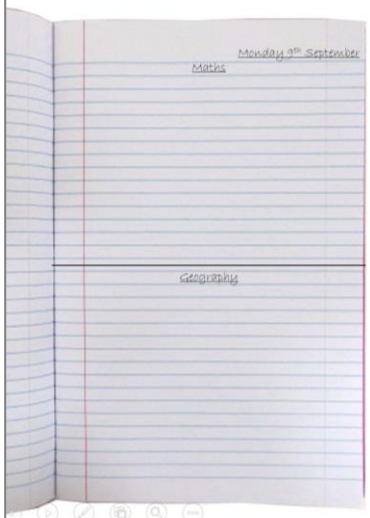
Knowledge Organisers
Year 7 – Term 2

How to complete your Knowledge Organiser Homework

- Learning is an **active process**, just reading the information will not be enough



Each day, in your Knowledge Organiser book, you must write the date at the top and then draw a line to divide the page in half using a ruler.

Use the top half of the page for one subject and the bottom half of the page for the other

You can use some of the techniques you have been taught;

- Look, cover, write, correct, repeat
- Mind maps
- Word Up
- Flashcards

(YouTube channel – Woodrush Online)

Key Points

- Each night you should spend 20 minute learning the information from the knowledge organisers for 2 subjects as set out in your planner
- You should also read your book each night
- You must have evidence of your work in your knowledge organiser exercise book (reading the knowledge organisers is not enough!)
- Your learning of the information will be checked in your lessons
- Your parent/carer must sign your planner each week to confirm that you have been completing your homework
- You may be given option homework to complete but this is not compulsory (but worth lots of achievement points!)

NAME: _____ FORM: _____

English

Travel and Places

Key Terms

Persuasion	Using language to convince someone to agree with your views, or perhaps to buy something or go somewhere.	**Fact and opinion**	A fact is something that is true and can be proven. An opinion is a belief or viewpoint that someone has which is not a fact.
Purpose	The reason that a piece of writing has been created. This can be to inform, advise, persuade, argue, or entertain.	**Statistics**	Using numerical data to support a fact. For example, you could give a fraction or a percentage based on a survey.
Rhetorical question	Using a question in a speech or piece of writing which does not require an answer. Rhetorical questions are used to encourage the reader or listener to consider an idea.	**Sentences**	A sentence must contain a subject and a verb. It must begin with a capital letter and end with a full stop.
Direct address	Using 2nd person pronouns (such as 'you' and 'your') to directly address the reader or listener. This can make a text seem more personal and therefore more persuasive.	**Clause**	A clause is an element of a sentence which contains a subject and a verb. A clause can be main or subordinate.
Triads	Using 3 consecutive words or phrases to describe an idea. For example, *"The resort features stunning beaches, excellent entertainment, and spectacular views."*	**Emotive language**	Using language that will give the reader or listener an emotional response. For example, charity campaigns might use phrases to make the reader feel upset.

Types of non-fiction travel text

Brochure	• Produced by the travel company with the purpose to **persuade** • There will be positive language such as adjectives and triads. • The design will be colourful and attractive, and feature lots of photographs.
Review	• Written by someone who has visited a destination such as a hotel, resort or restaurant • The purpose is to **inform** other potential travellers, and to give positive or negative feedback to the place being reviewed. • Will contain lots of opinions.
Blog	• An online post, either on its own website or published on another website. • Similar to a diary, they are usually informal and contain lots of opinions. • The purpose is to **inform**, although some companies might use blogs to persuade.
Leaflet	• A short text which **informs** potential visitors about an attraction such as a museum, historical site, or zoo. • The design will be colourful and attractive, and feature lots of photographs. • It will be organised in clear sections so it is easy to read.
Website	• The main purpose is to **inform** but companies will also use lots of language to **persuade**. • Will look bright and attractive and feature photographs and images such as maps. • A website will also contain links and may have interactive functions such as a 'chat' window.
Travel Guide	• A book which is published to **inform and advise** the reader about a destination. • Will contain lots of positive language . There will also be some language to advise such as conditional clauses. • There will also be practical information such as prices, locations and opening times.
Memoir	• Similar to an autobiography but focuses on specific experiences such as travel. • Memoirs are very personal so will be written in 1st person and might use humour to **entertain**. • They might also use descriptive language to describe places and feelings.
Letter	• Some customers may write letters or formal emails to complain after a negative holiday experience. • Should be formal. • Should be organised using paragraphs and formal discourse markers. There should be a formal salutation (e.g. Dear Head of Customer Services) and sign-off *(name = yours sincerely, no name = yours faithfully)*

English

SPaG

Sentence Types

Simple

This is a sentence which has just **one main clause.**
They are sometimes used to create a dramatic effect or to add emphasis to a specific idea.

Compound

A sentence which contains **two or more main clauses** linked with a **coordinating conjunction.**
The coordinating conjunctions are below.. These are easy to remember as they spell **'FANBOYS':**
for, and, nor, but, or, yet, so

Complex

A sentence which contains at least **one subordinate clause.** These are linked by **subordinating conjunctions** such as:

although	before	now that	unless
as	even if	provided	until
as if	even though	since	when
as long as	how	so that	whenever
as much as	if	than	where
as soon as	in as much as	that	wherever
as though	in order that	though	while

Clause Types

Main

This is a clause which can make sense on its own. One main clause makes a simple sentence.

Subordinate

A subordinate clause will only make sense when it is part of a complex sentence.
It will not make sense on its own.

Connectives

Similarities	Differences	Sequencing	Cause and Effect
Also	However	At first	Therefore
In Addition	On the other hand	Secondly…	Consequently
Additionally	But	Next	As a result
Moreover	Juxtaposing this	Then	Because of this
Furthermore	In contrast	After that	This causes
Likewise	Contrastingly	In due course	This results in
Similarly	Although	Finally	Hence
In the same way	Whereas	Eventually	Thus
Comparably	Alternatively	In the mean time	Accordingly
Along the same lines	On the contrary	Meanwhile	For that reason
Much like	In opposition	Simultaneously	

Extension: Types of subordinate clause

Clause Type	What are they?	Example
Relative	Give more information about the main noun in the sentence. Usually start with a wh- word such as who or which.	The giant panda, which is native to China, has been close to extinction for many years.
Adverbial	Give information about the main verb in the sentence: how, where, why or when.	Although she was busy, she helped her friend with her homework. Before I go, I need to pack my suitcase.
Conditional	Give a condition that the rest of the sentence depends on. These usually start with 'if…'	If you love adventure, then you could try booking a mountain trek.

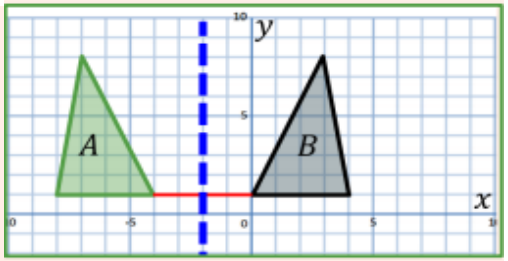
MATHS

Transformations

Reflection

Reflection: the replacement of each point on one side of a line by the point symmetrically placed on the other side of the line.

Need a mirror line



Reflection in the line $x = -2$

Rotation

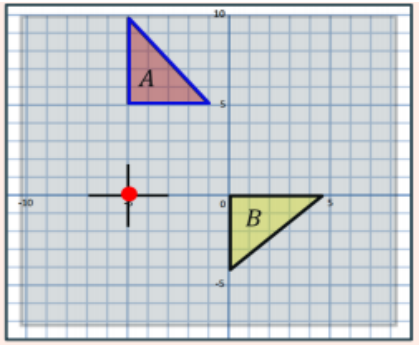
Rotation: the action of rotating a shape about an axis or central point.

Need a Centre point

Need a Direction

Need a measure of turn

Use of tracing paper



Rotation

90° Clockwise

About $(-5,0)$

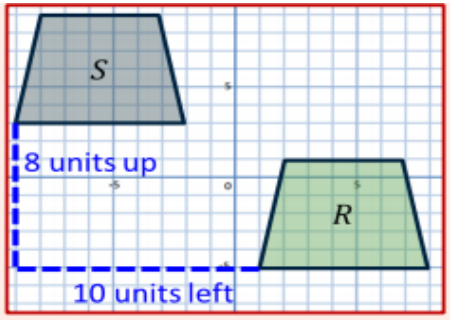
Translation

Translation: the action of 'sliding' a shape to a new position.

Described using Vector Notation

$\begin{pmatrix} x \\ y \end{pmatrix}$ → Direction along

$\begin{pmatrix} x \\ y \end{pmatrix}$ → Direction up/down



$R \rightarrow S =$ Translation $\begin{pmatrix} -10 \\ 8 \end{pmatrix}$

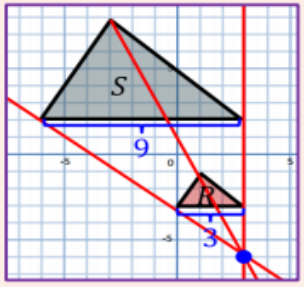
Enlargement

Enlargement: the action of resizing a shape to the scale factor given from a specific point.

Need a Centre point

Need a scale factor

$\frac{New\ shape}{Original\ shape}$



$R \rightarrow S$

Use projection lines

Enlargement

Scale factor 3

From $(3,-6)$

MATHS

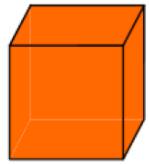
3D shapes

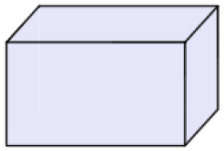
Properties of 3D shapes

Faces, Edges and Vertices	
Faces	The flat surface of a 3-D shape
Edges	Where two Faces meet
Vertices	Where two or more edges meet at a point

Shape	Faces	Edges	Vertices
Cube	6	12	8
Cuboid	6	12	8
Triangular Prism	5	9	6
Pentagonal Prism	7	15	10
Square based Pyramid	5	8	5
Cone	2	1	1
Cylinder	3	2	0
Sphere	1	0	0

Types of 3D shapes

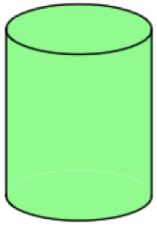

Cube

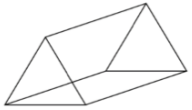

Cuboid

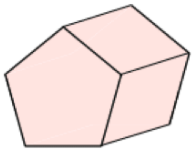

Sphere


Cone

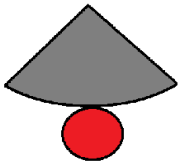

Square-based Pyramid

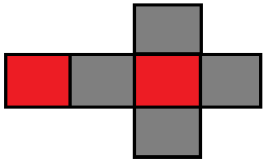

Cylinder

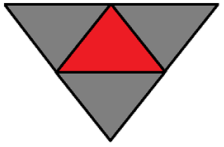

Triangular Prism


Pentagonal Prism

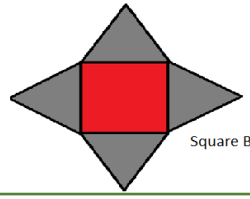
Nets of 3D shapes


Cone


Cube


Triangular Base Pyramid


Cylinder

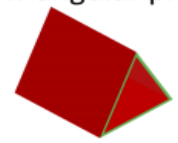

Square Base Pyramid

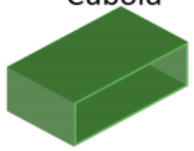
Shape in context

Shape properties are really important when designing packaging or products. You need to know how to make these 3D shapes.

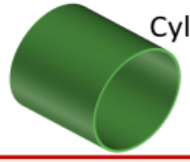
Prisms

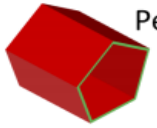
Prisms	The same cross sectional area throughout


Triangular prism


Cuboid


Cube


Cylinder


Pentagonal faced prism

MATHS

Expressions and Formulae

Algebraic Notation

Algebra is the language we use to communicate mathematical information.
Letters used to represent values are known as variables.

Notation creates shortcuts:

$$a \times b = ab$$
$$x + x + x + x = 4x$$
$$y \times y = y^2$$

Numbers, symbols and operators (such as + and ×) grouped together that show the value of something.
e.g. $6xy - 5\frac{a}{b} + 21x$ is an expression

Each individual part is a term.
Eg. $6xy$
$-5\frac{a}{b}$
$21x$

The same rules of BIDMAS applies to Algebra.

Collecting like terms

Collecting like terms enables us to simplify expressions making them easier to use. Terms that contain the exact same variable can be classed as 'like' terms and be simplified.
Be careful of the signs in front of the variable!

$$5x + 6y - 2x - 5y = 3x + y$$

$$5xy + 3x - 2xy + 4y = 3xy + 3x + 4y$$

$$2x^2 + 3x + 5x^2 - 5x = 7x^2 - 2x$$

Formulae and algebra

A formulae explains how to calculate the value of a variable.
e.g. ' The price of a taxi fare in Manchester depends on the distance driven. Each fare is charged a flat fee of £2 and then £3 for each mile driven.'

C= 2 + 3M

If you travel 20 miles then you would calculate the cost by doing 2 + 3 x 20

Cost = £62

MATHS

Expressions and Formulae

Expanding a single bracket

Multiply terms outside by all terms inside

$$10\,(x + y + 4) = 10x + 10y + 40$$

$$3x\,(6x - 2) = 18x^2 - 6x$$

Expanding brackets often the first step in simplifying algebra

$$2\,(x + 3y) - 7(2x - y) = 2x + 6y - 14x + 7y$$

Include sign in multiplication

$$= -12x + 13y$$

Expanding a double bracket

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

Split brackets up around grid

Multiply each term in the grid

	x	$+4$
x	x^2	$4x$
-3	$-3x$	-12

Then simplify

$$x^2 + x - 12$$

Factorising an expression

Look at whole expression, identify HCF and divide out

$12x - 6y + 3z$ HCF = 3

$3(4x - 2y + z)$

$ax + aby + 4az$ HCF = a

$a(x + by + 4z)$

Look at each term separately, divide numbers first then the algebraic terms

Key terms

Variable · varying quantity represented by a letter or symbol, e.g. *x*

Constant · a fixed quantity that does not vary, e.g. a number

Coefficient · a number which multiplies a variable, e.g. *5x*

Exponent · shows the number of times a variable or number is multiplied by itself, e.g. $y^4 = y \times y \times y \times y$

Operator · a symbol indicating what operation must be done, e.g. + - x ÷

Term · one part of an expression which may be a number, a variable or a product of both, e.g. $5x^2$ $4xy$ 12

Expression · one or a group of terms. May include variables, constants, operators and grouping symbols e.g. $5x^2 + 2x(x + 2) - 8$

MATHS

Equations

Solving linear equations

Solve $2x + 3 = 13$

This means: $x \xrightarrow{\times 2} \xrightarrow{+ 3} = 13$

To solve, we reverse the process:

$x \xrightarrow{\times 2} \xrightarrow{+ 3} 13$

$x \xrightarrow{\div 2} \xrightarrow{- 3} 13$

Use the opposite (inverse) operation and undo in reverse order.

$2x + 3 = 13$ | $- 3$

$2x = 10$ | $\div 2$

$x = 5$

We have solved the equation when we get to a single value of x (here, x = 5).

Solve $3x - 8 = 19$

$3x - 8 = 19$ | $+ 8$

$3x = 27$ | $\div 3$

$x = 9$

Solve $4x + 6 = 14$

$4x + 6 = 14$ | $- 6$

$4x = 8$ | $\div 4$

$x = 2$

Inverse operations

Operation	Inverse
+	−
−	+
×	÷
÷	×
x^2	$\sqrt{x}$

To be able to solve equations you need to know the inverse operations. You will need to work backwards to find the missing value by doing the inverse operation.

Solving more complex equations

- Expand brackets and simplify (collect like terms)
- If x is on both sides, eliminate smallest value
- Eliminate excess number
- Divide and solve for x

ORDER

$$3(x+1) = 2(x+2)$$

$$3x + 3 = 2x + 4$$

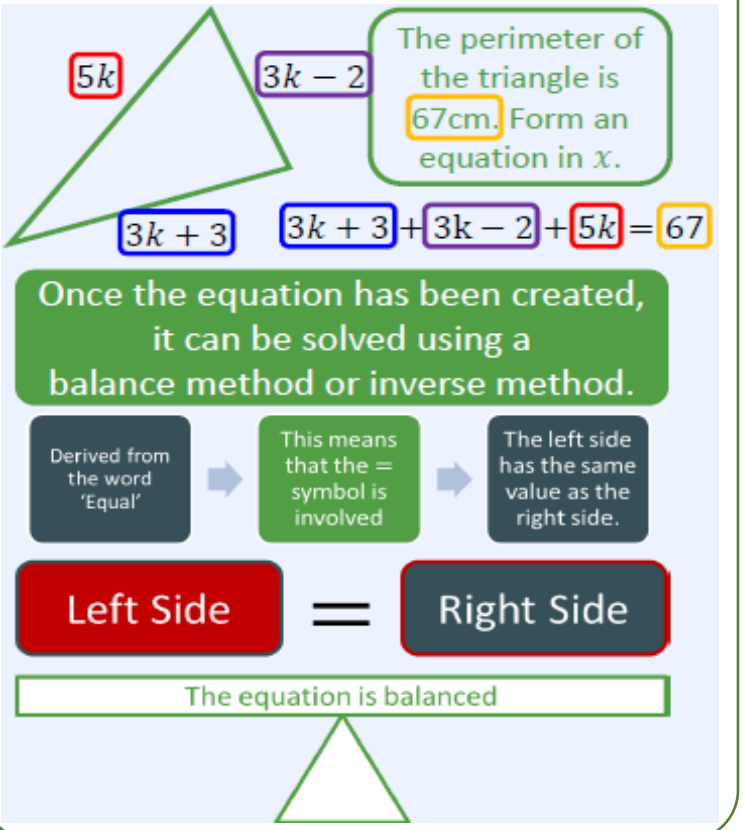
$$-2x \quad -2x$$

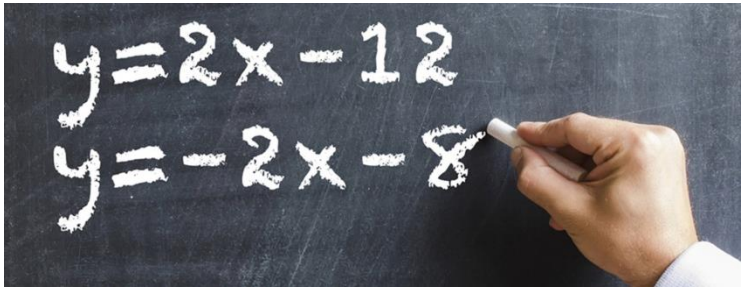
$$x + 3 = 4$$

$$-3 \quad -3$$

$$x = 1$$

Solving equations in context





MATHS

Sequences

What is a sequence

A series of numbers, patterns that follow a given rule

3 8 13 18 ... 23 28 33

+5 +5 +5 +5 +5 +5

Each number in the sequence is known as a 'term'

Identify what is happening between each term to generate the rule

General rule is known as n^{th} term.

Finding the nth term

		+3	+3	+3
Sequence	5	8	11	13
Times table	3	6	9	12
Extra bit	+2	+2	+2	+2

$3n + 2$

Find the common difference (this will be your n coefficient)

Write times table underneath sequence (of your n coefficient)

Sequence minus times table (this is your extra bit)

Substitution

Replace letters in the formula with numbers you are given

"The perimeter of a square is 4 times the length of its sides"

$P = 4l$

What is perimeter of a square with side length 5cm?

$l = 5$ $\quad P = 4(5)$

$P = 20cm$

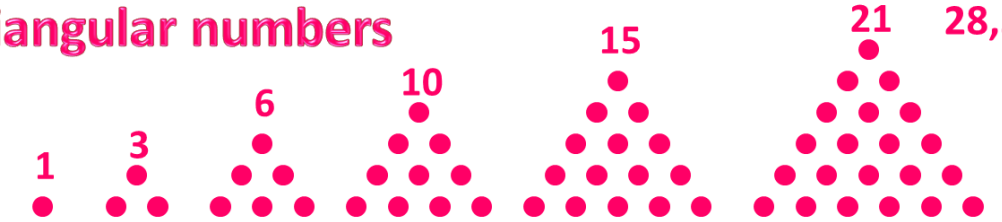
Identify the formula and the values to substitute in.

Substitute values in using brackets

Carry out calculation remembering BIDMAS

Special sequences

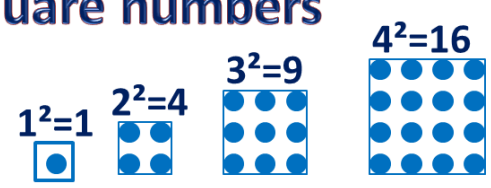
Triangular numbers



28,36,45,55...

●●●

Square numbers



$7^2=49$
$8^2=64$
$9^2=81$
$10=^2100$...

●●●

6 , 11 , 18 , 27 , 38 , 51 , ---

+5 +7 +9 +11 +13

+2 +2 +2 +2

Science

B2 Respiration and Photosynthesis

Photosynthesis

Photosynthesis a chemical reaction that plants use to make food (glucose)

Photosynthesis takes place in the **chloroplasts** of plant cells.

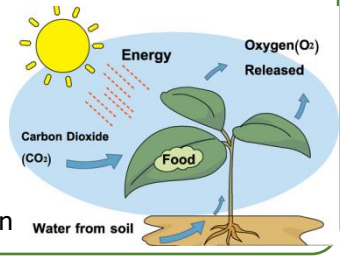
Chlorophyll is a green pigment found in chloroplast that is needed for photosynthesis

$$6CO_2 + 6H_2O \xrightarrow[\text{Chlorophyll}]{\text{Sunlight}} C_6H_{12}O_6 + 6O_2$$

carbon dioxide — water — glucose — oxygen

Factors that affect the rate of photosynthesis are;

- Light intensity
- Temperature
- Carbon dioxide concentration

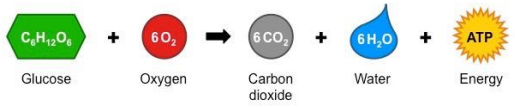


Respiration

Respiration is a chemical reaction that breaks down **glucose** to make **energy**

Respiration takes place in the **mitochondria**

Aerobic respiration (when oxygen is present)



Anaerobic respiration (when oxygen is absent)

glucose → lactic acid (+ energy)

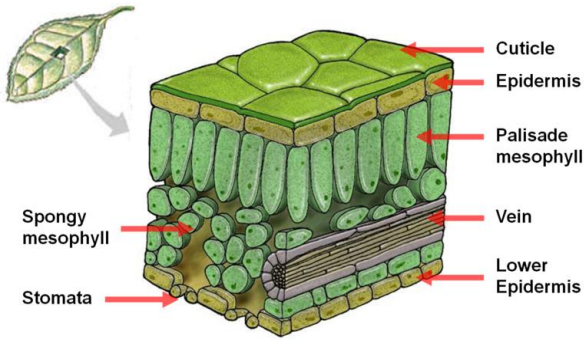
Lactic acid is a toxic chemical that causes muscle fatigue and cramps

Oxygen debt is the amount of oxygen required to break down the lactic acid

Comparing Aerobic and Anaerobic Respiration

Aerobic	Anaerobic
Uses oxygen	Doesn't use oxygen
Uses glucose	Uses glucose
Produces carbon dioxide and water	Produces lactic acid
Used in low intensity exercise	Used in high intensity exercise
Produces a lot of energy	Produces a small amount of energy
Occurs in the mitochondria	Occurs in the mitochondria

Structure of a leaf



Chloroplast	Contains chlorophyll to absorb light in photosynthesis.
Palisade mesophyll	Layer at top of the leaf. Contains lots of chloroplasts to absorb as much light as possible.
Waxy cuticle	Reduces water loss. Allows light through as it is transparent.
Stomata	Holes in the bottom of leaves to allow gas exchange of oxygen and carbon dioxide.
Guard cells	Open and close stomata to control gas exchange.

Investigating Heart Rate and Breathing Rate

Heart rate is the number of times the **heart beats** in one minute.

To measure your heart rate
- find pulse on wrist or neck,
- count how many beats there are in 10 seconds
- x 6 = beats in I minute.

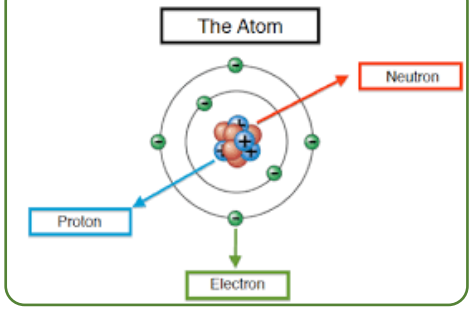
Breathing rate is how many **breaths** you take in one minute

To measure your breathing rate
- count how many breaths you take in 10 seconds
- x 6 = beats in 1 minute

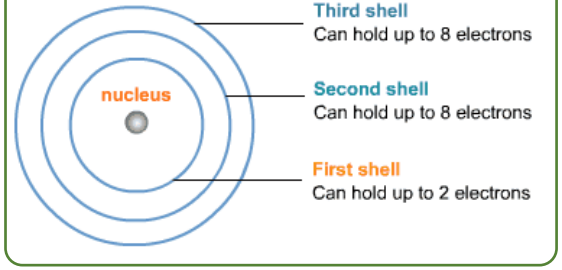
Exercise increases heart rate and breathing rate to pump more oxygen to the muscles.

Science

C2 Atomic structure



Particle	Charge	Relative mass
Proton	+1	1
Neutron	0	1
Electron	-1	0.0005

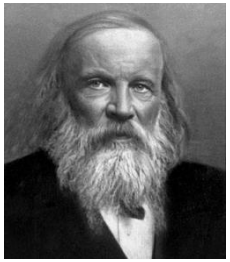


<u>Reactivity</u>

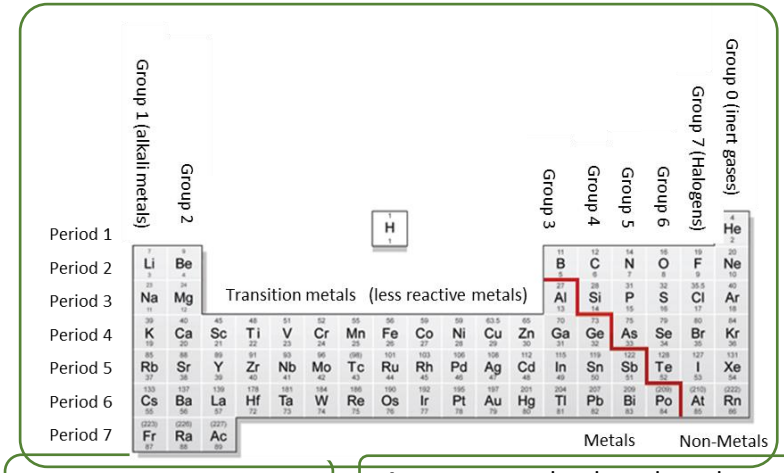
Some metals are more reactive than others. The easier it is for a metal to lose its outer electrons, the more reactive it is.

The most reactive metals are found in group 1 (the alkali metals). They react with cold water to produce Hydrogen and an alkaline solution

Dmitri Mendeleev



Dmitri Mendeleev (1834-1907) was a Russian chemist. In 1869 he made an early version of the Periodic table that was farsighted and more successful than previous versions. He arranged elements in order of atomic mass but put elements with similar properties into vertical groups. This meant that there were gaps in some of the rows but Mendeleev said that the gaps were for elements that had not yet been discovered and he was able to predict their properties



<u>Properties of metals</u>

Lustrous Shiny when polished or cut

Ductile Can be drawn into wires

Malleable Can be hammered into sheets and flexible

Electrical conductor Allows electricity to pass through it

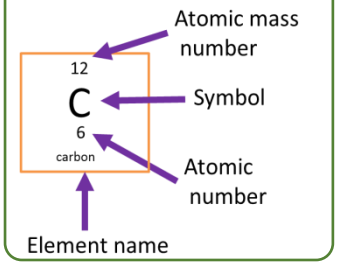
Dense High mass for its size

Thermal conductor Allows heat to pass through it

Sonorous Makes a ringing sound when struck

Group number = Number of electrons in the outer shell

Period number = Number of occupied shells



Ions – atoms that have lost electrons or gained electrons in order to have a full outer shell of electrons and become more stable.

Ions with a positive charge have lost electrons

Ions with a negative charge have gained electrons

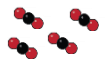
Isotopes – forms of an element that have the same number of protons but different numbers of neutrons (so different mass numbers)

Atomic number = Number of protons

Period number = Number of protons and neutrons

Element – a substance made up of only one type of atom

Compound – a substance made up of 2 or more elements chemically joined together



Science

P2 Energy and Space

Keywords

Electrostatic	a build up of charge, like in a storm cloud
Nuclear	Energy store found in radioactive substances and the sun
Gravitational potential	Energy store an object has at a height
Elastic potential	Energy store an object has when it is bent or stretched
Thermal	Heat energy
Chemical	Energy store in a battery or a fuel
Kinetic	Energy of movement
Mechanical work	Any time a force is applied
Radiation	Light, sound, infrared and any other wave
Heating	Movement of heat through particles
Electrical work	The flow of electricity
Power	The rate of energy transfer
Non-renewable	A source of energy that will run out
Renewable	A source of energy that will not run out
Hydroelectric	Generating electricity from the flow of water (usually by building a dam)
Biofuels	Generating electricity by burning dead plants and animals
Geothermal	Generating electricity using the Earth's heat
Solar system	The sun and the planets and dwarf planets that orbit around it
Heliocentric	The planets all go around the sun (as opposed to the sun going around the Earth)

Energy transfer diagrams

Energy transfers can be described using a diagram.

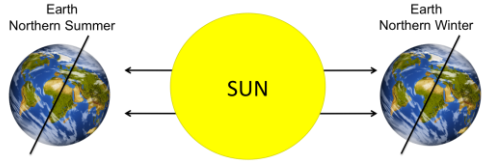
Store → Transfer → Store

Gravitational potential energy → *Mechanical work* → *Kinetic energy*

Days and seasons

The Earth **spins on its axis.** This is why we have **night and day.**

The Earth is **tilted** on its axis. The half of the Earth tilted **towards the Sun** has **summer.** The half of the Earth tilted **away from the Sun** has **winter.**



Important groups

The 8 stores of energy: Magnetic, electrostatic, nuclear, gravitational, elastic, thermal, chemical, kinetic (**MEN GET CK**)

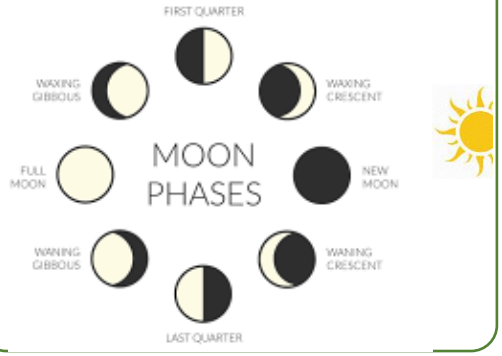
The 4 ways of transferring energy: Mechanical work, radiation, heating, electrical work **(MR HE)**

The 3 fossil fuels: Coal, crude oil and natural gas

5 Renewable resources: Solar, Wind, Hydroelectric, biofuels, geothermal

The 8 planets in our solar system (in order): Mercury, Venus, Earth, Mars, Jupiter, Saturn, Neptune Uranus

Phases of the moon



History

The English Civil War

Timeline of events

24 March 1603	James VI of Scotland is crowned James I of England after the death of Elizabeth I
5 Nov 1605	The Gunpowder Plot, an attempt to blow up Parliament and kill the king, is foiled
1642	King Charles declares war on Parliament.
1642	Battle of Edgehill
1645	Battle of Naseby
1649	Trial of Charles I
1649	Execution of Charles I
1653	Cromwell became 'Lord Protector' of England

The Gunpowder Plot, 1605

Who? A group of Catholics led including Guy Fawkes, Robert Catesby, Thomas Winter, Thomas Percy, and John Wright.
What? Plotted to kill the King of England (James I) by blowing Parliament up
Where? A cellar under the House of Lords, Parliament, Westminster, London
When? 5th November 1605. This was State Opening day, when the King, Lords and Commons would all be present in the Lords Chamber to open parliament.
Why? Guy Fawkes was one of a group of Catholics who felt that the government was treating Roman Catholics unfairly. They hoped that King James would change the laws, but he didn't. Catholics had to practise their religion in secret. There were fines for people who didn't attend the Protestant church services on Sunday or on holy days. James passed more laws against the Catholics when he became king. These Catholics wanted to get rid of this anti-Catholic king.

Were the conspirators framed?

Framed	Guilty
Evidence given under torture is notoriously unreliable - people will say anything to stop the pain	Guy Fawkes was a Dutch explosives expert - why would he have come to England if not to use explosives?
James I's Chief Minister, Robert Cecil, was notorious for his hatred of Catholics	Gunpowder was not normally kept in the cellar below Parliament - it must have been put there by someone!
All gunpowder was kept under guard in the Tower of London. However, the records for 1604 have gone missing	The conspirators confessed to the plot - albeit under torture

Key Vocabulary:

Roundhead	Nickname for the parliamentary soldiers (from their haircut)
Cavalier	Nickname for the soldiers in the royalist army
New Model Army	New and improved parliamentary army with excellent training and character
Treason	The crime of betraying your country
Puritan	Protestants who wanted to 'purify' the Church of England from its Catholic ways

The New Model Army:

Early setbacks in the Civil War forced Parliament to build a new army that would be a match for the royalists:

Religious zeal	Soldiers waved banners with bible verses on and charged into battle singing hymns. They believed that they fought for God's cause
Strict discipline	Cromwell taught his men to follow orders at all costs. They won battles through discipline and training
Chosen for talent	Cromwell asked for men of belief and talent, rather than the wealthy gentlemen officers in the royalist army
Belief in the cause	Soldiers of the new army really believed that they were fighting to create a fairer society.

The Trial of Charles I:

The trial of King Charles was controversial. The debate about how fair it rages to this day.

Fair Trial	Unfair Trial
The trial had a qualified judge, John Bradshaw and witnesses were called	There was no law to say that the government could execute the King - one had to be written specially
The King was given time to speak but chose not to	King Charles was not allowed to question the witnesses
The King was allowed to plead 'guilty' or 'not guilty'	The judge was a friend of Cromwell and was given a well-paid job after the trial

History

Industrial Revolution

Factory working conditions

Long working hours: normal shifts were usually 12-14 hours a day, with extra time required during busy periods.
Low wages: a typical wage for male workers was about 15 shillings (75p) a week, but women and children were paid much less, with children three shillings (15p). For this reason, employers preferred to employ women and children.
Cruel discipline: there was frequent "strapping" (hitting with a leather strap). Other punishments included nailing children's ears to the table, and dowsing them in water butts to keep them awake.
Accidents: forcing children to crawl into dangerous, unguarded machinery led to many accidents and deaths.
Health: The air was full of dust, which led to chest and lung diseases and loud noise made by machines damaged workers' hearing.

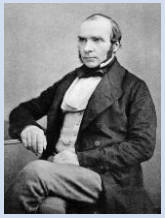
Living conditions

Overcrowding: due to large numbers of people moving to the cities, there were not enough houses for all these people to live in.
Disease: typhus, typhoid, tuberculosis and cholera all existed in the cities of England. Overcrowding, low standard housing and poor quality water supplies all helped spread disease.
Waste disposal: gutters were filled with litter. Human waste was discharged directly into the sewers, which flowed straight into rivers.
Poor quality housing: houses were built very close together so there was little light or fresh air inside them. They did not have running water and people found it difficult to keep clean.
Lack of fresh water: people could get water from a variety of places, such as streams, wells and stand pipes, but this water was often polluted by human waste.

Key Terms:

Industrial revolution	A time of great change in Britain between 1750 to 1900
Population	The number of people living in a particular place
Invention	Something new which is created, can be an object or an idea
Economy	The system of how money is used within a particular country
Poverty	The lack of basic human needs such as clean water, nutrition, healthcare, education and shelter

Important individuals of the Industrial Revolution

Robert Peel	Isambard Kingdom Brunel	John Snow	Edward Jenner	Seebohm Rowntree
				
Created and supported the Factories Act of 1844 which restricted the number of hours that children could work in factories as well as setting safety standards for machinery.	One of the most influential engineers of the Industrial Revolution. Brunel built railways and ships and opened up Britain to a new network of industry	Snow was an English physician who discovered that the water in his local area was making everyone ill. His work led to the discovery of cholera and improved fresh water for thousands	Jenner discovered vaccination in 1796. he discovered that if you placed a small amount of disease in a human they were then able to fight it off in the future. This discovery saved millions of lives	Rowntree was a English sociological researcher. He researched people living in poverty and argued that the government needed to do more to help them

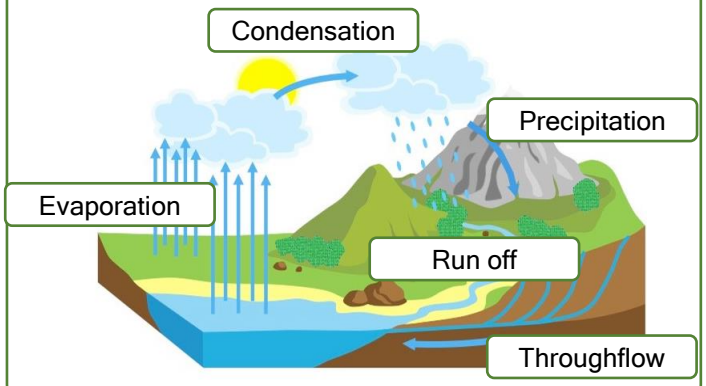
Key Inventions:

Spinning Jenny	Spinning engine invented in 1764 by James Hargreaves
Newcomen steam engine	1712, Thomas Newcomen invented the first steam engine
Watt steam engine	Introduced commercially in 1776 and became the basis for future developments that saw the steam engine become the main source of power for a large variety of British industries
The locomotive	The first recorded steam railway journey took place on 21 February 1812
Telegraph communications	25 July 1837 the first electrical telegraph that was installed between Euston and Camden Town in London.

Geography

My Place: Rivers and Coasts

Rivers: The Hydrological cycle



Key Processes

Abrasion- River beds and cliffs are scraped away by pebbles and sand like sandpaper.

Attrition- Pebbles and stones bash together and become smaller and rounder.

Hydraulic action- The power of the water breaking off bits of rock.

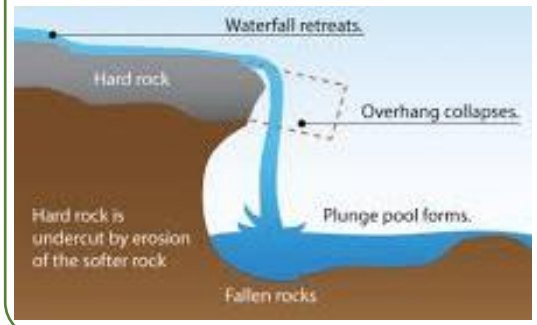
Traction- Pebbles roll along the river bed or beach

Saltation- Sand bounces along the beach

Solution- Smaller pieces of rock eventually dissolve within the water.

Deposition- Rocks, sand and clay are "dumped" after water retreats or slows down.

Rivers: Waterfalls

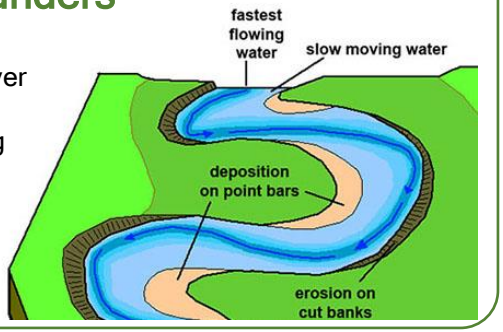


Form when soft rock is more easily eroded than hard rock.

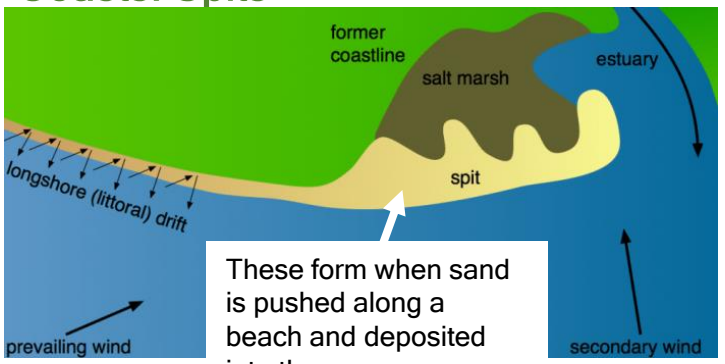
The falling water creates a gorge, which is then eroded backwards

Rivers: Meanders

Form because the outside bend of a river flows faster eroding and wearing the river away to form steep outside bends and gentle inside bends.



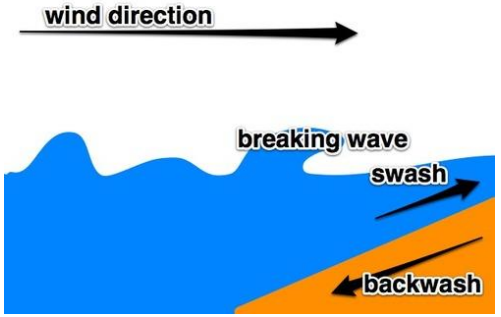
Coasts: Spits



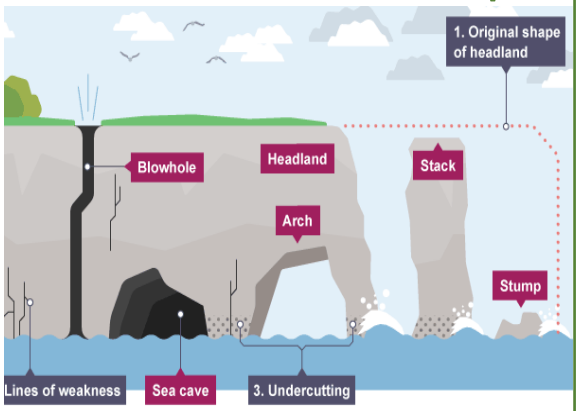
These form when sand is pushed along a beach and deposited into the sea

Coasts: What is a wave

These are created when wind pushes water towards the coastline. The longer and stronger the winds are the bigger the waves are.



Coasts: Cave-Arch-Stump



Waves make coastlines weaker because of erosion. Firstly cracks appear, then Caves, Arches, stacks and finally stumps!

Geography

Our Future World: Part 1

Key terms

Food miles- The distance food travels from farm to fork

Water Scarcity- Where there little water because more is being used than is available

Food insecurity- Where there is a risk of food running out is higher than supply

Natural increase- Where a country experiences more births than deaths- the country has a natural increase in population

Birth Rate- The number of babies born per 1000 of the population

Death rate- The number of deaths per 1000 of the population

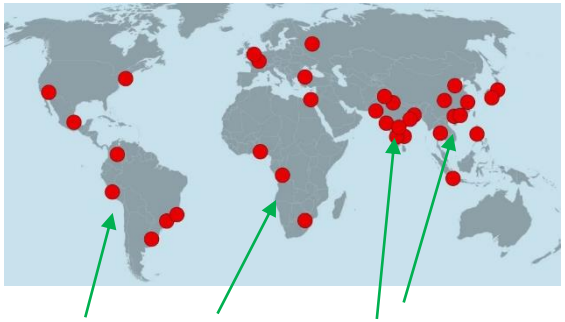
Megacity- A city with over 10 million people

Anti Natalist policy- A country is attempting to persuade people to have less children

Pro Natalist policy- A country is attempting to persuade people to have more children

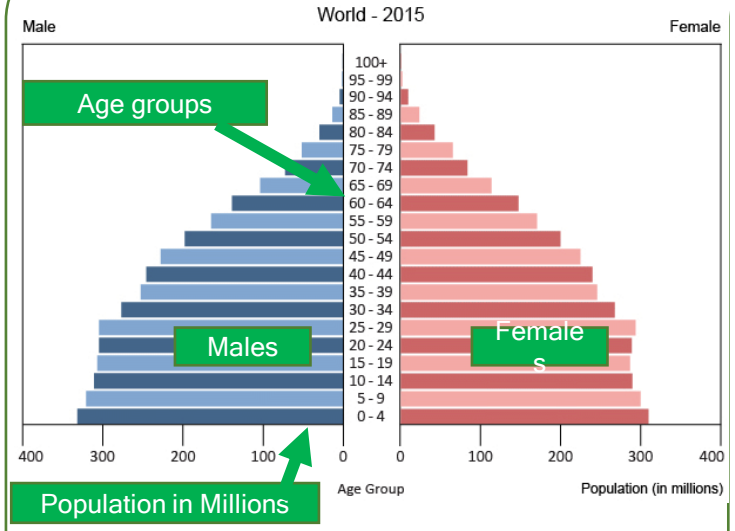
Urbanisation- The percentage growth of people in cities (urban) areas, compared to the countryside (rural areas)

Megacities in 2030!



- *In 2030, SOUTH AMERICA and AFRICA will experience an increase in megacities*
- *In 2030, most of the world's Megacities will be in INDIA and CHINA*
- *EUROPE and NORTH AMERICA will not have any more megacities because cities in richer countries are not growing.*

Population Pyramids



These are important because they show us how many males and females there are per age group. It's a way we can monitor how future population within a country might change

The Impact of our food

Growing population means we have to destroy farmland to grow more food

Some climates may not be suitable to grow some foods

Food that travels a long way contributes a lot of CO2 to the Atmosphere

Some people are angry at how animals are treaded during the production of food

Chemicals (pesticides) released during farming can pollute our water supplies

The UK does not always pay a fair price for food

Geography

Our Future World: Part 2

Key terms

LIC- Low income country

HIC- High income country

Water surplus- When a country has more water than it needs

Water deficit- Where a country has less water than it needs

Water stress- The risk of water shortages

Renewable energy- Energy that never runs out (wind/ sun/ tidal)

Fossil fuels- Fuel made from dead plants and animals over millions of years

Fracking- gas that is trapped inside rock underground is extracted by cracking the rock

World problems associated with water

- Diseases like **Cholera** and **typhoid** can be caught from dirty water.
- People in poor villages **lack the skills to develop** clean water infrastructure such as water purification units.
- People in poorer countries often do not have the training to **fix pipes and leakages.**
- Many people in poor countries have **no way of storing water.**
- Human waste can end up **contaminating water supplies.**

How do charities solve world water problems?

Engineers without borders

Build water stations in LIC's and train new water technicians.

Water Aid

Provide, wells, clean water and sanitation in many parts of Africa.

Just a drop

Build sand dams to trap water in deserts, harvest rainwater so that it can be used in households.

How does food affect LIC's?

1) Rising global temperature is causing pests and diseases to spread into new areas

2) Regions with hot temperatures and poor rainfall experience struggles to produce food.

3) The poorest areas of the world lack the technology to farm efficiently. This means they cannot produce enough food.

4) As deserts spread, it becomes harder to find water to help crops grow.

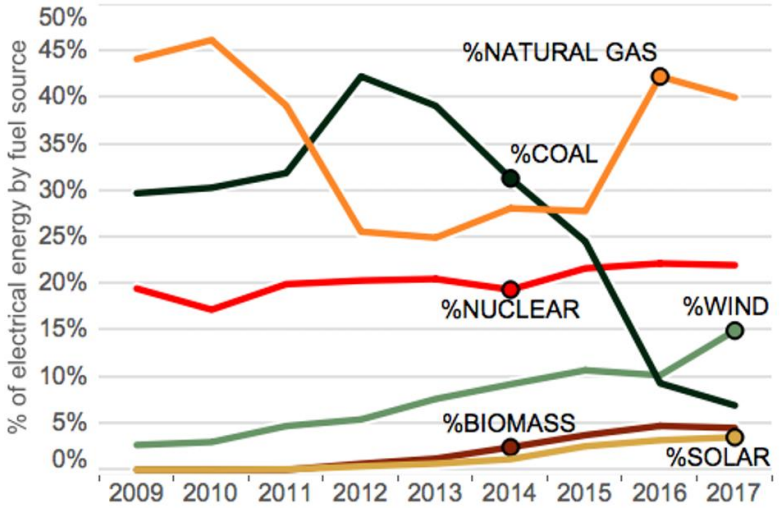
How is UK electricity supply changing?

The UK uses much less coal and oil than in 2009.

The UK produces more solar and wind Energy for electricity.

However the UK now produces nearly 40% of electricity from natural gas.

Over the past 10 years our electricity production from nuclear has slightly increased.



R.E.

Life of Jesus

The Birth of Jesus

The Jesus of history was a child of a Jewish family living under a foreign regime. He was born into an extended family living away from home and his family fled from a king who sought to kill him because he posed a political threat.

The actual birth day of Jesus was not December 25. The date we celebrate was adopted by the Christian church as the birthday of Christ in the fourth century. Prior to this period, different Christians celebrated Christmas on different dates.

Only two of the four gospels in the Bible discuss Jesus's birth. Luke recounts the story of the angel Gabriel appearing to Mary, the couple's journey to Bethlehem because of a census and the visit of the shepherds.

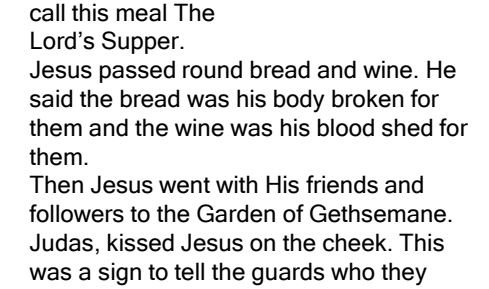
Matthew's gospel tells a similar story about Mary's pregnancy but from a different perspective. This time, the angel appears to Joseph to tell him that his fiancée Mary is pregnant but he must still marry her because it is part of God's plan.

Where Luke has shepherds visit the baby, a symbol of Jesus's importance for ordinary folk, Matthew has magi (wise men) from the east bring Jesus royal gifts.

Holy Week

Palm Sunday

On Sunday of Holy Week Jesus entered Jerusalem. He rode on a donkey. Many people were there. They took branches and waved them. Some took off their coats and laid them on the road. Then Jesus went to the temple. When He got there, He threw out the people who exchanged money saying 'My house will be called a house of prayer,' but you're turning it into a gathering place for thieves"

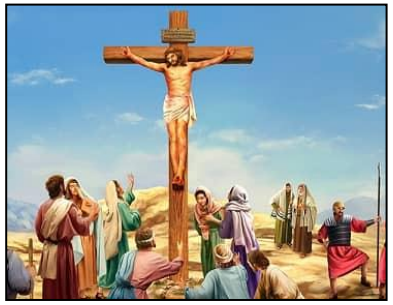


Maundy Thursday

In the evening Jesus shared a special meal with His friends. Christians call this meal The Lord's Supper.
Jesus passed round bread and wine. He said the bread was his body broken for them and the wine was his blood shed for them.
Then Jesus went with His friends and followers to the Garden of Gethsemane. Judas, kissed Jesus on the cheek. This was a sign to tell the guards who they were to arrest.

Good Friday

they took Jesus to the Roman governor, Pontius Pilate. They told Pilate that Jesus should die because He claimed to be "the Messiah, the Son of God" . Pilate finally agreed to it. After the soldiers made fun of Jesus, they led Him to Golgotha. That's where they crucified Him.
On the cross Jesus had cried out in a loud voice, 'Father, into your hands I commend my spirit.' With these words he breathed his last."



Easter Sunday - The Resurrection

On the Sunday after Jesus' death, two women, one being Mary Magdalene, were visiting his tomb.

They saw the stone had been rolled away from the entrance of the tomb.

The angel told the women not to be afraid, that Jesus was not there for he had risen. This meant that Jesus was alive! The angel told them to go quickly and tell Jesus' friends that he is alive.

On their way back suddenly Jesus met them and said "Do not be afraid. Go and tell my brothers to go to Galilee, there they will see me"

Then the eleven disciples went to Galilee. When they saw him, they worshiped him. Jesus came to them and said,

"All authority in heaven and on earth has been given to me. Therefore go and make disciples of all nations, baptizing them in the name of the Father and of the Son and of the Holy Spirit."

R.E.

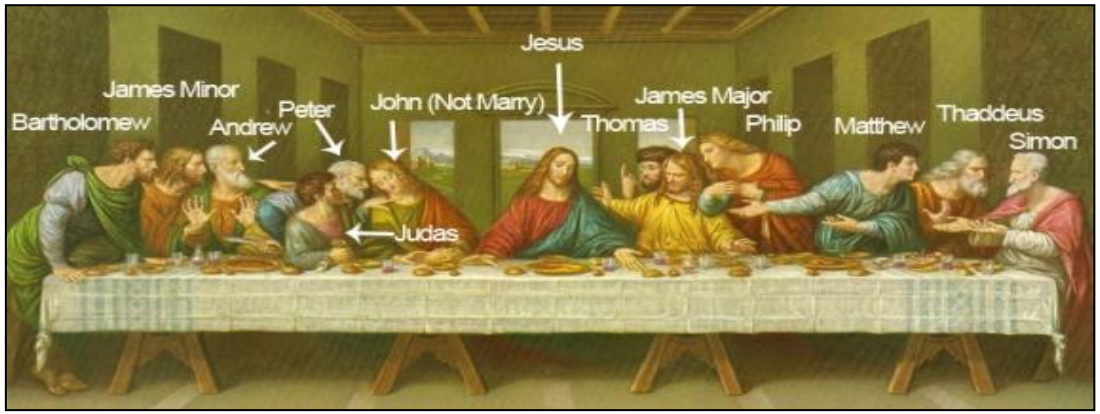
Life of Jesus

The Twelve Disciples

The 12 Disciples (also known as Apostles) were Jews, uneducated commoners, and simple men of faith who gave up everything to be followers of Christ.

Jesus spent three years training these men to be leaders. Jesus' plan was to eventually have the disciples take over and carry on the work he had started.

One of the most famous depictions of Jesus and his disciples is by Leonardo da Vinci, in his painting The Last Supper;



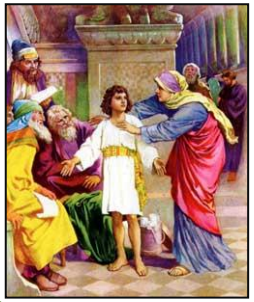
- **Peter** (who Jesus called 'his rock') was a gregarious, natural leader, and an obvious spokesperson for the twelve. Peter is well known for denying Christ three times after Christ was arrested.
- **Andrew**, was present when John the Baptist said, "Behold, the Lamb of God!" (John 1:35) Andrew was the first to follow Jesus.
- **John** is known as the "disciple Jesus loved". He wrote a large portion of the New Testament.
- **James** was the elder brother of John and was one of Jesus' closet friends (along with Peter and John).
- **Phillip** was a fisherman and worked alongside James and John.
- **Bartholomew** was also known as Nathanael.
- **Thomas** is often known as 'Doubting Thomas' because he did not believe that Jesus could be resurrected.
- **Matthew** was a tax collector, the most despised people in all of Israel.
- **James** the less (minor) is barely mentioned in the bible.
- **Simon** was known as 'the Zealot' because of his passion and loyalty when preaching God's word.
- **Thaddeus** was the brother of Simon.
- **Judas Iscariot** is known as 'the Traitor' because he betrayed Jesus for 30 pieces of silver by telling the Romans where he could be found.

Jesus' Childhood

Luke 2:40 gives a summary statement describing Jesus' development from infancy to age 12:
"And the Child grew and became strong in spirit, filled with wisdom; and the grace of God was upon Him."

Every year Jesus and his family go to Jerusalem for the Passover. It's a long trip from Nazareth to Jerusalem, it takes them about three days to get to Jerusalem and it common for children to travel with other families or friends.

When Jesus is 12, May and Joseph realise he is not with the m on the journey home, so they return to Jerusalem to look for him there.



At last they find Jesus here with the teachers. He is listening to them and asking questions. And all the people are amazed at how wise Jesus is.

But Mary says: 'Child, why have you done this to us? Your father and I have been very worried trying to find you.

"Why did you have to look for me?' Jesus answers. 'Didn't you know that I had to be in the house of my Father?'

The Baptism of Jesus

John was a prophet God called to announce the arrival of Jesus, Many people went to see John to confess their sins and be baptized by him.

The people gathered on one particular day. John began to tell them about their need for a Saviour.

He waded into the water to invite those who wanted to be baptized to come. Then the crowd parted, and Jesus came to be baptized!

At first, John was so humbled he said, "I need to be baptized by you, and you come to me?"

But Jesus insisted. Even though Jesus did not need to repent because He never sinned, His baptism showed that Jesus would take the punishment for our sin.

Spanish

Where I Live

MODEL TEXT		
1	Vivo en una casa pequeña en Wythall con mis padres.	I live in a small house in Wythall with my parents.
2	Me gusta mi pueblo porque es tranquilo.	I like my town because it is calm.
3	En mi pueblo hay un cine pero no hay playa.	In my town there is a cinema but there isn't a beach.
4	El fin de semana pasado fui al cine y fue asombroso.	Last weekend I went to the cinema and it was amazing.
5	En el futuro me gustaría vivir en España porque sería emocionante.	In the future I would like to live in Spain because it would be exciting.

LINE 1: Mi casa – My house

Verb	Type of house	Adjective	Where	With	Who
Vivo en (I live in)	**un piso** (a flat)	**grande** (big) **pequeño** (small) **moderno** (modern) **viejo** (old)	**en Wythall** (in *Wythall*)	**con** (with)	**mi familia** (my family) **mi madre** (my mum) **mi padre** (my dad) **mi abuelo** (my grandad) **mi abuela** (my grandma) **mi hermano** (my brother) **mi hermana** (my sister) **mis padres** (my parents) **mis abuelos** (my grandparents)
	una casa (a house)	**grande** (big) **pequeña** (small) **moderna** (modern) **vieja** (old)			

LINE 2: Mi opinión – My opinion

Opinion	Type of house	Because it is	Intensifier	Adjective
Me gusta (I like) **Me gusta mucho** (I really like) **Me encanta** (I love) **No me gusta** (I don't like) **No me gusta nada** (I don't like at all) **Odio** (I hate)	**mi piso** (my flat)	**porque es** (because is)	**un poco** (a bit) **bastante** (quite) **muy** (very)	**tranquilo** (calm) **bonito** (pretty) **histórico** (historic) **animado** (lively) **moderno** (modern) **ruidoso** (noisy) **feo** (ugly) **sucio** (dirty)
	mi casa (my house)			**tranquila** (calm) **bonita** (pretty) **histórica** (historic) **animada** (lively) **moderna** (modern) **ruidosa** (noisy) **fea** (ugly) **sucia** (dirty)

Did you know?

The Eiffel Tower was nearly built in Barcelona! The architect Gustave Eiffel originally pitched his proposal for Paris's iconic tower to the city of Barcelona. However, local officials rejected it, as they believed the tower would be unsightly.

Spanish

Where I Live

LINE 3: Los sitios - Places

In my village/ town	Verb	Places in the town
En mi pueblo (In my town)	**hay** (there is)	**un cine** (a cinema) **un estadio** (a stadium) **un polideportivo** (a leisure centre) **un parque** (a park) **un museo** (a museum) **un restaurante** (a restaurant) **una playa** (a beach) **una biblioteca** (a library) **una iglesia** (a church) **una piscina** (a swimming pool) **unas tiendas** (some shops)
	no hay (there isn't)	**cine** (a cinema) **estadio** (a stadium) **polideportivo** (a leisure centre) **parque** (a park) **museo** (a museum) **restaurante** (a restaurant) **playa** (a beach) **biblioteca** (a library) **iglesia** (a church) **piscina** (a swimming pool) **tiendas** (some shops)

LINE 4: El fin de semana pasado - Last weekend

When	Verb	Where	And it was	Adjective
El fin de semana pasado (Last weekend)	**fui** (I went)	**al cine** (to the cinema) **al estadio** (to the stadium) **al polideportivo** (to the leisure centre) **al parque** (to the park) **al museo** (to the museum) **al restaurante** (to the restaurant) **a la biblioteca** (to the library) **a la piscina** (to the swimming pool) **a las tiendas** (to the shops)	**y fue** (and it was)	**divertido** (fun) **emocionante** (exciting) **asombroso** (amazing) **aburrido** (boring) **decepcionante** (disappointing) **malo** (bad)
	Activity			
	jugué al fútbol (I played football) **comí pizza** (I ate pizza) **vi una película** (I watched a film) **salí con mis amigos** (I went out with my friends)			

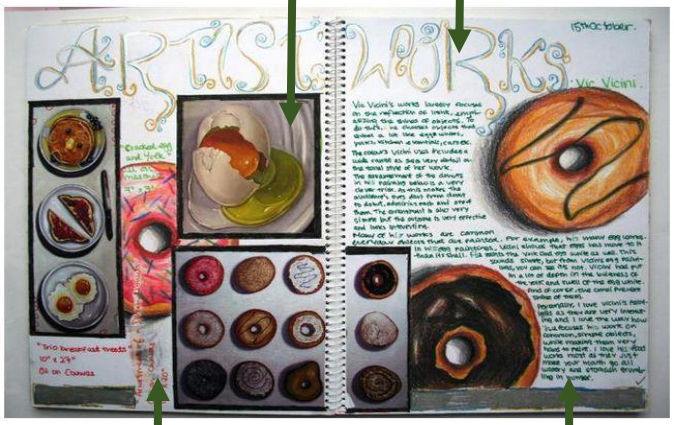
LINE 5: El futuro - The future

When	Verb	Where	Verb	Adjective
En el futuro (In the future)	**me gustaría vivir en** (I would like to live in)	**Gales** (Wales) **Escocia** (Scotland) **Inglaterra** (England) **España** (Spain) **Francia** (France) **Italia** (Italy) **América** (USA) **Alemania** (Germany)	**porque sería** (because it would be)	**divertido** (fun) **emocionante** (exciting) **asombroso** (amazing) **tranquilo** (calm) **bonito** (pretty) **histórico** (historic) **animado** (lively)

Art

Contextual Understanding

Artist Research Page



Keywords

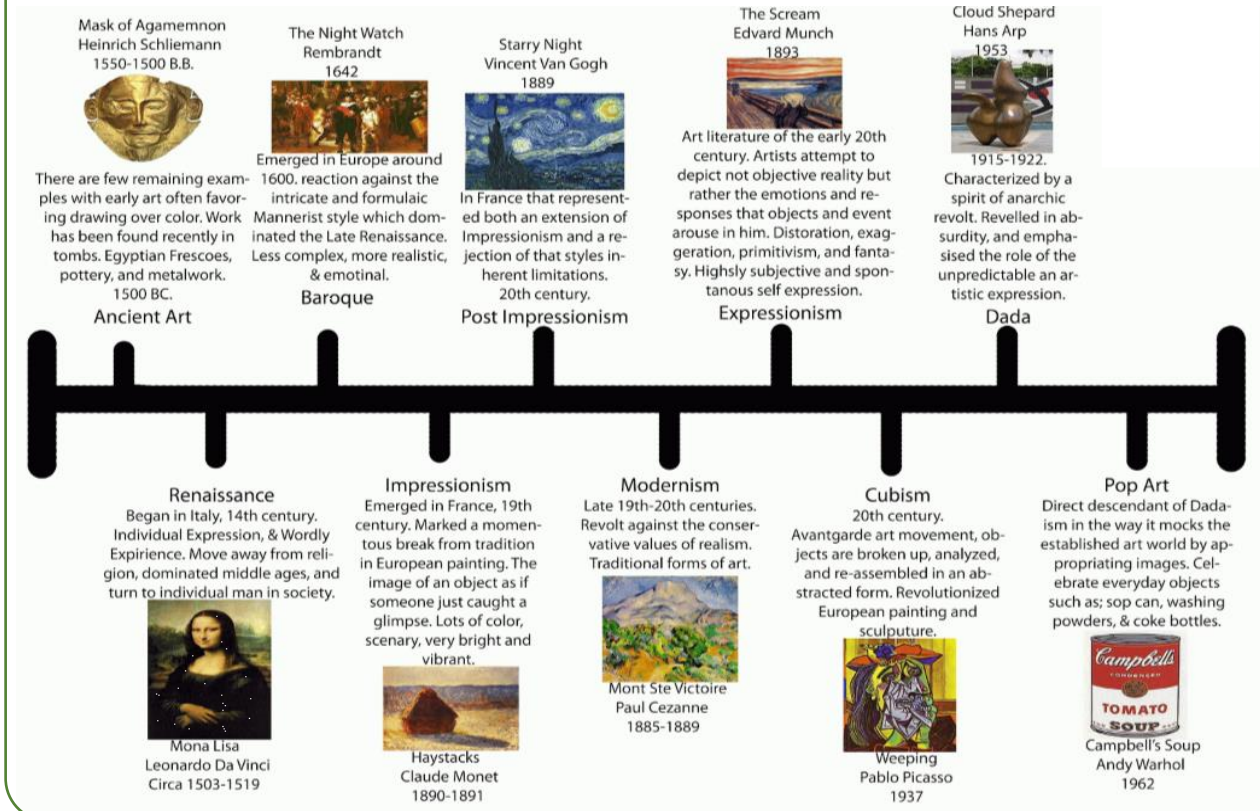
Media
The material and tools used by an artist, composer or designer to create a work of art.

Content
What is the main focus or subject of the work. What can you see?

Visual Elements
Include, Line, Shape, Tone, Colour, Pattern, Form.

Mood – How does the work make you feel? What is the artists trying to show?

A Brief History of Art



Wider Context:

Art styles have changed dramatically over the course of history and this has been dictated by a range of wider factors including Social, Political, Religious, Scientific and Environmental.
For example Cubism was born out of the invention of the camera. After all, who wants to paint a realistic images when you can just click a button? And the Baroque style portrays the splendour of God, and Art as a weapon, at the time of the religious 30 year war between the Catholics and the Protestants.

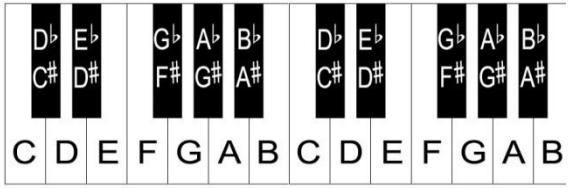
Practicing Skills

- Select an Art period from the timeline above..
- Research an artist from that period that interests you.
- Have a go at copying a section of their work in appropriate media.
- Now have a go at creating you own inspired by the style of the artist.

Music

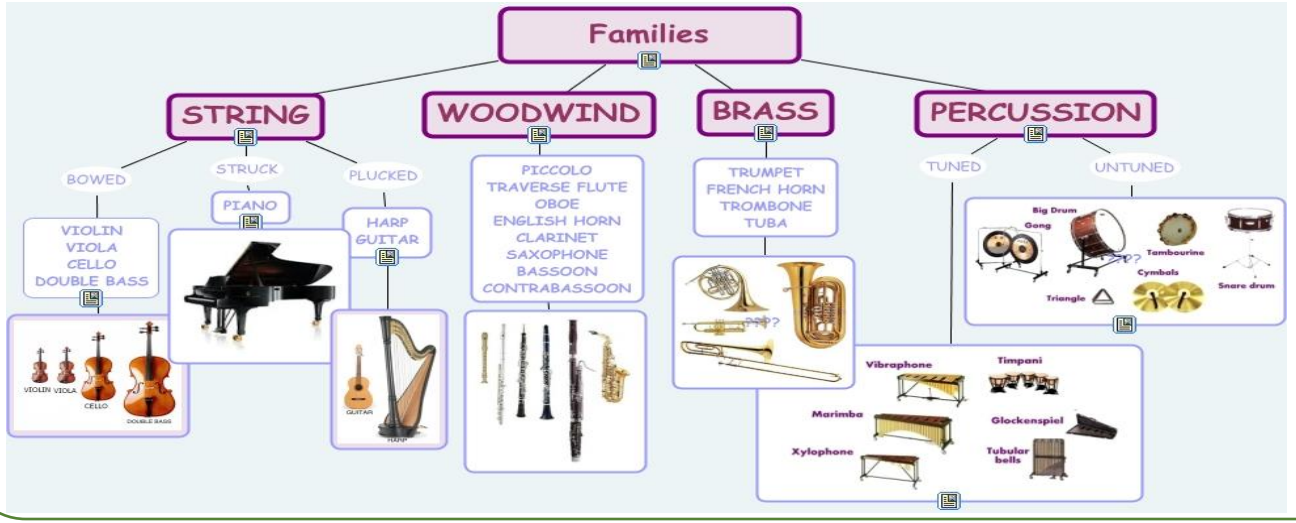
Year 7 - Programme Music

The Notes on a Keyboard



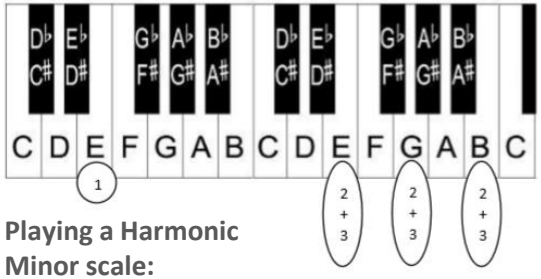
- The black notes are called **sharps** (#) and **flats** (b)
- When a note has 2 different names (eg. Db/C#) it is called the **enharmonic equivalent**
- 1 step is called a **semitone** (eg. G - G#)
- 2 steps is called a **tone** (eg. G - A)

Instruments of the Orchestra

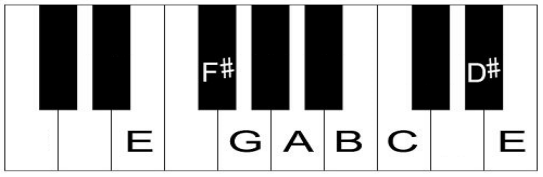


Composing a spooky theme

Playing a creepy waltz:



Playing a Harmonic Minor scale:



Key Words

Programmatic	Telling a story
Instrumental Music	Music with no words or lyrics
Absolute Music	Instrumental music that does not tell a story
Motif/Theme	A short musical idea
Leitmotif	A short musical idea that represents a character, place, object or idea
Romantic Period	Music composed between the years of 1810 & 1910
Orchestral colour	Using instruments of the orchestra to create a certain mood

Programme Music Composers

Camille Saint-Saens
1835 - 1921

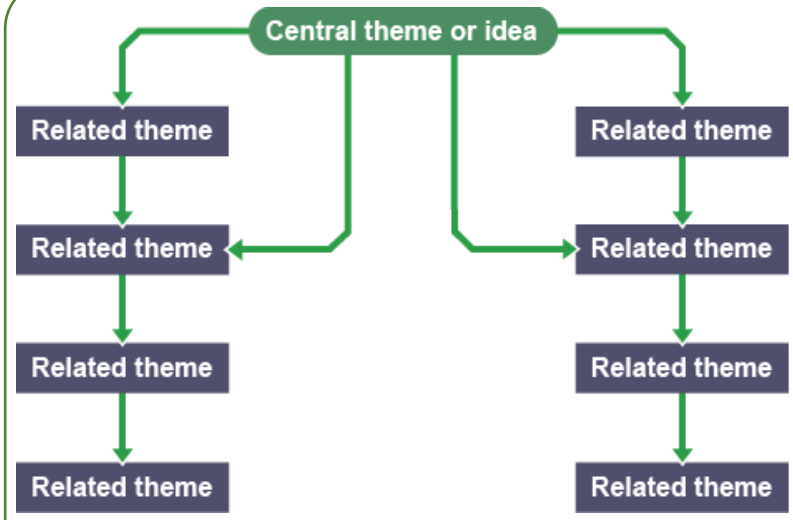
Sergei Rachmaninov
1873 - 1943

Modest Mussorgsky
1839 - 1881

Hector Berlioz
1803 - 1869

Drama

Desert Island



- When we create our own pieces of theatre in Drama we call it devising. This means we are coming up with our own ideas and developing them to make them into a final piece.
- Devising ideas can come from a stimulus (something to base an idea off) or from an original idea.

Performance Tips

	Face the audience all the time. No one wants to see the back of your head!
	Stay in role! Try not to laugh or come out of character.
	Project!
	Know what you're doing! Practice means confidence.

Physical Theatre

- Physical theatre is a style of theatre that puts emphasis on movement rather than dialogue.
- Physical theatre is anything that puts the human body at the centre of the storytelling process.
- As a result it's often abstract in style, using movement in a stylised way.
- With the expression of ideas choreographed through movement, such performers use very little or no dialogue at all.

What are the benefits of adding Physical Theatre?

What is multi-roling?

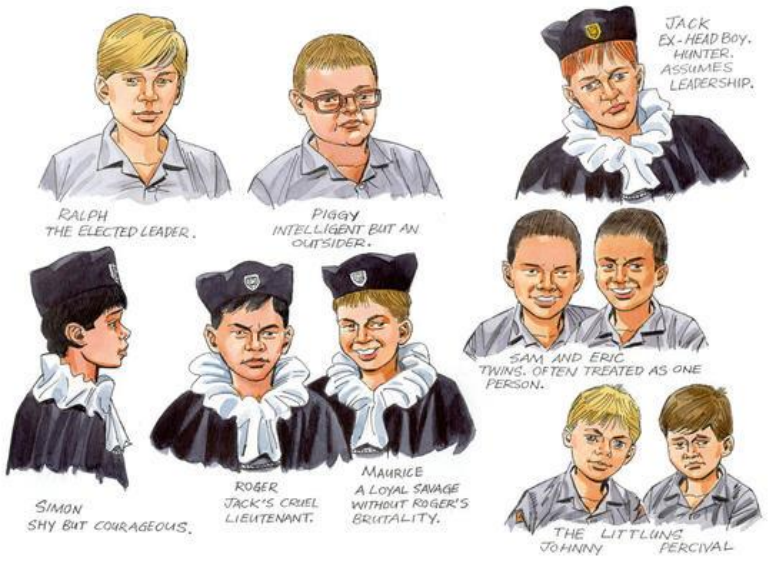
Multi-roling is where we play more than one character in a scene. We must use our skills to make sure the audience know we are playing someone else.

For example, Robin Williams used his vocal and physical skills to fool everyone he was Mrs Doubtfire.
How did he specifically change his skills?

Drama

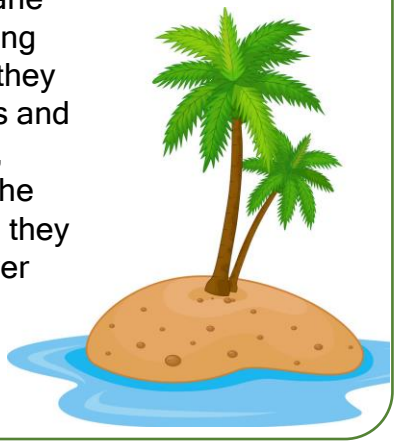
Lord of the Flies

Characters



Plot

In the middle of WW2 a plane crashes on an island, leaving children stranded. At first, they love their life without adults and have a lot of fun. However, without rules and routine, the children start to fall out. As they fight for power, will they ever make it off the island?



Performance Tips

	Face the audience all the time. No one wants to see the back of your head!
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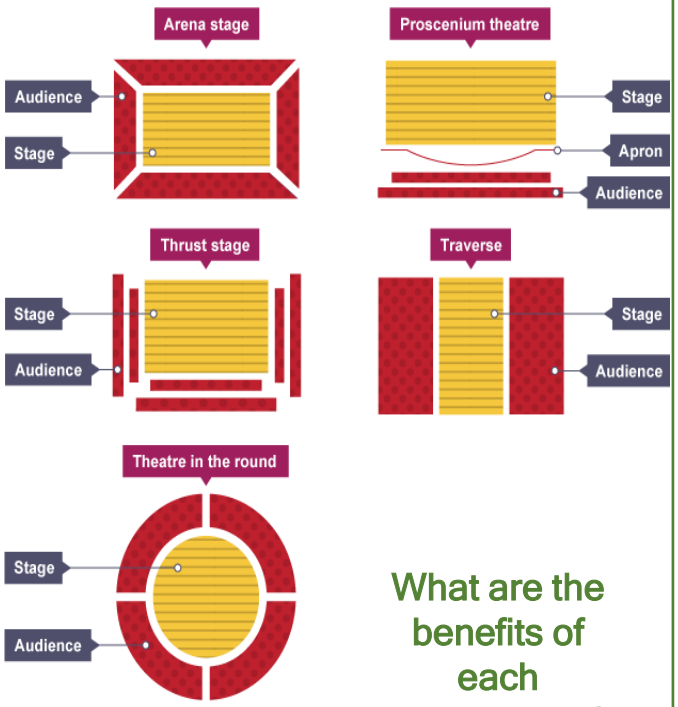
Staging Types

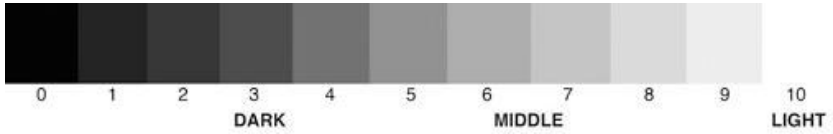


What are the benefits of each staging type?

Who is Stanislavski?

Stanislavski was a very important person in the development of Drama. He believed that Drama should be really truthful and represent real life. This means, that when we perform, we must perform with as much truth behind our performances as possible. This will make the audience really connect with our performance.

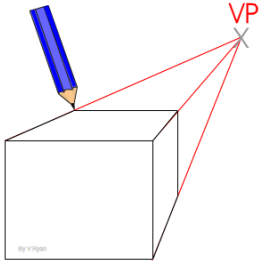
Graphics



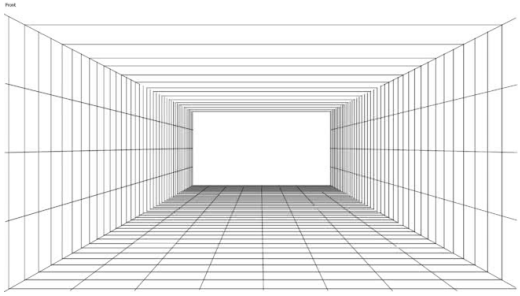
Year 7

Graphics Techniques

1 Point Perspective

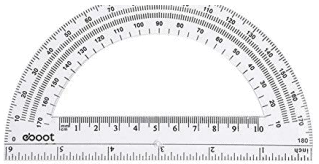


1. Decide where your vanishing point will be.
2. Draw a 2D shape.
3. Join each point of the shape to your vanishing point with a ruler.
4. Add parallel lines to complete your shape.



Useful tools for InkScape

Key Equipment



Keywords

Perspective	**Perspective** is what gives a three-dimensional feeling to a flat image such as a **drawing** or a painting
Illustration	An **illustration** is a decoration, interpretation or visual explanation of a text, concept or process.
Tone	Tone refers to how light or dark a colour or shade is.
Construction Lines	Lines which are lightly added to a drawing to help guide you to create the correct angles.
Typography	The style and appearance of writing.

Computer Aided Design - "CAD"

Any design created using a computer is classed as CAD. The CAD industry is huge and includes **Engineering, Architecture, Movies**, **Advertising** and **Video Games**. Graphic Designers will have a keen eye for detail when creating realistic renderings and textures for movies and games etc.

Jon Burgerman

Jon Burgerman was asked what the worst piece of criticism he's received about his work…

"That it looks like a child has drawn it. I mean, children often have amazing imaginations and their drawings are really loose, free and uninhibited. ***I wish I could draw like that****."*

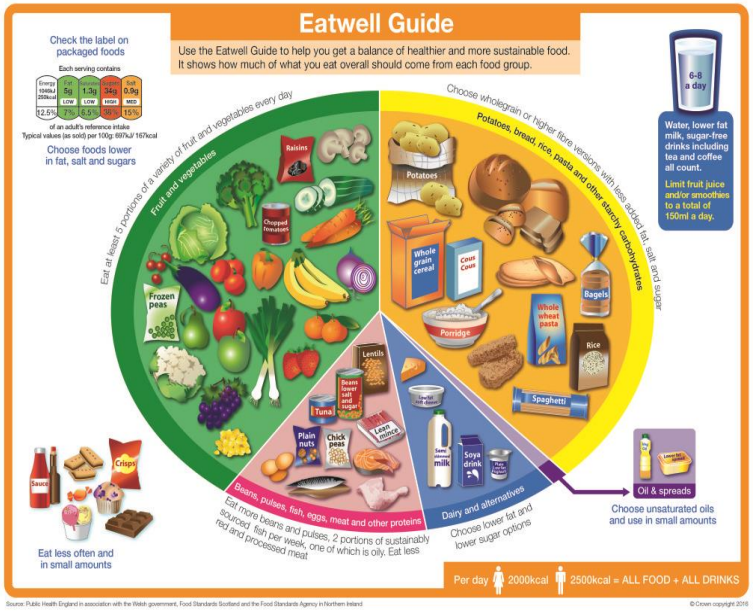
- Jon Burgerman is a British illustrator. He creates vibrant illustrations and murals featuring monsters and patterns using continuous line.
- He has been commissioned all over the world to create murals on walls in public places.
- He has also created illustrations for advertising campaigns with Pepsi, Coke, Nike, Sony, New Era, Sky, Puma, Nintendo, MTV, Levis and AOL.

Food & Nutrition

Function of ingredients & balanced diets

The function of ingredients in bread making

Flour – gives bulk and structure to the bread. Gives taste and absorbs the moisture.
Salt – gives structure by helping gluten form. Adds taste.
Sugar – provides food for the yeast, adds flavour, and helps the bread brown.
Yeast – is the raising agent in the bread
Water – helps the gluten form, adds moisture for the yeast to grow



Measurements

G = grams

kg = kilograms - 1kg = 1000g

ml = millilitre

L= litre - 1 litre = 1000ml

Tsp = teaspoon = 1 tsp = 5g

Tbsp = tablespoon = 1 tbsp = 15g

Key Words

Nutrient	The properties found in food and drink that give the nourishment that are vital for growth and life. The main nutrients are carbohydrates, protein, fats, vitamins and minerals
Contamination	The presence in food of an item that can cause harm. Contamination can be physical, chemical or biological.
Enzymic browning	A chemical process where oxygen and enzymes in the food react to cause the surface to go brown. This process cannot be reversed.
Gluten	formed from the two proteins in wheat when water is added. It is developed when it is needed.
Fermentation	The chemical breakdown of sugar to acid, gas or alcohol by bacteria, yeast or other micro-organisms

Jamie Oliver states that 'Cooking from scratch is a fantastic way to save money and keep ourselves and our families healthy.' He goes on to say that 'Teenagers should all know how to cook a variety of healthy, balanced and cost effective dishes by the time they are 14.'

Textiles

Oscar the Owl Doorstop

Textile Techniques

Applique

Pieces of fabric sewn on to a larger piece to form a picture or pattern.

Seams

A line where two pieces of fabric are sewn together on a product.

Paper Pattern

A paper pattern acts like a template. You pin it onto your fabric in order to cut fabric the correct size. Paper patterns include seam allowance

Stitches

Running Stitch

Back stitch

Blanket stitch

Key Equipment

Fabric Scissors are sharper than paper scissors in order to cut fabrics. You must not use them for paper as it makes them blunt.

A sewing needle has what is called an eye, which is a small hole, where you place the thread through. This allows you to sew.

Pins are use to attached paper patterns to fabric or keep fabric together before sewing. You remove these once you have finished sewing.

Textiles Keywords

Thread	Thread comes on a reel and it is what you thread through a needle in order to sew.
Seam Allowance	This is 1.5cm extra fabric you add onto your fabric pieces in order for your product to turn out the correct size once sewn.
Design Ideas	Initial design ideas are you first sketches of an idea which you develop into a final design, that you can follow when making.
Fabric	Fabric is the term used for all materials such as cotton, polyester, silk, felt, fleece etc.

Common Fabrics

Cotton – This is a natural fabric that is used to make a wide range of items. For example shirts, dresses, socks, underwear and T-shirts.

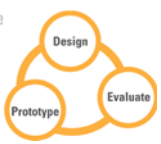
Denim – This is a fabric made of cotton however it is woven in a special way and often dyed in different shades of blue. Denim is most commonly used in Jeans.

Wool – This is a natural fabric that is used to make mainly knitted items. For example jumpers, scarves, hats and gloves.

Polyester – This is a man-made fabric that is often blended with cotton to reduce the cost of items.

Felt – This can be man-made or a natural fabric using wool. It is easy to cut and sew and used a lot for craft items.

Product Design



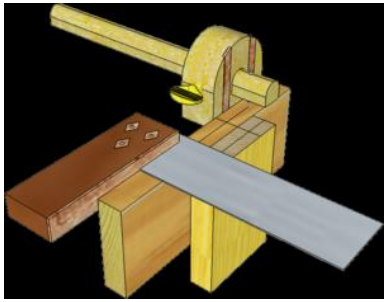
Innovative
Sustainable
Functional

Year 7

What is Product Design and why is it important?

The role of **design** is to create a marketable **product** from an innovation. Design is often the deciding factor in the success of a product.

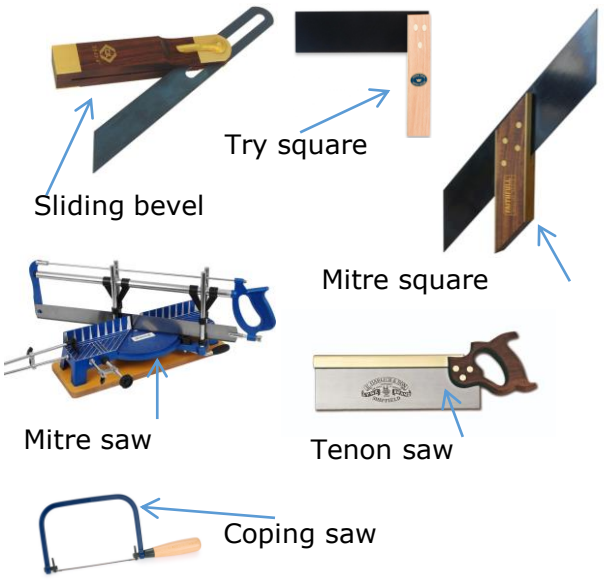
Many customers make purchasing decisions based primarily on product design, because good product design ensures **quality**, **appearance**, **performance**, **ease of use**, and **reliability**.



Tools we use to mark out;

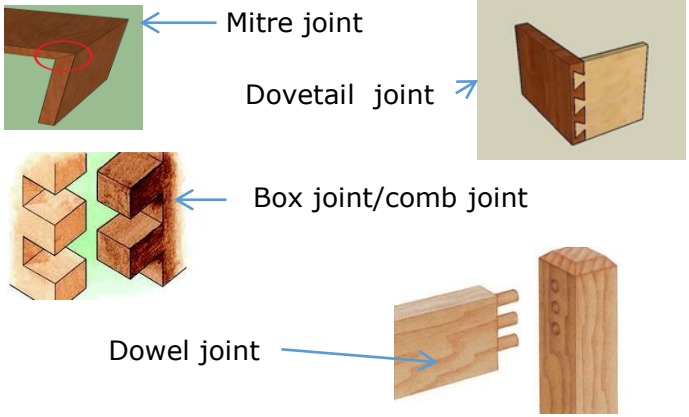
- **Marking gauge**
- **Try square**
- **Pencil**
- **Rule or ruler**

Identifying the equipment



Precision	Being exact and accurate when marking and cutting out.
Tolerance	An allowable amount of variation of a specified quantity, especially in the dimensions of a machine or part e.g. +/- 0.25mm.
Aesthetics	The look and/or feel of a product and how this is incorporated into the design.
Ergonomics	The study of people's efficiency in their working or home environment.
Stakeholders	A person with an interest or concern in something, especially a business.

Shaping and joining



Famous Designers

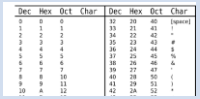
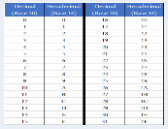
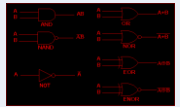
This is James Dyson.
He is an influential designer because ….

- He constantly **innovates**, his designs are creative and unique
- His products are designed around the needs of the **stakeholders**
- The "cyclone technology" design, including the 15 years and **5,127 prototypes** it took before the first model, DC01, would ultimately prove successful in 1993. Fifteen years!
- **Design** and **manufacturing** occurs on a **global** scale. Dyson employs over 7,000 people.

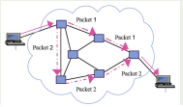
Computing

Data representation & Networks

Key Words - Data Representation

ASCII 	American Standard Code for Information Interchange" encoding of characters. This character set uses 7 bits to represent 127 characters.
Binary 	A base 2 numbering system in which there are only two possible values for each digit: 0 and 1.
Bit	Short for "Binary Digit". It is one digit's location in a binary number, ie 1 or 0.
Nibble	is a digital unit of measurement that refers to four binary digits or half a byte (4 bits).
Byte	is a digital unit of measurement that refers to 8 binary digits (8 bits).
Hexadecimal 	is a base-16 number system. Using characters 0-F. It is a convenient way to store Binary numbers.
Hex Code	three-byte hexadecimal number used in HTML, CSS, SVG, and other computing applications to represent colours. The bytes represent the red, green and blue components of the colour.
Logic Gate 	Logic gates are the basic building blocks of any digital system. It is an electronic circuit having one or more than one input and only one output.

Key Words

The internet:	a global computer network providing a variety of information and communication facilities, consisting of interconnected networks
Packet switching: 	a mode of data transmission in which a message is broken into a number of parts which are sent independently, over whatever route is optimum for each packet, and reassembled at the destination.
Internet	The global system of interconnected computer networks
IP address 	A unique string of numbers separated by full stops that identifies each computer using the Internet Protocol to communicate over a network.
Broadband: 	a high-capacity transmission technique using a wide range of frequencies, which enables a large number of messages to be communicated simultaneously.
WAN	Wide area network
LAN	Local area network.
Topology:	the way in which computers are arranged on a network
Router: 	a device which forwards data packets to the appropriate parts of a computer network.
Firewall	A network security system that monitors and controls incoming and outgoing network traffic based on predetermined security rules
Encryption 	The process of encoding a message or information in such a way that only authorized parties can access it.
Search Engine	A program that searches for and identifies items in a database that correspond to keywords or characters

P.E.

Badminton and Football

Badminton

Core Skills
Service – high, low & flick (forehand or backhand).
Overhead – clear & drop (forehand and backhand).
Underarm – clear, drive & drop (forehand and backhand).
Net play
Smash

Tactics (Tactics, Strategies & Compositional Ideas):
- A: AWAY keep the shuttle away from your opponent.
- B: Play on their weakness usually their BACKHAND.
- C: Keep the shuttle in the COURT but play to the COURT boundaries.
- D: Hit DOWN so your opponent has to hit up

Select shots that are appropriate for defending and attacking.
Select simple shot combinations which move your opponent out of position.

Rules:
- There are three basic things to remember for scoring singles badminton:
- After each rally a point is scored.
- You keep serving until you lose a rally, the serve will then go over to your opponent.
- You serve from the Left if your score is Odd. You serve from the Right if your score is Even. This is the 'LORE of the SCORE'.

Football

Core Skills
Passing/receiving – either foot.
Dribbling/moving with the ball – either foot.
Shooting
Heading.
Tackling, jockeying, closing down and marking.

Tactics (Tactics, Strategies & Compositional Ideas):
Attacking and Defending principles:

Attacking:
- Pace
- Depth
- Width.
- Make the pitch as big as possible
- Support: Angle and Distance.

Defending:
- Deny the opposition time and space.
- Make the pitch as small as possible.
- Use of the offside .
- Support: Angle and Distance

P.E.

Netball and Gymnastics

Netball

Core Skills

Passing and receiving (chest pass, shoulder pass, one/two handed pass)
Dodging (single/double/sprint)
Marking a player
Shooting (close/distance)
Rebounding (attacking/defending)
Footwork and movement (landing on one/two feet/ pivoting)

Tactics (Tactics, Strategies & Compositional Ideas):

- Position yourself side on between your player and the ball.
- Hold your space and drive into a free area to receive a pass.
- Pass the ball in front of the player for them to move onto.
- Understand positional play.

Rules:

- You can not move with the ball.
- No contact on another player is allowed.
- You must be 1m away from the player with the ball.
- You must stay in your playing area.
- The first pass made at a centre pass must be received in the centre third.
- Centre passes always alternate after a goal has been scored.

Gymnastics

Core Skills

Jumps (tucked/piked/straddle/straight/180 180 turn)
Rolls (backwards/forwards/ others)
Turns (cartwheel/ round off/ forward and backward)
Balances (handstand/headstand arabesque/ others)
Apparatus

Tactics (Tactics, Strategies & Compositional Ideas):

- Mirroring
- Matching
- Pathways
- Unison
- Canon
- Levels
- Body tension
- Start and finish positions