



Knowledge Organisers



Term 1 and 2

Year 8

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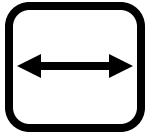
How to revise

Successful Learning Takes Place Over Time

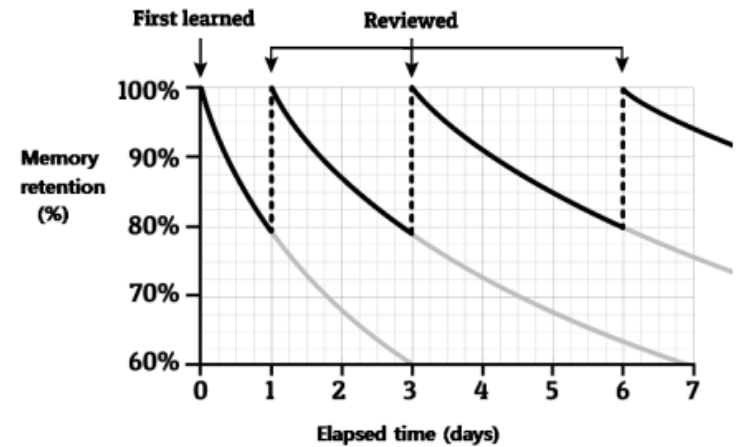


It's rare for anyone to be completely comfortable with something they learn for the first time. This could be a new piece of music, dance move, language or chemistry. We all have to practice. In most instances, the aim is to be at your optimum on the day it matters, e.g. the performance, race or exam. Everything leading up to this point is part of the process of improving. It's about the long-term rather than the short-term, which also means there are no quick fixes. During this period, it's okay to make mistakes; it's okay to feel frustrated. What matters is what you do about it.

Space out your learning on a subject



Spacing out your learning over time is far more effective than last-minute cramming. This is based on research into how we forget and how we remember. The speed at which we forget something will depend on many factors such as the difficulty of the material, how meaningful it was to us, how we learned it and how frequently we relearn or remember it. The last factor tells us that when we learn something for the first time, we need to review it quickly afterwards. The more times we force ourselves to remember something, the longer the gap between reviews, which the diagram below illustrates nicely. The Leitner system and Cornell Notes mentioned earlier provides a wonderful way of achieving this, but the principle applies to all of the learning strategies mentioned in this booklet



Revision strategies

List It



This is a simple free recall task that is very versatile. It can feel challenging, but this is a good thing, and it provides clear feedback on what you do and don't know. Choose a topic, set yourself a time limit and...

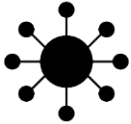
- List as many keywords as you can
- List as many facts as you can
- List as many key events/quotes/individuals as you can
- List as many causes of X as you can
- List as many consequences of Y as you can

Flashcards



Flashcards have the potential to be a powerful learning aid. However, how successful this is will depend on the thought you put into making them in the first place and then how they're used. It's very important to remember that they're for testing, not summarising

Mapping



Mapping is a brilliant way of organising and learning information, demonstrated on various pages in this booklet. It helps you break down complex information, memorise it, and see the connections between different ideas.

Self-testing



Research has shown that every time you bring a memory to mind, you strengthen it. And the more challenging you make this retrieval, the greater the benefit. Self-testing improves the recall of information, transfer of knowledge and making inferences between information. Equally, there are many indirect effects, such as a greater appreciation of what you do and don't know, which helps you plan your next steps.

Flashcards



Flashcards are small sheets of paper or card with matching pieces of information on either side. They are a useful tool for learning facts and allow you to quickly check whether you have remembered something correctly.

When making and using flashcards:

Do:	Don't:
✓ ...make flashcards quickly.	X ...spend more time making flashcards than actually using them.
✓ ...put a single piece of information of each flashcard.	X ...put lots of information onto each flashcard.
✓ ...sort your flashcards according to your confidence with them (see below).	X ...revise the flashcards in the same order every time that you use them.
✓ ...test yourself on the flashcards from memory.	X ...only read through flashcards.

1861	groynes	osmosis	Where is the pharmacy?
Pasteur published his paper about germ theory.	A low wall on the coastline which slows longshore drift	Net movement of water from a high concentration to low concentration across a partially permeable membrane	Où est la pharmacie?

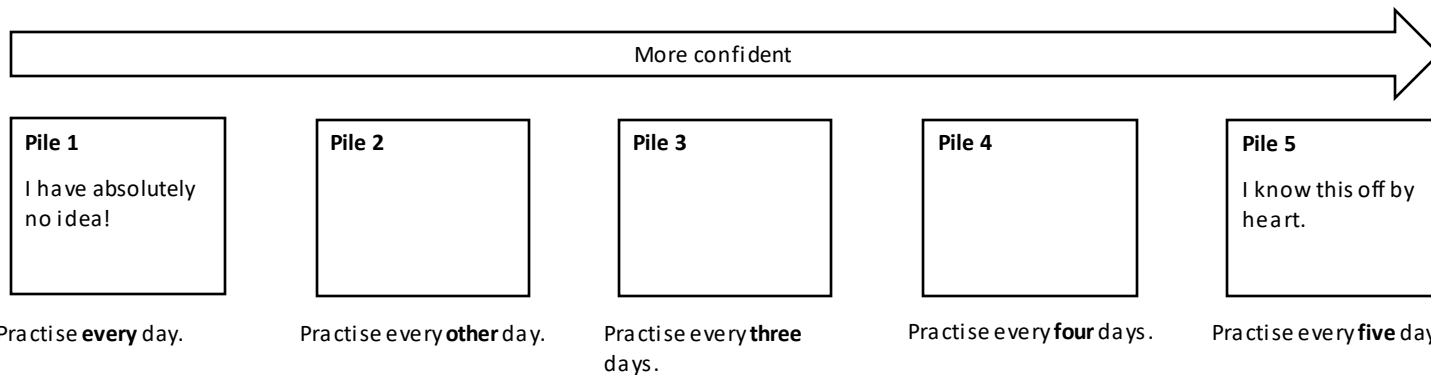
How to make flashcards:

- You can buy a set of flashcards or use a free website such as Quizlet.
- Find the information you want to put onto flashcards using your existing revision resources (e.g. a knowledge organiser).
- Fold a piece of A4 paper into 10.
- Write the questions on the top half of the paper.
- Write the answers on the bottom half of the paper.
- Cut the paper along the dotted lines shown here.
- Fold the strips of paper so that the writing is on either side.

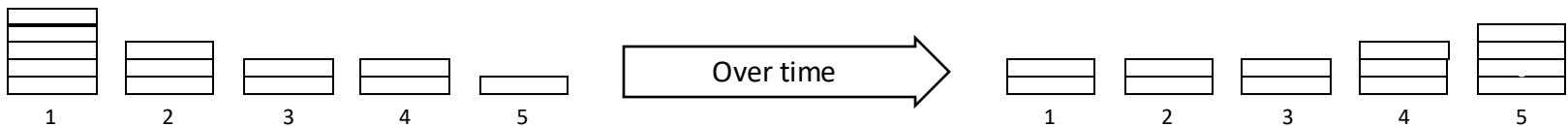
Definition 1	Definition 2	Definition 3	Definition 4	Definition 5
Answer 1	Answer 2	Answer 3	Answer 4	Answer 5

How to use flashcards:

1. Test yourself using the flashcards.
2. As you test yourself, sort the flashcards into up to five piles according to how confident you are with the content.
3. Put the piles into numbered envelopes (1-5).
4. Test yourself on the different piles on different days (see below):



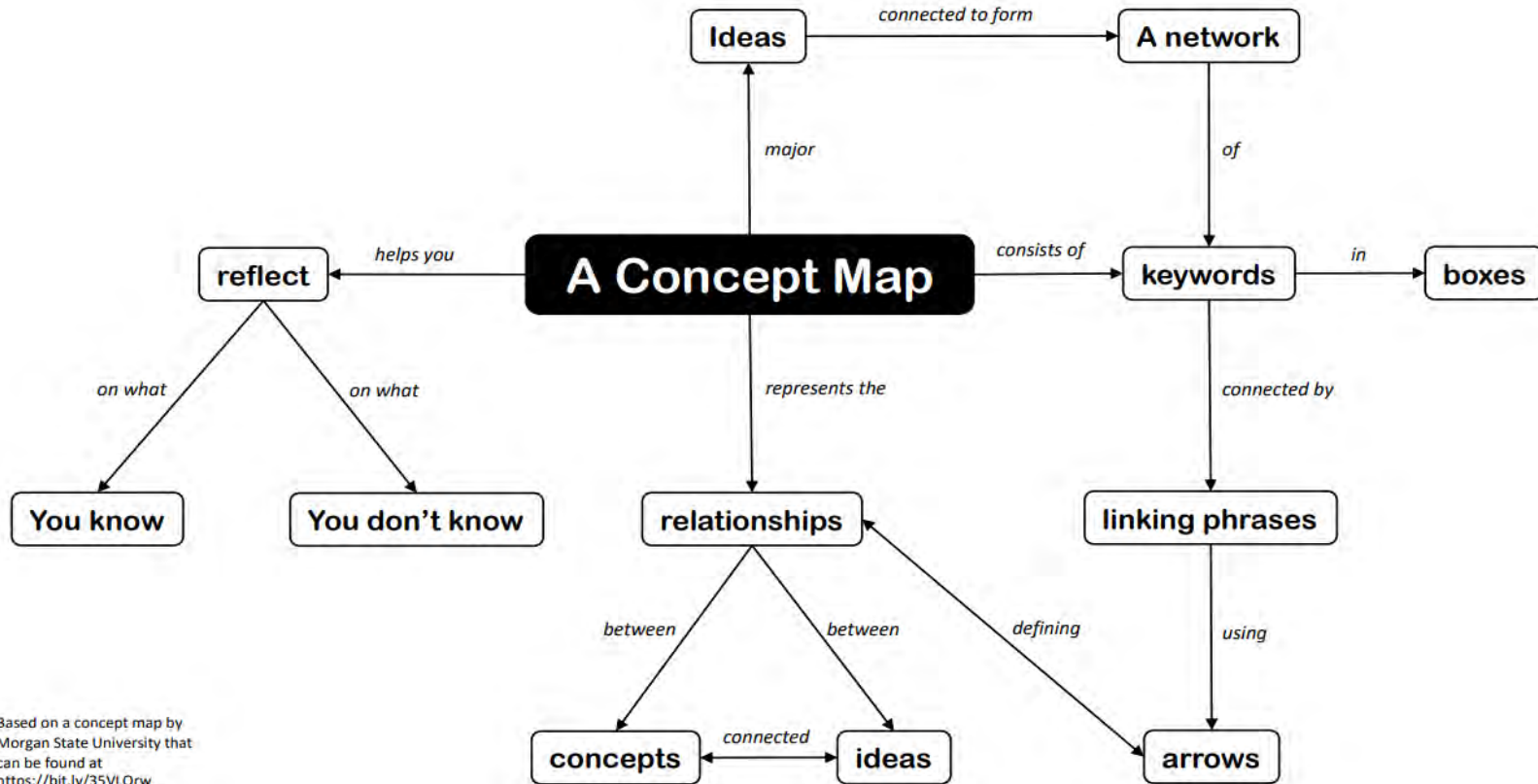
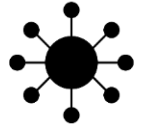
5. As you test yourself on the different piles, move the cards into different piles as you become more confident.



Useful resources:

www.quizlet.com – This free website allows you to quickly create flashcards which you can print, use on a computer, or use on your phone.

Mapping



Based on a concept map by Morgan State University that can be found at <https://bit.ly/35VLQrw>

Interpreting & Comparing Data : Bar Charts

1		
2	On which day did Paula and Rose run the same distance?	Wednesday
3	What is Paula's total distance <u>ran</u> ?	$3+4+6+7+8=24$
4	On which day did Rose run twice as far as Paula?	Monday
5	What can go wrong with drawing a bar chart?	Plot the wrong heights Join all of the bars together with no gaps

Angles

1	An acute angle is	Between 0 and 90°
2	An obtuse angle is	Between 90 and 180°
3	A reflex angle	Between 180 and 360°
4	A right angle is	90°
5	Angle fact: Angles on a straight line sum to	180°
6	Angle fact: Vertically opposite angles are equal	

Interpreting & Comparing Data : Pictograms

1		
2	How many books were sold in February?	$8 \times 3 = 24$
3	How many books were sold in January?	$8 \times 2 = 16$ $16 + 4 = 20$
4	<p>48 wheels were sold on Monday, Tuesday and Wednesday. Complete the key =</p>	$48 \div 6 = 8 \text{ people}$
5	What can go wrong in pictograms?	Forget the key Use an inappropriate shape for the key that can't be easily equally divided into parts Use the wrong fraction of the shape

Interpreting & Comparing Data : Pie Charts

1	180°	½
	90°	¼
	72°	1/5
	60°	1/6
	120°	1/3
	40°	1/9
	36°	1/10

2

Two work out angles in a pie chart

Transport	Frequency
Car	27
Bike	8
Bus	19
Other	6

Find the total = 60
Scale it up to 360 (x 6)
Multiply all numbers by this


Transport	Frequency	Angle
Car	27	162°
Bike	8	48°
Bus	19	114°
Other	6	36°

60 | 360
x6

3b

240 students are in this pie chart

What calculate could you do to work out how many people chose walking?




$$\frac{\text{angle}}{360} \times \text{total}$$

$$\frac{30}{360} \times 240$$

$$\frac{1}{12} \times 240 = 20$$

3c

If 15 people chose walking, how many chose cycling?



Cycling is twice the angle of walking so twice as many people chose it

15 x 2 = 30

4

Rugby Team



Football Team



Why can't you tell that the football team won more matches than the rugby team?

Averages

1	To find the mode you	Look for the most common						
2a	To find the median	Put in order Find the middle number						
2b	To find the position of the median	$\frac{n+1}{2}$ where n is the number of data						
2c	What is there are two middle numbers?	Add them and half it						
2d	Find the <u>median</u> 4 12 5 6 8	Order 4 5 6 8 12 Middle = $\frac{5+1}{2} = 3rd$ Median = 6						
2e	Find the median (numbers are in order) 5 6 8 12 21 39	Middle = $\frac{6+1}{2} = 3.5th$ (between 3rd and 4th) Add 8 and 12 and half it $20 \div 2 = 10$						
3a	To calculate the mean	<i>Total ÷ frequency</i> <i>Add the numbers ÷ how many there are</i>						
3b	Calculate the mean of <u>4 12</u> 5 6 8	$\frac{4 + 12 + 5 + 6 + 8}{6} = \frac{35}{6} = 7$						
3c	If the mean is 5 and there are 6 numbers, the total is	$6 \times 5 = 30$						
4a	To find the range	Largest - smallest						
4b	The range shows	Spread/consistency						
5	When the question says compare using averages you need to mention 1. 2.	1. median/mean showing who's taller/faster/better 2. range with comment on spread						
6	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Boys</th> <th>Girls</th> </tr> </thead> <tbody> <tr> <td>Mean = 65</td> <td>Mean = 89</td> </tr> <tr> <td>Range = 10</td> <td>Range = 20</td> </tr> </tbody> </table> <p>Write 2 sentences to compare boys and girls test scores</p>	Boys	Girls	Mean = 65	Mean = 89	Range = 10	Range = 20	1. The means shows that girls got higher scores on average 2. The range shows that <u>girls</u> results were more spread out
Boys	Girls							
Mean = 65	Mean = 89							
Range = 10	Range = 20							
7	<p>The higher the range the ___ consistent the results</p> <p>The lower the range the ___ consistent the results</p>	<p>The higher the range the less consistent the results</p> <p>The lower the range the more consistent the results</p>						


1a		Positive
1b	What type of correlation is shown? Write a sentence to describe the relationship above	The higher the temperature the higher the number of ice creams sold
2		Negative
2a	What type of correlation is shown? Write a sentence to describe the relationship above	The higher the age, the lower the value
3		No correlation – there is no relationship between a person's height and their IQ
4	What type of correlation is shown? To make estimations from a scatter graph you MUST draw	A straight line of best fit
5	The line of best fit does not need to pass through	(0,0)
6		7 is outside the data set We only have data from 20 marks or higher on paper 1
	Explain why it is not a good idea to use this scatter graph predict the paper 2 score of someone who scores 7 on the non-calculator paper?	

1	Solve means	Find the value of the unknown
2	We solve equations by	Isolating the unknown by eliminating and balancing
3	The answer is called	The solution
4	What are the inverse operations of + ×	- ÷
5	The order in which we choose to eliminate using inverse operations is	
6	Solve $y + 3 = 9$	$y + 3 = 9$ $-3 \quad -3$ $y = 6$
7	Solve $y - 3 = 9$	$y - 3 = 9$ $-3 \quad +3$ $y = 12$
8	Solve $3y = 9$	$3y \text{ means } 3 \times y$ $3y = 9$ $\frac{3y}{3} = \frac{9}{3}$ (9 divided by 3) $y = 3$
9	Solve $\frac{y}{3} = 9$	$\frac{y}{3}$ mean y divided by 3 $\frac{y}{3} = 9$ $\times 3 \quad \times 3$ $y = 27$
10	Which inverse operation would you carry out to both sides first? Solve $2x + 9 = 20$	Subtract 9 from both sides Leaving $2x = 11$
11	Which inverse operation would you carry out to both sides first? Solve $2x - 9 = 20$	Add 9 to both sides Leaving $2x = 29$
12	Which inverse operation would you carry out to both sides first? Solve $20 = \frac{x}{2} - 9$	Add 9 to both sides leaving $20 = \frac{x}{2}$
13	Which inverse operation would you carry out to both sides first? Solve $20 = \frac{x-9}{2}$	The $x - 9$ is grouped ($x - 9$) Dividing by two needs eliminating first by $\times 2$ $Solve \ 20 = \frac{x-9}{2}$ $\times 2 \quad \times 2$ Leaving $40 = x - 9$

Sequences

Solving Equations continued

14	If there are unknowns on both sides...	Eliminate the smallest unknown using inverse operations
15	What would you eliminate first and how? <i>Solve</i> $3x + 10 = x + 16$	Remove the x from both sides by $-x$ <i>Solve</i> $3x + 10 = x + 16$ $-x \quad -x$ Leaving $2x + 10 = 16$
16	What would you eliminate first and how? <i>Solve</i> $3x + 10 = 16 - x$	Remove the $-x$ from both sides by $+x$ <i>Solve</i> $3x + 10 = 16 - x$ $+x \quad +x$ Leaving $4x + 10 = 16$
17	Equations with brackets <i>Solve</i> $3(x - 4) = 18$	Expand the bracket Solve by eliminating and balancing $3x - 12 = 18$ $+12 \quad +12$ $3x = 30$ $x = 10$

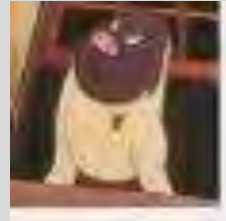
1	Linear sequence (arithmetic sequence) has	A common difference (add, subtract each time)
2	Geometric sequence	Has a common ratio (multiplied each time)
3	To find the next term in a Fibonacci sequence	Add the 2 previous terms
4	Find the next term in this Fibonacci sequence 2 2 4 6 _____	2 2 4 <u>6</u> <u>10</u> <u>16</u>
5	The n th term of 3 6 9 12 is	$3n$
6	The n th term of -3 -6 -9 -12 is	$-3n$
7	The n th term of <u>5</u> 8 11 14 17 is	$3n + 2$
8	The n th term of 1 4 7 10 13	$3n - 2$
9	If the n th term is $5n - 1$, the 20 th term would be	Let $n=20$ $5 \times 20 - 1 = 99$
10	What is the term to term rule for this geometric sequence <u>0.3</u> 3 30 300	Multiply by 10
11	The first 5 triangular numbers are	
12	What would the next triangular number be?	15

Modern Novel

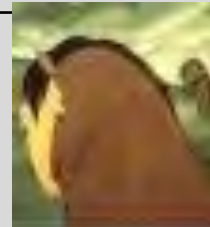
Context	

The Plot	
Chapter 1	
Chapter 2	
Chapter 3	
Chapter 4	
Chapter 5	
Chapter 6	
Chapter 7	
Chapter 8	
Chapter 9	
Chapter 10	


Snowball










Sq





Mr Jones


Key Vocabulary 1 	
Utopia	an imagined place or state of things in which everything is perfect.
Dystopia	an imagined state or society in which there is great suffering or injustice, typically one that is totalitarian or post-apocalyptic.
Corruption	Dishonest behaviour by those who hold power. They may lie and deceive to get more power.
Propaganda	Information that is meant to make people think a certain way. The information may not be true.
Rebellion	A rebellion is a situation in which people fight against those who are in charge of them.
Communism	A type of government whose aim is to share wealth individual people do not own land, factories, or machinery. Instead, the government owns these things. Everyone is supposed to share the wealth that they create
Oppression	Cruel or unjust treatment by an authority over a less powerful group
Democracy	a system of government by the whole population where leaders are voted for and elected
Totalitarianism	a system of government that has total control over its people
Bias	leaning for or against someone or something, especially in a way considered to be unfair.
Tyranny	cruel and oppressive government or rule.
Fake News	false stories that appear to be news, spread on the internet or using other media, usually created to influence political views or as a joke
Commandments	- a divine rule, a rule that should be obeyed strictly

Key Vocabulary 2 		
Vulnerable	a person in need of care	
Oppress	to keep someone in hardship	
Subjugate	to bring under control	
Coerce	to make someone carry out your commands through persuasion	
Dictatorship	a form of government where one person or small group has absolute power	
Hierarchy	an order of importance within society	

Modern Novel

Language Features 	
Direct address	When you speak to the audience using pronoun 'you'
Hyperbole	Exaggerating – going over the top to make a point
Pronouns	Used persuasively to include everyone e.g. 'We stand together'

Story Structure 	
Exposition	-the beginning of a story where the characters and setting are introduced
Trigger point	-the event that triggers a problem or introduces tension
Rising action	- a series of events that build tension in a story
Crisis/climax	- the turning point; the most dramatic part of the story
Falling action	- after the tension has been released and an explanation takes place to solve a mystery/fill in the gaps
Resolution	-the problem is resolved
Denouement	- when the events of the story are finished

1. Forces

A force is a **push** or a **pull** that changes the **shape, speed** or **direction** of an object.

You cannot see forces but you can see the effects of them.

The unit of force is the **Newton (N)**

We measure force using a piece of equipment called a Newton metre.



2. Types of Force

Forces can be divided into two types: contact and non-contact.

- Contact forces** are caused when two objects are in contact.
- Non-contact forces** happen when two objects do not need to be in contact for the force to happen.

Contact	Non-contact
Friction, Push, Pull, Air resistance, thrust, upthrust	Weight, Magnetic, gravity

3. Balanced Forces

When we talk about the total force acting on object we call this the **resultant force**. When the forces acting in opposite directions are the same magnitude (size) we say the forces are **balanced**.

This means one of two things:

- The object is stationary (not moving)
- The object is moving at a constant speed

For example, the vertical resultant force acting on the duck is 5N/5N/0N



Floating duck



Submarine at constant speed and depth

4. Unbalanced Forces

If the forces are **unbalanced** on an object there are two things that could happen:

- If the object is stationary then it will move in the direction of the resultant force
- If the object is moving, then the object will speed up or slow down in the direction of the resultant force



Hot air balloon rising

100N-60N
=40N(to the right)



5. Speed, Distance and Time

How do you find the average speed of an object?

- Measure the distance travelled
- Measure the time taken to travel that distance

Average speed = distance / time

Worked example:

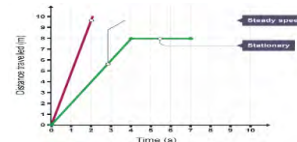
Q) A car travels 2 km in 100 s.
Calculate its average speed.
2 km = 2000 m
2000 m / 100 s = 20 m/s



6. Distance Time Graphs

In a distance-time graph, the gradient of the line is equal to the speed of the object. The greater the gradient (and the steeper the line) the faster the object is moving.

You can calculate the speed of an object by calculating the gradient of the line (distance travelled / time taken). The speed of the object shown by the green line is 8m/4s = 2m/s. Is the purple line travelling faster or slower?



7. Reducing forces for the better

Friction opposes the direction of motion, making it more difficult to move.



This can be helpful:

Your shoes and the floor to stop you slipping
Tyres and the road to prevent skidding
Brakes and the wheel to slow you down

This can be unhelpful:

If you do not lubricate your bike chain using oils, friction between the chain and the axles make it difficult to pedal.

Like friction, air resistance and water resistance forces can also be reduced. This is known as streamlining.

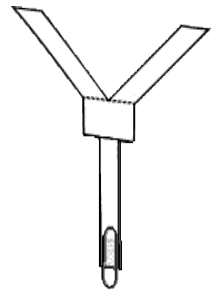
8. Investigating Forces

Scientific Question: Does wing length affect the time taken to land?

Independent variable:
wing length (cm)

Dependent variable:
time taken to land (seconds)

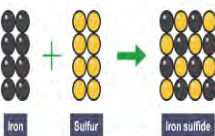
Control variable:
height dropped from (cm)
mass of helicopter (g)



Conclusion: The longer the wings, the greater the force of air resistance.

1. Chemical Reactions

Atoms are rearranged in a chemical reaction. The substances that:



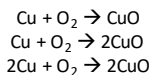
- react together are called the **reactants**
- are formed in the reaction are called the **products**

The atoms in a compound are chemically joined together by strong **forces** called **bonds**. This is why the properties of a compound are different from the elements it contains. A **word equation** shows the names of each substance involved in a reaction, and must not include **chemical symbols**.

2. Chemical Equations

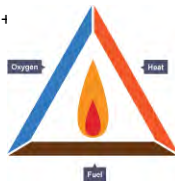
A **balanced** equation gives more information about a chemical reaction because it includes the **symbols** and **formulae** of the substances involved. There are two steps in writing a balanced equation: 1. replace the name of each substance with its symbol or formula. 2. Use numbers to ensure the number of each element is equal on both sides.

For example: Copper + Oxygen → Copper Oxide



3. Combustion

Combustion is the scientific term for burning. There are 3 things that are needed for a fire: oxygen, fuel and heat. If you remove anyone of these the fire will not start or go out. **Complete combustion** occurs when there is good supply of oxygen. The general equation is:



4. Incomplete combustion

Incomplete combustion is another form of combustion which occurs where there is a lack of **oxygen**. Water vapour and carbon dioxide are still produced, but two other **products** are also produced: carbon monoxide, CO, a colourless toxic gas and particles of carbon, which appear as soot and smoke, and which cause breathing problems.

The general **equation** is:
Fuel → carbon monoxide + water + carbon (soot)

5. Oxidation

Combustion is an example of a type of reaction called **oxidation**. In an oxidation reaction, a substance gains oxygen. Metals react with oxygen in the air to produce metal oxides. Metal oxides are **bases** they react with acids and **neutralise** them. Some metal oxides dissolve in water to produce **alkaline** solutions. Non-metals react with oxygen in the air to produce non-metal oxides. Non-metal oxides are **acids**.

6. Thermal Decomposition

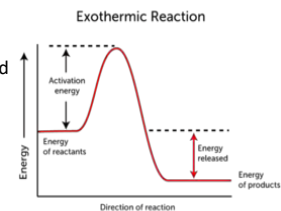
Some compounds break down when heated, forming two or more products from one reactant. This type of reaction is called **thermal decomposition**. Many metal carbonates can take part in thermal decomposition reactions. Metal carbonates undergo thermal decomposition to produce metal oxides and carbon dioxide.

Thermal decomposition is an example of an **endothermic** reaction, a reaction that gains energy from the surroundings.

7. Exothermic Reactions

An **exothermic** reaction is one where energy is released to the surroundings shown as a temperature increase of the surroundings.

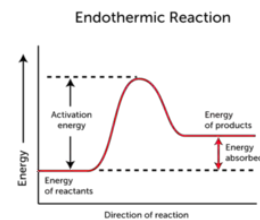
This means that the **reactants** produce both **heat energy** and **products** in the reaction. The **energy level diagram** shows the lower energy in the products.



8. Endothermic Reactions

An **endothermic** reaction is one where energy is absorbed from the surroundings shown as a temperature decrease in the surroundings.

This means that the **reactants** combined with **heat energy** produce **products** in the reaction. The **energy level diagram** shows the higher energy in the products.



Science

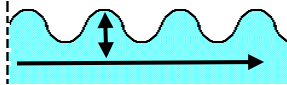


Waves – Light and sound

1. Water waves

If you throw a pebble into a pond, ripples spread out from where it went in. These ripples are waves travelling through the water. The waves move with a transverse motion. The undulations (up and down movement) are at 90° to the direction of travel.

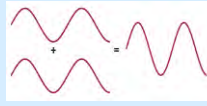
For example, if you stand still in the sea, the water rises and falls as the waves move past you.



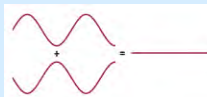
2. Superposition

When two waves meet, they affect each other, this is called **superposition**.

If waves meet 'in step' they will add together, increasing the **amplitude**.

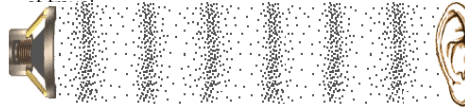


If waves meet 'out of step' they subtract, cancelling each other out.



3. Sound waves

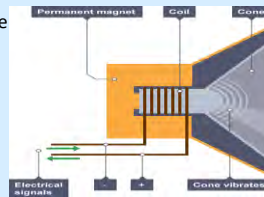
Sound waves are **longitudinal waves** - the vibrations are in the same direction as the direction



Sound travels fastest in a solid. Particles can pass energy on quickly because they are arranged in a **regular pattern and are tightly packed**

4. Loudspeakers

Sound waves are produced by all vibrating objects. Loudspeakers work by converting electrical energy into kinetic energy. This moves the cone which creates the sound waves.



5. Detecting sounds

1. Sound waves are collected by the **outer ear (or pinna)**.
2. The waves travel along the **ear canal**.
3. The waves reach the **eardrum** and make it vibrate.
4. The small bones (**ossicles**) amplify the vibrations.
5. The **cochlea** turns these into electrical signals.
6. The **auditory nerve** takes the signals to the brain.

6. Microphones

Mobile phones and telephones contain microphones. These devices contain a diaphragm, which does a similar job to an ear drum. The vibrations in air make the diaphragm vibrate, and these vibrations are changed to electrical impulses. In the lab, the electrical impulses can be sent to an oscilloscope, which represents them as a graph on a screen

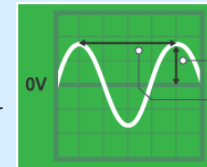


7. Oscilloscope traces

Amplitude is the height of the wave from its resting position – the greater the amplitude, the louder the sound

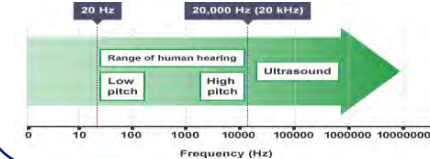
Wavelength is the distance between the crests (tops) of two waves

Frequency is the number of waves per second – the higher the frequency, the closer together the waves are and the higher the pitch



8. Human Hearing range

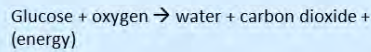
The frequency of sound waves is measured in hertz, which has the symbol Hz. The bigger the number, the greater the frequency and the higher the pitch of the sound. Human beings can generally hear sounds as low as 20 Hz and as high as 20,000 Hz (20 kHz)



Respiration and Gas exchange

Aerobic Respiration

Respiration is the process of breaking down glucose to make energy. The energy is used to processes such as: growth, repair and movement. This process happens in the mitochondria of cells. Aerobic respiration needs oxygen in order to work. The equation for aerobic respiration is:



Respiration and Exercise

When our bodies undergo exercise several changes happen in our bodies. Our breathing rate increases and so does our heart rate.

Breathing rate increases in order to draw more oxygen into our bodies which is needed for respiration. This also removes the carbon dioxide which is being produced quickly through respiration.

Our heart rate increases in order to pump oxygen around the body faster to the muscles. This oxygen is needed for the increase in respiration. The increased heart rate also waste carbon dioxide to be removed from the muscles and taken back the lungs to be exhaled.

Adaptations of the Alveoli

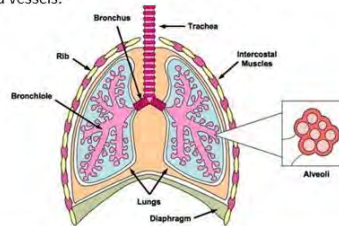
Alveoli are the small air sacs in the lungs are the site of gas exchange. There have several adaptations that make them suited to their function.

- **Large surface area** to allow for maximum gas exchange
- Walls **one cell thick** to minimise the diffusion distance.
- **Large blood supply** to ensure gases are transported quickly.
- **Moist walls** to allows gases to dissolve.



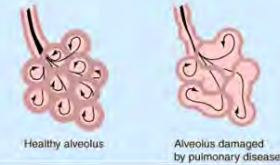
The Respiratory System

The respiratory system consists of the lungs, heart and blood vessels.



Smoking and Respiration

Smoking cigarettes cause damage in the lungs. Over time the alveoli become damaged and change shape. This reduces the surface area of the alveoli and reduces the amount of gas exchange that can take place. This causes symptoms like fatigue and shortness of breath.



Ventilation

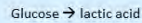
Ventilation is the scientific word for breathing. Breathing is a process that takes oxygen into the body and removes carbon dioxide. Breathing in is called **inhalation** and breathing out is called **exhalation**.

	Inhaling	Exhaling
Diaphragm	Contracts and moves downwards	Relaxes and moves upwards
Intercostal muscles	Contract, moving the ribs upwards and outwards	Relax, letting the ribs move downwards and inwards
Volume of ribcage	Increases	Decreases
Pressure inside the chest	Decreases below atmospheric pressure	Increases above atmospheric pressure
Movement of air	Moves into the lungs	Moves out of the lungs

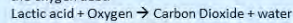
Anaerobic Respiration

During intense exercise not enough oxygen can be supplied to our muscles. When this happens our bodies switch over to anaerobic respiration.

The equation for anaerobic respiration is:



The lactic acid is later broken down into carbon dioxide and water after the period of intense exercise is over. This process is known as the oxygen debt.



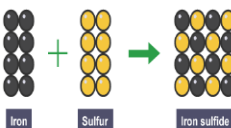
Asthma and Respiration

Asthma is a condition that affects the bronchioles in the lungs. The bronchioles become inflamed and produce mucus making it harder for air to enter and leave the lungs. This causes shortness of breath and tightness in the chest. Inhalers are used as a treatment for asthma and they cause the bronchioles to widen allowing air flow to return to normal.



1. Chemical Reactions

Atoms are rearranged in a chemical reaction. The substances that:



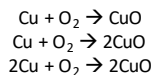
- react together are called the **reactants**
 - are formed in the reaction are called the **products**

The atoms in a compound are chemically joined together by strong **forces** called **bonds**. This is why the properties of a compound are different from the elements it contains. A **word equation** shows the names of each substance involved in a **reaction**, and must not include **chemical symbols**.

2. Chemical Equations

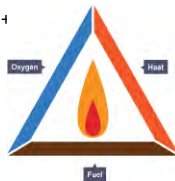
A **balanced** equation gives more information about a chemical reaction because it includes the **symbols** and **formulae** of the substances involved. There are two steps in writing a balanced equation: 1. replace the name of each substance with its symbol or formula. 2. Use numbers to ensure the number of each element is equal on both sides.

For example: Copper + Oxygen → Copper Oxide



3. Combustion

Combustion is the scientific term for burning. There are 3 things that are needed for a fire: oxygen, fuel and heat. If you remove anyone of these the fire will not start or go out. **Complete combustion** occurs when there is good supply of oxygen. The general equation is:



5. Oxidation

Combustion is an example of a type of reaction called **oxidation**. In an oxidation reaction, a substance gains oxygen. Metals react with oxygen in the air to produce metal oxides. Metal oxides are **bases** they react with acids and **neutralise** them. Some metal oxides dissolve in water to produce **alkaline** solutions. Non-metals react with oxygen in the air to produce non-metal oxides. Non-metal oxides are **acids**.

6. Thermal Decomposition

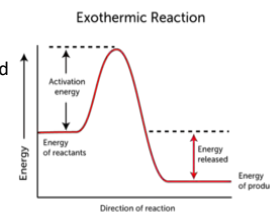
Some compounds break down when heated, forming two or more products from one reactant. This type of reaction is called **thermal decomposition**. Many metal carbonates can take part in thermal decomposition reactions. Metal carbonates undergo thermal decomposition to produce metal oxides and carbon dioxide. Thermal decomposition is an example of an **endothermic** reaction, a reaction that gains energy from the surroundings.

4. Incomplete combustion

Incomplete combustion is another form of combustion which occurs where there is a lack of **oxygen**. Water vapour and carbon dioxide are still produced, but two other **products** are also produced: carbon monoxide, CO, a colourless toxic gas and particles of carbon, which appear as soot and smoke, and which cause breathing problems. The general **equation** is:
 Fuel → carbon monoxide + water + carbon (soot)

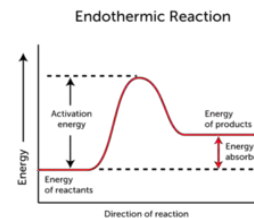
7. Exothermic Reactions

An **exothermic** reaction is one where energy is released to the surroundings shown as a temperature increase of the surroundings. This means that the **reactants** produce both **heat energy** and **products** in the reaction. The **energy level diagram** shows the lower energy in the products.



8. Endothermic Reactions

An **endothermic** reaction is one where energy is absorbed from the surroundings shown as a temperature decrease in the surroundings. This means that the **reactants** combined with **heat energy** produce **products** in the reaction. The **energy level diagram** shows the higher energy in the products.



Food Tech

Health and Safety



Carry knives pointing down.



Wash up with hot water and washing liquid.



Clean surfaces and equipment to kill bacteria.



Wash hands with soap after touching raw meat.



Wipe up spills straight away to avoid slips.

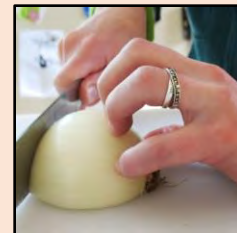
Chopping board colour coding

Red - Raw meat
Blue - Raw fish
Yellow - Cooked meat
Green - Salad and fruit
Brown - Vegetables
White - Bakery and dairy

Knife Skills

- Always carry knives pointing downwards
- Always pass knives by the handle
- Never run or fight with knives
- Keep the knife blade away from your fingers when cutting
- Never cut towards yourself
- Never leave a knife in the sink
- Never try and catch a knife if it falls

When using a knife there are **TWO** techniques we can use to ensure knife safety when cutting ingredients.



Claw grip



Arch grip

Nutrient	Use in the body	Sources
Carbohydrates	To provide energy.	Potatoes, pasta, bread, rice, lentils, noodles, flour.
Protein	For growth, repair and some energy.	Eggs, milk, yoghurt, cheese, fish and seafood, nuts, seeds, soya, meat.
Fat	To provide energy. Also to store energy in the body and insulate it against the cold.	<u>Animal fats</u> : Lard, butter, fish. <u>Plant based</u> : Olive oil, sunflower oil.
Minerals	Needed in small amounts to maintain health e.g. calcium for bone health.	<u>Calcium</u> : Milk, cheese, dairy, green leafy vegetables. <u>Iron</u> : Clams, liver, sunflower seeds, nuts, beef, lamb, beans, whole grains, dark leafy greens.
Vitamins	Needed in small amounts to maintain health.	<u>Vitamin D</u> : Fish oils, fatty fish, mushrooms, beef. <u>Vitamin B</u> : Cereals.
Fibre	Helps to keep the food moving through the gut.	Cereals, bread, beans, lentils, fruit & vegetables.

Common Food Poisoning Pathogens

Pathogen	Sources	Symptoms
E coli	Raw meat, untreated milk and water.	Vomiting, blood in diarrhoea, kidney damage or failure.
Listeria	Soft cheese, pate, unpasteurised milk, under cooked meat.	Mild flu, meningitis and pneumonia.
Clostridium perfringens	Dirt from soil containing animal faeces.	Diarrhoea, stomach cramps.
Salmonella	Raw meat, eggs, seafood, dairy products.	Diarrhoea, vomiting, fever.
Bacillus cereus	Cooked rice, pasta, cereal foods.	Nausea, vomiting, diarrhoea.
Staphylococcus Aureus	Anything touched by hand, dairy products.	Nausea, vomiting, diarrhoea.

Common Food Allergies



A food allergy is when the body's immune system reacts unusually to specific foods. Although allergic reactions are often mild, they can be very serious.

A food intolerance is difficulty digesting certain foods and having an unpleasant physical reaction to them. These include coeliac disease (allergic to gluten) and lactose intolerance (allergic to a type of sugar mainly found in milk and dairy).

Cooking Processes

Radiation

Heat from an oven or grill.

Denaturation

When the protein in cheese unravels (melting).

Gelatinisation

When starch granules swell.

Coagulation

The process when something thickens from a liquid to a solid

Convection

The movement of particles through a substance, moving heat energy from hot areas to cooler areas.

Stock

The juice from cooked meats, fish, and vegetables.

Enzymic Browning

A reaction that occurs in some fruit and vegetables when left to react with air.

Gluten

The protein particles contained in flour.

Shortening

Rubbing flour and fat together to make a crumbly mixture.

Dextrinisation

A chemical process that turns food brown/black when cooking.

Resistant Materials

Workshop Tools



Coping saw



Tenon saw



Woodwork file



Pillar drill



Belt sander



Bench hook

Timbers

Timber comes from trees. Trees have to grow to full maturity (between 25 and 100 years) before they can be cut down for wood. **Timber is grouped into three categories; hardwood, softwood and manufactured boards.**

Hardwoods

Hardwoods come from deciduous trees, which have large flat leaves that fall in the autumn. Hardwoods take longer to grow, are not easily sourced and are expensive to buy.

A tree has a ring for every year it grows, the darker part of the ring is strong. **Hardwoods have closely packed rings because they grow slower. This makes them hard.**

Ash, Beech, Mahogany, Oak and Balsa are examples of hardwoods.

Softwoods

Softwoods come from coniferous trees. These often have pines or needles, and they stay evergreen all year round - they do not lose leaves in the autumn. They are faster growing than hardwoods, making them cheaper to buy, and are considered a sustainable material.

A tree has a ring for every year it grows, the darker part of the ring is strong. **Softwoods have big growth gaps between the rings making them softer.**

Larch, Pine and Spruce are examples of softwoods.

Manufactured boards

Manufactured boards are usually made from timber waste and adhesive.

To make them more aesthetically pleasing they are often veneered (a thin layer of wood, applied to give a nice surface). **They are cheap to buy.**

Medium-density fibreboard (MDF), Plywood and Chipboard are examples of manufactured boards.

Resistant Materials

We use **ACCESS FM** to help us write a **specification** - a list of requirements for a design - and to help us **analyse and describe** an already existing product.

ACCESS FM - Helpsheet

A is for **Aesthetics**



Aesthetics means **what does the product look like?**
What is their: Colour? Shape? Texture? Pattern? Appearance? Feel? Weight? Style?

C is for **Cost**



Cost means **how much does the product cost to buy?**
How much does it: Cost to buy? Cost to make?
How much do the different materials cost? Is it good value?

C is for **Customer**



Customer means **who will buy or use your product?**
Who will buy your product? Who will use your product?
What is their: Age? Gender?
What are their: Likes? Dislikes? Needs? Preferences?

E is for **Environment**



Environment means **will the product affect the environment?**
Is the product: Recyclable? Reuseable? Repairable? Sustainable?
Environmentally friendly? Bad for the environment?
6R's of Design: Recycle / Reuse / Repair / Rethink / Reduce / Refuse

S is for **Size**



Size means **how big or small is the product?**
What is the size of the product in millimeters (mm)? Is this the same size as similar products? Is it comfortable to use? Does it fit?
Would it be improved if it was bigger or smaller?

S is for **Safety**



Safety means **how safe is the product when it is used?**
Will it be safe for the customer to use? Could they hurt themselves?
What's the correct and safest way to use the product? What are the risks?

F is for **Function**



Function means **how does the product work?**
What is the products job and role? What is it needed for? How well does it work? How could it be improved? Why is it used this way?

M is for **Material**



Material means **what is the product made out of?**
What materials is the product made from? Why were these materials used? Would a different material be better? How was the product made? What manufacturing techniques were used?

Key Vocabulary

ACCESS FM

ACCESS FM is a method used in Design and Technology to effectively analyse a product.

Design Brief

A paragraph outlining what you intend to design, using as much detail as possible.

Design Specification

A specification is a list of bullet points that tells the designer exactly what the product has to do and what the requirements are. You can use ACCESS FM to help you write it.
This needs to be very detailed.

Product analysis

Product analysis can take different forms but in general it means asking questions about a product and forming answers. It can mean experts analysing a product or members of the general public or potential customers/groups of people. Product analysis can take place at almost any stage of the design process.

Sustainability

Causing little or no damage to the environment and therefore, able to continue for a long time.

Textiles

Fibres are small hair like structures that are used to make fabrics. On their own they are very weak but when twisted to make yarn they become stronger.

TYPES OF MATERIAL

There are two main groups of fibres Natural and Manmade, these are also divided into sections.

Natural Polymers/Fibres:

These are from animals or plants and are all **biodegradable** (rot away) and are **sustainable** as they will grow again so are environmentally friendly if they are produced **organically**.

Plant	Cotton	Flax (linen)	Hemp	Jute	Bamboo	Soya
Animal	Wool (sheep)	Mohair (goat)	Cashmere	Angora (rabbit)	Alpaca	Llama
Insect	Silk (worm)					



Cotton is produced from plants. To be totally environmentally friendly plant fibres must be produced **organically**. Most cotton is produced using pesticides which as well as killing the insects or diseases is also bad for the environment and makes the workers ill.

Manmade (Manufactured) Polymers/Fibres:

Synthetic: These are made from chemicals which come from oil or coal. These fibres are not environmentally friendly.

Regenerated fibres: These are made from a combination of chemicals and cellulose (tree products).

Synthetic	Acrylic	Polyester	Nylon	Lycra	Elastane	Polypropylene
Regenerated	Viscose	Rayon	Acetate	Lycocell (Tencel)		
Smart Fibres	Materials that's change when exposed to change in temperature, pressure or light.					

Cotton (natural, plant based fibre)

Properties/Characteristics:

① Absorbent	② Soft	③ Cool	④ Good resistance to heat
⑤ Fine	⑥ Strong	⑦ Highly flammable	⑧ Poor elasticity

Used in everyday clothing items, coffee filters, fishing nets and book binding.

Wool (natural, plant based fibre)

Properties/Characteristics:

① Warm	② Very absorbent	③ Medium strength	④ Good elasticity
⑤ Does not burn easily	⑥ Susceptible to being attacked by pests, such as clothes moths.		

Used in everyday clothing, blankets, horse rugs, carpets and upholstery.

Silk (natural, animal based fibre)

Properties/Characteristics:

① Very absorbent	② Soft	③ Fine	④ Lustrous
⑤ Very good resilience	⑥ Good elasticity	⑦ Can be damaged by deodorants and perfumes	

Used in luxury clothing and bedding, rugs and wall hangings.



Polyester (synthetic fibre)

Properties/Characteristics:

① Extremely strong	② Flame resistant	③ Thermoplastic	④ Poor absorbency
⑤ Good elasticity and resilience	⑥ Damaged by acids	⑦ Resistant to solvents and alkalis	

Used in ropes, belts, upholstery padding and low-cost clothing.



Elastane (synthetic fibre)

Properties/Characteristics:

① Lightweight	② Fairly strong	③ Very poor absorption	④ Medium-to-coarse filaments
⑤ Extremely elastic	⑥ When stretched it returns to original shape	⑦ Not damaged by sunlight or sea water	

Used in sportswear, swimwear, tights.

Felted Fabric (non-woven fabric)

Properties/Characteristics:

① Does not fray	② Warm	③ Matted together using moisture, heat and pressure	
④ Little strength	⑤ No elasticity	⑥ Made from wool fibres/ animal hair	

An expensive fabric. Used in hats, slippers, handicrafts and embellishing.



Polycotton (blended fibre)

Properties/Characteristics:

① Non-iron / easy to iron	② Moisture absorbing	③ Polyester and cotton blend
④ Strong	⑤ Durable	

Used in bedding and clothing.



Anatomy and Physiology



Parts of a warm up

1 Pulse raiser: Light continuous activity such as slow jogging, is used to increase heart rate and blood flow. Muscles, ligaments and synovial fluid in the joints are warmed, increasing flexibility

2 Stretch: Stretching the main muscle groups and joints increases their elasticity and mobility so that they are less likely to be strained. Dynamic stretching is a form of stretching whilst moving and therefore not holding a stretch e.g. lunges. Static stretching is holding a stretch for 8-10 seconds (before exercise).

3 Mobilisation: Gently moving the joints through a full range of movement to promote synovial fluid the helps to lubricate the joint e.g. shoulder rotations. Shoulder rotations, open and close the gate, ankle plantar and dorsi flexion.

Effects of exercise

4 Heart rate raises:
During exercise the heart rate increases so that sufficient blood is taken to the working muscles to provide them with enough nutrients and oxygen. An increase in heart rate also allows for waste products to be removed.

5 Blood pressure increases:
Your heart starts to pump harder and faster to circulate blood to deliver oxygen to your muscles. As a result, systolic blood pressure rises.

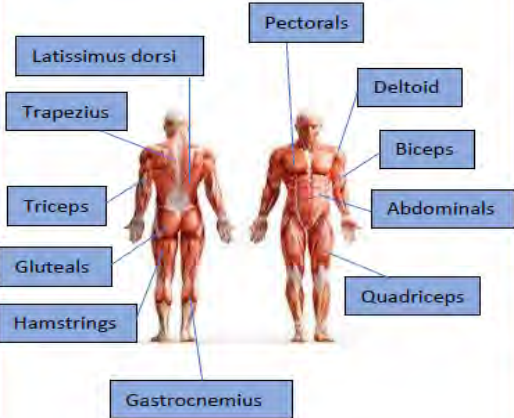
6 Endorphins are released into the blood:
When you exercise, your body releases chemicals called endorphins. These endorphins interact with the receptors in your brain that reduce your perception of pain. Endorphins also trigger a positive feeling in the body, similar to that of morphine.

Benefits of exercise

7 Physical health and well-being:
Improves fitness levels, heart function and efficiency of the body systems e.g. cardio-vascular system. Reduced risk of some illness e.g. diabetes, helps to prevent obesity, enables you to carry out everyday tasks without getting tired.

8 Mental health (emotional) and well-being:
Reduces stress, release feel-good hormones in the body such as serotonin, helps us to control our emotions and work productively.

9 Social health and well-being:
Provides opportunities to socialise/make friends, encourages cooperation, teamwork and mental resilience.



	Muscle	Static stretch
10	Triceps	
11	Hamstring	
12	Pectorals	
13	Quadriceps	
14	Gluteals	
15	Biceps	
16	Deltoids	
17	Abdominals	
18	Gastrocnemius	
18	Latissimus dorsi	

Structure of a PE lesson:

1. Warm up 2. Sports specific drills 3. Adapted games 4. Cool down

My life at school! Year 8 French ARE 1 Vocab list

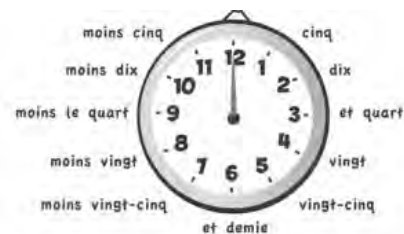
<u>Quelle est ta matière préférée?</u>	<u>What is your favourite subject?</u>
L'anglais	English
L'espagnol	Spanish
Le français	French
Le théâtre	Drama
Le dessin	Art
Le sport / l'EPS	PE
L'informatique	Computer Science
L'éducation civique	PSHE
L'histoire	History
La musique	Music
La technologie	Technology
La géographie	Geography
La religion	RE
Les mathématiques	Maths
Les sciences	Science
Les sciences humaines	Humanities

<u>Que penses-tu?</u>	<u>What do you think?</u>
C'est	It is
Ce n'est pas	It isn't
Créatif	Creative
Intéressant	Interesting
Pratique	Practical
Utile	Useful
(in)confortable	(un)comfortable
Cher	Expensive
Bon marché	Cheap
À la mode	Fashionable
Démodé	Unfashionable
Sale	Dirty
Propre	Clean
Moche	Ugly

<u>Comment est ton uniforme?</u>	<u>What is your school uniform like?</u>
Je porte ...	I wear..
Une veste	Blazer
Un pull	Jumper
Une chemise	Shirt
Un T-shirt	T-shirt
Un pantalon	Trousers
Une cravate	Tie
Une jupe	Skirt
Des chaussettes	Socks
Des chaussures	Shoes
Des collants	Tights

<u>Verbes au collège</u>	<u>Verbs at school</u>
Étudier	To study
Écouter	To listen
Bavarder	To chat
Travailler	To work
Passer	To spend
Jouer	To play
Se reposer	To rest
Se relaxer	To relax




<u>Comment est ton prof ?</u>	<u>What is your teacher like?</u>
Gentil (-le)	Kind
Agréable	Pleasant
Ennuyeux (-se)	Boring
Organisé (e)	Organised
Content (e)	Happy
Difficile	Difficult
Facile	Easy
Amusant (e)	Fun
Coléreux (-se)	Angry
Strict (e)	Strict
Grincheux (-se)	Grumpy
Fort (e)	Strong
Joli (e)	Handsome/ pretty
Horrible	Awful
Fascinant(e)	Exciting
Jeune	Young
Mature	Mature
Petit(e)	Small
Grand (e)	Tall
Parfait(e)	Perfect
Rapide	Fast
Riche	Rich
Bruyant(e)	Noisy
Sage	Wise
Sérieux(-se)	Serious
Timide	Shy
Travailleur(-se)	Hard working
Triste	Sad
Âgé(e)	Old



My life at school! Year 8 French
ARE 1 Vocab list

School – Subjects, uniform and time.
Sports and other hobbies with opinions
+ inf. including jouer and faire Weather.

Finir, jouer & vendre are regular verbs which follows the patterns below; which we have seen before. The verb “faire” is irregular but important, especially for this topic with sports.

Pronouns	Finir – to finish 	Jouer – to play 	Vendre – to sell 	Faire – to do
je (I)	Je finis – I finish	Je joue – I play	Je vends – I sell	Je fais - I do Tu fais – you do Il/elle/on fait – he/she does/we do
tu (you)	Tu finis – you finish	Tu joues – you play	Tu vends – you sell	Nous faisons – we do Vous faites – you (pl) do Ils/elles font – they do
il (he), elle (she), on (we)	il/elle/on finit - He/she/we finishes	il/elle/on joue - He/she/we play	il/elle/on vend – he/she/we sell	Now you should be able to create some of your own questions using the question words below.
nous (we)	Nous finissons – we finish	Nous jouons – we play	Nous vendons – we sell	Quand? – When? Qui? – Who? Où? – Where? Combien? – How many? Qu’est-ce que...? What? Comment? – How? Pourquoi? – Why? Que? – What? Quel(le)? – Which?
vous (you) (pl. or formal)	Vous finissez – you finish (pl. or formal)	Vous jouez – you play (pl. or formal)	Vous vendez – you sell (pl. or formal)	
ils/elles (they)	ils/elles finissent – they finish	ils/elles jouent – they play	ils/elles vendent – they sell	

Opinion phrases help to make your work more interesting – have a look at the list on your vocabulary list. Try to use a range of different ones in your work e.g. J’aime (I like)/je pense que (I think that)/ à mon avis (in my opinion).

Time phrases help to make our work more detailed by telling us when things happen have a look at the list on your vocabulary list e.g. Normalement (normally), rarement (rarely), deux fois par semaine (twice a week).

Food and drink.
Year 8 French
ARE 2 Vocab List

Est-ce que tu aimes... ?
Do you like...?

OPINION	NOUN	JUSTIFICATION	INTENSIFIERS	ADJECTIVES
Je préfère I prefer	le pain (bread)	parce que c'est because it is	très very	agréable (pleasant)
	le poisson (fish)			délicieux/euse (delicious)
J'adore I love	le fromage (cheese)		assez quite	fantastique (fantastic)
	le beurre (butter)			savoureux/euse (tasty)
	le lait (milk)			sain/e (healthy)
J'aime I like	le café (coffee)		un peu a bit	horrible (horrible)
	le thé (tea)			terrible (awful)
	le cola (coke)			doux/douce (sweet)
Je n'aime pas I don't like	le sucre (sugar)		trop too	aigre (sour)
	le jambon (ham)			dégoûtant/e (disgusting)
Je déteste I hate	le chocolat chaud (hot chocolate)		REMEMBER TO MAKE THE ADJECTIVES AGREE WITH	épécé/e (spicy)
	la pomme (apple)			salé (salty)
À mon avis In my opinion	la viande (meat)			gras/se (fatty)
	la confiture (jam)			bon/ne pour la santé (good for your health)
Je pense que I think that	la glace (ice-cream)			mauvais/e pour la santé (bad for your health)
	les haricots verts (green beans)			
	les légumes (vegetables)			
	les frites (chips)			
	les chips (crisps)			
	les épinards (spinach)			
	l'oeuf (egg)			
	l'eau (water)			

AU RESTAURANT

Qu'est-ce que vous voulez
manger? Est-ce que je peux
vous
aider?

IN THE RESTAURANT

What would you like to eat?
Can I help you?

Comme entrée

For the starter

Comme plat principal

For the main

Comme dessert

For dessert

Comme boisson

For drinks

Je voudrais

I would like

Manger/boire

To eat/ to drink

Je prends...

I'll take (have)

Un serveur/ une serveuse

A waiter/waitress

L'addition s'il vous plaît

The bill, please

Le pourboire

The tip



C'est combien ?

How much?

dix	10	u
vingt	20	
vingt et un	21	
trente	30	
trente et un	31	
quarante	40	
cinquante	50	
soixante	60	
soixante-et-un	61	
soixante-dix	70	
soixante-onze	71	
quatre-vingt	80	
quatre-vingt-deux	82	
quatre-vingt-dix	90	
quatre-vingt-douze	92	
cent	100	
deux cents	200	



Quand est-ce que tu
manges? When do you eat?

Le petit déjeuner	Breakfast
Le déjeuner	Lunch
Le goûter	Snack
Le dîner	Evening meal/tea



**DANS LE MARCHÉ/
SUPERMARCHÉ**

**IN THE MARKET /
SUPERMARKET**

Tu voudrais...?	Would you like...?
Un paquet de	A packet of
Un litre de	A litre of
Un kilo de	A kilo of
Un demi kilo de	Half a kilo of
Une bouteille de	A bottle of





French

Food and drink. Year 8 French ARE 2 Knowledge Organiser

Food, prices and quantities. Ordering food in a restaurant.

Verbs and the present tense in French

The infinitive

When you look up a verb in the dictionary, you find its original, unchanged form which is called the **infinitive** (regarder, manger, boire, finir, jouer, avoir, être, etc.). The infinitive ends in **-er, -ir or -re**.

Forming the present tense in French

Take off the last 2 letters of the infinitive (**-er, -ir or -re**) and add the following endings depending on the pronoun:

Adjective agreement.

Remember adjectives have to agree with the noun they are describing. Normally we add an **-e** to make it feminine unless there is already an **e** and we add an **-s** to make it plural.

*But be careful! :

- Adjectives which end in **-f** change to **-ve** feminine
- Adjectives which end in **-ux or -ur** change to **-se** in feminine.
- Adjectives which end in **-il** change to **-ille** in the feminine.

Check out the examples below:

- Il est délicieux – elle est délicieuse
- Il est sain – elle est saine
- Il est savoureux – elle est savoureuse
- Il est gras – elle est grasse

Comparisons

Plus - more Jean est plus intéressant que Paul
 Moins - less Paul est moins intéressant que Jean

Superlative

Le /la plus – the most Jean est le plus intelligent
 Le /la moins – the least Marie est la moins sympa

Opinion phrases help to make your work more interesting – have a look at the list on your vocabulary list. Try to use a range of different ones in your work e.g. J'aime (I like)/je pense que (I think that)/ à mon avis (in my opinion).

In French there are different ways of saying 'some'. See the box to the right.

Words come before the noun	masculine (sing.)	feminine (sing.)	feminine singular (vowel)	masculine plural	feminine plural
some	du	de la	de l'	des	des

My life at school! Year 8 Spanish
ARE 1 Vocab list

<u>¿Cuál es tu asignatura favorita?</u>	<u>What is your favourite subject?</u>
El inglés	English
El español	Spanish
El francés	French
El teatro	Drama
El dibujo	Art
El deporte	PE
La informática	Computer Science
La música	Music
La tecnología	Technology
La geografía	Geography
La historia	History
La religión	RE
La educación personal y social	PSHE
Las matemáticas	Maths
Las ciencias	Science
Las humanidades	Humanities

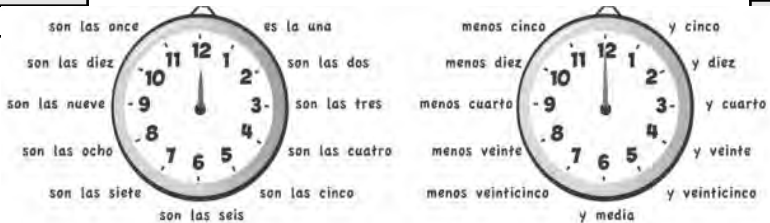


<u>¿Cómo es tu uniforme escolar?</u>	<u>What is your school uniform like?</u>
Llevo...	I wear..
Una chaqueta	Blazer
Un jersey	Jumper
Una camisa	Shirt
Una camiseta	T-shirt
Una corbata	Tie
Una falda	Skirt
Unos calcetines	Socks
Unos pantalones	Trousers
Unos zapatos	Shoes
Unas medias	Tights

<u>¿Cómo es tu profe...?</u>	<u>What is your teacher like?</u>
Amable	Kind
Agradable	Pleasant
Aburrido/a	Boring
Asqueroso/a	Disgusting
Cómodo/a	Comfortable
Contento/a	Happy
Difícil	Difficult
Divertido/a	Fun
Enfadado/a	Angry
Estricto /a	Strict
Feo/a	Ugly
Fuerte	Strong
Grande	big
Guapo/a	Handsome
Horrible	Awful
Emocionante	Exciting
Joven	Young
Limpio/a	Clean
Maduro/a	Mature
Pequeño/a	Small
Perfecto/a	Perfect
Rápido/a	Fast
Rico/a	Rich
Ruidoso/a	Noisy
Sabio/a	Wise
Serio/a	Serious
Sucio/a	Dirty
Tímido/a	Shy
Trabajador/a	Hard working
Triste	Sad
/a	old

<u>¿Qué Piensas?</u>	<u>What do you think?</u>
Es	It is
No es	It isn't
Interesante	Interesting
Práctico	Practical
Útil	Useful
Fácil	Easy
Difícil	Difficult
Aburrido	Boring
Emocionante	Exciting
(in)cómodo	(un) comfortable
Caro	Expensive
Barato	Cheap
De moda	Fashionable
Pasado de moda	Unfashionable




<u>Verbos en el colegio</u>	<u>Verbs at school</u>
Estudiar	To study
Escuchar	To listen
Charlar	To chat
Trabajar	To work
Pasar	To spend
Jugar	To play
Descansar	To rest
Relajar	To relax



My life at school! Year 8
Spanish ARE 1 Knowledge
Organiser


School – Subjects, uniform and time
Sports and other hobbies with opinions + inf.
including jugar and hacer
Weather.

Llevar, vivir & comer are regular verbs which follow the pattern below. The verbs “jugar” and “hacer” are irregular but important verbs, especially for this topic on sports.

Pronouns	llevar– to wear 	vivir– to live 	comer– to eat 
Yo (I)	Llevo– I wear	Vivo– I live	Como– I eat
tú (you)	Llevas– you wear	Vives– you live	Comes– you eat
el (he), ella (she),	Lleva - He/she wears	Vive - He/she lives	Come– he/she eats
nosotros (we)	Llevamos – we wear	Vivimos – we live	Comemos – we eat
vosotros (you) (pl. or formal)	Lleváis – you wear(pl. or formal)	Vivís – you live (pl. or formal)	Coméis – you eat (pl. or formal)
Ellos/ellas (they)	Llevan – they wear	Viven – they live	Comen – they eat

Hacer– to do
Yo hago - I do
Tu haces – you do
Él/ella hace – he/she does
Nosotros hacemos – we do
Vosotros hacéis – you (pl) do
Ellos hacen – they do

Jugar– to play
Yo juego - I play
Tu juegas – you play
Él/ella juega – he/she plays
Nosotros jugamos – we play
Vosotros jugáis – you (pl) play
Ellos/ellas juegan – they play



Opinion phrases help to make our work more interesting – have a look at the list on your vocabulary list. Try to use a range of different ones in your work e.g. Me gusta (I like)/Pienso que (I think that)/ En mi opinión (in my opinion).

Time phrases help to make our work more detailed by telling us when things happen have a look at the list on your vocabulary list e.g. Normalmente (normally), raramente (rarely), dos veces a la semana (twice a week).

¿Te gusta...?
Do you like...?

OPINION	NOUN	JUSTIFICATION	INTENSIFIERS	ADJECTIVES
Prefiero I prefer	el pan (bread)	porque es because it is	muy very	sabroso / rico (tasty)
	el pescado (fish)			delicioso (delicious)
Me encanta(n) I love	el queso (cheese)	porque son because they are	bastante quite	sano (healthy)
	la mantequilla (butter)			malsano (unhealthy)
Me gusta(n) I like	la leche (milk)	un poco a bit	demasiado too	terrible (awful)
	el café (coffee)			asqueroso (disgusting)
No me gusta(n) I don't like	la cola (Coke)	el azúcar (sugar)		picante (spicy)
	el jamón (ham)			dulce (sweet)
Odio I hate	el chocolate caliente (hot chocolate)	la manzana (apple)		amargo (bitter)
	la manzana (apple)			salado (salty)
En mi opinión In my opinion	la carne (meat)	el helado (ice-cream)		grasiento (greasy)
	la mermelada (jam)			bueno para la salud (good for your health)
Pienso que I think that	las judías verdes (green beans)	las verduras (vegetables)		malo para la salud (bad for your health)
	las verduras (vegetables)			REMEMBER TO MAKE THE ADJECTIVES AGREE WITH THE NOUN -o/-a/-os/-as
	las patatas fritas (chips)			
	las papas (crisps)			
	las espinacas (spinach)			

Food and drink.
Year 8 Spanish
ARE 2 Vocab List

WHA Spanish
h

EN EL RESTAURANTE **IN THE RESTAURANT**

¿Qué quieres comer?	What do you want to eat?
De primer plato	For the starter
De segundo plato	For the main
De postre	For dessert
Quisiera	I would like
Para mí	For me
Para beber	To drink
Para comer	To eat
Una ración de...	A portion of...
Camarero/a	Waiter/waitress
¿Tienes...?	Do you have...?
La cuenta, por favor	The bill, please



¿Cuánto cuesta? **How much?**

diez	10
veinte	20
veintiuno	21
treinta	30
treinta y uno	31
cuarenta	40
cincuenta	50
sesenta	60
setenta	70
ochenta	80
noventa	90
cien	100
doscientos	200
quinientos	500
Euros	Euros
Libras	Pounds



¿Cuándo comes? **When do you eat?**

El desayuno	Breakfast
La comida	Lunch
La merienda	Snack
La cena	Evening meal/tea
Desayunar	To eat breakfast
Comer	To eat lunch
Merendar	To snack
Cenar	To eat dinner



EN EL MERCADO / SUPERMERCADO **IN THE MARKET / SUPERMARKET**

¿Te gustaría...?	Would you like...?
Un paquete de	A packet of
Un litro de	A litre of
Un kilo de	A kilo of
Un medio kilo de	Half a kilo of
Una botella de	A bottle of





Verbs and the present tense in Spanish

The infinitive
When you look up a verb in the dictionary, you find its original, unchanged form which is called the **infinitive** (comer, beber, jugar, visitar, vivir, ir etc.). The infinitive ends in **-ar, -er or -ir**.

Forming the present tense in Spanish
Take off the last 2 letters of the infinitive (**-ar, -er or -ir**) and add the following endings depending on the pronoun:
*Important! There are some key irregulars to learn which don't follow this pattern - **ir** (as shown here), **ser**, **tener** and **hacer** are really important!

Comparisons
más - more La cola es **más** deliciosa que el café
menos - less El café es **menos** delicioso que la cola

Superlative
El /la **más** - the most El queso es **el más** rico
El /la **menos** - the least La carne es **la menos** sabrosa

Words come before the noun	Masculine (sing.)	Feminine (sing.)	Masculine plural	feminine plural
A / some	un	una	unos	unas

Adjective agreement.
Remember adjectives have to agree with the noun they are describing. Normally we change the **-o** to a **-a** to make it feminine unless there is already a **-a** then it stays the same and we add an **-s** to make it plural.
El helado es **delicioso** - La pizza es **deliciosa**
El pan es **asqueroso** - La pasta es **asquerosa**

Other rules :

Adjectives which end in -e stay the same when feminine (just add -s to make it plural)
e.g. El café es terrible - La leche es terrible

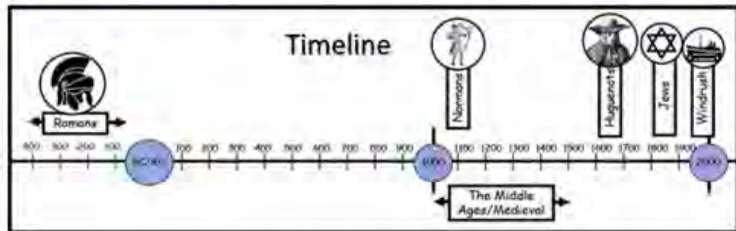
Adjectives which end in -or change to -ora when feminine
e.g. El deporte es agotador - La natación es agotadora

Adjectives which end in -l (or other consonants) stay the same when feminine
e.g. El helado es genial - La mantequilla es genial

Opinion phrases help to make your work more interesting - have a look at the list on your vocabulary list. Try to use a range of different ones in your work e.g. Me gusta (I like)/ Pienso que (I think that)/ En mi opinión (in my opinion).

Migration

Migration:
 What factors have caused people to come to Britain?
 What have attitudes towards migrants been in Britain?



Key Words	
Migration	The movement of a person or people from one country, locality, place of residence, etc., to settle in another; an instance of this.
Aliens	The official name given to people from other countries in the Middle Ages.
Commonwealth	an international association consisting of the UK together with some states that were previously part of the British Empire.
Conquer	overcome and take control of (a place or people) by military force.
Emigration	leaving one's own country to settle permanently in another; moving abroad.
Huguenot	French Protestants.
Racism	prejudice or discrimination directed against someone of a different race based on the belief that one's own race is superior.
Refugee	a displaced person who has been forced to cross national boundaries and who cannot return home safely.
Windrush	people who emigrated from the Caribbean to Britain on the British ship the Empire Windrush in 1948.

Reasons for migration

Who?	Why?
First people 20,000BC.	Wandered across the land bridge which linked Britain to Europe.
Roman Empire, 43 – 410 AD	Conquer new land, extend the Empire to obtain more goods and power. They also wanted revenge for British support of Gaul.
Normans, 1066	William of Normandy invaded declaring he had a claim to the English throne.
French Huguenots, 1670 – 1710.	Persecuted in Catholic France. Many were skilled craftsmen who set up businesses in England.
Eastern European Jews, 1880s	Persecuted and fled to England. Many moved to the East End of London.
Windrush generation late 1940s – 1960s.	After WWII, Britain encouraged immigration from Commonwealth countries. To a large extent this was to help rebuild the country as there was a shortage of labour at the time.

Key reasons for migration	
Employment	Work
Empire	When one country rules over other countries, e.g. British Empire
Persecution	Hostility and ill-treatment, especially because of race or political or religious beliefs; oppression.



Migration

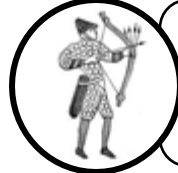
Impact: Migration has had on Great Britain

Attitudes migrants have faced



Romans

The Romans faced several rebellions. e.g. Boudicca, some areas were never really conquered. Many tribes worked with them as shown by the Hallaton Helmet.



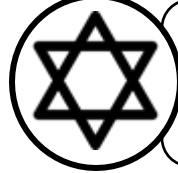
Normans

William created the Domesday Book and taxed people heavily, which they resented. Many Normans took over Anglo-Saxons jobs and people resented this.



Huguenots

Charles II gave them the right to become English citizens. Many were skilled and successful; some were supported by English communities. Others faced prejudice and were mocked for their clothing.



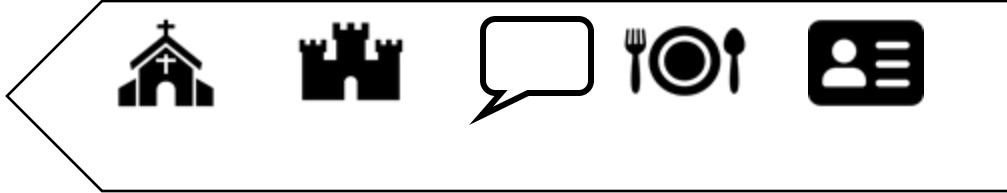
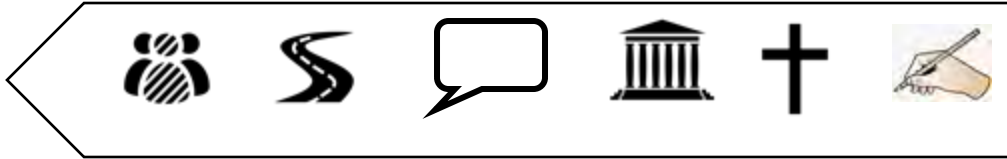
Jews

Areas such as London and Manchester developed large Jewish communities. Although there was some support, many Jewish people experienced Anti-Semitism.



Windrush Generation

Although they had been invited to fill a skills shortage, many experienced racism on arrival. Some struggled to find accommodation and many skilled workers worked in low paid, unskilled jobs.



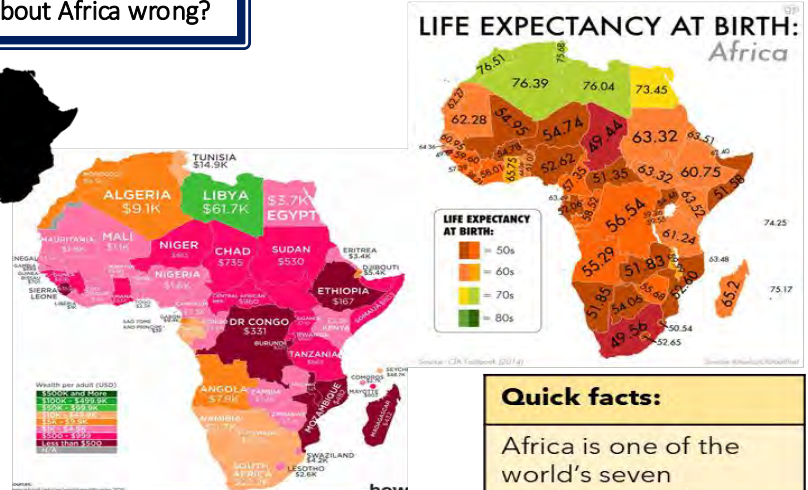


Geography

Is everything we know about Africa wrong?



Keywords	Definition
Development	Positive change over time
Development indicators	A numerical figure that identifies a level of development e.g. Gross National Income
Human development index - HDI	HDI is a figure between 0-1 that designates the development of country accounting for life expectancy, levels of education and GNI
Gross National Income - GNI	GNI is the total amount of money earned by a nation's people and businesses
Birth/death rate	Number of people born or dying per 1000 of population
Infant mortality	Number of children dying before the age of 5
Life expectancy	Average age someone is expected to live
Literacy rate	Number of people who can read and write
Quality of life	The general well being of people, which includes income, health, education employment, happiness and environment
Standard of living	The degree of wealth and owned possessions available to a person or community
Misconceptions	A view or opinion that is incorrect because based on faulty thinking or understanding.
Sustainable development	Progress over time that is conducted without the over use of natural resources, leading to environmental damage



Eko Atlantic in Lagos, Nigeria
 To defend against the coastal erosion and flooding, Lagos is being surrounded by the "Great Wall of Lagos", a sea defence barrier made of 100,000 five-ton concrete blocks.

Eko Atlantic will be a "sustainable city, clean and energy efficient with minimal carbon emissions," offering jobs, prosperity and new land for Nigerians.

Quick facts:

Africa is one of the world's seven continents and contains 54 countries.

Some African economies are the fastest growing in the world...with Kenya and Rwanda outperforming many countries in terms of % GNI growth.

Over 400 million people in Africa live in extreme poverty.

Are Africa's landscapes more than just 'The Lion King'?

Keywords	Definition
Atmospheric circulation	The movement of air around the earth to maintain and balance the temperature.
Biome	An area with similar physical characteristics, climate, plants and animals e.g. rainforest
Climate graph	Climate graphs shows annual precipitation and temperatures typically experienced in a particular location
Tourism	The visiting of place that is not your home for a leisure activities and infrastructure involved in this
Multiplier Effect	Positive overall impact of economic change in a location
Ecotourism	Tourism directed towards unique environments, often threatened, natural environments, intended to support conservation efforts and observe wildlife.

Savanna Characteristics

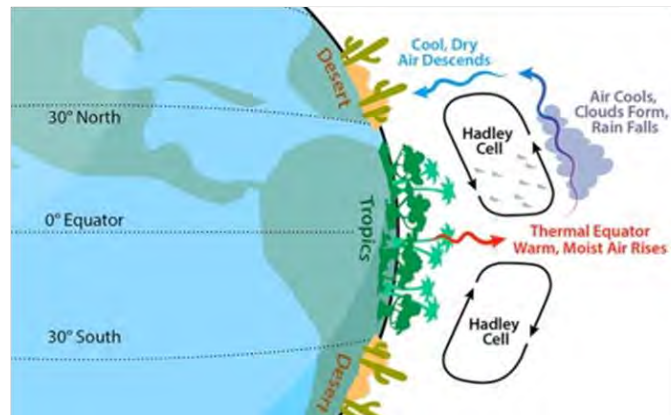


The African Savanna is a tropical grassland making Up **65% of Africa, covering 27 of its countries!**

It has **warm temperatures year-round with its highest seasonal rainfall in the summer.**

It is characterised by **grasses and small, dispersed trees** which allow sunlight to reach the ground.

It is found in between the Tropical Rainforest and Hot Desert.



Hadley Cell

The Hadley cell is a large-scale atmospheric convection cell in which **air rises (low pressure)** at the equator and **sinks (high pressure)** at medium latitudes, typically about 30° north or south.



Botswana is a country in the **south of Africa**, bordering South Africa, Namibia, Zimbabwe, Zambia and Angola.

The tropic of Capricorn goes through the country, meaning the biomes commonly found here are **deserts and savannas**. Popular tourist attractions in Botswana include the **Central Kalahari Game Reserve, Salt Pans Okavango Delta**.

WHA Religion and World Views

The Problem of Evil

(This is an important reason for why many people do not believe in God)

If God was all-knowing (**omniscient**), He would know that we were suffering.

If God was all-powerful (**omnipotent**), He would be able to stop our suffering.

If God was all-loving (**omnibenevolent**), He would want to stop our suffering.

We know evil and suffering exist so how can God exist?

Some religious people would say that all evil and suffering is caused by human **Freewill**.

They believe God created the world it was perfect, people were created, called Adam and Eve and they had **free will**: they were able to choose to make good or bad decisions. The people made bad decisions and disobeyed God which brought suffering and sin into the world so it was no longer perfect. This is called **the Fall**. This is the same with us today – we can choose to greet people with a high five or a slap. What we **choose** to do will create suffering or happiness in the world. It is up to us to choose to do the right thing to make the world a better place.

God allows people to have **freewill**, and their actions to have consequences, this brings a lot of suffering into the world BUT...people who have **freewill** can make real moral choices. If God had created humans like puppets (without free will) they would never be able to **choose** to do the right thing, it would just be automatic. They would also not be able to **choose** to love God or love other people.

God lets people have **freewill**, even though he knows we will cause suffering. But he thinks it is worth it so we can have **freewill** and real **morality**.

Some religious people would say that evil and suffering are actually good things because they help us learn and develop. This is the way we can make our **souls**.

They believe God created the world but it was **not perfect**. God has deliberately put some **challenges** and **suffering** in our world because through learning from suffering we can develop our own **morality**. By making mistakes and learning from the consequences we grow and learn not to make that mistake again because it causes suffering and evil to us and others. For example, if you choose not to revise for a test you will be disappointed with your grade, this suffering will help you to revise next time.

These religious believers think that God also **allows** other people to suffer because it gives us an opportunity to help. If we see someone starving, we have an opportunity to learn how to be **compassionate** and share our food. If someone is being bullied we can learn how to have **courage** to stand up for them. If there was no suffering in the world we would never develop these good qualities.

These believers think that if there was no suffering in the world, we would never learn how to do the right thing and become good people.

Religion

Humanists look for answers in scientific evidence and what their own experiences tell them. They rely on science for the answers to questions such as creation, and base their moral and ethical decision-making on reason, empathy and compassion for others.

The Christian faith teaches that after death, individuals will be taken into the presence of God and they will be judged for the deeds they have done or failed to do during their lifetime. Some Christians believe that this judgement will happen when they die.

Abrahamic faiths are religions that trace their story back to the Prophet Abraham

The Freewill Defence

The Soul-Making Defence

Picture	Key Concept	Meaning
	Morality	Ways to decide if an action is right or wrong, for example, some people look at the consequence of an action to decide.
	Natural evil	Suffering that is caused by nature, for example floods and earthquakes.
	Moral evil	Suffering caused by humans, for example bullying and murder.
	Free will	Being free to make our own moral choices, God does not control our actions.
	Absolutism	What is right stays the same in ALL situations, for example believing that killing someone is always wrong.
	Relativist	What is right changes depending on the situation, for example believing that killing someone to save many others is the right thing to do.

Life is a Test

Some religious people would say that the whole point of life is for God to test us so he can know whether to send us to Heaven or Hell.

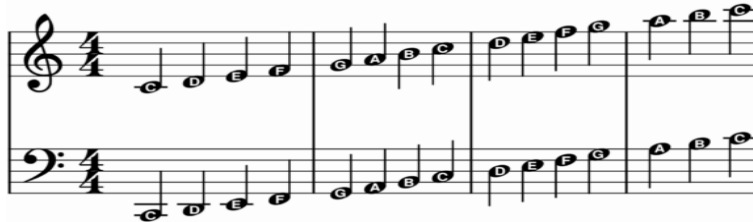
Some people believe that everyone can choose to do right and wrong, they follow God or the Devil.

God is in control but he gives the devil permission to tempt people away from him during their lives. The suffering we experience is a test to see if we will continue to follow God when times are hard.

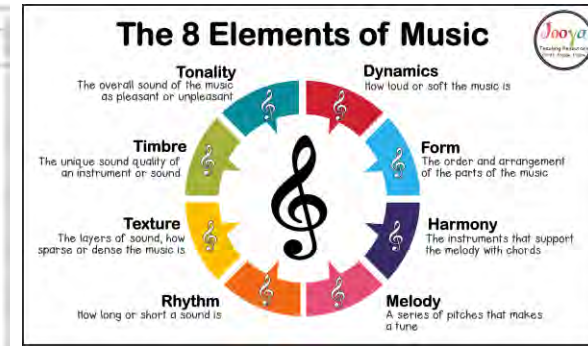
These people think God has picked out just the right amount of suffering for us to go through in our lives. If you suffer a lot, it means God knows you have a strong faith and knows you can handle a difficult test.

The test results come out when the world ends: many people believe there will be a judgement day, the good things you have done will be weighed against the evil things. If there is more good than evil then you will go to Heaven.

How has music narrated the struggle for equality? The Blues



Name	Note Pyramid Symbols	Rest Symbols	Value of each
Semibreve			4
Minim			2
Crotchet			1
Quaver			1/2
Semiquaver			1/4



Key content/ ideas/ concepts Keywords/ Glossary

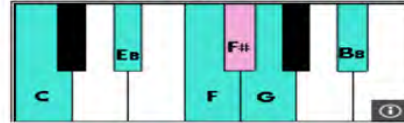
Origins – African slaves brought their musical traditions with them when they were transported to work in the North American colonies. These **Work songs** were sung rhythmically in time with the task being done. Their songs were passed on orally (word of mouth) and were never usually written down. They used **call and response** where phrases from a lead singer were followed by the others. Early styles of Blues was known as **country blues** and was usually a solo singer accompanied on guitar or piano sometimes with added harmonica or drums.

12 Bar Blues – The 12 bar blues is the name of the structure used in blues music. It is split in to 3 sections, which have 4 bars each.

Chords – A chord is 3 notes played together at the same time. A chord is also called a **triad**. Blues music only uses 3 chords which are played at the start of every bar.
C/// C/// C/// C///
F/// F/// C/// C///
G/// F/// C/// C///

Improvisation – Improvisation is where music is performed ‘on the spot’. Music that is improvised isn’t traditionally written down, and the performers will use their musical knowledge to perform something from scratch. In Blues music, the improvisation is usually the notes from the Blues scale.

Blues Scale – The blues scale is a certain selection of notes that have been put together to sound ‘bluesy’. The scale is often used to create the improvisation.



Walking Bass – The walking bass is the main part of any Blues song. This is usually played by the bass guitar. The tempo of the bass line should be steady, which is why it is called the “walking” bass.

Walking Bass

Chords: C, F, G

Notes: C E G A, Bb A G E C E G A, Bb A G E C E G A, G B D E F A C D C E G A Bb A G

Song Structure– Modern Blues songs can sometimes follow modern pop song structure (Verse-Chorus). Older Blues songs usually consist of 3 lines. Lines 1 & 2 are the same, and line 3 is usually different. (This also ties in with the 12 chords).

Lyrics – The lyrics of Blues songs were often about depression, lack of money/employability, loneliness and them missing their family. The lyrics of line 1 & 2 are usually the same, with line 3 being different.

Musical Elements – Musical elements are often used separately and together to help create the mood and expression the emotion on a song.

Composers–
 Robert Johnson
 Muddy Waters
 Etta James

12 Bar Blues	The structure used in Blues music. There are 3 lines of 4 bars.
Blues Scale	A selection of notes that are put together to create a ‘bluesy’ scale. The blues scale is used for the notes during improvised sections of music.
Chords	The chords are played at the beginning of each of the 12 bars. The chords used in Blues are C, F & G. Rule for a chord: play a note – miss a note – play a note – miss a note – play a note.
Improvisation	Improvisation is where music is played and made up ‘on the spot’. Music that is improvised is not usually written down, and not pre-planned.
Walking Bass	The name for the bassline heard in Blues music. It is usually played at a “walking” tempo.
Call and Response	A performed plays/sings a ‘call’ and the other performers will ‘respond’.

Wider reading

http://www.bbc.co.uk/schools/gcsebitesize/music/popular_music/blues2.shtml

<https://www.misswardmusic.com/blues.html>

<https://www.educationquizzes.com/ks3/music/jazz-improvisation-01/>

Creatures & Characters

Keywords:
Mythological-something that is fictitious (made up) or imaginary. Often found in mythology and fables.
Typography - arranging letters and text in a way that makes the copy legible, clear, and visually appealing to the reader.
Surrealism-is an art style that focuses on imagination and dream like images.
Anthropomorphism- is giving human characteristics to animals or objects

Content: In this project you will develop knowledge- of mythological creatures.
Understand-what inspired artists to create their work and how to write about the work
Develop skills- drawing, shading, painting, using materials to create 3 dimensional shapes and showing the influence of other artists in your own work and presentation
Outcome- An original creature inspired by one or some of the characters you have studied.

Salvador Dali...
 Was one of the leading artists of the Surrealist Art movement. He described his work as hand painted dream photographs.



ARTISTS

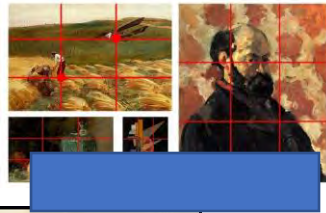
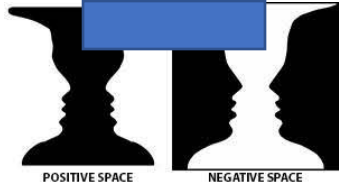
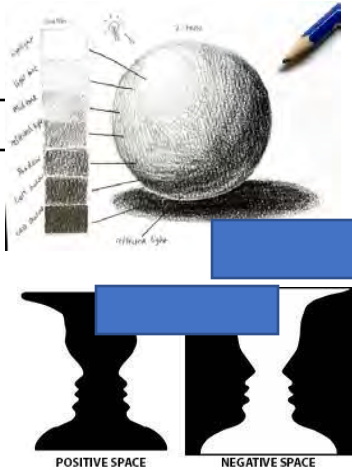
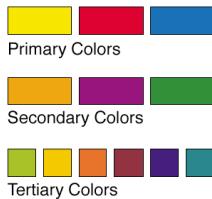
Paride Bertolin



Buff Monster



Tim Burton



SURREALISM (1910-20s): One of the most famous art movements of the Modernist era, thanks mainly to the indelible work *The Persistence of Memory* (1931) by Salvador Dalí, Surrealism is remembered for its production of eye-grabbing images. Leaping off from the Dadaists and the psychoanalytical writings of Sigmund Freud, André Breton, a well-known poet and critic of his time, published “*The Surrealist Manifesto*” in 1924, in which he declared the group’s intention to unite consciousness with unconsciousness so that the realms of dream and fancy could merge with everyday reality in an “absolute reality, a surreality.” Although they were best-remembered for the work of their painters—such as Jean Arp, Max Ernst, and André Masson—Surrealists worked with a variety of mediums, including poetry, literature, sculpture, and the then-new medium of film.

Key Artists	Salvador Dali, Jean Arp, Max Ernst, Frida Kahlo and Andre Masson
Key Artworks	‘The Persistence of Memory’ (1931) by Salvador Dali. Heart to heart ... The Two Fridas (detail), painted by Kahlo in 1939.





Developing Vocal Skills

Knowledge and understanding of how to use the voice to achieve a variety of effects, characters and geographical places.

To develop the ability to control their voice in performance and in everyday life

To empathise with characters different from themselves

To challenge self-consciousness by stepping out of your comfort zone



Script- Written dialogue



Audience- Spectators



Duologue- Two people speaking



Improvisation- Unscripted work

Pitch	This is how high or low a performer makes their voice when playing different roles. Pitch can show the age, gender and mood of the character.
Accent	This informs the audience what country you are from e.g. England.
Diction	This is how clearly you speak using enunciation and pronunciation.
Volume	This is how loud you speak, this could be from a stage whisper to shouting.
Emphasis	This is when a performer puts extra focus on a word or words within a sentence to make a point, this can be done by elongating, speaking louder or changing the tone of your voice.
Intonation	This is varying your voice so that it goes up and down, this helps the fluency of your speech and helps the audience stay engaged with your dialogue.
Projection	This is speaking with strength. Opening your mouth wider creates a bigger projection.
Dialect	This is similar to speaking with an accent except it is more specific i.e. it tells the audience what region you are from e.g. London.
Tone	This is showing the mood that your character is feeling e.g. happy, sad, excited, frustrated etc.
Received Pronunciation	This is when you speak with a posh accent, taking care to enunciate each letter in every word. Performers use the front of their mouths when they are delivering their dialogue to give a nasal sound.
Cockney	This is speaking with an East End (London) dialect.
Enunciation	This is how well a performer speaks e.g. good enunciation means sounding out every letter in every word.
Pronunciation	This is the accent or mood you speak a line of dialogue with e.g. speaking English with a French accent.
Pace	This is how fast or slow a performer speaks. A character who is tired or bored may speak with a slow pace compared with a happy, excited character who will speak with a fast pace.

Understanding Computers

Knowledge Organiser: Understanding computers *Discover how computers work*

Summary

Computers require input hardware, processing hardware and output hardware. The hardware that defines a computer is the **CPU** and **memory**. Without these a computer could not function. The CPU and memory work together to run programs.

CPU - executes programs using the **fetch-decode-execute cycle**.

Memory - stores program operations and data while a program is being executed. There are several types of memory, including: **registers**, **cache**, **RAM** and **virtual memory**.

Storage - stores programs and files long term, even when they are not in use. Devices such as hard drives, USB memory sticks or SD cards are used to store files such as photos, music and software applications long term.

An **input device** is any piece of computer hardware **used to provide data to a computer system**. Examples include: keyboard, mouse, scanner, digital camera and webcam.

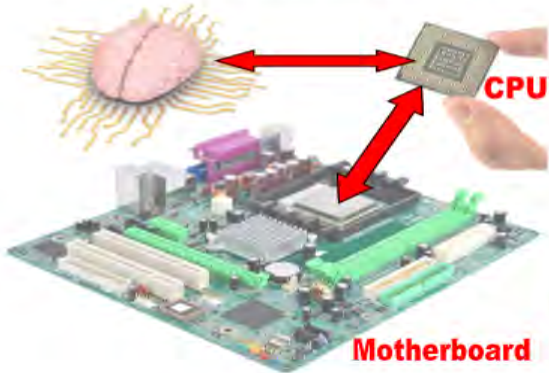
An **output device** is any piece of computer hardware used to communicate the results of data that has been processed.

Key Vocabulary

Clock speed	The speed of a computer CPU, measured in hertz.
Cache	A piece of temporary memory. It can refer to a part of the RAM, storage disk, CPU, or an area for storing web pages.
CPU	Central Processing Unit - the brains of the computer that processes program instructions. Also called a microprocessor .
Execute	To run a computer program.
GHz	Gigahertz. One billion hertz per second – one gigahertz. This is a measure of frequency and is used to describe bus speeds and CPU clock speeds.
Hardware	The physical parts of a computer system, e.g. a graphics card, hard disk drive and CD drive.
Motherboard	The circuit board inside a computer that houses the CPU, memory and connections to other devices.
RAM	Memory that is constantly being written to and read from. It does not retain its contents without a constant supply of power, i.e. when a computer is turned off, everything stored in its RAM is lost.
Registers	The section of high speed memory within the CPU that stores data to be processed.
Software	Software is the programs that run on a computer.
Virtual memory	A section of a computer storage drive which is temporarily used as RAM.

Central Processing Unit

The **Central Processing Unit** or **CPU** is arguably the most important component of a computer. You can think of the CPU as being like the brain in a human. It is responsible for all of a computer's processing.



The Fetch – Decode – Execute cycle cy-

The **CPU** operates by repeating three operations:

FETCH – causes the next instruction and any data involved to be fetched from main memory

DECODE – decodes the instruction to make sure it can be carried out

EXECUTE – carries out the instruction
Repeat...



Binary Units

Remember the units used in the binary system.

1 byte =	8 bits
1 Kilobyte =	1024 bytes
1 Megabyte =	1024 Kilobytes
1 Gigabyte =	1024 Megabytes
1 Terabyte =	1024 Gigabytes