is tested at the start.

Data Types

Character - A single character (a, 3)
String - Multiple characters (hello)
Integer - A whole number (7)
Real - A decimal number (3.5)
Boolean - True or False

Comparison Operators

== Equal to
!= Not equal to
> Greater than
< Less than
>= Greater than or equal to
<= Less than or equal to

Casting

Casting is used to change from one data type to another. E.g. from a string to an integer.

```
num1 = int(input("Enter a number"))
```

Concatenation

Concatenation means to join two strings together.

To do this, we use the '+' symbol. E.g:
`new_string = string_1 + string_2`



Task 1 – Planning your Interactive Digital Media Product

Client Brief	Target Audience	Interpretation	Client requirements	Asset log	Mind map	Wireframe Diagram	Site Plan
The client's expectations for the completed product.	Who the product is for.	Explaining, reframing, or otherwise showing your own understanding of something.	Information which is required from the client for the company to provide the services.	A list of all the assets used in a media products.	Used to generate ideas.	A planning document that shows the layout and functionality of interactive products.	Used to how different pages or screens are linked together.

Client brief and requirements

Before creating a media product, it is important that you understand the clients' requirements of the project. These **requirements** will be given in the **client brief**:

Type of product - product that is being created

Time scale - Key dates and deadline for the project

Audience - which segment of people are being targeted e.g. boys aged 13-16

Purpose - key objective of the product e.g. advertise, entertain?

Client ethos - media product will need to align with the clients' values and belief

Content – components that need to be part of the media product such as images, videos, sound or functionality

Genre, style, theme - the look and the feel of the product

Mind map

Content of a mind map:

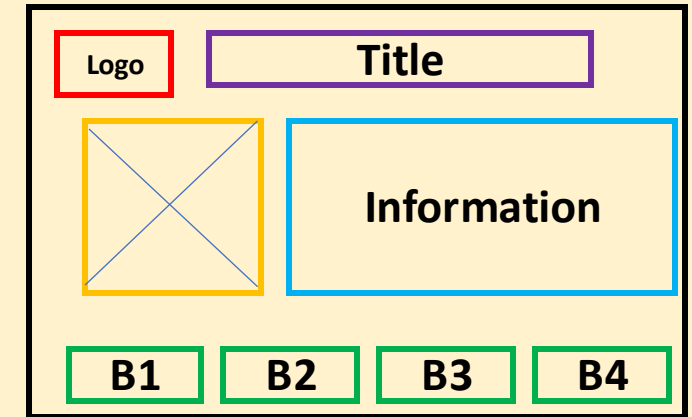
- **Central node** with a main theme
- **Nodes and sub-nodes**
- Interconnecting lines and branches to *link ideas together*
- Text
- *May include Images*



Wireframe diagram

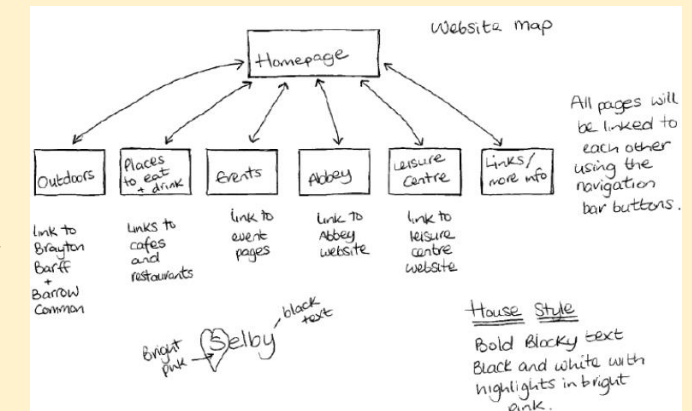
Content of a Wireframe Diagram

- Each screen or page
- Images, text
- Audio, video, buttons
- Annotation to justify design



Site map

- Shows all the screens / pages of the product.
- Lines and arrows are used to show how the user navigates from one page to another.





Task 2 – Creating your Interactive Digital Media Product

Source	Repurpose	Navigation	Asset	File Format	File Properties	Convention	Export
Declare where assets come from and that you have the right to use them in your product.	Content that transformed into a new format e.g. PSD to PNG.	Act of finding your way from one place to another.	Anything used to create an original media product. E.g. logo, image, sound or video.	Is a standard way that information is encoded for storage in a computer file.	Shows you information like the type of file, the size of the file etc.	Are closely connected to the audience expectations of a media product.	Converting a digital product from its native file type (e.g. .psd) to a format the client can use (e.g. .png)

Identify and explain assets required

Once you have collected and sourced the assets, you will need to explain where, how and why they will be used in your IDMP. Such as:

- Images
- Video
- Audio
- Text



Prepare assets to be used on the product

In your coursework, you must show what the image looked like when you collected the image from the internet, then what it looks like editing the image. You should also describe the tools that you used.

You should show how the key elements were made. **Screenshots** of the tools of the editing/creation software in use are one way this could be done.

1. I used the **type tool** to add the text and changed to the same shade of green inside the blender.

2. I used the **scale tool** to resize and rotate the blender.

I used an **outer glow** to text by setting blend mode to normal, increase the **opacity** and increased the **spread** so the black outline matches the one used in the blender.

Creating the interactive digital media product

1. Use **Master Slides** to prepare background and font styles.
2. Use **transitions** and **animations**.
3. Use **hyperlinks** and/or **animation triggers** to interact to user inputs.
4. **Navigation buttons** should enable the user to jump to **any** part of the product, not just the next page.
5. Include video and audio.

Maintain a **consistent theme** throughout the multimedia product with master slides.

Export the final product using a suitable electronic format and properties that meets the client requirements.



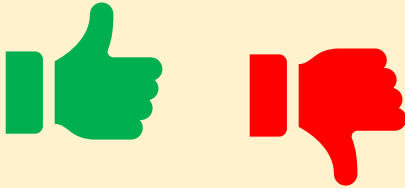
Task 3 - Testing/checking and review your Interactive Digital Media Product

Test table	Review	Effective	Justify	Comprehensive	Evaluate	Improvement	Development
Tests both individual elements of the assets and the final product.	A review is an evaluation of a publication, product, service, or company.	The work produced is effective in relation to a brief.	The reasons for doing something are explained in full.	Understanding and skills needed to produce the wanted or intended results be fully fit-for-purpose.	Judge or calculate the quality, importance, amount, or value of something.	Makes something better – needed when the product doesn't work!	Something changes and becomes more advanced.

Test Table

Using the OCR provided test table, you will need to test or check and explain to what extent the **technical properties** of your individual **repurposed assets** are fit for purpose and its **functionality**. This can be:

- Buttons
- Images
- Sound
- Video
- Animation



Test	Pass/Fail	Comments	Re-test	Result
Is the graphic suitable for web use?	Fail	<i>DPI set to 300 which is not suitable for web use, the file size is too large.</i>	Yes	<i>DPI changed to 72, which decreased the file size.</i>
Is font style suitable?	Pass	<i>Font style is clear and easy to read. It is suitable for the age range of the target audience.</i>	No	

Review

WWW: A clear, **comprehensive** response to what has been achieved.

EBI: What did not go so well, suggest **improvements** to make work it work and further **developments**.

- Creating the IDMP (*setting up the structure of IDMP, use of tools, collating assets etc*)
- Meeting the client requirements expectations (*house style, target audience, content, timescale? etc.*)
- Does the IDMP follow the plan? (*wireframe diagram, site map, storyboard? etc.*)
- Was anything mentioned above that you found difficult?

Improvements

- Explain how you could improve the assets used in your IDMP
- *Did you manage to improve and overcome the difficulties?*
- Explain how you could improve your IDMP?
- *Can you suggest improvements to what did not work?*



Further developments


- Explain how your IDMP could be developed further?
- *Can you suggest further developments that could be made to make the IDMP even better if you had more time?*








Task Area 1: The media industry

Traditional media	New Media	Pre-Production	Production	Post-Production	Creative roles	Technical Role	Senior Role
Advertising methods that have been around for a long time e.g. radio, print publishing, billboards, TV.	Digital methods to advertise e.g. Social media, apps.	The process of planning elements involved in a form of media.	The phase at which media products are created, assembled and finalised.	The stage after production when editing of visual and audio materials begins.	Your job will be to produce and develop ideas to help create a product.	You will be using technology and operation equipment to develop, improve and finalise media product.	You will oversee the creation and development of products and projects.

Job roles in the media industry

Creative job roles	Technical roles: Who makes the TV programs	Senior roles
Animator: Makes the animation. 	Camera operator: Films the program. 	Campaign manager: Makes and runs the marketing campaign for the final product
Script writer: Writes the words the actors to say. 	Games developer: Makes the game. 	Creative director: Decides what they want in the product that will get people to watch the film or play the game.
Web designer: Designs the website 	Sound editor: Edits sound for TV and games. 	Director: Speaks to the client, leads the project, tells the actors how they should perform in the scene 
	Video editor: Edits the video for TV programs and games 	Editor: Makes sure that the final product is suitable for the target audience. 
	Web developer: Makes the websites for people to use. 	Production manager: Runs the budget, production timetable, and makes sure locations for filming are safe. 

Purpose of media products

Purpose	Description	Examples
Advertising/promotional	Use persuasive language so that a customer wants to buy the product.	Billboard, radio, advert, web banner, film, poster 
Educate	To teach or provide instructions for someone to learn	Textbook, leaflet, webinar, website, podcast, documentary 
Entertain	To provoke an emotional response, for enjoyment or to provide escapism from daily life.	Comic, magazine, social media, video game 
Inform	To give brief instructions or information without going into depth.	Map, flyer, poster, booklet, website, sign 
Influence	To have a persuasive effect on an audience to make a choice/change their view.	Social media, music video, pod cast 



Task Area 2: Factors influencing product design

Influence	A client brief	Client	Target audience	Segmentation	Demographic	Primary research	Secondary research
The capacity to influence the character, development, or behaviour of someone or something.	Key information needed from the client to begin designing and planning a media product.	The customer who is paying for the work to be completed.	Who will be the end user the product.	The ways in which audiences can be broken down based on their characteristics.	The characteristics of a population. Including age, income, gender, race, ethnicity, marital status, education & employment.	First-hand accounts, data, and opinions of something. The information comes directly from the source.	Information which is a second-hand interpretation or recollection of information.

Style content and layout

Positioning of elements - Elements of media products needs to be carefully positioned to achieve a pleasing composition (layout).

Convention of genre – Different genres will use typical components and techniques. For example, a logo will be placed top right on a billboard to help the viewer to identify the product.

Adaptation to purpose – A product such as a billboard or a flyer can be adapted to different purposes.

Visual and audio style – The style of a media product is built using many components such as graphics, colour, layout and tone of language.

Research methods

Primary research sources

Focus groups | Interviews | Surveys

- Strengths**
- Up to date
 - Unique and relevant
 - Data is not available to others
 - Detailed responses

- Weaknesses**
- Participants not truthful
 - Expensive
 - Not accurate representative



Secondary research sources

Books | Internet | Magazines/newspapers

- Strengths**
- Convenient and easy to access
 - Cheaper
 - Less time consuming to gather information

- Weaknesses**
- Could be outdated
 - May lack detail or be incomplete
 - Inaccurate data



Client requirements

The purpose of a client brief is to provide information to the design and creative teams that will help them to produce successful media product for the client that is also successful with the target audience.

Client brief formats

- Negotiated
- Meeting/discussion
- Written
- Informal
- Formal
- Commission



Client requirements

- Purpose, requirements
- Client ethos
- Genre
- Timescale
- Target audience
- Restrictions



Audience segmentation (target audience)

Breaking down and identifying a target audience is important in developing a product for the end user.



Age



Gender



Income



Interests



Location



Education



Ethnicity



Occupation



Task Area 3: Pre-production planning

Pre-Production	Copyright	Asset Log	Flowchart	Storyboard	Visualisation Diagram	Intellectual Property	Location Recces
The process of planning elements involved in a form of media.	A legal right a creator or copyright holder has to use material as they would like.	A document used to monitor the assets that have been collected from other sources to be used in a digital media product.	Is a diagram of events or steps that show the order they should happen in.	Is a series of boxes or panels containing the action that occurs, shot by shot in an audio-visual product such as films.	Is a detailed drawing or sketch that shows what a final media product should look like.	Rights are given over our ideas and creations that we have in our mind.	Carried out on filming locations to assess their suitability for use and health and safety risks.

Mind maps

Purpose is to record thoughts and ideas in a structured way. To develop and show links between different ideas, aspects and processes of a project. To support the generation of ideas.

Content that appear on a mind map:

- Central node
- Node
- Sub – node
- Branches



Mood board

Purpose is to aid the generation of ideas by collecting a wide range of material that will give a 'feel' for what is desired. To stimulate creative and innovative approaches. Electronic mood boards can have video and sound, but not material.

Content that appear on a mood board:

- Images
- Colour scheme
- Text & font
- Texture

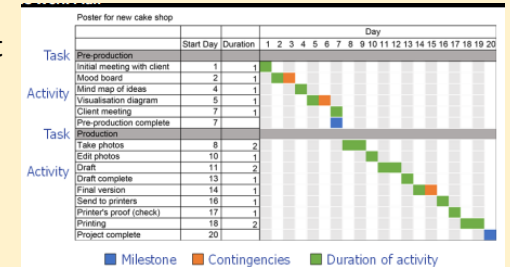
Digital mood board will include video, audio and animation



Work plan

Purpose of a work plan is to make stages of a project become clear.

- To book the correct people, equipment, locations, props.
- Everyone knows their responsibilities.
- Each person knows their role and who they are working with.
- Deadlines are made clear to all involved.
- Managers can see an overview of the whole project
- Progress can be tracked and evaluated easily
- Goals and deadlines are defined
- Resources and budgets can be used accurately
- Contingency plans are for when something does not go to plan.



Regulation, certification, and classification

- The rules which are enforced by the law to restrict, develop or shape the way in which media works. Two types of regulators that help protect viewers;
- Advertising Standards Authority (ASA) – ensure adverts are truthful.
- The Office for Communications (Ofcom) – regulate television, online and radio broadcasts.





Task Area 4: Distribution consideration

Distribution	Online platform	Physical platform	Physical media	Properties	Formats	Resolution	Compression
The action of sharing a product with others: Physical Platforms and Online Platforms	There are 3 types of online platforms: apps, multimedia and web	There are 4 types physical platforms: computer, interactive TV, Kiosks and mobile devices.	There are 3 main types of physical media: CD/DVD, memory stick and paper based.	Shows you information like the type of file, the size of the file	Is a standard way that information is encoded for storage in a computer file, determines which software the file is opened with.	The level of detail that is held in an image that affects how clear it is.	The re-encoding of data so less bits are used to store it. Done to increase transmission Speed.

Image File Types

Raster (bitmap) images are photographic images, made of pixels. The more pixels the better the quality and the larger the file size. Raster file types are JPEG, PNG, TIFF, PDF.

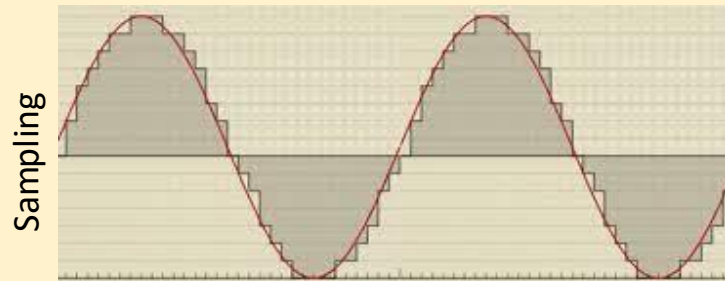


Vectors are clipart images, made using paths and points. You can expand the image or zoom in and the image remains sharp.



Audio files (music you might listen to on your phone)

- **Bit depth** – The amount of data for the sound (the more bits the better the quality).
- **Sample rate** – Sampling of the sound, while recording. The average sample rate is 44,100 samples per second. The more samples, the better the quality of the sound.



Properties of moving image files

SVG - animation is usually stored in SVG format. This format allows objects to have motion and slide or bounce.

GIF – is an older format for animation on web pages. It has broadly been replaced by SVG.

MP4 – used for streaming video and films. Used in some Blu-rays.


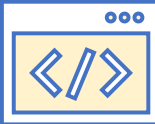
MPEG-2 – used in television broadcasts, DVDs and some Blu-rays

File compression

Lossy – reduces the file size but it will lose some of the original information.

Lossless – no information is lost when the file is compressed.

Distribution Platforms (Online Platforms, Physical Platforms and Physical media)

Platform advantages	
Physical	Purpose: used to play or show media products User: No recurring subscriptions No need for internet connection for download. Distributor: Better control on views 
Online	Purpose: used to share large files within a media organisation without the need to upload or download User: Quicker to access media Environmentally friendly (less travel) Easily access updates Distributor: Cheaper, less equipment, Environmentally friendly (less waste) 

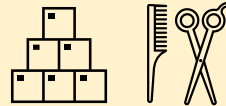
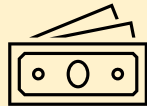


1.1 The role of business enterprise and entrepreneurship

Enterprise	Entrepreneur	Interdependent	Capital	Profit	Sole Trader	Partnership
Opportunity to provide a product or service that people are willing to buy.	A person who sets up a business or businesses, taking on financial risks in the hope of profit.	When businesses are interdependent, they rely on each other for survival.	The money invested into the business by the owners. £	The difference between revenue and costs.	A business owned and operated by one person.	A group or association of between 2 and 20 people who agree to own and run a business together.
Limited Liability	Unlimited Liability	Shareholder	Dividend	Private Limited Company	Public Limited Company	Franchise
The owners (Shareholders) of the company cannot be held responsible for the debts and losses.	The owner(s) of the business is/are responsible for all the debts and losses of the business.	These are the owners of a limited company.	Money paid to shareholders from the profits of a business.	Several shareholders (<=50) contribute funds to the company in return for shares.	An unlimited number of shareholders.. Shares can be sold on the Stock exchange.	The granting by one company to another company of the right to use its products and image.

Why do businesses exist?

- To satisfy the needs of customers.
- Provide goods (*physical products*) and services (*e.g. hairdressers*) at a price people are willing to pay.
- Business is rewarded with **profit**.



Characteristics of an entrepreneur

Confidence

Confident that ideas will succeed - very positive.



Creativity

Designing something that hasn't been seen before.

Risk taking

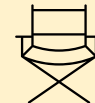
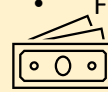
Often risks own money - could multiply or be lost forever!

Determination
See things through - new businesses require a lot of time.

Risk and reward in Business

Potential Rewards:

- Financial
 - The greater the risk, the greater the reward!
- Independence
 - Be your own boss!
- Self-satisfaction
 - Satisfaction of making your idea work.
- Changing customer habits
 - Persuade customers to change their buying habits i.e. cruelty free beauty products.



Potential Risks:

- Financial
 - Life savings could be lost.
- Health
 - Failure can lead to more time and effort being required, affecting the health of the entrepreneur.
- Strained relationships
 - Can be time consuming and can take its toll on the entrepreneurs' personal relationships.



When evaluating the benefits and drawbacks of taking the risk of running a business, there are often no clear correct answers. Use the information provided to try and judge whether it is likely that the entrepreneur will be successful or not.



1.2 Business Planning

Business plans: How a business aims to achieve its objectives.

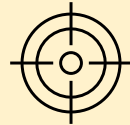
The purpose of planning

- Reduces Risk
- Helps a business to succeed



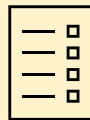
Contents of Business Plans

- The business idea - *is it a new idea or the development of an existing product?*
- The people running the business - *Easier to persuade people to invest if you have experience*
- Market research - *Are consumers interested in your product/service?*
- Finance - *Cost of setting up the business, where is the finance coming from?*
- Objectives - *a timeline of when and how objectives will be met*
- Target market - *Who is the business selling its products/services to?*
- Competitors - *Are there any competitors selling the same or similar products? How will this product be different to theirs?*



The role of the business plan

- Identifying markets - *who is the business targeting*
- Helping with finance - *banks want to be confident that they will be repaid*
- Identifying resources that a business needs to operate - *equipment, finance, staff, premises*
- Achieving business aims and objectives - *timeline for achieving aims and objectives*



+ Business plans are important because they help to identify the correct market, resources and staff that it will need to be successful.

- Not writing a plan puts greater risk on the business. Banks will not offer finance without seeing a fully thought through plan.

When looking at whether a plan is suitable, consider if anything is missing.

1.3 Business Ownership

Sole Trader

- + Easy to set up, complete control, keep all profits
- Unlimited liability, illness, hours of work



Partnership

- + Capital, easy to set up, shared workload
- Unlimited liability, profit is shared, slower decision making



Limited Liability Partnerships (LLP)

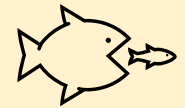
- + Limited liability

Private Limited Companies (Ltd)

- + Limited liability, control of share sale, easier to raise money (than sole trader, partnership)
- Financial information can be viewed by the public and competitors, dividends

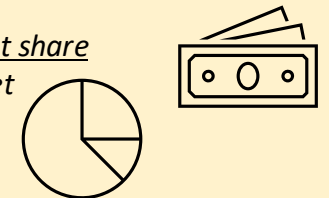
Public Limited Companies (PLC)

- + Raise large amounts of capital, easier to borrow money, limited liability
- Possibility of takeover, cost of set up, size, financial information available



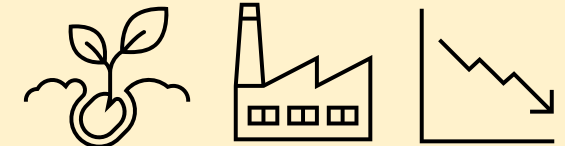
1.4 Business Aims and Objectives

1. **Profit** - The main objective of most businesses
2. **Growth** - Increase sales, opening more shops, growing market share
3. **Market Share** - Gain a greater percentage share of the market
4. **Survival** - Temporary but vital
5. **Providing a service** - Gain a good reputation and awards.



Why business objectives might change

- When a business starts
- As the business evolves
- When a business is in difficulty



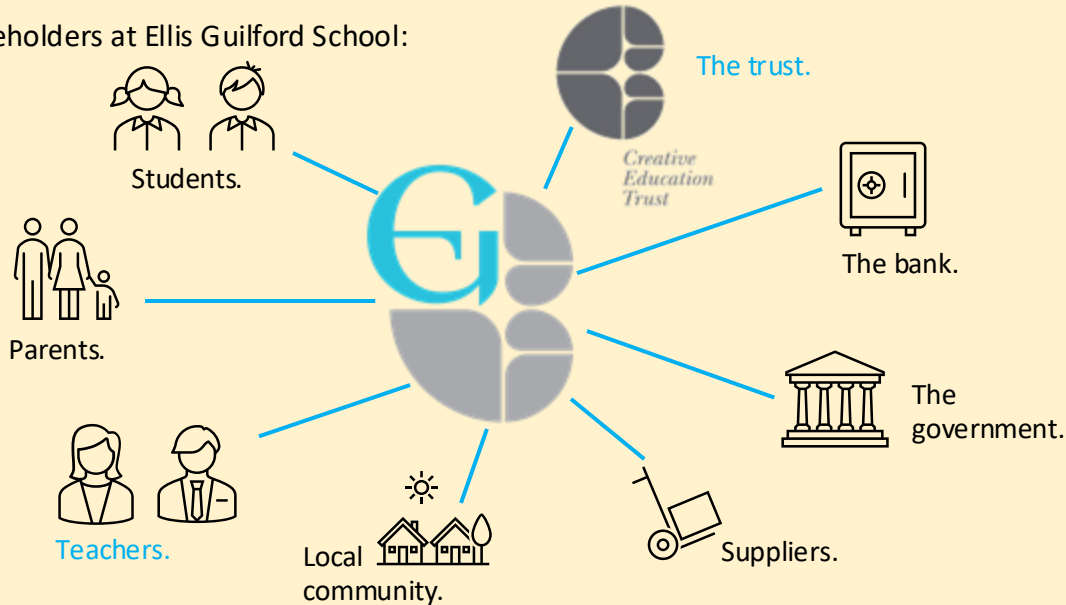


1.5 Stakeholders in Business

A **stakeholder** is any individual or group that has an interest in a business.

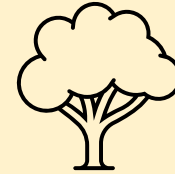
- **Internal** stakeholders are the owners and people who work for the business.
- **External** stakeholders are 'outside' the business and include customers, suppliers, government, and the local community.

Stakeholders at Ellis Guilford School:



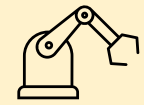
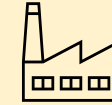
1.6 Business Growth

Organic growth - Increase the sales of products or services. It is internal.



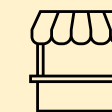
Increasing output - Increase the amount of products it produces.

- Technology
- Building more factories
- Employing more workers



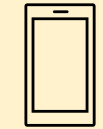
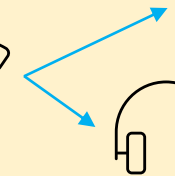
Gaining new customers

- Reduce prices
- Open shops in new places
- Better marketing e.g. increase advertising



Developing new products

- New products that appeal to a wider range of customers
- Update products - especially in technology companies



Increasing market share

- Increasing the amount of products you sell while reducing the amount your competitors sell.

External growth - Mergers & Takeovers

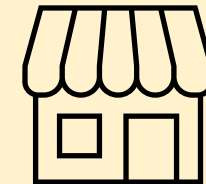
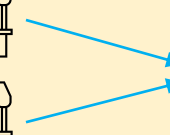
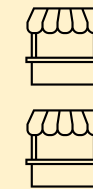
Mergers - Two businesses join together to create one larger business.

Takeovers - One business buys control of another business, if it's a limited company this would mean buying >50% of its shares.

Horizontal - The two businesses are the same type of business, e.g. furniture manufacturing.

Vertical - One business supplies the other, e.g. furniture manufacturer and store selling furniture (**forward vertical**) or furniture manufacturer and wood supplier (**backwards vertical**).

Diversification - Two businesses with no real connection, e.g. furniture and pizza delivery.





2.1 The role of Marketing & 2.2 Market Research

Marketing	Market Research	Target Market	Primary Research	Secondary Research	Internal Data	Qualitative Data
Finding the needs of consumers and fulfilling them to increase sales.	The collection of data on consumer habits to help decision-making in marketing.	The group of customers who the business aims to sell its products to. <i>This can be consumers or businesses.</i>	Collecting data first hand, usually using a survey.	Collecting data using research or information provided by others - such as magazines or the internet.	Data that is already within the business - based on past performance.	Data based on opinions of those asked. Usually gained using primary research.
Quantitative Data	Market Segmentation	Competitor Pricing	Cost-Plus Pricing	Penetration Pricing	Skimming	Promotional Pricing
Data that has been collected and is based on facts or numbers. Easier to analyse than qualitative data.	Splitting the market for a product into different parts, or segments.	Prices are set based on prices charged by competitors for a similar product.	Calculates selling price by adding a percentage of profit to the total costs of making the product.	The price is set lower than the competitors. Often used by new businesses and is a short-term strategy.	The price is set high when a product has an advantage over its competitors.	Prices are reduced to give products a boost or to sell off old stock. E.g. sales - 50% off etc.

2.1 The role of marketing

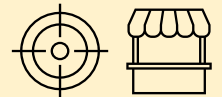
Marketing is used to increase sales by:

- Identifying and understanding customers** - to ensure the business is providing what the customer wants.
- Informing customers** - Customers can't buy products and services that they don't know about! *Advertising* is used to inform customers about products.
- Increasing sales** -
 - Advertising the product or service more
 - Introducing new products to appeal to more customers
 - Increasing the range of products or services available
 - Reducing the price - must be low enough to attract customers but high enough to make a profit.
 - Selling the product in different places
 - Selling by different methods - online, in store, digital distribution.



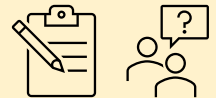
2.2 Market Research - used to collect information on whether or not products or services will be bought. Will customers buy the product or not?

- Who a business aims its products or services at is known as the **target market**.
- Understanding the target market allows the business to segment its market.
 - Aiming different products at different groups of people



Primary Research - field research. Collecting information that is new.

- Questionnaires - *Cheaper than interviews. People may not understand the questions.*
- Interviews - *Customers can be targeted easily. Can be expensive.*
- Trials - *Can save money. Costly to set up.*
- Focus Groups - *Very accurate. Time consuming, costly.*



Secondary Research - desk research. Research information that has been collected by another organisation.

+ Cheaper than primary research. Wide range of data available.

- Data may not be up to date. May not be exactly what the business is looking for.



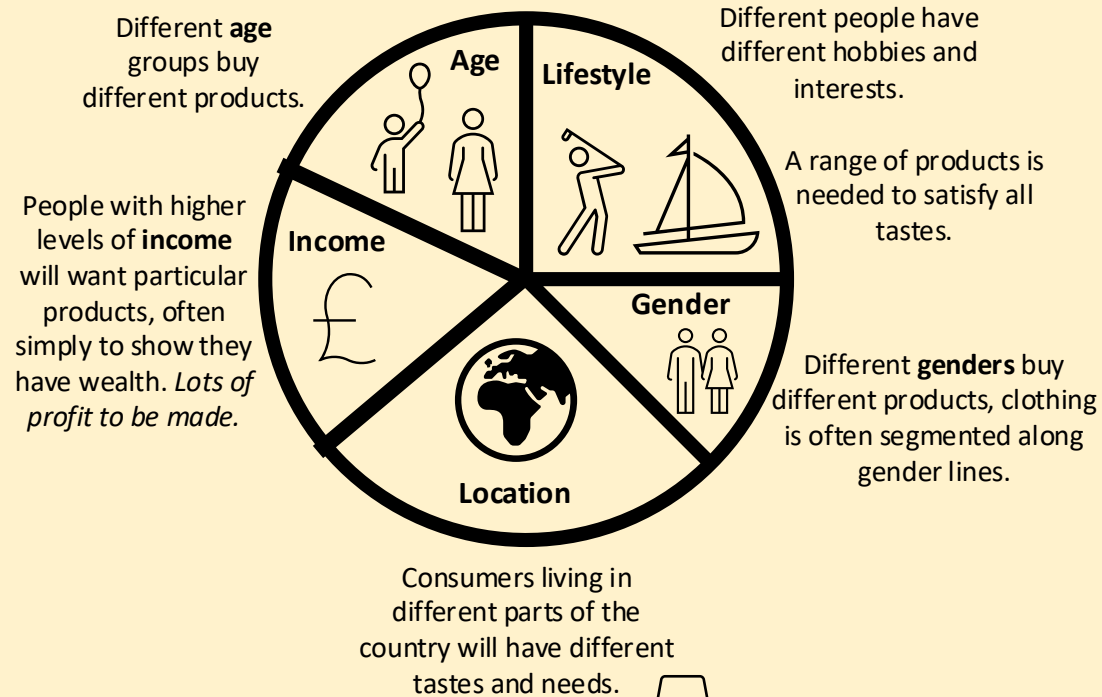
- Census data - *Every person living in Britain is questioned on how they live, their income etc.*
- Websites - *Huge amount of information available on the internet. Can research competitors' products.*
- Internal data - *Businesses own past sales data, customer feedback etc.*
- Newspapers & magazines - *Information on competitors, current trends in fashion etc.*





2.3 Market Segmentation

Market Segmentation = Splitting the market for a product or service into different parts (or segments!).



An example of market segmentation: Watches



- **Age**: watches could be bright, big, and colourful for younger people, but perhaps less so for older people.
- **Gender**: watches are aimed at both men and women - although there will be differences in styles.
- **Income**: Watches can cost thousands of pounds, or less than £10.
- **Lifestyle**: Special watches for running, diving etc.



2.4: The Marketing Mix

The four P's - Product, Price, Place, Promotion

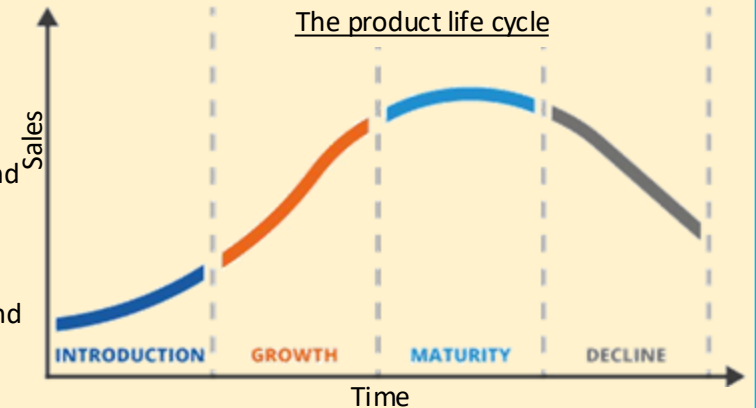
Product - Businesses must make sure that the customers want to buy their products.

- **Image and design** - how does the customer feel about owning the product?
- **Invention, design & innovation** - New inventions & innovations often have an advantage over their competitors.
- **Branding** - Name, symbol (trade mark). People associate different brands with different qualities.

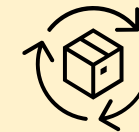


The product life cycle

- **Introduction**: when a product is launched. Advertising is used to inform customers.
- **Growth**: Sales rapidly increase. No need for special offers as demand is high.
- **Maturity**: Sales at their highest but growth is slowing down. Support products with further advertising and offers.
- **Decline**: Product is old and consumers switch to newer replacements.



Extending the product life cycle



- **Advertising** - Claiming the product is 'new and improved' or by using more modern packaging.
- **Reducing the price** - makes the product more attractive to customers, helps to maintain sales.
- **New markets** - Selling to a new target market or exporting the product to other countries once it has reached maturity.





2.4: The Marketing Mix

Price

Factors that affect the price a business could charge:

- A business may look at the prices charged by competitors.
- A new business may have to lower prices or use special offers to entice customers.
- All business must consider their costs when setting a price, as well as the profits they are hoping to make.



Methods of pricing

- **Competitor pricing**
- **Cost-plus pricing**
- **Penetration pricing**
- **Skimming**
- **Promotional pricing**

*When evaluating different pricing methods to make a recommendation, always consider the **product** being sold.*

- The product may have competitors
- The product may be aimed at few, wealthy customers.
- The product may be new and unknown.



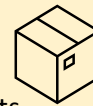
How the 4 P's work together
If a business wanted to increase sales...

Price

The price must be at a level to attract an increased number of customers e.g. penetration pricing.

Product

Does the product justify the price? If its older, then the price could be lowered to increase sales.



Place

Sell through different channels of distribution, for example online.



Promotion

Introductory price reduction, free delivery etc.



Market data - information that will help a business to make marketing decisions.

- Changes in demand for products
- Target market
- Market share
- Product change (*new product*)
- Effect of promotion

Place - How products and services reach the customer.
"The right product, in the right place, at the right time".

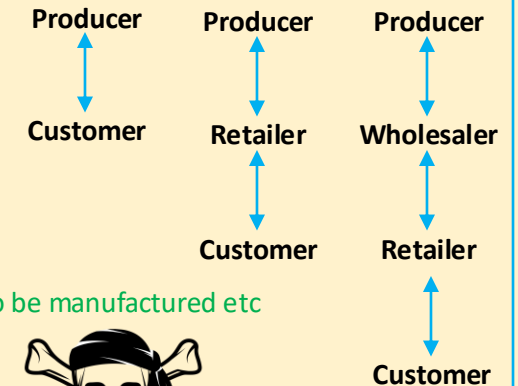
Physical Distribution - Selling physical products and services in traditional stores.

Digital Distribution - Selling non-physical products and services online.

Distribution channel - How the business gets the product to the consumer.

Physical distribution channels

Depending on the size of the business and number of customers, different distribution channels can be used.



Digital distribution

+ Customers can access products and services 24/7/365

+ Downloaded, so available quickly

+ Cost savings to the business, no physical product needs to be manufactured etc

- Not suitable for all products

- Not all customers have access to the internet

- Easy to illegally copy content and distribute it for free!



Promotion - Advertising and promotions such as 'buy one get one free'

Businesses must inform customers about their products and persuade them to buy.

Point of sale promotions

- Price reductions - 50% off.
- Loss leaders - Reduce the price to little or no profit.
 - Customer buys other products too.
- Competitions - Prize draws etc.
- Free samples - Try the product, used for new product launches.



Advertising Campaign- different forms of advertising used over a period of time

Social media

- Websites
- Printed media (*newspapers, leaflets*)
- Television
- Radio











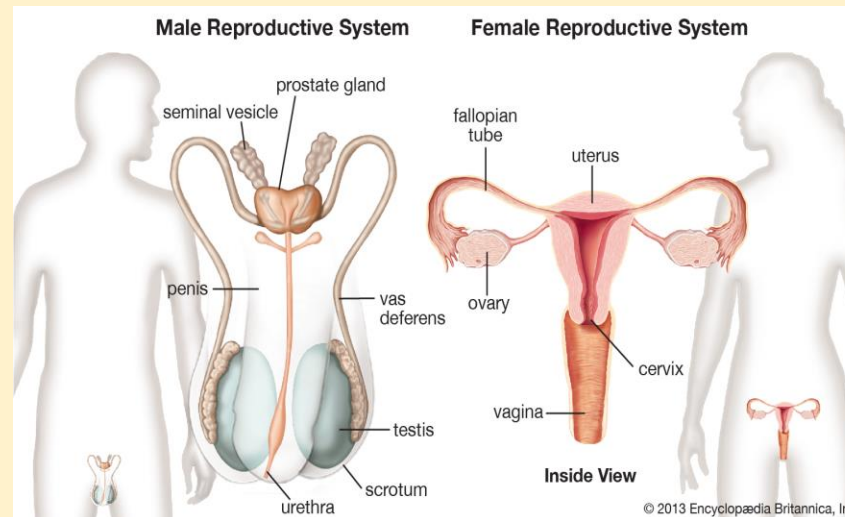
Pre-Conception Health & Roles and responsibilities of parenthood

Before deciding to have children, a couple should consider if they are ready for a child and think about: Their relationship, Finances, Parental age, Peer pressure /social expectations, Genetic Counselling. Diet, Exercise, Weight, giving up smoking / Alcohol and Recreational Drugs and ensuring their immunisations are upto date. Parents need to be role models to their children and demonstrate how to behave by example.



Key Vocabulary	
Genetic Disorders are inherited from one or both parents. 	Pre-conception health is when both partners work together to have a healthy lifestyle before having a baby,
Primary needs include food, warmth, love, security and shelter and must be met in order for a child to survive  	The Menstrual Cycle is the cycle in which women have their periods and are fertile (can conceive a baby) 
Barrier contraceptive methods prevent the sperm from reaching the egg and include male condoms, female condoms and the diaphragm or cap. 	Hormonal contraceptive methods prevent eggs from being released from the ovaries and thicken cervical mucus to prevent the sperm from entering the uterus 

Exam tip: If parents smoke, the likelihood of a baby dying from SIDs is doubled. Children are also at a higher risk of chest infections, asthma and possibly some cancers.



Reproduction



Reproduction occurs when a sperm cell combines with an egg cell to produce a fertilised egg cell. The egg can be fertilised after a woman ovulates, if the fertilised egg implants in the womb lining, the woman becomes pregnant.

Female & Male Reproductive Systems

The female reproductive system includes:



- Ovaries
- Fallopian tubes
- Uterus/lining of the uterus
- Cervix
- Vagina



The male reproductive system includes:



- Testes
- Sperm duct system/epididymis
- Urethra
- Penis
- Vas deferens





Year 10 – Child Development - R059 Understand the development of a child from birth to five years



Physical, Intellectual and Social Development

Physical Development involves developing control of muscles and physical coordination, these can be **fine motor skills**, which are the ability to make movements using the small muscles in hands and wrist, such as cutting and sticking. In contrast to this, **gross motor skills**, which are the abilities that let us do tasks that involve large muscles in our torso, legs, and arms. They involve whole-body movements such as riding a bike or running.


Intellectual development involves the growth of a child's ability to think and reason. It's about how they organize their minds, ideas and thoughts to make sense of the world they live in, for example reading a book or telling a story.

Social Development involves a child's interaction with others around them. As they develop and perceive their own individuality, they also gain skills to communicate with other people and process their actions. This could include taking part in board games or a group activity such as circle time.

Sequence of development

Children tend to develop in broadly the same order, so even though the time at which they meet developmental norms might be different, they still tend to lean to stand before they walk and walk before, they run. However, there are some expectations, for example, a child with a disability may be expected to develop differently in some areas.



Key Vocabulary	
Fine motor skills are the coordination of small muscles in movement with the eyes, hands and fingers	Play refers to a child engaging in activity for enjoyment and recreation
Gross motor skills are using the large muscles in the arms, legs and torso	Benefit is an advantage
 Observation is a statement that has been seen, heard, or noticed	Communication is the exchanging of information by speaking, writing or non verbal gestures

Milestones / Developmental Norms

Developmental milestones are behaviours or physical skills seen in babies and children as they grow and develop. **Rolling over, crawling, walking, and talking** are all considered milestones. The milestones are different for each age range. There is a normal range in which a child may reach each milestone

Examples of Intellectual milestones:

- 12 months: Respond to basic instruction
- 2 years: Completed simple jigsaw puzzle
- 5 years: Vocabulary is growing fast

Examples of Social milestones:

- 12 months: Waves goodbye
- 2 years: Understands own feelings
- 5 years: Enjoys group play

Examples of physical (gross motor skills) milestones:

- 12 months: Sits down from standing
- 2 years: Runs confidently
- 5 years: Rides a bike with stabilisers

Examples of physical (fine motor skills) milestones:

- 12 months: feeds self with spoon
- 2 years: Puts on shoes
- 5 years: Writes letters and short words





Remember, R059 is controlled assessment content and contributes towards 60% of your overall grade!

Year 10 - Child Development - R059 Topic Area 4: Plan and Evaluate Play Activities

Stages of Play

Solitary play, also known as independent play, is one of the earliest stages of play where children play alone because they have not developed socially to be able to play with others yet or because they choose alone time. Examples of solitary play; Imaginary play (role play/ small world play), Puzzles, Books, Video/ computer games

Parallel play is a description of children playing side by side, but not interacting with each other to continue their play.

Associative Play is one of the categories used to describe the development of social play by preschoolers. It is generally the first stage where social interaction is required in children's play as they engage in a mutual activity, though not working toward a common goal

Cooperative play focuses on children working together to achieve a common goal, such as building a play structure, putting together a puzzle, or engaging in dramatic play. It has been described as the stage where children play in a group. Examples of Cooperative play; Board games, Circle games (here we go round the mulberry bush/ the farmers in his den), Playground games (what's the time Mr. Wolf?)



Benefits of play

Physical benefits include; increase fitness and the use of their fine and gross motor skills as well as hand eye co ordination, balance and co ordination

Intellectual benefits include; mental stimulation, problem solving and communication

Social benefits include; independence, confidence, sharing, self esteem and communication

Creativity benefits include a child using their imagination



Types of Play

Manipulative Play This involves children using their hands, (fine motor skills) for example to move, turn or screw things to make them fit. Examples of manipulative play: · Puzzles, Mark making (drawing/ painting/ writing), Shape sorters, Threading beads, Craft activities, Construction toys.

Physical Play is Play that involves gross motor skills, the muscles and moving around, such as football or a climbing frame. Examples of physical play include; Ball games, Running/ jumping/skipping/ hopping/ crawling, Playground equipment (slides/ swings), Ride– on– toys and bikes, Push and pull toys and Dancing.

Imaginative Play involves children learning and making sense of the world through their play. Activities such as dressing up, the use of puppets and role play will promote this.

Physical Play involves activities in which children use their manipulative or gross motor skills, develop balance, coordination, develop the senses or exercising such as riding a bike, dancing, ball games, hopping or using a trampoline.

Creative Play is when children express themselves by creatively responding to something that sparks their imagination such as model making by using household items such as cereal boxes/blankets, natural objects such as twigs. A child might also express themselves in ways such as making music, making up a story or singing and dancing.

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An observation is the process of watching and recording a child's behaviour to assess and track their development.

Observations:

Observations are the processes of watching and recording a child's behaviour to assess and track their learning and development.

Observations over time, help to build a picture of a child's individual development and behaviour. You can then track a child's progress, and plan activities that will support and extend their learning and development in each area.

If a child is not making the expected progress, intervention can be planned for the child.

Confidentiality

The parents / cares of children have the right to decide what information is collected, recorded and stores about their child. Professionals must get permission before carrying out the observations and keeping documentation on record.

How to use observation findings:

The information gathered during observations is to track a child's progress and conclude what a child can / cannot do. You can then make comparisons against other children their age and see if they are making the expected progress against the milestones. If they are not, extra support can be arranged based on the individual's needs.

Who will use observations on children?

Nursery staff, pre-school staff, teachers, social workers, health visitors and doctors.

Methods of observation

Narrative observation: When a child's natural spontaneous behaviour is observed for a set period	Time Sampling is when the observer decides on a period for the observation. The child's activity is recorded on a form at set intervals.
Checklist observation: A form (checklist) reminds the observer to look for particular skills or reflexes (e.g. milestones) that the child has or has achieved. The observer ticks these off as they are seen and records the date.	Participative observation is when the observer deliberately interacts with the child during the observation.
Snapshot observation is when a practitioner notices a child doing something interesting and spontaneously observes the child very briefly, often just a minute or two.	Non-Participative observation is when the observer does not interact with the child at all.

Methods of recording

Charts: Filling in a chart provides a lot of information quickly about the child effectively during a period of observation	Written methods: Written methods will be written out in full, with as much detail as possible.
Examples of a child's work: Work of the child, e.g. arts and crafts, writing/drawing items provides an excellent accurate record of what they did during an activity.	Photographs: Photographs are an excellent way of recording a snapshot of a child engaged in the activity.



Remember, R057 is the exam content and contributes towards 40% of your overall grade!

Year 10 - Child Development - R057 Topic Area 2: Antenatal care and preparation for birth


Antenatal Care

Antenatal care is the care given to a pregnant mother and her unborn baby during pregnancy. A pregnant woman will be supported by the following health professionals: Midwife; including hospital midwives and community midwives, Obstetrician, General Practitioner, Gynaecologist and Paediatrician.

The mother will talk through her choices available for delivery.

The choices include: Hospital birth, Home birth, Domino Scheme and Private hospital / independent midwife. Antenatal and parenting classes help with preparation for a safe pregnancy, labour and parenthood. Expectant mothers and their partners usually attend classes from 30-32 weeks of pregnancy and they support with: preparing for a safe pregnancy and delivery, preparation for labour and parenthood.

Throughout pregnancy, the midwife will carry out the following checks on the pregnant woman:

 Weight check, Blood tests, Blood Pressure, Urine test, STI (Sexually transmitted Infections), Examination of the Uterus, Baby's heartbeat.

A sonographer also carries out an Ultrasound scans to check how far along the pregnancy is, the baby's development and for any abnormalities. Chromosomal abnormalities occur when a portion of chromosomal DNA is irregular, missing or duplicated.

A number of Specialised Diagnostic tests are offered during pregnancy to check for major physical abnormalities, however, some of these tests carry risks such as miscarriage. The tests include: Nuchal fold translucency (NT) test, Alpha fetoprotein test (AFP), Chorionic Villus Sampling (CVS), Amniocentesis and Non-Invasive Prenatal testing (NIPT) blood test.




Labour

Every labour is different, but all pass through 3 common stages including:

- Stage 1 – neck of the uterus opens which can include the waters breaking and the woman having a 'show' where mucus comes away from the cervix.
- Stage 2- starts when the cervix becomes fully dilated at 10cm and ends with the birth of the baby.
- Stage 3 is the shortest stage of labour and includes the delivery of the placenta and membranes.



Key Vocabulary

 <p>Antenatal care is the care given to a pregnant mother and her unborn baby during pregnancy.</p>	<p>A sonographer also carries out an Ultrasound scans to check how far along the pregnancy is, the baby's development and for any abnormalities.</p>
<p>A Gynaecologist is a doctor who specializes in female reproductive health.</p>	 <p>An Obstetrician is a health professional that deals with all aspects of pregnancy</p>
<p>A domino scheme is when the midwife attends to the woman at home until both feel it's time to go into hospital</p>	 <p>Transition stage links the end of the first stage of labour and the beginning of the second stage of labour.</p>

Pain Relief and Methods of assisted delivery

- Expectant mothers will be offered pain relief during labour, pain relief options will be discussed prior to the birth during antenatal classes with the midwife and these include; Gas and Air (Entonox), Pethidine, Epidural anaesthetic, TENS (Transcutaneous electrical nerve stimulation), Waterbirth
- One in eight women require assistance during labour and this can include:
- Forceps; a curved metal instrument that fits around the baby's head and as a woman pushes with contractions, an obstetrician gently pulls to help deliver the baby.
 - Ventouse; a vacuum extractor that fits on the baby's head and is attached by suction
 - Elective / Emergency caesarean section is an operation to deliver the baby through a cut made in the abdomen and womb.





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Exam tip: APGAR score stands for Appearance, Pulse, Grimace, Activity and Respiration



The postnatal checks of the new-born baby

Straight after birth, the doctor/midwife carries out routine checks, checking for obvious physical problems, these include checks of the skin to identify any: Salmon patches, Mongolian spots, Infantile haemangiomas (strawberry marks), Vernix and Lanugo. Within 72 hours of the birth, a thorough physical examination of the baby is offered. The checks include:

Length, Weight, Head

Circumference, Fontanelle (soft spots between the bones in the skull), Eyes, Mouth, Feet, Fingers, Hips.

Newborns are observed to see if they display the expected reflexes, if the reflexes do not occur naturally, the baby's body may be stimulated, these reflexes include: Sucking, Rooting, Grasping, Standing and Walking and the Startle reflex (if a baby wakes suddenly or hears a loud noise, they will make a fist with their hands and move stiff arms away from their body).

Premature babies often require specific extra care with their breathing, feeding and treatment for infection.

The postnatal provision



Postnatal support is important as parents adjust to their lifestyles. Support can be provided by: The father / partner, Other family members, Friends, Health professionals such as GP, midwife and health visitors.




The mother will also have a postnatal check to ensure she feels well and that she is recovering well.

The baby's new born physical checks will also be repeated.

Fontanelle



Key Vocabulary

 <p>Premature baby: A baby born before 37 weeks</p>	<p>Fontanelle are soft spots between the bones in the skull</p>
<p>Infantile haemangiomas (strawberry marks) are blood vessels that form a raised red lump on the skin · appear soon after birth</p> 	<p>Vernix is the waxy white substance found coating the skin of new-born babies</p>
<p>Lanugo is the fine, soft hair which covers the body of the foetus</p> 	<p>SIDs (Sudden Infant Death Syndrome) is the sudden, unexpected and unexplained death of an apparently healthy baby</p>

Conditions for development & the need for boundaries

In order for children to thrive, develop and grow, children need the following conditions:-Love and security, Warmth, Rest/sleep, Exercise / fresh air, Cleanliness, Opportunities for talking / listening, Routine, Stimulation, Opportunities for play, listening, talking and Protection from SIDs (Sudden Infant Death Syndrome). Children need to learn how to behave in socially acceptable ways. Therefore, adults should always strive to be positive role models. A consistent approach should be taken to prevent confusion, this can be achieved through: - Boundaries, Being considerate to others, Explaining safety and Promoting positive behaviour





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Year 10 - Child Development - Topic Area 4: Childhood illnesses

Immunity, diseases and illnesses



During pregnancy, antibodies from the mother are passed to an unborn baby through the placenta. Some immunity can also be passed on through breastfeeding. Childhood immunisations begin at 2 months (8 weeks). Vaccinations are quick, safe and extremely effective but sometimes, children cannot be vaccinated against because of medical reasons.

An unwell child may display a range of signs and symptoms, for example, Vomiting and Diarrhoea to a headache or raised temperature.

Diet related illnesses include Childhood obesity, Deficiency diseases, Food intolerances and allergies. A severe allergic reaction can lead to an anaphylactic shock which can be a life-threatening situation and an ambulance needs to be called. Anaphylactic shocks can be caused by common triggers such as nuts, e.g.g.s and shellfish.

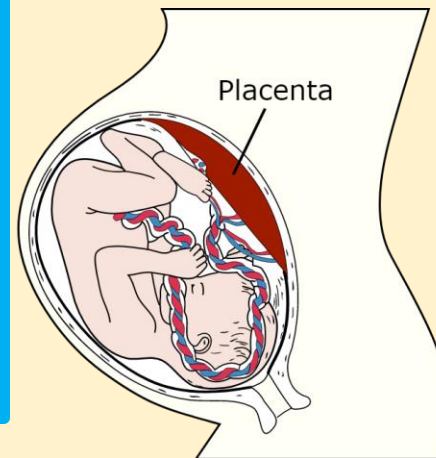


Key Vocabulary

Placenta: The organ in the uterus of pregnant woman, which nourishes the foetus through the umbilical cord		Meningitis is a serious disease caused by viral or bacterial infection, and marked by intense headache and fever, sensitivity to light, and muscular rigidity
Anaphylactic shock is an extreme, often life-threatening allergic reaction		A seizure is a burst of uncontrolled activity between brain cells that causes temporary abnormalities in muscle tone or movements (stiffness, twitching or limpness)
Deficiency is a lack or shortage		Antibodies help eliminate disease-causing microbes from the body, for instance by directly destroying them or by blocking them from infecting cells.

Supporting an ill child

When a child is unwell, they rely on an adult to meet all of their needs which include their physical, social, emotional and intellectual needs. It is important when a child is sick, they have plenty of rest and drink plenty of water which will meet their physical needs. To meet their social and emotional needs, adults can offer lots of reassurance and explain the illness to the child. It is also important children are given quiet activities and if appropriate, visits from family and friends which will support their intellectual and communication. Going into hospital can be a worrying time for children, therefore, if a hospital visit is planned, adults have the time to prepare the child to reduce the anxiety. Visiting a hospital can help put the child's mind at ease so they know exactly what to expect. Books and DVDs about hospitals can also help children to understand what to expect when visiting hospital.



When to seek treatment and help-the key signs and symptoms

Signs and symptoms of illness that require urgent medical assistance, i.e. you need to call an ambulance include: breathing difficulties, convulsions or seizures or fitting, child seems to be in significant pain, child is unresponsive, baby becomes unresponsive, a severe headache which may be accompanied by a stiff neck or a dislike of light, rash that remains (does not fade) when pressed with a glass as this can be a sign of meningitis, vomiting that persists for over 24 hours, unusual, high pitched crying in babies, high fever/temperature that cannot be lowered or will not drink fluids – especially in babies.



Exam tip: A child's average temperature reading for a child is between 36.5 degrees and 37.4 degrees



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Childhood Accidents

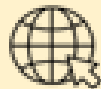
Adults should make a child's environment as safe as possible by removing hazards and assessing the risk.

Most accidents occur within the home. Key safety equipment can be used to prevent accidents, for example, safety gates can prevent access to kitchens, stairways and outdoors. Locks for cupboards can also be used to prevent children getting hold of dangerous substances. Children should always be under close supervision when crossing roads and should toddlers are safest on reins. Adults should be role models and cross at the safest place.

The most common childhood accidents include choking and suffocation, burns, falls, electric shocks, drowning and poisoning. If an accident occurs, it is important to recognise when medical assistance is urgently required as this can save a child's life. Workers within a childcare setting should take a paediatric first aid course.



Exam tip: Remember the difference between a hazard and a risk. Hazard: an item or situation that may cause harm. A risk is the likelihood of a hazard actually causing harm.





Social Safety

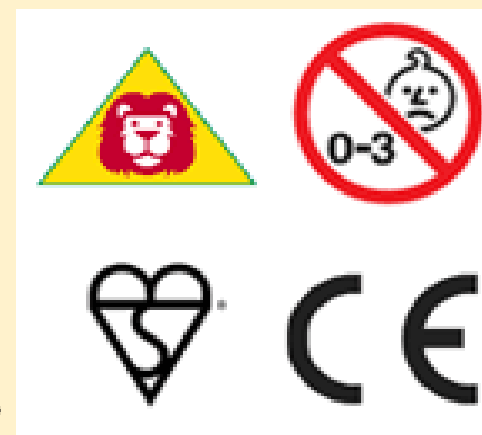
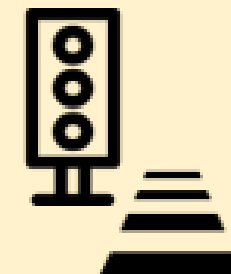


It is important children are taught about personal awareness, so they know exactly what to do if they are in an emergency situation. Teaching a child about strangers and avoiding inappropriate personal contact is important so that children know to tell a safe adult if they are worried. Children also need to be taught the dangers associated with internet safety. Some strategies could be through family discussions, agreeing boundaries and using safe search facilities and restrictions.

Safety Labels

Safety labels tell you whether a product or piece of equipment is safe for use by children. When buying products for children it is important to check for safety labels including; BSI safety mark/Kite mark which shows the product follows the quality of the British Standards Institution. The Lion mark can be found on toys that have been made by a member of the British Toy and Hobby Association. Age advice symbols are important to look out for as they show when equipment or products aren't suitable for children under 36 months (3 years old). CE symbols are the most common toy label and by law, has to be displayed on all new toys on the market in the EU. Nightwear can easily burn which can cause serious injury, so looking for children's nightwear labelling confirms they have met the flammability performance requirements.

Key Vocabulary	
A risk is a situation involving exposure to danger.	A hazard is a potential source of danger 
A risk assessment is evaluating the potential risks that may be involved in an activity.	Suffocation is being deprived of air or being unable to breathe
Inappropriate means not suitable	Paediatric refers to medicine when dealing with children 











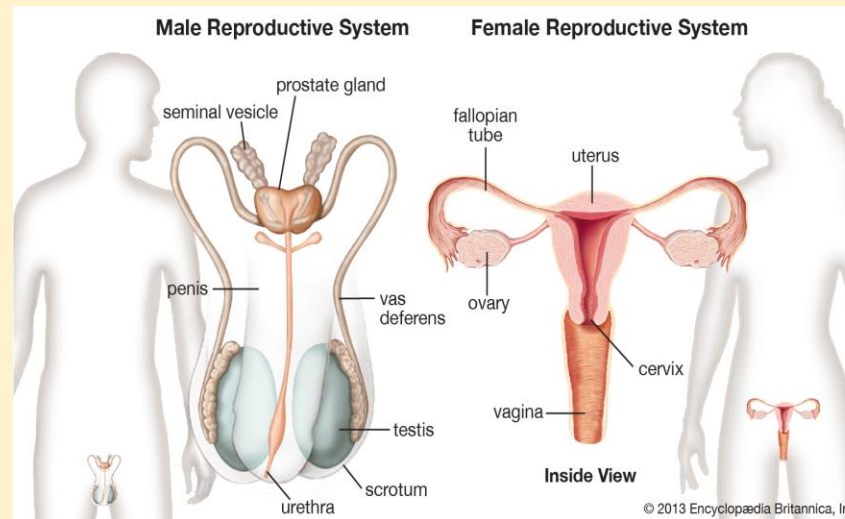
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Female & Male Reproductive Systems

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- Uterus/lining of the uterus
- Cervix
- Vagina



The male reproductive system includes:



- Testes
- Sperm duct system/epididymis
- Urethra
- Penis
- Vas deferens





Episode One: Life Stages

Understanding these processes is essential knowledge and understanding for health and social care practitioners.



Life Stage	Distinct phases of life that a person passes through.
Characteristics	Something that is typical of a person of that particular age and life stage.

Life Stage	Characteristics
Infancy (0-2 years)	Dependent on parents, rapid growth and development
Early Childhood (3-8 years)	Gaining some independence, making friendships and improving the thought process.

Life Stage	Characteristics
Adolescence (9-18 years)	Puberty bringing physical and emotional changes
Early Adulthood (19-45 years)	Leaving home, making own choices, career and may start a family
Middle Adulthood (46 -65 years)	Having more time to travel or enjoy hobbies. The ageing process begins.
Later Adulthood (65 +)	The ageing process continues, maybe affecting mobility and memory.

This is the BTEC Tech Award categorisation of life stages. It is the only one you should refer to throughout the course

Growth	Increased body size such as height or weight.
Development	Gaining new skills and abilities

Episode 2: Holistic Development



Holistic Development

Physical development – Physical growth and physiological change. This would be more rapid in some life stages than others , such as infancy, adolescence and older adulthood.

Intellectual development –

- There are four elements to intellectual development, memory skills, critical thinking, language development and problem solving.

Emotional development –

- Developing feelings about self and other, the attachments people form and maintain .
- Mental health is also part of emotional development.

Social development –

- Forming relationships, learning how to play and interact with others.
- Social isolation or inclusion and the reasons for it.





Episode 3: Factors affecting growth and development.

Physical factors

- **Genetic inheritance:**
DNA is passed down to children from their parents. This includes things like eye colour, hair colour and height.
- Also, inherited conditions – sickle cell disease, cystic fibrosis, muscular dystrophy, Marfan syndrome and Huntington’s disease.
- Experience of illness and disease, lifelong conditions such as cardiovascular disease, obesity, type 2 diabetes .
- Mental health impacts such as stress , depression and anxiety also fit into this category. Physical factors also refer to disabilities and sensory impairments.



Diet and lifestyle choices.

- The type of diet a person has can either have a negative or positive impact on growth and development.
- Government guidelines say a person should eat 5 portions of fruit and veg a day and follow the eat well guide.
- The lifestyle choices we make such as exercise, smoking, alcohol, drug use and high risk activities can also have impact on development and health.



Economic factors

- The employment status a person has , financial resources available to them and material possessions and saving can all have an impact on a persons growth and development.



Environmental Factors

- This refers to the location and condition of the home a person lives in.
- The actual home environment is also important, is there conflict, abuse or neglect present.
- The level of exposure to air or noise pollution can all impact a persons growth and development.



Social Factors

- Whether or not a person has supportive relationships with family, friends will have an impact n a persons growth and development.
- Social inclusion or exclusion , including bullying and discrimination could also be a contributing factor.
- Personal relationship with friends and Family



Cultural factors

Educational experiences:

- A good education can positively affect development in a child.
- However a negative experience of school can have negative impacts on development holistically.



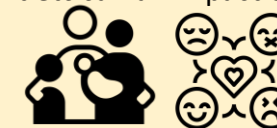
Culture:

- A persons religion, sexual orientation, race or gender can impact on their growth and development
- A person who gets involved in the community will have different experiences than one who feels isolated from the community they live in.



Emotional factors:

- The attachments a baby and child makes with their primary care givers and family members are important for a child to feel secure.
- During Childhood new friendships are formed , then in puberty emotional development accelerated.
- Emotional development can be positive or negative, how a person feels, such as depression, anxiety, grief, stress or happy, excited, content etc can all impact on growth and development





Episode Four: Life Events

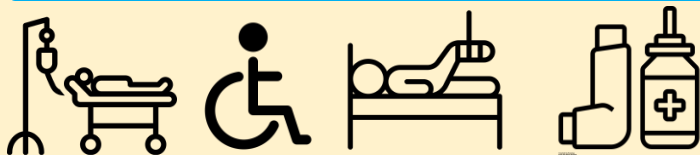
Life events can be **expected**: you would expect this event to happen to you in your lifetime, or **unexpected**: you would **not** expect this event to happen to you in your lifetime. Unexpected life events are harder to adapt to because you do not expect them to happen.

Health and well being life events

These can be both **expected** and **unexpected**, for example you would expect to go through puberty, the menopause, get grey hair and wrinkles.



However they can also be **unexpected**, such as physical illness, not your general illnesses but ones that need hospital treatment or life limiting illnesses such as cancer, mental health and well being, injury, accidents, disabilities or life changing conditions.



Relationship changes

Expected relationship changes would include, entering into relationships, marriage, civil partnerships, long term cohabitation. Becoming parents, bereavement of family or friends due to old age (as we expect people to die when they are old).



On the other hand, there are relationship changes that occur which are **unexpected**

Separation or divorce occur which causes multiple relationships to change. For example, if there are children involved, they will have to get used to not seeing one of their parents daily.

Often forgotten are the relationships with grandparents / in laws or mutual friendships. These will all change, dependant on the circumstances of the separation.



Bereavement can also be **unexpected**. Any death of family or friends that occurs from unnatural causes is classed as **unexpected**.

Bereavement is a process which goes through stages, shock, denial, anger, depression, bargaining and acceptance.



Life circumstances

Like the other life events, life circumstances can be **expected** and **unexpected**.

Expected life circumstances include, leaving school, getting a job, moving out of parents house, moving home and retirement.



Unexpected life events would include, being excluded from education, periods of unemployment due to redundancy, losing a job



Changes in living conditions and standards. In addition, due to life choices a person may find themselves imprisoned



You need to explain what support a person has, how the support works and how the support enables the person to adapt to the life event.



Episode Five: Types of Support

Support

Effective: Giving people the confidence they need to adapt.

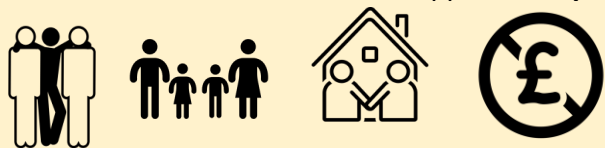
Emotional: Make people feel secure and come to terms with the life event

Information advice: Where to go, choices they have.

Practical help, e.g. financial assistance, childcare, transport



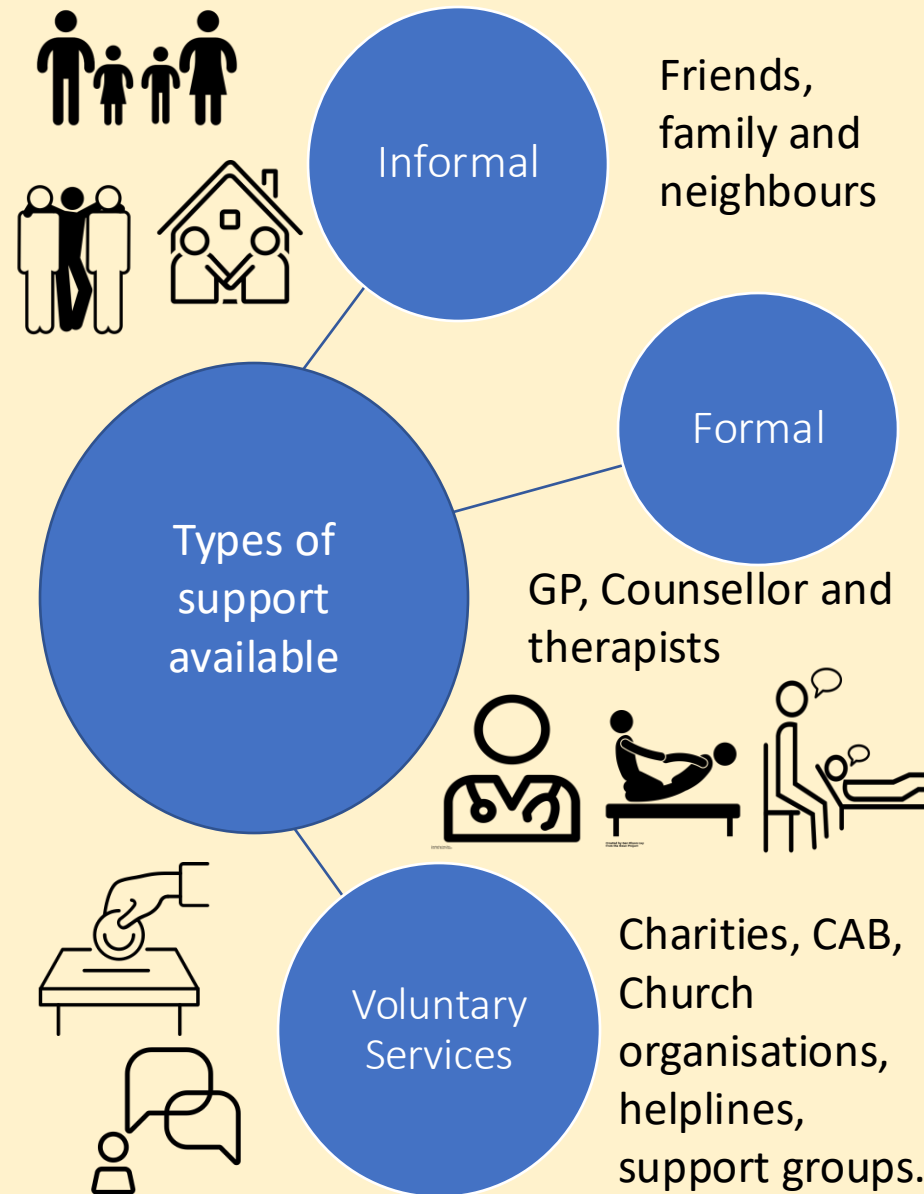
Support comes in three different types. Informal support is the everyday type of support a person would receive. Informal Support is **unpaid**.



Support can also be formal, people who provide formal support are paid for their service. Such services could be doctors, midwives speech therapists etc.



Voluntary Services offer support, free of charge, in many different forms, such as support groups help lines and advice groups. Voluntary groups rely on donations from the Government and the public.



How individuals adapt to life events.



Positive: The support an individual receives enables them to adapt to their new circumstances and the development of their PIES is not impacted in the long term. This is because all four types of support are available, and the individuals confidence and self-esteem is maintained or even improved. The individual is well informed and can feel secure that they have a support network to help them during the adjustment period.

Negative: There is either a lack of support or ineffective support for the individual to access. This can lead to negative state of mind, anger, withdrawal or mental health issues. Ultimately the individual is unable to adapt both mentally and physically and the development of their PIES is impacted both in the short and long term.



You need to explain what support a person has, how the support works and how the support enables the person to adapt to the life event.



PSA Component 1 Human Life Span and Development

Ensure your exercise book is completely up to date and in school for the PSA sessions, which will take place over two days. It is vital you are in school for these days. This PSA is worth 60 marks/ 30% of your **final y11 grade**

Task 1: Your report must include:

- how an individual's PIES characteristics grow and develop through the life stages of two chosen life stages.
- how the PIES characteristics have changed from one life stage to a next.

Learning outcome covered

Outcome A: Understand human growth and development across life stages and the factors that affect it

Checklist of evidence required:

- a written response which can include supporting images

Supervised hours to complete the task You will need approximately 1.5 hours to complete Task 1.

12 Marks

Task 2 – Impact of different factors on PIES growth and development through the life stages

Produce a report on how specific factors can affect the PIES growth and development of individuals in two given life stages.

Your report must include:

- how the given factors impact the PIES growth and development of individuals in given life stages
- the reasons why there is a difference in the impact of the factors between the given life stages.

Learning outcome covered Outcome A: Understand human growth and development across life stages and the factors that affect it

Checklist of evidence required

- a written response which can include supporting images

. Supervised hours to complete the task You will need approximately 1.5 hours to complete Task 2.

12 Marks

Task 3a – Impact of life events on PIES growth and development

Read the case studies on the given individuals.

Produce a report that considers how each of their life events has impacted on their growth and development physically, intellectually, emotionally and socially.

Learning outcome covered Outcome B: Understand how individuals deal with life events

Checklist of evidence required

- a written response which can include supporting images . Supervised hours to complete the task Learners would need approximately 1 hour to complete Task 3a.

6 Marks

Task 3b – How individuals adapt to life events

Produce a report on how the given individuals, in the case studies provided have adapted to life events.

Your report must include:

- the different sources and types of support the individuals accessed to adapt to their life events
- the character traits that influenced how the individuals coped with their life events
- a comparison of the ways that the individuals adapted to their life events and the role that support played
- an additional source of support for each individual that is not already mentioned in the case studies and reasons why these sources might be appropriate to their life events.

Learning outcome covered Outcome B: Understand how individuals deal with life events Checklist of evidence required:

- a written response which can include supporting images

. Resources needed Case studies for Task 3a and 3b provided in Appendix 1. Supervised hours to complete the task Learners would need approximately 2 hours to complete Task 3b.

12 Marks



Episode Six Health Conditions

Health Conditions

Cardiovascular conditions

Coronary heart disease-

- Coronary heart disease is when your heart's blood supply is blocked or interrupted by a build-up of fatty substances in the coronary arteries.
- Over time, the walls of your arteries can become furred up with fatty deposits.
- The most common symptom of coronary heart disease is angina, or chest pain.
- Angina can be described as a discomfort, heaviness, pressure, aching, burning, fullness, squeezing, or painful feeling in your chest
- The main treatments for coronary heart disease are healthy lifestyle changes and medicines. Some people may need surgery.
- You can reduce your risk of getting coronary heart disease by making simple lifestyle changes, such as being active and having a healthy diet.

Cerebral vascular accident (stroke)

- A stroke is a very serious condition where the blood supply to part of your brain is cut off
- It needs to be treated in hospital as soon as possible
- Common symptoms of a stroke include your face dropping on 1 side, not being able to lift your arms and slurred speech.
- Treatments include medicines to treat blood clots and sometimes brain surgery.

Act **FAST** if you spot the signs of a stroke, and call 999.

Facial weakness	Arm weakness	Speech problems	Time to call 999



Respiration conditions

Asthma:

- Asthma is a common lung condition that causes occasional breathing problems.
- The main symptoms of asthma include wheezing and shortness of breath.
- There may be times when the symptoms get better and times when they get worse.
- The main treatments for asthma are inhalers that either ease symptoms when they happen or help stop symptoms happening.



Chronic obstructive pulmonary disease

- COPD happens when the lungs become inflamed, damaged and narrowed.
- The main cause is smoking.
- The outlook for COPD varies from person to person.
- The condition cannot be cured or reversed, but for many people, treatment can help to keep it under control .



Arthritis

- Arthritis is a common condition that causes pain and swelling (inflammation) in the joints
- Common symptoms of arthritis include pain, swelling and stiffness in 1 or more joints.
- The main treatments for arthritis are lifestyle changes like exercise, physiotherapy and medicines. Surgery may be needed in more severe cases



Diabetes

- Type 2 diabetes is a condition that causes too much sugar in your blood.
- Symptoms of type 2 diabetes include needing to wee a lot, feeling thirsty all the time and feeling very tired.
- Treatment for type 2 diabetes includes medicines and changes to your diet and activity levels to help control your blood sugar levels



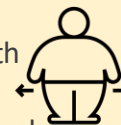
Dementia-

- Dementia is not a specific disease but is rather a General term for the impaired ability to remember, think, or make decisions that interferes with doing everyday activities



Obesity-

- Obesity is where you're very overweight.
- It can put you at risk of serious health problems.
- Obesity is usually caused by eating and drinking too much and moving too little.
- Adults are generally considered obese if they have a body mass index of 30 or above.
- The main treatment for obesity is a reduced-calorie diet and an exercise plan. Less common treatments include weight loss medicines and surgery.












Episode Seven: Health and Social Care Services

When exploring the services available to the public Health and Social Care looks at services that support health and services that support social care. It is important to recognise that different services can meet different needs.

Different social care services:

- Services for children and young people, e.g. foster care, residential care, youth work
- Services for adults or children with specific needs (learning disabilities, sensory impairments, long-term health issues) e.g. residential care, respite care, domiciliary care
- Services for older adults, e.g. residential care, domiciliary care
- Role of informal social care provided by relatives, friends and neighbours

HEALTH CARE	SOCIAL CARE
Primary: GPs, dental care, optometry, community health care. 	Children and young people: foster care, residential care, youth work. 
Secondary and tertiary care: specialist medical care. Surgeons, consultants Fit into this category. 	Adults or children with specific needs: residential care, respite care, domiciliary care. 
Allied health professionals: physiotherapy, occupational therapy, speech and language, dieticians 	Older adults: residential care, domiciliary care. 
	Informal care relatives, friends, neighbours. 

Year 10 - Health and Social - Services and Values

Episode Eight: Barriers to accessing services

Physical barriers,

- These barriers prevent a person getting into and around the facilities.
- These can be in terms of a person's mobility, being too ill to get to the service, having an injury that makes it challenging to get to the service.
- It can also refer to the accessibility the services provides such as , wheelchair access, lift availability or a large number of stairs.



Sensory barriers.

- The barrier of not being able to communicate effectively or understand vital information about the service due to difficulties in sight or hearing loss.



Social, cultural and psychological barriers,

Social barriers refer to feeling a lack of independence a person may feel having to go to the service resulting in them not going.



- It could also be due to a social stigma of the service, for example STD clinics.



- Culturally there may be barriers due to beliefs or practices

Language barriers, e.g. differing first language, language impairments.

- In addition the use of medical jargon can impair a persons willingness or ability to access a service.



Geographical barriers,

- The distance between a service users home and the service, the transport links available and the weather conditions all add to the geographical barriers a person can face.



Intellectual barriers, e.g. learning difficulties



Resource barriers for service provider,

- Staff , shortages, lack of local funding, high local demand



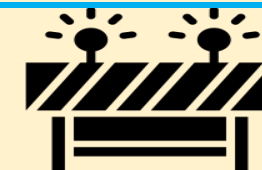
Financial barriers,

- Charging for services, cost of transport, loss of income while accessing services.



Episode Nine: Ways to overcome barriers to accessing services

- It is the responsibility of both the service user and provider to find ways to overcome the barriers for accessing health and social care services.
- As part of the controlled assessment it is vital you can offer sensible ways to overcome barriers and critique them.
- Suggestions can include: Organising transport, having a translator or sign language, hearing loops, appointments online , community services who attend patients homes, providing a nurse/ doctor of the same sex amongst others.





Episode Ten : The Care Values

Component 2 Learning aim B: Demonstrate care values and review own practice

Person Centred Approach



The values can be seen when a person-centred approach to care is taken.



Empowering and promoting independence by involving individuals, where possible, in making choices about treatments they receive or about how care is delivered. This is important so a service user still feels they have control over their lives and that their wishes are being taken into account.

Respect for the individual by respecting service users' needs, beliefs and identity. If a service user has a particular cultural need or religious belief that should be respected and adhered to. Examples can include, dietary requirements, religious practices such as praying at certain times of the day or ritual washing.

Maintaining confidentiality: sharing the records of the service user appropriately with other staff and services as necessary and not gossiping about the service user. Service user's records should also be kept securely in a locked room.

Preserving the dignity of individuals to help them maintain privacy and self-respect during their time at the service user. Examples of this would be shutting the door when a service user needs to undress, using appropriate feeding equipment for adults and helping with personal hygiene.

Effective communication that displays empathy and warmth. This includes verbal, non-verbal communication and active listening.

Safeguarding and duty of care: maintaining a healthy and safe environment, keeping service users and staff safe from physical harm and abuse.

Promoting anti-discriminatory practice by being aware of types of unfair discrimination and avoiding discriminatory behaviour.

Episode Eleven: Application of care values in a compassionate way.

Care-Should be tailored to each individual's needs.

Compassion: Understanding of what the service user is going through

Competence: Safeguard and protect individuals.

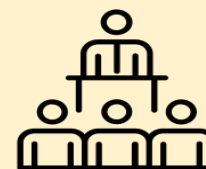
Communication: Adapting to individual's needs.

Courage: Speaking out if witness to something wrong or have made a mistake.

Commitment: Work to the best of your ability.



- Working together:
- All members of staff within a service have a responsibility to uphold the care values.
- Staff training is important to keep all staff up to date with legislation, new practices and shared experiences. It is also an opportunity to share information, if applicable in order to get the service users the best care.



Episode Twelve: Reviewing own application of care values.

Mistakes happen!

Own up – duty of care
Apologise- maintains trust and respect

Suggest ways to rectify the mistake

Work hard to prove your worth

Seek support from others if you need it.



Key aspects of a review



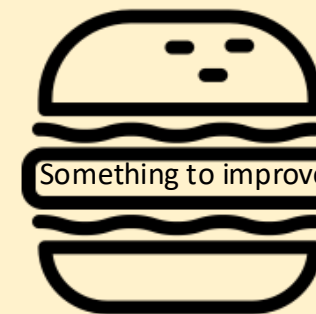
Identifying own strengths and areas for improvement

against the care values

Receiving feedback from teacher or service user about own performance



First positive point



Something to improve

Second positive point

Responding to feedback and identifying ways to improve own performance