YEAR 9 – REASONING WITH ALGEBRA...

Straight Line Graphs

@whisto_maths

What do I need to be able to do?

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

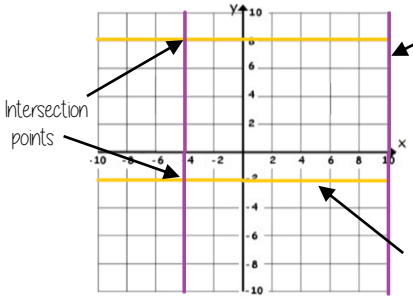
- Compare gradients
- Compare intercepts
- Understand and use y= mx + c
- Find the equation of a line from a graph
- Interpret gradient and intercepts of real-life graphs

Keywords

Gradient: the steepness of a line
Intercept: where two lines cross. The y-intercept: where the line meets the y-axis.
Parallel: two lines that never meet with the same gradient.
Co-ordinate: a set of values that show an exact position on a graph.
Linear: linear graphs (straight line) – linear common difference by addition/ subtraction
Asymptote: a straight line that a graph will never meet.
Reciprocal: a pair of numbers that multiply together to give 1.
Perpendicular: two lines that meet at a right angle.

Lines parallel to the axes

R



All the points on this line have a x coordinate of 10

'a' can be ANY positive or negative value including 0

Lines parallel to the **y axis** take the form **x = a** and are **vertical**

Lines parallel to the **x axis** take the form **y = a** and are **horizontal**

All the points on this line have a y coordinate of -2

e.g (3, -2) (7, -2) (-2, -2) all lay on this line because the y coordinate is -2

Plotting y = mx + c graphs

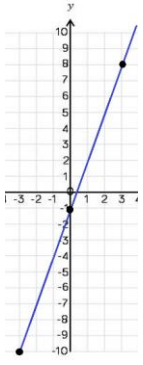
R

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

x	-3	0	3
y	-10	-1	8

Draw a table to display this information

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



You only need two points to form a straight line

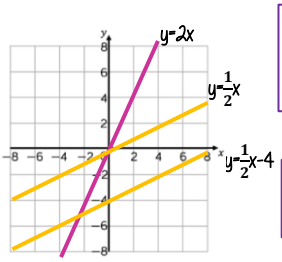
Plotting more points helps you decide if your calculations are correct (if they do make a straight line)

Remember to join the points to make a line

Compare Gradients

$y = mx + c$

The **coefficient** of x (the number in front of x) tells us the gradient of the line



The **greater** the gradient – the **steeper** the line

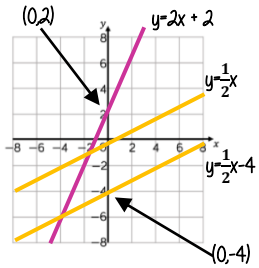
Parallel lines have the **same** gradient

Positive gradients

Negative gradients

Compare Intercepts

$y = mx + c$ ← The value of **c** is the point at which the line crosses the y-axis. **Y intercept**



The coordinate of a y intercept will always be (0,c)

Lines with the **same** y-intercept cross in the **same** place

y = mx + c

The **coefficient** of x (the number in front of x) tells us the gradient of the line

$y = mx + c$ ← The value of **c** is the point at which the line crosses the y-axis. **Y intercept**

y and x are **coordinates**

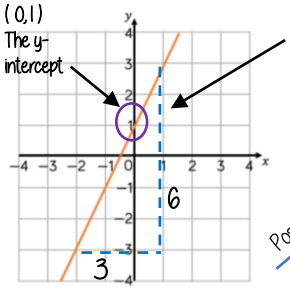
The equation of a line can be rearranged. E.g.

y = c + mx

c = y – mx

Identify which coefficient you are identifying or comparing

Find the equation from a graph



$y = 2x + 1$

The direction of the line indicates a positive gradient

Positive gradients

Negative gradients

Real life graphs

A plumber charges a £25 callout fee, and then £12.50 for every hour. Complete the table of values to show the cost of hiring the plumber.

Time (h)	0	1	2	3	8
Cost (£)	£25				£125

The y-intercept shows the minimum charge. The gradient represents the price per mile

In real life graphs like this values will always be positive because they measure distances or objects which cannot be negative.

Direct Proportion graphs To represent direct proportion the graph must start at the origin

When you have 0 pens this has 0 cost. The gradient shows the price per pen.

A box of pens costs £2.30
Complete the table of values to show the cost of buying boxes of pens.

Boxes	0	1	2	3	8
Cost (£)		£2.30			

YEAR 9 – REASONING WITH ALGEBRA...

Forming and Solving Equations

@whisto_maths

What do I need to be able to do?

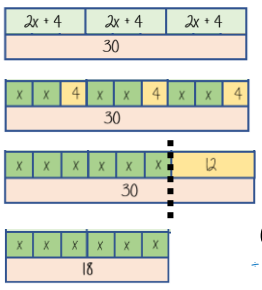
By the end of this unit you should be able to:

- Solve inequalities with negative numbers
- Solve equations with unknowns on both sides
- Solve inequalities with unknowns on both sides
- Substitute into formulae and equations
- Rearrange formulae

Keywords

Inequality: an inequality compares who values showing if one is greater than, less than or equal to another
Variable: a quantity that may change within the context of the problem
Rearrange: Change the order
Inverse operation: the operation that reverses the action
Substitute: replace a variable with a numerical value
Solve: find a numerical value that satisfies an equation

Solve equations with brackets (R)



$3(2x + 4) = 30$

Expand the brackets

$6x + 12 = 30$

$-12 \quad -12$

$6x = 18$

$\div 6 \quad \div 6$

$x = 3$

Form and solve inequalities (R)

Two more than treble my number is greater than 11

Find the possible range of values

$3x + 2 > 11$

Solve

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

$x > 3$

Inequalities with negatives

Method 1 Make x positive first

$2 - 3x > 17$

$+3x \quad +3x$

$2 > 17 + 3x$

$-17 \quad -17$

$-15 > 3x$

$\div 3 \quad \div 3$

$-5 > x$

x is true for any value smaller than -5

Smaller ← → Bigger

-7 -5 -3

✓ CHECK IT!
$2 - 3(-6) = 20$
TRUE/ CORRECT

Method 2 Keep the negative x

$2 - 3x > 17$

$-2 \quad -2$

$-3x > 15$

$\div -3 \quad \div -3$

$x > -5$

x is true for any value bigger than -5

This cannot be true...

$x < -5$

When you multiply or divide x by a negative you need to reverse the inequality

Equations with unknown on both sides

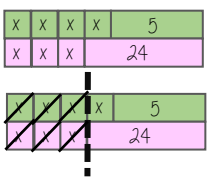
$4x + 5 = 3x + 24$

$-3x \quad -3x$

$x + 5 = 24$

$-5 \quad -5$

$x = 19$



Inequalities with unknown on both sides

Solving inequalities has the same method as equations

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

$5x + 20 < 3x + 6$

$2x + 20 < 6$

$2x < -14$

$x < -7$

Check it!

$5(-8 + 4) < 3(-8 + 2)$

$5(-4) < 3(-6)$

$-20 < -18$

✓ -20 IS smaller than -18

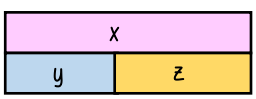
Formulae and Equations

Formulae – all expressed in symbols

Substitute in values →

Equations – include numbers and can be solved

Rearranging Formulae (one step)



$x = y + z$

Rearrange to make y the subject.

$y = x - z$

$y \rightarrow +z \rightarrow x$

$y \leftarrow -z \leftarrow x$

Using inverse operations or fact families will guide you through rearranging formulae

Rearranging can also be checked by substitution

Language of rearranging....

Make XXX the subject

Change the subject

Rearrange

Rearranging Formulae (two step)

In an equation (find x)

$4x - 3 = 9$

$+3 \quad +3$

$4x = 12$

$\div 4 \quad \div 4$

$x = 3$

In a formula (make x the subject)

$xy - s = a$

$+s \quad +s$

$xy = a + s$

$\div y \quad \div y$

$x = \frac{a + s}{y}$

The steps are the same for solving and rearranging

Rearranging is often needed when using $y = mx + c$

e.g. Find the gradient of the line $2y - 4x = 9$

Make y the subject first $y = \frac{4x + 9}{2}$

Gradient $= \frac{4}{2} = 2$

YEAR 9 – REASONING WITH ALGEBRA...

Testing conjectures

@whisto_maths

What do I need to be able to do?

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

- Use factors, multiples and primes
- Reason True or False
- Reason Always, sometimes never true
- Show that reasoning
- Make conjectures about number
- Expand binomials
- Make conjectures with algebra
- Explore the 100 grid

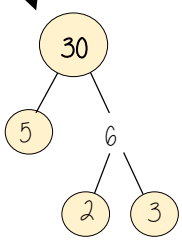
Keywords

Multiples: found by multiplying any number by positive integers
Factor: integers that multiply together to get another number.
Prime: an integer with only 2 factors.
HCF: highest common factor (biggest factor two or more numbers share)
LCM: lowest common multiple (the first time the times table of two or more numbers match)
Verify: the process of making sure a solution is correct
Proof: logical mathematical arguments used to show the truth of a statement
Binomial: a polynomial with two terms
Quadratic: a polynomial with four terms (often simplified to three terms)

Factors, Multiples and Primes

R

Multiplication part-whole models



All three prime factor trees represent the same decomposition

HCF – Highest common factor

HCF of 18 and 30

18: 1, 2, 3, 6, 9, 18

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

Common factors are factors two or more numbers share

LCM – Lowest common multiple

LCM of 9 and 12

9: 9, 18, 27, 36, 45, 54

12: 12, 24, 36, 48, 60

Common multiples are multiples two or more numbers share

True or False?

Conjecture

A pattern that is noticed for many cases

1, 2, 4....
The numbers in the sequence are doubling each time.

Counterexamples

This sequence isn't doubling it is adding 2 each time

Only **one** counterexample is needed to disprove a conjecture

Always, Sometimes, Never true.

Always – Every value always supports the statement

Sometimes – Examples show the statement being true and counter examples to show when it is false.

Never – No example supports the statement

Examples to try
- 0 and 1
- Fractions
- Negative numbers

Show that

Numerical verification – Show the stages to a solution with numerical values

Algebraic verification – Show algebraic properties of the solution
You may want to use pictorial images to support this

Proof – Simple proofs using algebra

Compare the left hand side of an equation with the right hand side – are they the same or different?

Conjectures

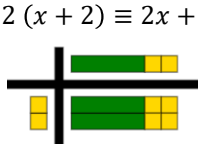
Even
$(2n)$
Multiple of 2

Odd
$(2n + 1)$
One more than any even

Use numerical verification first
Use pictorial verification – the representations of numbers of odd and even

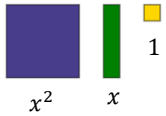
Expanding binomials

$2(x + 2) \equiv 2x + 4$



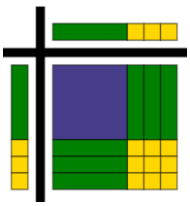
Algebra tiles can represent a binomial expansion
Has two terms

Algebra tiles



Positive values

$(x + 3)(x + 3) \equiv x^2 + 6x + 9$



This is a quadratic
It has four terms which simplified to three terms

The order of the binomial has no impact on the outcome
e.g. $(x + 3)(3 + x)$

Exploring the 100 square

In terms of 'n' is used to make generalisations about relationships between numbers

Positions of numbers in relation to n form expressions
E.g. one space to the right of n
$n + 1$

E.g. One row below n
$n + 10$

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

The size of the grid for generalisation changes the relationship statements

YEAR 9 – CONSTRUCTING IN 2D/3D...

3D Shapes

@whisto_maths

What do I need to be able to do?

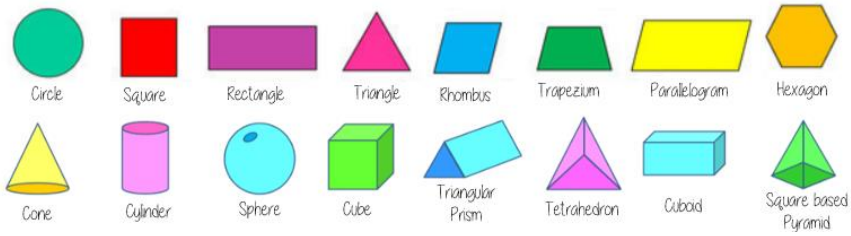
By the end of this unit you should be able to:

- Name 2D & 3D shapes
- Recognise Prisms
- Sketch and recognise nets
- Draw plans and elevations
- Find areas of 2D shapes
- Find Surface area for cubes, cuboids, triangular prisms and cylinders
- Find the volume of 3D shapes

Keywords

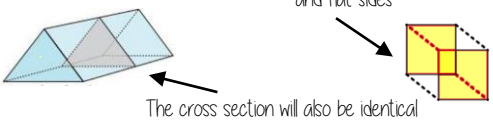
2D: two dimensions to the shape e.g. length and width
3D: three dimensions to the shape e.g. length, width and height
Vertex: a point where two or more line segments meet
Edge a line on the boundary joining two vertex
Face: a flat surface on a solid object
Cross-section: a view inside a solid shape made by cutting through it
Plan: a drawing of something when drawn from above (sometimes birds eye view)
Perspective: a way to give illustration of a 3D shape when drawn on a flat surface.

Name 2D & 3D shapes



Recognise prisms

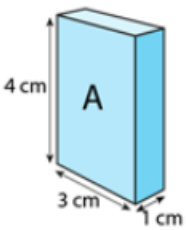
A solid object with two identical ends and flat sides

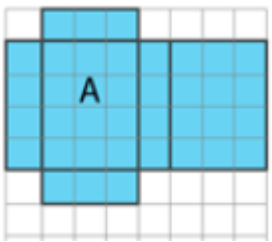


The cross section will also be identical to the end faces.

A cylinder although with very similar properties does not have flat faces so is not categorised as a prism

Nets of cuboids

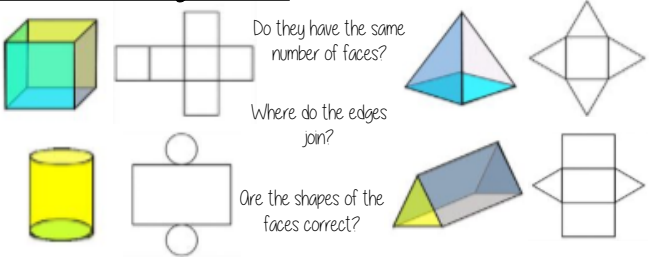




1cm grids help to draw accurately

Visualise the folding of the net
Will it make the cuboid with all sides touching

Sketch and recognise nets

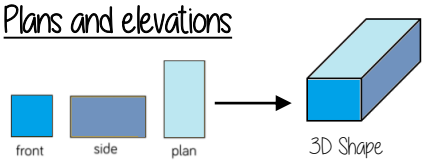


Do they have the same number of faces?

Where do the edges join?

Are the shapes of the faces correct?

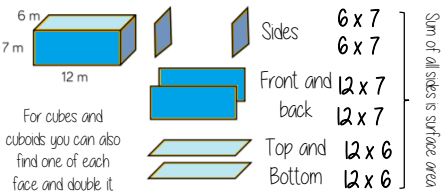
Plans and elevations



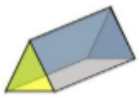
The direction you are considering the shape from determines the front and side views

Surface area

Sketching nets first helps you visualise all the sides that will form the overall surface area



For cubes and cuboids you can also find one of each face and double it



For other shapes - not all the sides are the same, so calculate the individually

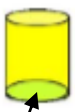
Volumes

Volume is the 3D space it takes up – also known as capacity if using liquids to fill the space

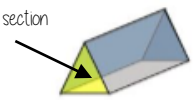
Counting cubes
Some 3D shape volumes can be calculated by counting the number of cubes that fit inside the shape.

Cubes/ Cuboids = base x width x height

Remember multiplication is commutative



Cross section



Cross section

Prisms and cylinders = area cross section x height

Height can also be described as depth

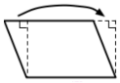
Area of 2D shapes

R

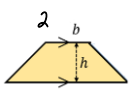
Rectangle
Base x Height

Triangle
½ x Base x Perpendicular height

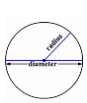
Parallelogram/ Rhombus
Base x Perpendicular height



Area of a trapezium
$\frac{(a+b)\times h}{2}$



Area of a circle
π x radius^2



Surface area - cylinders

The area of the circle
π x radius^2

The width of this face is the same as the circumference
π x diameter x height

$2 \times \pi \times \text{radius}^2 + \pi \times \text{diameter} \times \text{height}$

Areas – square units
Volumes – cube units

Areas and volumes can be left in terms of pi π

YEAR 9 – CONSTRUCTING IN 2D/3D...

Constructions & congruency

@whisto_maths

What do I need to be able to do?

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

- Draw and measure angles
- Construct scale drawings
- Find locus of distance from points, lines, two lines
- Construct perpendiculars from points, lines, angles
- Identify congruence
- Identify congruent triangles

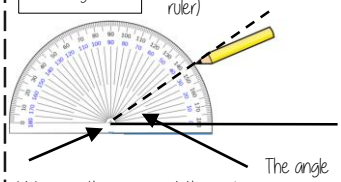
Keywords

Protractor: piece of equipment used to measure and draw angles
Locus: set of points with a common property
Equidistant: the same distance
Discorectangle: (a stadium) – a rectangle with semi circles at either end
Perpendicular: lines that meet at 90°
Arc: part of a curve
Bisector: a line that divides something into two equal parts
Congruent: the same shape and size

Draw and measure angles (R)

Draw a 35° angle

Make a mark at 35° with a pencil and join to the angle point (use a ruler)



The angle

Make sure the cross is at the end of the line (where you want the angle)

Scale drawings (R)

A picture of a car is drawn with a scale of 1:30

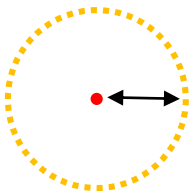
For every 1cm on my image is 30cm in real life

The car image is 10cm

Image	Real life
1cm	30cm
10cm	300cm

(×10 / ×10)

Locus of a distance from a point



All points are equidistant (the same distance) from the fixed point in the middle.

Equipment needed
The radius is the distance from the fixed point

If the point is in the corner it can only make a quarter circle

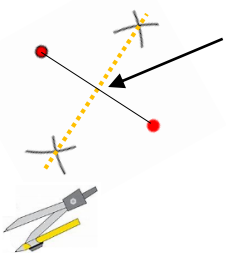
Locus of a distance from a straight line

All points are equidistant (the same distance) from line

The ends of the line are fixed points

Equipment needed
The line is straight so a ruler is used for the straight lines parallel to your original line

Locus equidistant from two points



Also a perpendicular bisector
Because if the points are joined, this new line intersects it at a 90°

Join the intersections with a ruler.
All points on this line are equidistant from both points

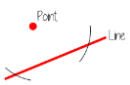
Keep the compass the same size and draw two arcs from each point

Construct a perpendicular from a point

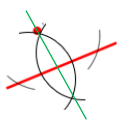
Point

Line

Use a compass and draw an arc that cuts the line. Use the point to place the compass



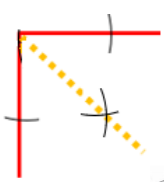
Keep the compass the same distance and now use your new points to make new interconnecting arcs



Connecting the arcs makes the bisector

If P is a point on the line the steps are the same

Locus of a distance from two lines



Also an angle bisector
This cuts the angle in half

From the angle vertex draw two arcs that cut the lines forming the angle

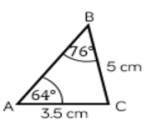
Keep the compass the same size and use the new arcs as centres to draw intersecting arcs in the middle

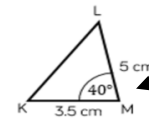
Join the vertex to the intersection

Congruent figures

Congruent figures are identical in size and shape – they can be reflections or rotations of each other

Congruent shapes are identical – all corresponding sides and angles are the same size





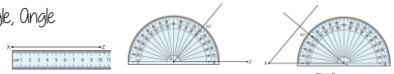
$A\hat{C}B = K\hat{M}L$

Because all the angles are the same and AC=KM BC=LM triangles ABC and KLM are **congruent**

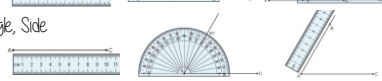
Constructing Triangles

Link to steps (R)

Side, Angle, Angle



Side, Angle, Side



Side, Side, Side

Congruent triangles

Side-side-side

All three sides on the triangle are the same size

Angle-side-angle

Two angles and the side connecting them are equal in two triangles

Side-angle-side

Two sides and the angle in-between them are equal in two triangles (it will also mean the third side is the same size on both shapes)

Right angle-hypotenuse-side

The triangles both have a right angle, the hypotenuse and one side are the same

Year 9 Science Autumn Term Knowledge Organiser Growth and Differentiation

Key Vocabulary:

1	**Eukaryotic cells**	have membrane-bound organelles and have genetic material contained in the nucleus
2	**Aseptic techniques**	must be used to prepare cultures to prevent contamination of the culture and the growth of harmful bacteria
3	**Microscopy**	is the field of using microscopes to view samples that cannot be seen with the naked eye
4	**Diffusion**	is the spreading out of particles, of a gas or liquid, resulting in net movement from an area of high concentration to low concentration
5	**Osmosis**	is the diffusion of water from a **dilute solution** to a **concentrated solution** through a **partially permeable membrane**
6	**Cancer**	is caused by uncontrolled cell division
7	**Stem cells**	1. are cells that are capable of **differentiating** into other types of cell

Cells

8

All eukaryotic cells have a nucleus, mitochondria, ribosomes, cytoplasm and a cell membrane. Plant cells also have a cell wall, vacuole and chloroplasts

Prokaryotic cells do not contain membrane-bound organelles

Prokaryotic cells are approximately 10 orders of magnitude smaller than eukaryotic cells

9 Microscopy

The parts of a light microscope include the eyepiece lens, objective lenses, stage, coarse focusing wheel, fine focusing wheel, light/mirror

A sample used with a light microscope must be very thin to allow light to pass through

Magnification is the number of times larger an image is than the object

Resolution is the ability to distinguish between two points

10 Aseptic Technique

Petri dishes are used to produce cultures of bacteria and other micro-organisms

Cultured bacteria are grown on a nutrient medium in controlled conditions

Aseptic techniques must be used to prepare cultures to prevent contamination of the culture and the growth of harmful bacteria

11 Cancer

Cancer is caused by uncontrolled cell division

A tumour is a mass of cells caused by uncontrolled cell division

Benign tumours are a mass of cells contained in one area

Malignant tumours are formed of cancer cells that invade other tissues and spread around the body where they form secondary tumours

12 Stem Cells

Embryonic stem cells can differentiate into all human cell types

Adult bone marrow contains stem cells that can differentiate into different types of blood cell

13 Aseptic Technique

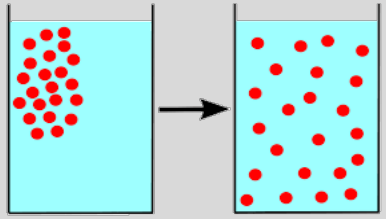
Petri dishes are used to produce cultures of bacteria and other micro-organisms

Cultured bacteria are grown on a nutrient medium in controlled conditions

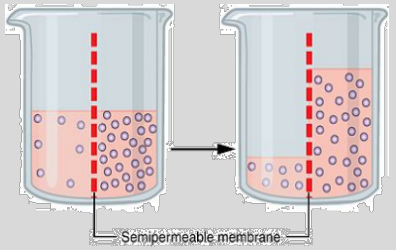
Aseptic techniques must be used to prepare cultures to prevent contamination of the culture and the growth of harmful bacteria

14 Movement of Particles

Diffusion is the spreading out of particles, of a gas or liquid, resulting in net movement from an area of high concentration to low concentration



Osmosis is the diffusion of water from a dilute solution to a concentrated solution through a partially permeable membrane



Active transport moves substances from a more dilute solution to a more concentrated solution, requiring energy from respiration

Year 9 Knowledge Organiser Periodic Table

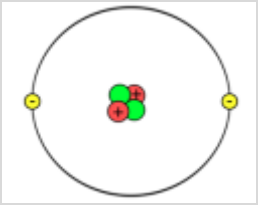
Key Vocabulary:

1	Atom	The smallest part of an element that can exist independently. The centre of an atom is called the nucleus
2	Electronic structure	The number of electrons in each energy level (shell) of an atom. A sodium atom has an electronic structure of 2, 8, 1.
3	Isotopes	Atoms of the same element with mass numbers due to different numbers of neutrons in the nucleus. Carbon-12, carbon-13, and carbon-14 are three isotopes of the element carbon with mass numbers 12, 13, and 14, respectively.
4	Atomic model	A model that represents the structure of the atom. The atomic model has been revised over time as new evidence has become available.
5	Periodic table	A table of all the known elements arranged in order of atomic number so that elements with similar properties are in columns, known as groups. All of the elements we know are represented in the periodic table.
6	Noble gas	An inert gas found in group 0 of the periodic table. Argon is a noble gas.
7	Alkali metal	An element in group 1 of the periodic table. Lithium is an example of an alkali metal.

Atomic Structure

8

Atoms consist of a positively charged nucleus, containing protons and neutrons, surrounded by negatively charged electrons



9 Atomic and Mass Number

The atomic number is the number of protons in an atom of the element 7. All atoms of a particular element have the same number of protons in their nuclei 8. Atoms of different elements have different numbers of protons

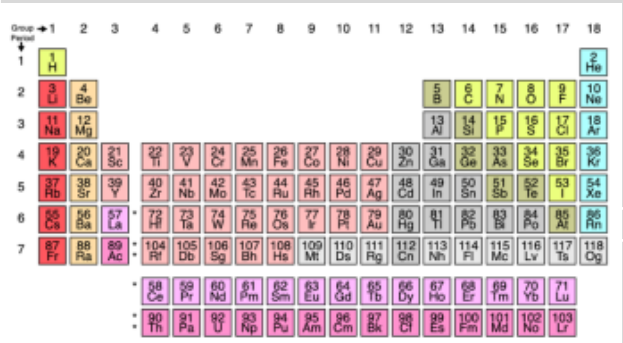
The mass number of an element is the total number of protons and neutrons 10. The relative charges of the subatomic particles are: protons (+), electrons (-) and neutrons (0)

10 Electronic Configuration

Electrons in an atom occupy the lowest available energy level 13. The electronic structure of an atom can be represented by numbers or a diagram 14. Atoms have no overall electrical charge because the number of electrons is equal to the number of protons in the nucleus

Elements in the periodic table are arranged in order of increasing atomic number and elements with similar properties

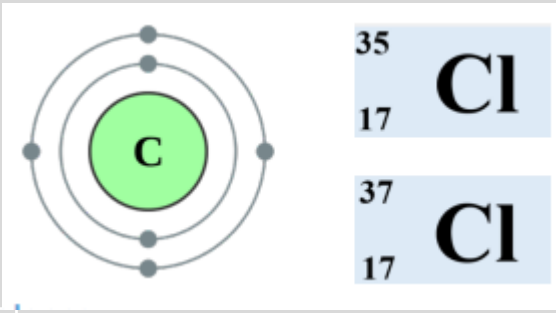
11 The Periodic Table



The Groups

12 Isotopes

Isotopes are atoms of the same element that have different numbers of neutrons 20. An element's relative atomic mass is an average value that takes account of the abundance of different isotopes



13 The Halogens

Elements in Group 7 are known as the Halogens 46.

They have similar reactions because they all have 7 electrons in their outer shell 47.

The Halogens are non-metals and consist of molecules made up of pairs of atoms 48. Melting and boiling points increase with increasing relative molecular mass (as you go down the group) 49.

Reactivity decreases as you do down the group 50. A more reactive halogen can displace a less reactive halogen from an aqueous solution of its salt

14 The Transition Metals

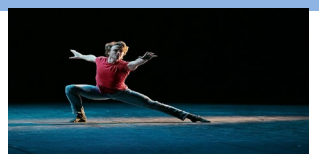
Metals including Cr, Mn, Fe, Co, Ni and Cu are transition metals with similar properties, which are different from the properties of Group 1 52.

Many transition elements form ions with different charges, form coloured compounds and can be useful as catalysts

15 The Noble Gases

Elements in Group 0 are called the Noble Gases 35. They are unreactive and do not easily form molecules because they have a stable arrangement of electrons 36. They have 8 electrons in their outer shell, except Helium which has 2 37. Boiling point increases with increasing atomic mass (as you go down the group)

Year 9 BTEC Dance Subject Term Knowledge Organiser



Component 1- Exploring the Performing Arts Jazz Dance

Students will gain a practical appreciation of practitioners' work in using existing performance material in dance and learn how they may respond to or treat a particular theme or issue, how they use/interpret/modify a pre-existing style, and how they communicate ideas to their audience through stylistic qualities.

Christopher Bruce - choreographer

Christopher Bruce's interest in varied forms of choreography developed early in his career from his own exposure to classical, contemporary and popular dance.

- Bruce's father who introduced him to dance, believing it could provide a useful career and would help strengthen his legs, damaged by polio.
- His early training, at the Benson Stage Academy, Scarborough, included ballet, tap and acrobatic dancing - all elements which have emerged in his choreography.
- At the age of thirteen he attended the Ballet Rambert School and Rambert has provided the most consistent umbrella for his work since.

Overview of key features:

Bruce embraces both a classical and contemporary movement vocabulary. The style draws on both his ballet and Graham technique training and he uses the long extended lines of ballet but with off balance tilts and attitudes. Balletic movements such as arabesques, attitudes and jetes combine with the low centre of gravity, a spiralling torso and use of off-balance from contemporary dance. He makes use of weight and the floor in deep plies and lunges.

Subject Matter

Bruce's work often contains an autobiographical element. Rooster (1991) the lifestyle he remembered from the 1960s. A number of works, particularly those choreographed while his own family was growing up, such as Ghost Dances (1981), reflect his love of children e.g. peasant boy arms outstretched like an aeroplane whilst he pivots in a circle.

- There is an unusual level of political, social and ecological awareness in Bruce's choice of subject. Ghost Dances (1981) and Swansong (1987) are concerned with political oppression.

Christopher Bruce's choreography for Swansong incorporates a variety of dance styles, including contemporary, ballet, jazz, tap and ballroom. The inclusion of 'folk' styles is a typical feature of Bruce's choreography and can be seen particularly in Ghost Dances and Sergeant Early's Dream (1984).

In Swansong balletic movements, such as arabesques, attitudes and jetés combine with the low centre of gravity, spiralling torso and use of off-balance from contemporary dance to create a lyrical feel for the victim's solos.

Counter Balance

Counterbalance: A weight which balances another weight. In dance, it usually refers to one or more dancers combining their weight in stillness or in action to achieve a movement or design which is inter-dependent.

Contact improvisation is a form of improvised dancing that has been developing internationally since 1972. It involves the exploration of one's body in relationship to others by using the fundamentals of sharing weight, touch, and movement awareness.

Year 9 History Term 1 Knowledge Organiser: The Suffragettes

The Suffragettes (WSPU)
Leader: Emmeline Pankhurst
Founded: 1902
Aim: Direct action as they believed the peaceful methods of the suffragists were ineffective
Forms of Protest: Breaking windows, chaining themselves to buildings and gates, hunger strike and burning the homes of MPs who voted against
Slogan: 'Deeds not words'

The Suffragists
Leader: Millicent Fawcett
Founded: 1913
Aim: to peacefully protest and campaign for the right for women to vote.
Forms of Protest: Petitions, Writing letters, Speeches and posters.

Key Questions to ask the provenance of the source
Who? – Is the author in a position to know?
What? – What type of source is it?
Where? – Where does the evidence come from? (Location)
When? - Does the evidence come from the time or later?
Why? – What is the purpose of the source?

DEMOCRACY	government by the people
SUFFRAGE	the right to vote in an election
OPPOSE	to disagree with something and act against it
PROTEST	disagree strongly and publicly with something
PROPAGANDA	one-sided information or advertising designed to put across a particular opinion
ACT OF PARLIAMENT	a new law which has been approved by Parliament
LEGAL	permitted by law
MUNITION	military weapons, ammunition and equipment
SUFFRAGETTE	a woman seeking the right to vote through violent protest.
SUFFRAGISTS	a woman seeking the right to vote through non-violent protest.
EQUALITY	To be given the same chances or opportunities.
PETITION	a document signed by a large number of people demanding action from the government

TIMELINE OF THE FIGHT FOR FEMALE SUFFRAGE

Year 9 ART HT1 & HT2 Knowledge Organiser

Keywords

Iconic – Having the character of an icon, for example, an important and enduring symbol, an object of great attention and devotion.

Illustrator – An illustrator often creates images for magazines, books, advertising and more. They specialise in creating a visual representation of an idea or text.

Contemporary – This is similar to the word 'modern', and means the present and now.

Commissioned – An artist or illustrator can be commissioned by a client to produce of work of art to order; they are often paid to do so.

Illuminous – This means bright and clear.

Montage is the technique of producing a new whole piece from fragments of pictures, text, or music. In art, this is often expressed through collaging different materials.

Lino Printing – A Lino Printing is a form of block printing that involves carving a pattern or design into a linoleum, rubber or vinyl surface that can then be printed from.

Concentric – This is a collection of shapes, which graduate in size and all share the same centre. E.g.:

Symbolism

Symbolism is the practice or art of using an object or a word to represent an abstract idea. An action, person, place, word, or object can all have a symbolic meaning. There is symbolism in colours, animals, everyday objects and flowers. Symbolism can be found in modern day life through our use of emojis, such as a love heart to represent love.

Hattie Stewart

Hattie Stewart is a London based Illustrator. She refers to herself as a 'professional doodler', with her unique and playful style popular for advertising. Her work is based upon pattern and colour, and is well-known for 'doodle-bombing' over influential publications such as Vogue.

Art History – Pop Art

Started:
Mid 1950s
Ended:
Late 1970s

The Pop Art movement was art which was based on modern popular culture at the time, and the mass media. Pop artists, such as **Andy Warhol** and **Roy Lichtenstein**, rejected traditional, classical aspects of fine art and instead began to celebrate the everyday life through their work. For example, artists were inspired by objects such as soup cans and popular comic strips. It was an exciting, colourful art movement, and the artists used many different techniques such as painting and collage to make their work.

Year 9 HT1 Drama Knowledge Organiser

Summary of topic

Through exploration of a modern text students are immersed into the world of Christopher and understand the struggles faced by a child with a learning need. They explore the iconic award winning contemporary play-text.

Key characters	
Christopher	Main character and boy who is Asperger's.
Mum	She leaves Christopher and moves to London.
Dad	Struggles to manage Christopher's behaviour as a single dad.
Siobhan	Christopher's teacher.

Skills & Definitions

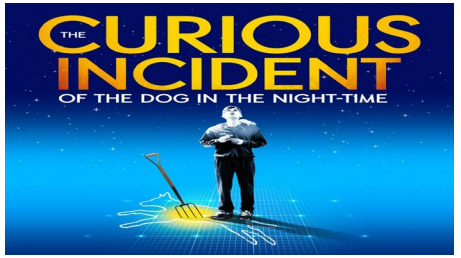
Physical Theatre – A genre of drama primarily focusing upon movement.
Ensemble movement – Synchronised movement as a group.
Rhythmic movement – Movement in time with music.

Aims of the topic

To understand the world of Christopher a boy with autism and see the world through his eyes using physical theatre.

The Curious Incident of the Dog in the Night-Time Y9

Knowledge Organiser



DRAMA

Key Words

Improvisation
Creating your own performance without a script.

Physical theatre
Genre of drama using movement.

Frantic Assembly
Frantic Assembly are the Movement Directors of the play.

Characterisation
Is the skills you use to create your character.

Embodiment
Means how you interpret the character/themes.

Stylised movement
Movement that is more abstract and uses an ensemble.

Ensemble
Multiple people in a piece of drama

Autism
Autism spectrum disorder (ASD) is a neurological and developmental disorder that affects how people interact with others, communicate, learn, and behave.

Assessment & Performance Tips

Students will perform a physical theatre inspired piece from key scenes from the text.

- Face the audience at all times
- Speak loud and clear so everyone can hear you
- Try not to laugh and stay focused
- Bring props and costume in to enhance your character
- Use a range of physical theatre skills.
- Learn your lines.
- Practice the actions at the same time.
- Think about lighting choices.

Year 9 PE Knowledge Organiser- Basketball

Keywords:

Set shot
Dribble
Defensive
Attack
Lay-up
Double dribble
Travel
Pivot

Scoring System

- **3 points** - are awarded if the ball is successfully shot through the hoop from behind the three-point line.
- **2 points** - are awarded if the ball is successfully shot through
- **1 point** – If a foul is committed. They have a free attempt to shoot their ball through the hoop.

Key Skills

Dribbling - Head up/spread fingers and fingertips bounce the ball/waist height

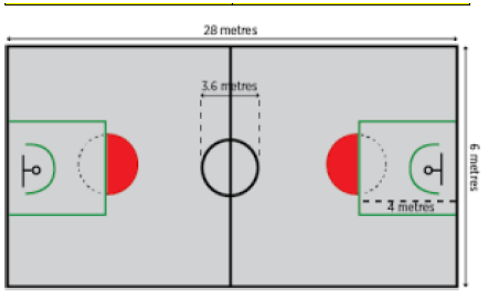
Chest Pass - W grip/ Step/Chest to chest/Follow through/ short distance

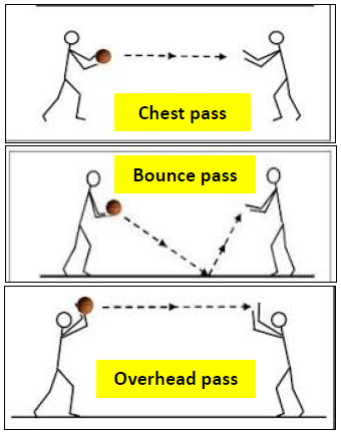
Bounce Pass - W grip/ Step/Chest to chest/Follow through/ Bounce before player/ short distance

Set Shot - Knees bent/dominant foot slightly in front of other/strong hand at bottom/supporting hand on side/elbow at 90 degrees

Lay up- Strong hand at bottom/supporting hand on side/keep it high/ Right hand dribble, step right, jump left, aim for top right corner of box/left hand dribble, step left, jump right, aim for top left corner of box

Pivoting/Jump Shot- Landing on alternate feet- first foot to land is the static pivoting foot landing on simultaneous feet – either foot can become static pivoting foot/can be used at the end of a dribble or when receiving a pass . On the move – release ball before third step.





Main Rules

1. The games consists of 2 teams with 5 players on court.
2. Aim to score as many hoops, shooting through the hoop, as you can in the time allocated.
3. Players cannot travel with the ball or perform a double dribble
4. Players cannot hold the ball for longer than 5 seconds
5. If ball goes out of play then a side line ball is taken from the opposite team.
6. Once the offense (attacking team) has brought the ball across the mid-court line, they cannot go back across the line during possession.
7. Fouls are given for hitting, holding or pushing an opponent.
8. If a player fouls the shooter, then 1-3 free throws can be awarded (each 1 point).

Year 9 Computing Term Knowledge Organiser

INTRODUCTION TO PYTHON

Python is a **text** based **programming language**. That can be used to create programs, games, applications and much more!

A **program** is a set of precise instructions, expressed in a **programming language**. This is called an algorithm

In programming we use variables, these are like containers that store data An example would be Name =("Paul") - Name is the variable and Paul is the data stored.

If we do not input data and have information returned, there is no point of a computer.
To enter data using python
Name = input(" please enter your name") Name is the variable and the data entered by the user will be stored in that variable. If we don't put the input in then the user will not be able to input and data
If we want to enter a number the code used is slightly different
Num = int(input("please enter a number, ")) please note the double brackets at the end and we put int before the input

We can use selection in programming, for example if it is raining wear coat otherwise don't wear a coat. This looks like

```
Raining = input(" is it raining, please answer yes or no, ")
If Raining == "yes":
    print ("it is raining")
else:
    print (" it is dry")
```

Raining is the variable, if and else check and the print is the output. Don't forget the :

Or when the value you want to enter is a number:

```
Test =int( input(" What did you get in the test "))
If Test > 50:
   print ("Well done you passed")
else:
    print (" Sorry you failed")
```

Test is the variable. Don't forget the int and the ((because it is a number

Useful snippets of code

print ("Year 8")	Will display the string "Year 8". A string to be displayed is always found between " "
input ()	Reads a line of text from the keyboard and returns it
print	Is put before what you want to be output
Name=[item1 , item2, item3]	Allows ctreation of a list e.g. shopping = ["oranges", "apples", pears"]

Data types

Whole numbers—**integer**

Letters, combination of letters, numbers—**string.** Strings are always contained in "" if you want it displayed

Yes/no or True/False—**boolean**

Arithmetic operators

+ addition
- difference
* multiplication
/ division

Selection symbols

< less than
> Greater than
= = Equal to

Some common syntax errors in selection

· use if and else—no capitals
· A colon : is always required after the condition and after else. E.g. after the yes and the 50 in the examples
· Use **indentation** to indicate which statements 'belong' to the if block and the else block.
You need a double = (look at the example) if you want the condition to be = to something

19th Century Anthology - Knowledge Organiser

Simple sentence: Contains only one main clause. It must have a subject and a verb, and may have an object.

Compound sentence: Has two main clauses, joined by a co-ordinating conjunction.

Complex sentence: consists of a main clause plus one or more subordinate clauses.

Periodical sentence: placing the main clause at the very end.

Cumulative sentence: are long sentences which place the main clause at the start of the sentence with the modifiers following after.

Minor sentence: An incomplete sentence. It may lack a **subject** or a **main verb** but nevertheless we understand what is meant.

Exclamatory sentence: making an exclamation of shock, horror, anger, delight, excitement… using an exclamation mark!

Imperative sentence: Featuring an imperative verb, an imperative sentence gives an instruction or a command

Interrogative sentence: A sentence which interrogates, or questions, ending in a question mark. Remember that a rhetorical question is a different kind of question.

Declarative sentence: The most commonly used sentence type, simply stating or declaring information.

Authorial intent: What the writer's purpose is and why they wanted to write the piece.

Thesis statement: An argument to introduce and outline the main points of an essay.

Appositive: An appositive is a noun or a noun phrase that sits next to another noun to rename it or to describe it in another way.

Personification: Describing a non-living thing with living qualities.

Juxtaposition: Two or more things being seen or placed close together with contrasting effect.

Alliteration: The same letter or sound at the beginning of words next to one another or closely connected words.

Oxymoron: Two words next to each other that are opposite and contradict one another.

In medias res: Starting in the action.

Pathetic fallacy: Where the mood and emotions are attributed to non-human things.

Syntax: The way in which such as words are put together to form clauses in sentences.

Analysing an Extract

- Write as **succinctly** as you can, without letting your **point** get lost in lots of wasteful words.
- Try to **embed** your **quotations**, choose the shortest, most **precise** phrase from the text as you can and try to let it flow naturally in the paragraph you're writing.
- Zoom in to **key words**, particularly explaining **connotations** and the **semantic field.**
- Don't rely on knowing what the text means, focus instead on **working out** what the writer is **implying**.
- Refer to the **structure** of the **sentences** and why the writer has used that **type of sentence**.

Analysing using a Thesis Statement

- Use the **text** to convey your understanding of **authorial intent.**
- Use an **appositive** to detail knowledge on the **author.**
- Refer to an **argument** based on the question and the **ideas** you want to explore in your essay.
- Try to **explore connection** to the **time** the writer has based their piece on and how this reflects their **intentions.**
- Use **evidence** from the text to prove your ideas.

Creative Writing

- You can control the mood and tone of your writing by choosing **vocabulary** with the right **connotations.**
- Use of imagery, pathetic fallacy, alliteration and personification creates a visual image for the reader.
- Write a piece to match the **purpose, audience and format.**
- Create **pathos, ethos and logos** within your piece through the use of **language and structure**.
- Use a variety of **sentence types** to emulate 19th century writing.
- **Proof reading** is a key skill; no writer publishes their first draft of anything! Check your **punctuation**, particularly **capital letters** and that your **sentences** are complete.

MFL Knowledge Organiser

KO. Yr 9 Free time and weather

Tenses

JOUER (to play)	
Je joue	I play
Tu joues	You play
Il/Elle/On joue	He/she/it plays
Nous jouons	We play
Vous jouez	You all play
Ils/Elles jouent	They play

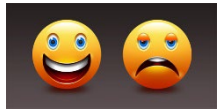
FAIRE (to do)	
Je fais	I do
Tu fais	You do
Il/Elle/On fait	He/She/ It does
Nous faisons	We do
Vous faisez	You all do
Ils/Elles font	They do

+ ball sports

+ non-ball sports

Quand il fait… = When it is…

Opinions & Pronouns



J'aime	Je n'aime pas
J'adore	Je deteste
J'aime beaucoup	Je n'aime pas du tout

Connectives

Parce que
Car
Aussi
Et
En plus
Mais
Pourtant

Translate it!

Adjectives

Beau	*Nice weather*
mal	*Bad weather*
chaud	*hot*
froid	*cold*
pleut	*rain*
neige	*snow*

Il y a de nouage = it's cloudy
Il y a des orages = It's thundering
Il y a du vent = it's wendy
Il y a du soleil = It is sunny
Il y a du bruillard = Its foggy

Is religion a power for peace or a cause for conflict in the world today?

Key terms

1. **War:** A state of armed conflict between different countries or different groups within a country.
2. **Extremism:** The holding of extreme political or religious views.
3. **Sikh:** Student.
4. **9/11:** The September 11 attacks, commonly known as 9/11, were a series of four coordinated suicide terrorist attacks carried out by the Islamic extremist group Al-Qaeda against the United States.
5. **Pacifist:** A person who believes that war and violence is unjustifiable.
6. **Just War Theory:** Helping people to change for the better
7. **Prejudice:** An attitude someone might have that is not based upon fact.
8. **Discrimination:** The action of discriminating against people (putting prejudice into practice).
9. **Jihad:** Striving/ struggle.

Crucial Commands:

Describe:Say in detail what something or someone is like, and the impact it has. E.g. Describe some consequences of going to war.

Explain: Say why something or someone is important, and the impact it has. E.g. Explain religious attitudes to the Just war theory..

Discuss: Write about at least two points of view and explain why these points of view are valuable or not. E.g. "Is religion a power for peace or cause of conflict in the world today?"

Why do people go to war?

- To show power
- To remove a dictator/ government
- To gain resources e.g. land
- To defend an ally/ belief/ lifestyle/ freedom/ country
- To stop mass murder

As a result of war over the last 100 years millions have died. More civilians have died than troops. Disease usually spreads in epidemic proportion due to poor water, sanitation and lack of medical resources.

Christianity and War

Conditional pacifist Christians are against violence, however, accept that there may be circumstances such as justice or self defence when force may be necessary. i.e. Matthew 21:12-13 when Jesus forcibly drove out anyone that was selling from the temple.
Absolute Pacifist Christians believe violence is wrong in all circumstances. They support non-violent example of Jesus and in the New Testament on turning the other cheek, loving your enemies and praying for those who persecute you (Matthew 5:44).

Pacifism

Martin Luther King strongly believed the only way to achieve equal rights of black people in America was through non-violent means and peaceful forms of protest. His Christian beliefs told him that violence and hatred could only be conquered by love and forgiveness.
On the other hand, Malcom X (a Muslim convert), believed that sometimes violence was the only way people's voices could be heard.

Religion and Terrorism

Northern Ireland (NI) – The community in NI is divided into two: Unionists, Protestants who wanted NI to stay part of the UK and Nationalists, Catholics who wanted to join the Republic of Ireland, the IRA supports this.
9/11 – The Terrorist plot against the American people and George Bush. orchestrated planes flown by terrorists into the World Trade Centres killing around 3000 people in New York.
Israel/ Palestine – Israeli (Jewish) and Palestinian (Muslim) people both believe they have religious rights to land. The Palestinians fire rockets into Israeli towns, villages and cities and the Israeli's bombard the towns the Palestinians live in.

Sikhism and 9/11

Gurkhas come from Nepal which is in the Himalayas. As they are very brave people, the British Army employed them for over a century. Although Gurkas fought and died for Britain, they were not allowed to permanently live in the UK. Similarly, although Sikhs bravely fought along side others in wars, they were mistaken for being Muslims because of their Turbans and were subjected to attacks across the world.

Islam and Jihad

JUST WAR THEORY ISLAM:
1)There must be a just cause.
2)Self-defence.
3)Another country has been attacked.
4)Tyrannised.
5)The correct authority.
6)Last resort.

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MFL Knowledge Organiser

KO. Yr 9 Free time and weather

Tenses

JUGAR (to play)	
Juego	I play
Juegas	You play
Juega	He/she/it plays
Jugamos	We play
Jugaís	You all play
Juegan	They play

+ ball sports

HACER (to do)	
Hago	I do
Haces	You do
Hace	He/She/ It does
Hacemos	We do
Hacéis	You all do
Hacen	They do

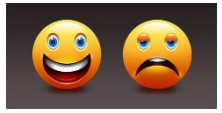
+ non-ball sports

Cuando hace… = When it is…

Opinions & Pronouns

Me encanta(n)

Me gusta(n)



Me chifla(n)

No me gusta(n)

Me gusta(n) mucho

No me gusta(n) nada

Connectives

Porque

Porque es

Dado que

Por eso

También

Sin embargo

Aunque

Top Cat Translate it!

Adjectives

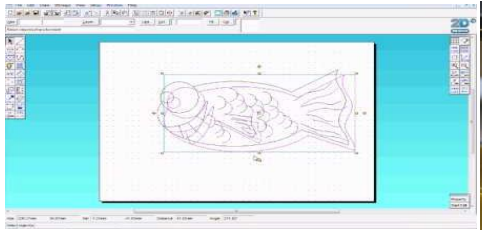
despejado/a	*clear*
nublado	*cloudy*
calor	*hot*
frío	*cold*
divertido	*fun*

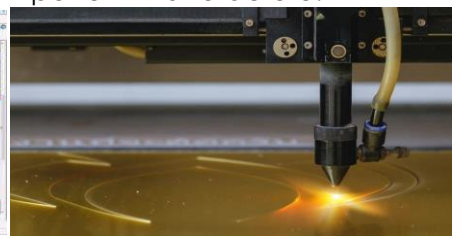
Year 9 Design Knowledge Organiser

Longdendale HIGH SCHOOL

CAD / CAM

CAD and CAM are a really important part of designing products and manufacturing them. They're used in lots of different industries from food packing to component manufacture.





CAD

Using computers to create/draw/present designs. E.g. 2D Design or Tinkercad. Accurate, easy to adapt/ share/ copy, links to CAM, fast global communication

CAM

Using computers to cut, print, paint, assemble or package products. E.g. robotics, LASER cutters, lathes, 3D printers, CNC milling machines, knitting machines. Accurate and fast mass production, lower product cost.

Health and Safety

Pewter

Pewter is a traditional low-temperature metal-(casting material 170°C - 230 °C).

It is used to make everything from jewellery to goblets.

Pewter is an alloyed metal made primarily from tin(tin 91%, antimony 7.5% & copper 1.5%)

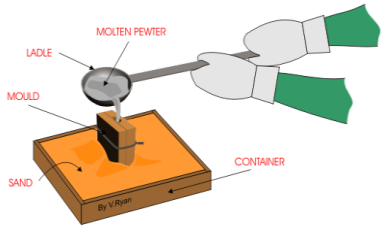
Pewter is grey in colour and was traditionally used to make plates and beer tankards.

Pewter is 100% recyclable.

Junior Hacksaw

Junior hacksaws are commonly used for cutting through metal pipes or plastic tubing. The blade of a junior hacksaw can be used for more precise cutting or for applications that require a neater finish.

Casting



Casting is a manufacturing process in which a liquid material is usually poured into a mould, which contains a hollow cavity of the desired shape.

Casting can be used to mass produce lots of identical products. Engine blocks are cast so that they are very strong and durable.

MDF

Medium-density fibreboard (MDF) is made from pulverized wood fibres blended with resins and pressed into sheets under temperature and pressure. MDF is generally denser than plywood.

Bradawl

A bradawl is a woodworking hand tool with a blade similar to that of a straight screwdriver and a handle typically made from wood or plastic.

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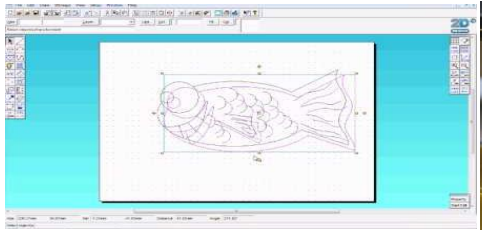

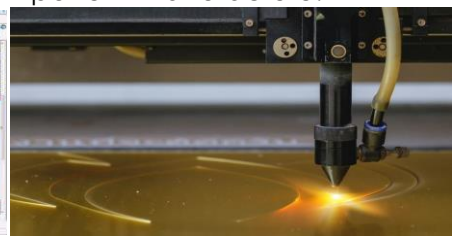

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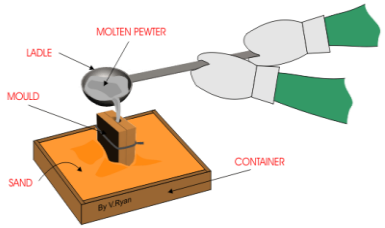

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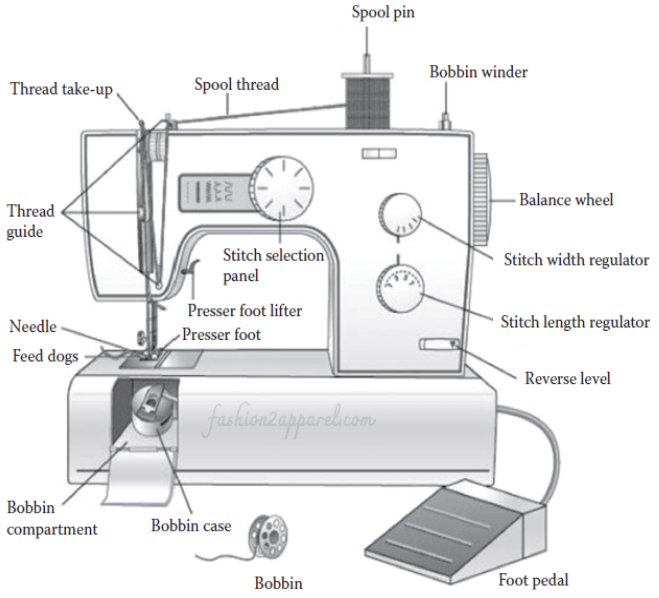
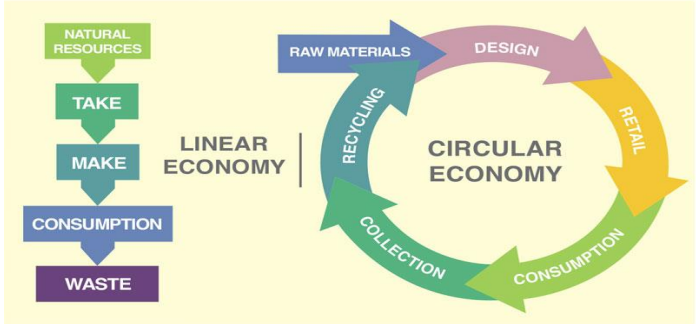
Year 9 Textiles Knowledge Organiser

Longdendale High School

Sewing Machine



Sustainability



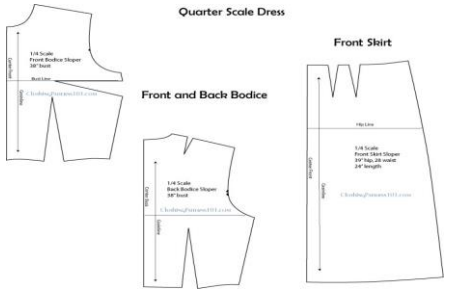
Sustainable textiles refers to fabrics derived from eco-friendly resources, such as sustainably grown fibre crops or recycled materials.

Sustainable textiles includes the use of second-hand retail repair and often utilizes upcycling and recycling of clothing. It also refers to how these fabrics are made.

Hems

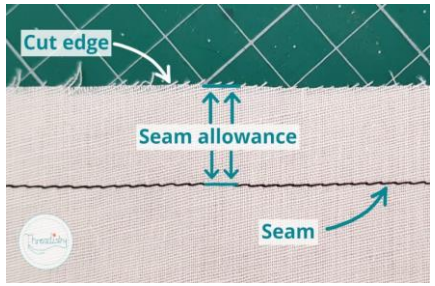
Hems lie at the end of a piece of cloth, where the fabric has been folded and sewn into place to prevent the material from fraying or loosing its shape.

Pattern



A pattern is the template from which the parts of a garment are traced onto woven or knitted fabrics before being cut out and assembled. Deconstructing an existing garment can provide you with a template to base your own pattern on.

Seam Allowance



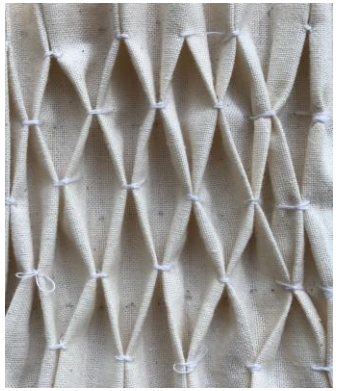
Seam allowance is the distance from the raw edge of the fabric to the seamline (or seam stitch line). Seam allowance allows for the formation of all seams by providing excess fabric for efficiently stitching a seam together

Decorative Textile Techniques

Embroidery

Marbling

Appliqué

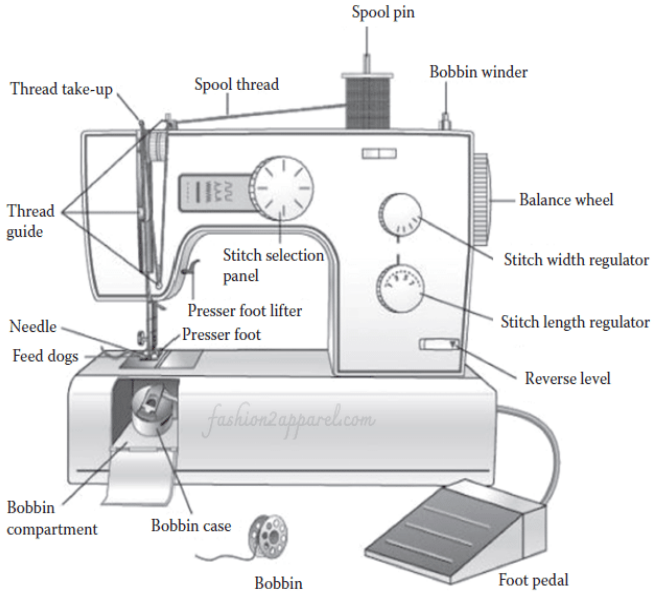


Fabric Manipulation

Year 9 Textiles Knowledge Organiser

Longdendale High School

Sewing Machine



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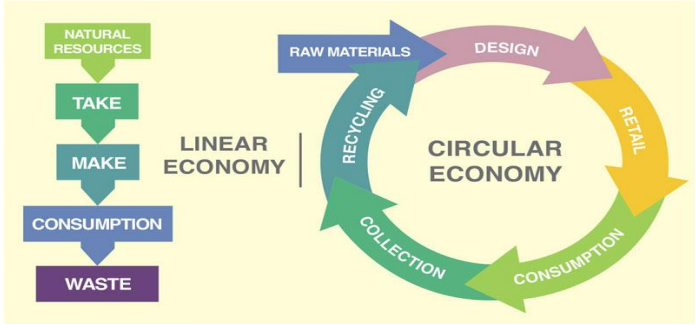

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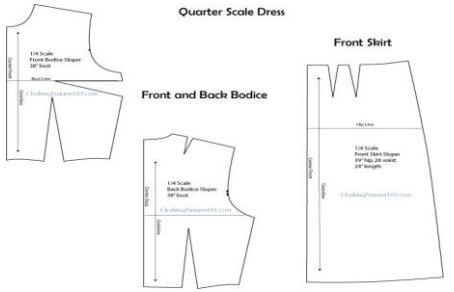

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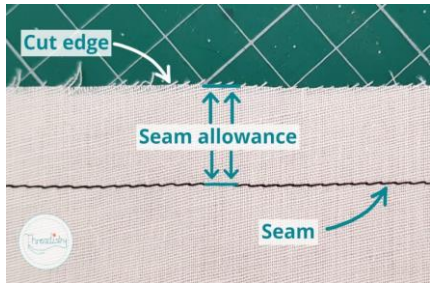

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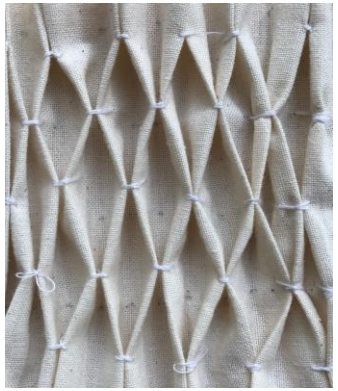
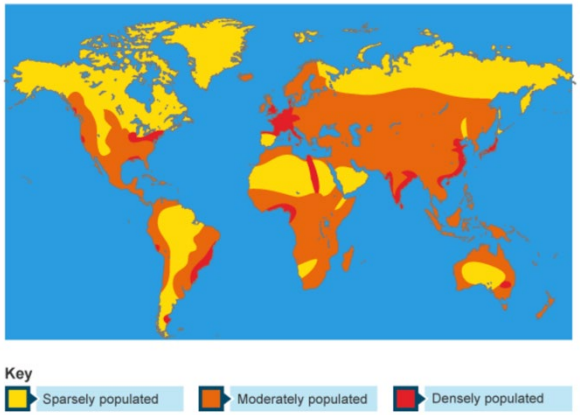


Fabric Manipulation

Popping Population

Population density

Population density refers to the number of people living in an area. It is worked out by dividing the number of people in an area by the size of the area. If there are few people living in an area this means that it is **sparsely populated**, while a **densely populated** area has many people living there.

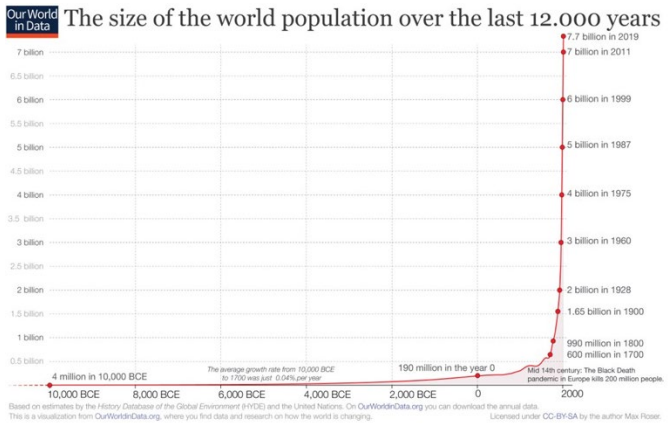


Population changes

The world's population does not stay the same. During the 1st century AD, the world population was about 300,000 people. The current population is over 7 billion, and most of the growth has taken place within the last 100 years.

What causes population to change?

- births
- deaths
- migration



Overtime, as healthcare has improved, death rates have continued to fall. The introduction of vaccines has also helped to protect people from diseases.

Factors affecting population density

Factors that can lead to dense populations include:

- flat or gently sloping land
- mild climate
- good soils
- lowland
- water
- good transport and communication links, e.g. ports
- places to work
- resources, e.g. coal, oil

Factors that can lead to sparse populations include:

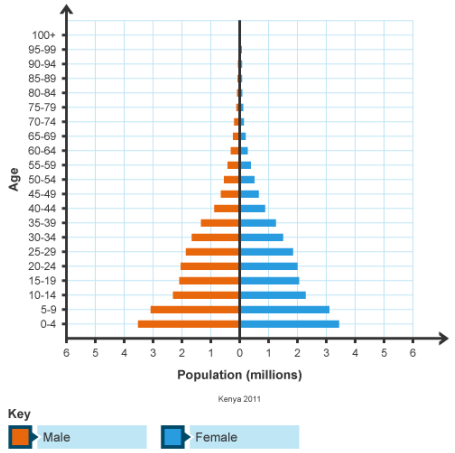
- steep slopes
- harsh climate - very hot or very cold
- dense forest
- dry conditions
- isolated areas with poor transport links
- few jobs
- lack of resources

Population Pyramids

Population structures are shown using population pyramids. A population structure refers to the number of males and females in each age group that are found within a specific place.

What does this mean?

- A wide base means there are lots of young people, and suggests a **high birth rate**.
- A narrow base means a smaller proportion of young people, suggesting a **low birth rate.**
- A thin middle, short pyramid means a smaller ageing population, suggesting that there is not a **long-life expectancy.**



While improvements in healthcare have historically lowered death rates, increased access to contraception has lowered birth rates.

Population Knowledge Organiser

Migration – *When people move from one place to another.*

Push factors

These are the reasons for why someone would want to move away from a place:

- Lack of services
- War
- Famine (starvation/food shortages)
- Few Jobs
- Natural Disasters

Pull factors

These are the reasons for why someone would want to move to a place:

- Higher quality of life (better homes, etc.)
- Access to education
- "Bright Lights" of the city
- Better healthcare
- Better job opportunities

Refugees and Asylum Seekers

Refugees: *people who have been forced to move away from their home country and have been granted asylum in another country.*

Economic migrants: *a person who has left his or her own country and seeks to find employment in another country.*

Asylum seekers: *means a person who has applied for asylum in another country*

Rural-urban migration

- Rural to urban migration is the movement of people from the countryside to the city.
- People move from the countryside due to various push factors. People believe that by moving to the city they will have access to more opportunities. However, in many cases moving to the city does not mean a better quality of life.
- Many poor people end up living in areas on the edge of a city, in small, very cheaply built houses. These areas are known as shantytowns or slums.

Case Study: China's One Child Policy

In order to manage its own growing population, China introduced the One Child Policy in 1979. The new policy meant that any couple having a second child would get a heavy fine, around £3,000.

Impacts of the Policy

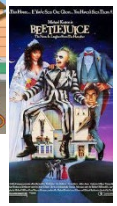
- The fertility rate has dropped from 5.7 in 1960 to 1.7 in 2016.
- Large numbers of female babies have ended up homeless or in orphanages, and in some cases killed.
- Many people claim that some women, who became pregnant after they had already had a child, were forced to have an abortion and many women were forcibly sterilised.
- There have been reports of female infanticide (killing of infants).

Long-term implications of the policy are that China now has a gender imbalance in their population. Its ageing population also has a high **dependency ratio**.

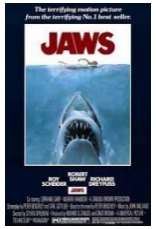
Film Music

Composers

Danny Elfman



John Williams



Piano = quiet

Forte = loud

Dynamics = Loud/quiet

Tempo = speed

Crescendo = Get louder

Thick texture = lots of instruments

Repetitive = Repeats a lot

Dissonant = clashing notes

Genre = type of film/music

Composer = person that wrote the music.

Leitmotif = short theme for a character.

Composers have to work to a brief – they have to make the music fit appropriately with the pictures.

- Dynamic changes
- Dissonant

- Electronic sounds
- Repetitive

- Stringed instruments
- Crescendos

- Fast tempo
- Forte dynamics