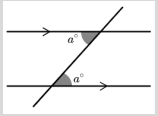
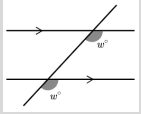
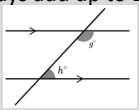
Year 9 Julius Caesar Knowledge Organiser

Key Vocabulary:		
1	Tragedy	a play dealing with tragic events and having an unhappy ending, especially one concerning the downfall of the main character.
2	Hubris	excessive pride or self-confidence; arrogance.
3	Hamartia	a fatal flaw leading to the downfall of a tragic hero or heroine.
4	Ambition	a strong desire to do or achieve something.
5	Foreshadowing	a warning, clue or indication of (a future event).
6	Conspiracy	a secret plan by a group to do something unlawful or harmful.
7	Soliloquy	an act of speaking one's thoughts aloud when by oneself or regardless of any hearers, especially by a character in a play.
8	Wrath	extreme anger.
9	Betrayal	to give over to an enemy by treachery; to be unfaithful to

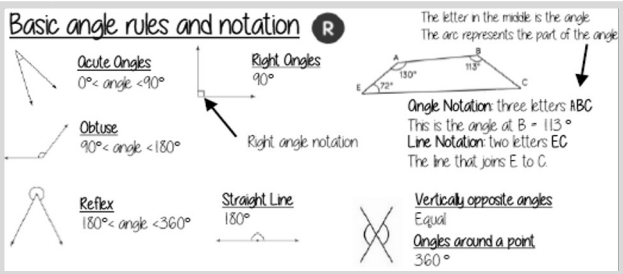
10. Key Events:	
a. Act One	The tribunes of Rome, Marullus and Flavius, break up a gathering of citizens who want to celebrate Julius Caesar's triumphant return from war. On his way to the arena, Caesar is stopped by a stranger who warns him that he should 'Beware the Ides [15th] of March.' Fellow senators, Caius Cassius and Marcus Brutus, are suspicious of Caesar's reactions to the power he holds in the Republic. They fear he will accept offers to become Emperor. He has been gaining a lot of power recently and people treat him like a god. Cassius, a successful general himself, is jealous of Caesar. Brutus has a more balanced view of the political position. The **conspirator** Casca enters and works with Cassius to try and conspire against Caesar.
b. Act Two	Cassius, Casca, and their allies plant false documents to manipulate Brutus to join their cause to remove Caesar. After doing so, they visit Brutus at night in his home to persuade him of their views. There they plan Caesar's death. Brutus is troubled but refuses to confide in his devoted wife, Portia. On 15 March, Caesar's wife, Calpurnia, urges him not to go to the Senate. She has had visionary dreams and fears the portents of the overnight storms.
c. Act Three	Caesar is nevertheless persuaded by flattery to go to the Capitol. At the Capitol, he is stabbed by each conspirator in turn. Against Cassius's advice, Brutus allows Mark Antony to speak a funeral oration for Caesar in the market place. He is allowed under the condition that first Brutus must address the people to explain the conspirators' reasons and their fears for Caesar's ambition. After Brutus speaks, the crowd becomes calm and supports his cause. However, Antony, in his speech, questions the motives of the conspirators and reminds the crowd of Caesar's benevolent actions and of his refusal to accept the crown.
d. Act Four	Brutus and Cassius gather an army in Northern Greece and prepare to fight the forces led by Mark Antony. Antony has joined with Caesar's great-nephew, Octavius, and with a man called Lepidus. Away from Rome, Brutus and Cassius are filled with doubts about the future and quarrel over funds for their soldiers' pay. After making amends, they prepare to engage Antony's army at Philippi, despite Cassius' misgivings about the site. Brutus stoically receives news of his wife's suicide in Rome. He then sees Caesar's ghost as he tries to rest and is unable to sleep on the eve of the conflict.
e. Act Five	In the battle, the Republicans (led by Brutus) appear to be winning at first. But when Cassius' messenger's horse seems to be overtaken by the enemy, Cassius fears the worst and gets his servant to help him to a quick death. After finding Cassius's body, Brutus commits suicide. He believes this to be the only honourable option left to him. Antony, triumphant on the battlefield, praises Brutus as 'the noblest Roman of them all' and orders a formal funeral before he and Octavius return to rule in Rome.

Year 9 Mathematics – Knowledge Organiser – Angles in Parallel Lines and Polygons – Spring Term

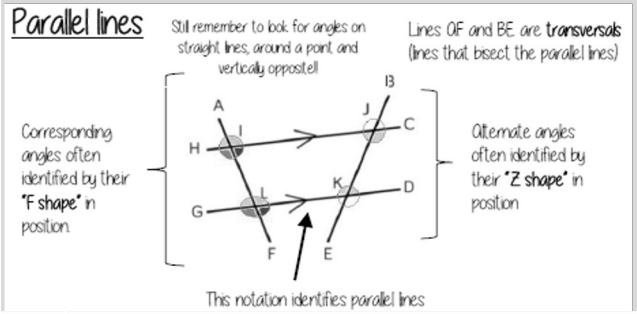
Key Vocabulary:

1	Parallel	Straight lines that never meet. They are the same distance apart along their length.
2	Angle	The figure formed by two straight lines meeting. Measured in degrees.
3	Transversal	A line that cuts across two or more parallel lines.
4	Polygon	A 2D shape made with straight lines.
5	Sum	Addition – total of all the interior angles added together.
6	Regular Polygon	A 2D shape where all sides have equal length and all interior angles are equal size.
7	Irregular Polygon	A 2D shape where all sides **do not** have equal length and all interior angles **are not** equal size.
8	Alternate Angles	When two parallel lines are crossed by a transversal the pair of angles on opposite sides of the transversal are equal. E.g. 
9	Corresponding Angles	When two parallel lines are crossed by a transversal, the angles in matching corners are called corresponding angles. E.g. 
10	Co-interior Angles	When angles are trapped between two parallel lines, they always add up to 180 degrees. E.g. 

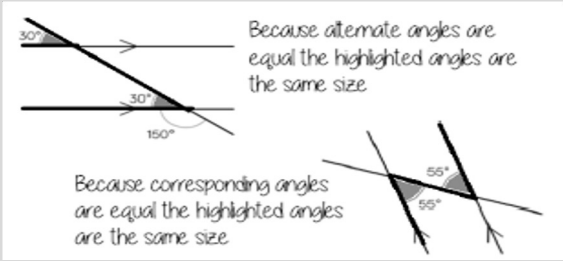
11 Basic Angle Rules and Notation



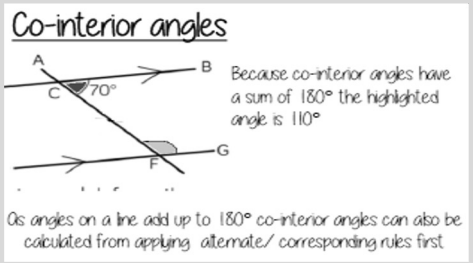
12 Parallel Lines



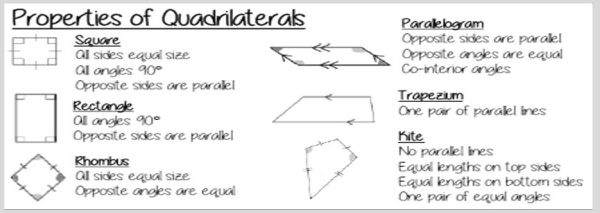
13 Alternate and Corresponding Angles



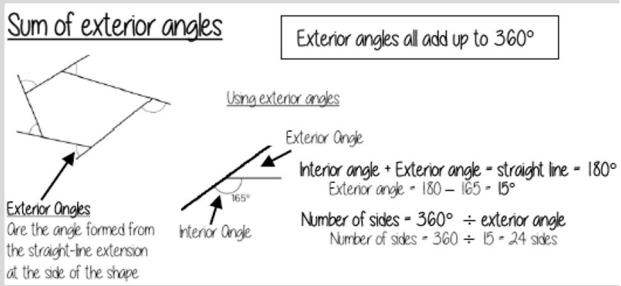
14 Co-interior Angles



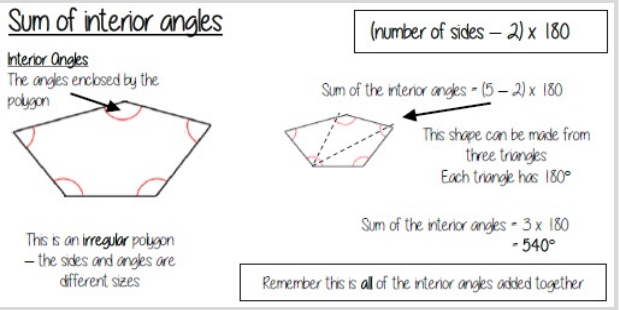
15 Properties of Quadrilaterals



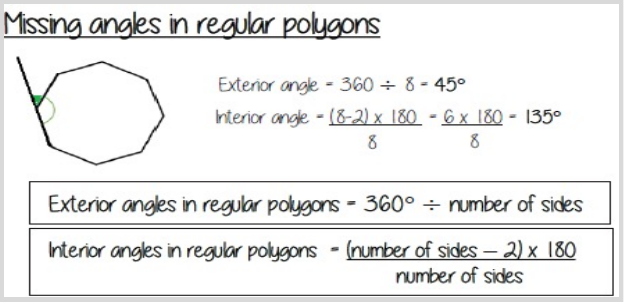
16 Sum of Exterior Angles



17 Sum of Interior Angles



18 Missing Angles in Regular Polygons



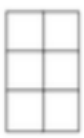
Year 9 Mathematics – Knowledge Organiser – Area of Trapezia and Circles – Spring Term

Key Vocabulary:

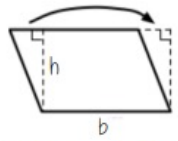
1	Radius	A measure of distance from the centre of any circular object to its outermost edge or boundary.
2	Area	Space inside a 2D object.
3	Perimeter	Length around the outside of a 2D object.
4	Pi (π)	The ratio of a circle's circumference to its diameter.
5	Perpendicular	At an angle of 90° to a given surface.
6	Formula	A mathematical relationship/ rule given in symbols. E.g. b x h = area of rectangle/ square.
7	Infinity (∞)	A number without a given ending (too great to count to the end of the number) – never ends.
8	Sector	A part of the circle enclosed by two radii and an arc.
9	Compound Shape	A shape created with two or more basic shapes.

10 Area – Rectangles, Triangles, Parallelograms

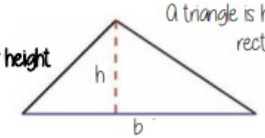
Rectangle
Base x Height



Parallelogram/ Rhombus
Base x Perpendicular height



Triangle
½ x Base x Perpendicular height

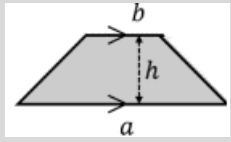


A triangle is half the size of the rectangle it would fit in

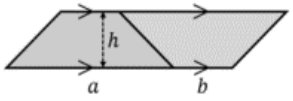
11 Area of a Trapezium

Area of a trapezium

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



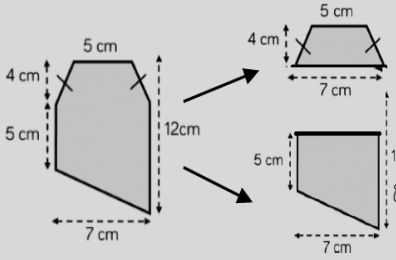
Why?



- Two congruent trapeziums make a parallelogram
- New length (a + b) x height
- Divide by 2 to find area of one

12 Perimeter and Area of Compound Shapes

To find the area of compound shapes, they often need splitting into more manageable shapes. First identify the shapes and missing sides etc.



Shape A + Shape B = total area

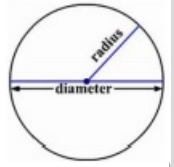
$$\frac{(5+7)\times 4}{2} + \frac{(5+8)\times 7}{2} = 24 + 45.5 = 69.5\text{cm}^2$$

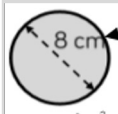
Units

13 Calculate the Area of a Circle and Parts of a Circle Without a Calculator

Read the question – leave in terms of π or if $\pi \approx 3$ (provides an estimate for answers) .

Area of a circle
$\pi \times \text{radius}^2$





Diameter = 8cm
∴ Radius = 4cm

$\pi \times \text{radius}^2$
$= \pi \times 4^2$
$= \pi \times 16$
$= 16\pi$ cm²

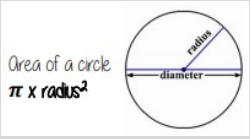
Find the area of one quarter of the circle

Radius = 4cm

Circle Area = 16π cm²
Quarter = 4π cm²

14 Calculate the Area of a Circle and Parts of a Circle With a Calculator

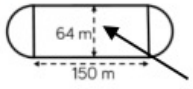
Area of a circle $\pi \times \text{radius}^2$



It is important to round your answer suitably to significant figures or decimal places.
This will give you a decimal solution that will go on forever!

15 Compound Shapes

Spotting diameters and radii



This dimension is also the diameter of the semi circles

Arc lengths = $\pi \times 64$
$= 64\pi$

Don't need to halve this because there are 2 ends which make the whole circle

Arc lengths + Straight lengths = total perimeter

$= 64\pi + 150 + 150$
$= (300 + 64\pi)$ m
OR = 501.1m

Still remember to split up the compound shape into smaller more manageable individual shapes first

Year 9 Mathematics – Knowledge Organiser – Measures of Location – Spring Term

Key Vocabulary

1	Average	A number expressing the central or typical value in a set of data.
2	Spread	The measure of how far the numbers in a data set are away from the mean or the median.
3	Data	Facts and statistics collected for reference or analysis.
4	Approximate	An estimation of a number or rounding a number to its nearest place value.
5	Discrete Data	Data that can only take certain values e.g. shoe size.
6	Frequency:	The number of times the data values occur.
7	Represent	Something that shows the value of another.
8	Outlier	A value that stands apart from the data set.
9	Consistent	A set of data that is similar and doesn't change very much.
10	Continuous Data	Data that can take any value (within a range).
11	Total	All the data added together.

12 Understand and use the Mean, Median and Mode

Mean - Add up the values you are given and divide by the number of values you have.
Median is the middle value, when your data is in order.
Mode - It is the value or item there is the most of.
Example :
Given this list of numbers 3, 7, 5, 4, 7
Mean: 3 + 7 + 5 + 4 + 7 = 26
26 ÷ 5 = 5.2
The mean value is 5.2
Median: First, write in ascending order 3, 4, 5, 7, 7
The median value is 5
Mode: The number which appears the most is 7
(7 appears twice)
The modal value is 7

13 Choose the Most Appropriate Average

The average should be a representative of the data set so it should be compared to the set as a whole to check if it is an appropriate average.

Example :

Here are the weekly wages of a small firm
£240,£240,£240,£240 ,£240 ,£260,£260,£300,£350,£700

The Mean = £307 , The Median = £250 ,The Mode = £240

Which average best represents the weekly wage?

Put the data back into context.

Mean/Median too high (most of this company earn £240).
Mode is the best average that represents this wage.

It is likely that the salaries above £240 are more senior staff members their salary doesn't represent the average weekly wage of the majority of employers.

14 Find the Mean from an Ungrouped Frequency Table

Find the mean

# of people	Frequency
1	8
2	6
3	3
4	4
	Total = 21 cars

# of people	Frequency	Total
1	8	8 x 1 = 8
2	6	6 x 2 = 12
3	3	3 x 3 = 9
4	4	4 x 4 = 16
	21 cars	45 people

8 cars have 1 person. 8 x 1 = 8. 6 cars have 2 people. 6 x 2 = 12.
3 cars have 3 people. 3 x 3 = 9. 4 cars have 4 people. 4 x 4 = 16.
So the total is 8 + 12 + 9 + 16 = 45 people.
The mean is: 45 ÷ 21 = 2.14 people per car. (2d.p.)

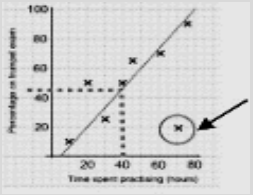
15 Find the Mean from a Grouped Frequency Table

Test Score	Frequency	Midpoint (of test score)	Estimated Total
0-10	5	(10 + 0) ÷ 2 = 5	5 x 5 = 25
11-20	4	(20 + 11) ÷ 2 = 10.5	4 x 10.5 = 42
21-30	8	(21 + 30) ÷ 2 = 25.5	8 x 25.5 = 204
31-40	12	(40 + 31) ÷ 2 = 35.5	12 x 35.5 = 426
	Total = 29 people		697

Estimated mean is:
Estimated total ÷ total frequency = 697 ÷ 29 = 24.03 (2dp)
In a grouped frequency table you do not know the actual values, e.g. we know 5 people scored between 0 and 10 but not their actual scores. So we cannot add up their scores to find an accurate total. The way around this is to estimate their scores and we use the midpoint of the values for this estimation.

16 Identify Outliers

Outliers are values that stand well apart from the rest of the data. Outliers can have a big impact on range and mean.
They have less impact on the median and the mode.



Outliers can also be identified graphically e.g. on scatter graphs.

17 Compare Distributions using Averages and the Range

Comparisons should include a statement of average and central tendency, as well as a statement about spread and consistency. Here are the number of runs scored last month by Lucy and James in cricket matches.

Lucy: 45, 32, 37, 41, 48, 35
James: 60, 90, 41, 23, 14, 23

Lucy
Mean: 396 (1dp), Median: 38 Mode: no mode, Range: 16
James
Mean: 418 (1dp), Median: 32, Mode: 23, Range: 76

James has two extreme values that have a big impact on the range.

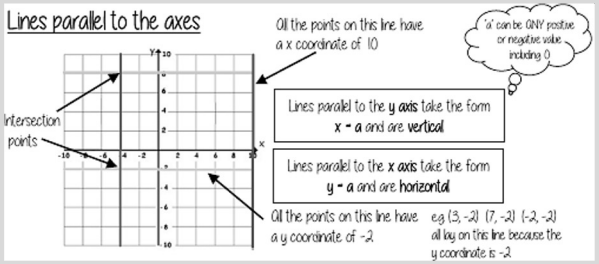
"James is less consistent than Lucy because his scores have a greater range. Lucy performed better on average because her scores have a similar mean and a higher median."

Year 9 Mathematics – Knowledge Organiser – Straight Line Graphs – Spring Term

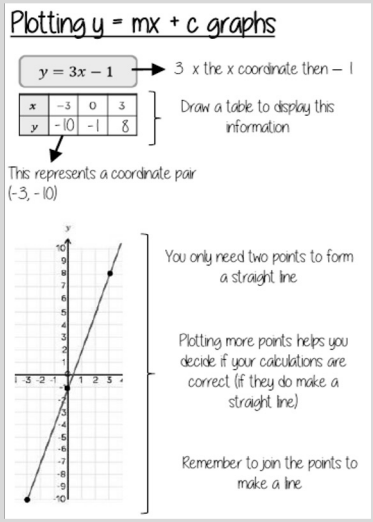
Key Vocabulary:

1	Coordinate	A set of values that show an exact position. E.g. (3, 4) the first value being the x coordinate and the second value the y coordinate.
2	Horizontal	A straight line from left to right (parallel to the x axis).
3	Vertical	A straight line from top to bottom (parallel to the y axis).
4	Axes	The reference lines on a graph that are used to plot values or coordinates.
5	Gradient	The steepness of a line.
6	Intercept	The point where two lines cross.
7	Y-intercept	Where the line of a graph meets the y-axis.
8	Parallel	Lines that never meet, with the same gradient.
9	Linear	A linear equation makes a straight line when it is plotted on a graph. In a linear sequence, the numbers increase by the same amount each time.
10	Perpendicular	Two lines that meet at a right angle.
11	Reciprocal	A pair of numbers that multiply together to give 1. Also called the "multiplicative inverse". E. g. $2 \times \frac{1}{2} = 1$ where $\frac{1}{2}$ is the reciprocal of 2.

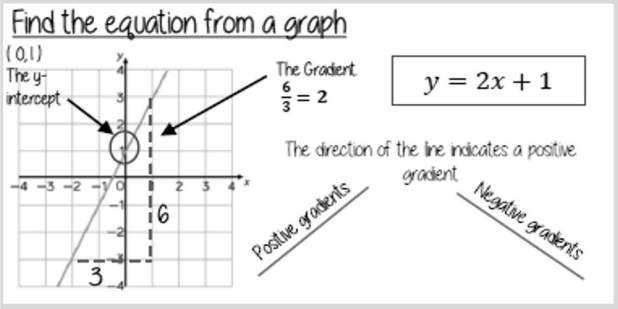
12 Lines Parallel to the Axes



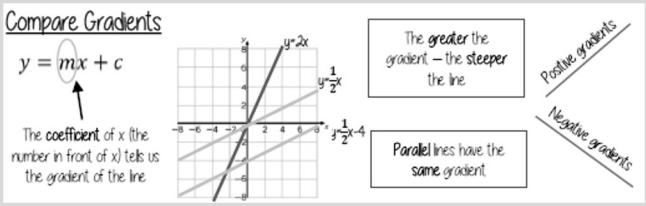
13 Plotting y = mx + c Graphs



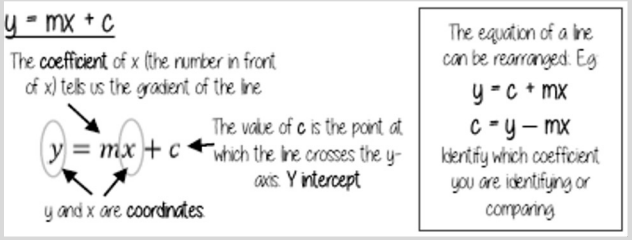
14 Finding the Equation from a Graph



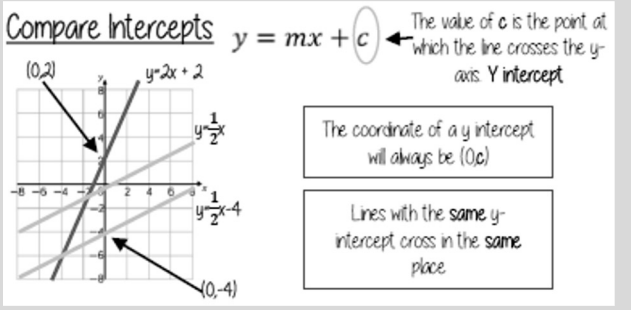
15 Comparing Gradients



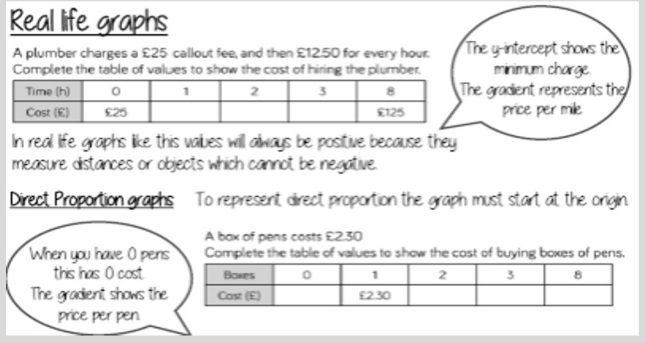
16 y = mx + c



17 Compare Intercepts



18 Real Life Graphs



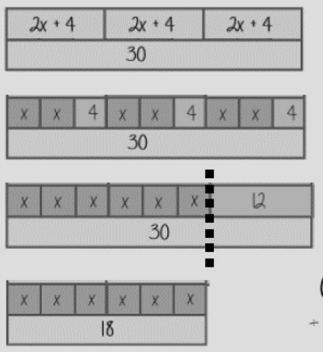
Year 9 Mathematics – Knowledge Organiser – Forming and Solving Equations – Spring Term

Key Vocabulary:

1	Form (an equation)	To construct an equation from a given context.
2	Variable	A quantity that may change within the context of the problem.
3	Rearrange	Change the order.
4	Inverse operation	The operation that reverses another operation.
5	Inequality	An inequality compares values showing if one is greater than, less than or equal to another.
6	Substitute	Replace a variable with a numerical value.
7	Solve	Find a numerical value that satisfies an equation.
8	Equation	Show equality of two expressions.
9	Formulae	All values are expressed as symbols.

10 Solve Equations with Brackets

When solving equations with brackets, we must remember to expand the brackets first.



$3(2x + 4) = 30$

Expand the brackets

$6x + 12 = 30$

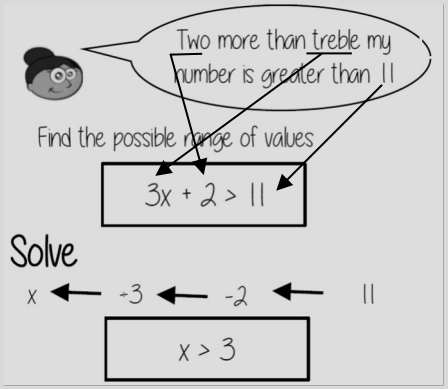
$-12 \quad -12$

$6x = 18$

$\div 6 \quad \div 6$

$x = 3$

11 Form and Solve Inequalities



12 Equations with Unknowns on Both Sides

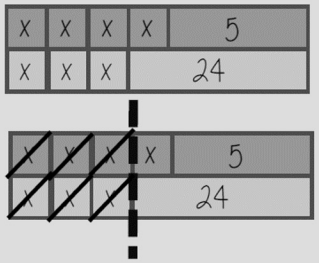
$4x + 5 = 3x + 24$

$-3x \quad -3x$

$x + 5 = 24$

$-5 \quad -5$

$x = 19$



13 Inequalities with Unknowns on Both Sides

Solving inequalities has the same method as solving 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

14 Rearranging Formulae (One Step)

$x = y + z$

Rearrange to make y the subject

$y = x - z$

$y \longrightarrow +z \longrightarrow x$

$y \longleftarrow -z \longleftarrow x$

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

15 Rearranging Formulae (Two Steps)

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 $y = mx + c$

Year 9 Science Spring Term – Chemistry of the Atom

Key Vocabulary:

1	**Atom**	The smallest part of an element that can exist independently.
2	**Atomic Number**	The number of protons in an atom of an element. This is he smallest number of the two numbers provided for each element on the periodic table.
3	**Chemical Formula**	A series of chemical symbols showing the number of atoms of each element in a compound.
4	**Compound**	A substance made up of two or more different elements chemically bonded together.
5	**Concentration**	The mass of solute dissolved in a given volume of solvent.
6	**Conservation of Mass**	The law of conservation of mass states that the total mass of reactants in any chemical reaction equals the total mass of product.
7	**Element**	A substance made of only one type of atom.
8	**Mass Number**	The total number of protons and neutrons in the nucleus of an atom. It is the larger of the two numbers beside each element in the periodic table.
9	**Mixture**	A material consisting of two or more different substances that are not chemically combined.
10	**Molecule**	A small group of non-metal atoms chemically bonded together.
11	**Relative Atomic Mass**	The relative atomic mass of an element is the relative mass of its atoms compared to the mass of a carbon-12 atom. The relative atomic masses for each element are given in the Periodic Table.
12	**Relative Formula Mass**	The relative formula mass of a substance is the sum of the relative atomic masses of its atoms, in the numbers shown in it's chemical formula.

13 Chemical Reactions

Chemical reactions always involve the formation of one or more new substances.

- Chemical reactions often involve a temperature change.
- Formulae are used to show the elements bonded together in a compound e.g. H_2O contains 2 hydrogen atoms and one oxygen atom.
- Compounds can only be separated into their elements by a chemical reaction e.g. $2H_2O \rightarrow 2H_2 + O_2$
- In chemical equations the three states of matter are shown as: solid = (s); liquid = (l) and gas = (g) aqueous solutions are shown as (aq)
    - e.g. $2Na(s) + 2H_2O(l) \rightarrow 2NaOH(aq) + H_2(g)$
- An aqueous solution is a substance dissolved in water.

14 Relative Formula Mass

- The relative atomic mass (A_r) is the average mass of the atoms of an element compared to the mass of carbon-12.
- The relative formula mass (Mr) of s substance is the sum of the A_r of all the atoms in the formula.
- e.g. What is the M_r of water (H_2O)?
    - (A_r H = 1.0; O = 16.0)
- There are 2 x H and 1 x O in the formula
    - (2 x 1.0) + (1 x 16.0) = 18.0
- A_r and M_r have no units as they are relative masses.
- In a balanced chemical equation:
- sum M_r reactants = sum M_r products
    - e.g. $2H_2O_2 \rightarrow 2H_2O + O_2$
- Mr reactants = 2 x 34 = 68
- Mr products = (2 x 18) + 32 = 68
- The percentage mass of an element in a compound can be calculated using the relative atomic mass and the relative formula mass.

15 Conservation of Mass & Balancing Equations

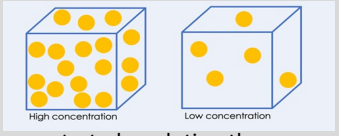
- No atoms are lost or made during a chemical reaction.
- mass of products = mass of reactants
- Chemical reactions can be represented by symbol equations which are balanced.
- This means the number of atoms of each element is balanced e.g. $2Mg + O_2 \rightarrow 2MgO$
- there are 2 magnesium atoms on each side of the equation.
- During the reaction hydrogen gas is produced. If the gas is free to leave the reaction container then the measured mass will decrease.
- Some reactions may appear to involve a change in mass, but this is normally because a reactant or a product is a gas e.g. $Mg(s) + 2HCl(aq) \rightarrow MgCl_2(aq) + H_2(g)$

16 Uncertainty

- Scientific uncertainty means there is a range of possible values within which the true value of a measurement lies.
- Whenever a measurement is made, there is always some uncertainty about the result obtained.
- You can calculate uncertainty by finding the range of the results and dividing by 2

17 Concentration

- Many chemical reactions take place in solutions.



- The more concentrated a solution the more particles it contains in a given volume.
- The concentration of a solution can be measured in mass per given volume of solution e.g. grams per dm^3 (g/dm^3).
    - $\frac{\text{mass of solute}}{\text{volume of solution}}$ = concentration
- Volumes need to be in dm^3
- 1 dm^3 = 1000 cm^3

18 Making Soluble Salts

- Soluble substances dissolve in a solvent.
- Insoluble substances cannot dissolve in a solvent.
- Neutralisation reaction general equation is acid + base → salt + water
- Metal + acid → salt + hydrogen
- Metal oxide + acid → salt + water
- Metal hydroxide + acid → salt + water
- Metal carbonate + acid → salt + water + carbon dioxide
- Soluble salts can be made from acids by reacting them with solid insoluble substances, such as metals, metal oxides, hydroxides, or carbonates.
- The solid is added to the acid until no more reacts and the excess solid I filtered off to produce a solution of the salt.
- Salt solutions can be crystallised to produce solid salts.
- Copper oxide reacts with sulfuric acid solution to produce copper sulfate and water.
- This reaction can be represented with the equation CuO(s) + H2SO4(aq) → CuSO4(aq) + H2O(l)
- Copper sulfate solution is a blue liquid.
- Copper sulfate crystals are blue.

Year 9 Science Spring Term Knowledge heating

Key Vocabulary:

1	**Kinetic energy**	A store of energy that any object or particle has when moving. *Particles in a gas have the greatest store of **kinetic energy**.*
2	**Potential energy**	A store of energy related to the position of objects or particles. *Particles in a gas have the greatest store of **potential energy**.*
3	**Radiation**	Thermal transfer as a wave, by infrared radiation. ***Radiation** is the method of thermal transfer that does not require particles.*
4	**Specific Heat Capacity**	The energy required to heat 1 kg of a material by 1 ºC. *The greater the **specific heat capacity** of a material, the more energy it will require to increase its temperature.*
5	**Specific Latent Heat**	The energy required to change the state of 1 kg of a material (with no change in temperature). *Each different material has a different **specific latent heat**.*
6	**Specific Latent Heat of Vaporisation**	***Specific latent heat of vaporisation** is used when calculating how much energy is required to turn 1 kg of water into steam.*
7	**Temperature**	Related to the average kinetic energy of particles in a system. ***Temperature** is measured in ºC.*
8.	**Vacuum**	An area where there are no particles. *Radiation can occur in a **vacuum** but conduction and convection cannot.*

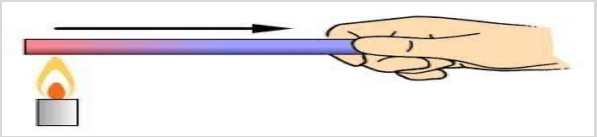
Internal Energy

9.

Internal energy = kinetic energy of the particles in a system + potential energy of particles in a system.
Particles in solids, liquids and gases have kinetic energy because they are always moving.
The hotter a material is the faster its particles move and the larger the kinetic store of energy.
Particles have potential energy because their motion keeps them separated. The further apart the particles the larger the potential energy.
Particles in a gas have more internal energy because they have more kinetic energy and potential energy.
Heating changes the energy stored in the system by increasing the energy of the particles that make up the system.
Heating either raises the temperature of the system or produces a change of state.
The thermal energy of an object depends on its mass, temperature and what it is made of.

10. Thermal transfers

Energy transfers from hotter substances to cooler substances.
Temperature is a measure of the motion and energy of the particles. It is related to their kinetic energy.
When thermal energy is transferred to an object by heating, its temperature depends on what the substance is made from, its mass and the amount of energy transferred.
The more thermal energy transferred the higher the temperature unless there is a change in state.
Conduction is thermal transfer by the vibration of particles. Metals are good thermal conductors because they contain delocalised (free) electrons which can move freely through the metal.



Convection is thermal transfer when particles in a heated fluid rise.
A fluid is a substance with no fixed shape – a liquid or a gas.
Liquids and gases expand when they are heated, the gaps between particles increases.
The liquid or gas becomes less dense and rises. The denser, colder fluid sinks, forming a convection current.

Radiation is the transfer of thermal energy as a wave.
Thermal transfer by radiation can occur in a vacuum as it does not require particles.
Some surfaces are better than others at absorbing and reflecting radiation. Shiny silvered surfaces are good at reflecting radiation.

11 Specific heat capacity

Specific heat capacity is the energy needed to raise the temperature of 1 kg of substance by 1 ºC.

$\Delta E = m\ c\ \Delta\theta$

ΔE = energy change (J)
m = mass (kg)
c = specific heat capacity (J/kg ºC)
$\Delta\theta$ = temperature change (ºC)

Different materials require different amounts of energy to heat up or change state.

13 Specific latent heat

Specific latent heat of a material is the energy needed to change the state of 1 kg of the substance with no change in temperature.

$E = m\ L$

E = energy for a change of state (J)
m = mass (kg)
L = specific latent heat (J/kg)

Specific latent heat of fusion refers to a change of state from solid to liquid.
Specific latent heat of vaporisation refers to a change of state from liquid to vapour.

Year 9 Science Spring Term Knowledge Organiser – Genetics

Key Vocabulary

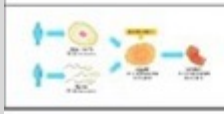
1	**Allele**	A version of a gene.
2	**Amino Acid**	A monomer (single unit) of proteins.
3	**Base**	The variable part of a nucleotide.
4	**Chromosome**	A section of DNA that contains many genes.
5	**Clone**	An identical copy of an organism.
6	**DNA**	A chemical substance which carries genetic information.
7	**Dominant**	An allele which always shows its associated phenotype.
8	**Recessive**	An allele which only shows its associated phenotype when homozygous.
9	**Genotype**	The combination of alleles possessed for the same gene.
10	**Phenotype**	The expressed characteristic determined by the organism's genotype and its interaction with the environment.
11	**Meiosis**	The type of cell division by which gametes are produced. Gametes have half the number of chromosomes.
12	**Mitosis**	The type of cell division which results in two genetically identical daughter cells.
13	**Gene**	A gene is a section of a chromosome that codes for a particular protein.
14	**Protein**	A sequence of amino acids folded into a specific structure.
15	**Mutation**	A change in the genetic material of an organism.
16	**Variation**	Differences between individuals of the same species

17 Cell division

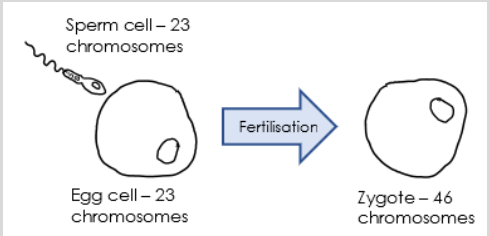
18

MITOSIS	MEIOSIS
TWO CELLS PRODUCED (KNOWN AS DAUGHTER CELLS)	FOUR CELLS PRODUCED (KNOWN AS DAUGHTER CELLS)
DAUGHTER CELLS ARE DIPLOID	DAUGHTER CELLS ARE HAPLOID
DAUGHTER CELLS ARE GENETICALLY IDENTICAL TO EACH OTHER AND TO THE PARENT CELL	DAUGHTER CELLS ARE GENETICALLY DIFFERENT FROM EACH OTHER AND THE PARENT CELL
ONE CELL DIVISION OCCURS	TWO CELL DIVISIONS OCCUR

19 Types of reproduction

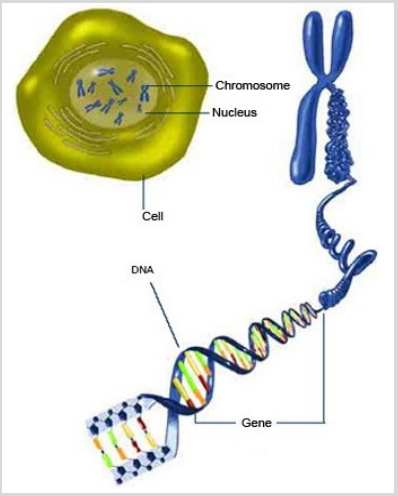
humans	bacteria
HIGH variation in genes	LOW variation in genes
sexual reproduction	asexual reproduction
LOTS of different traits	NOT a lot of different traits
2 parents needed to produce offspring	1 parent needed to produce offspring
	

20 Fertilisation

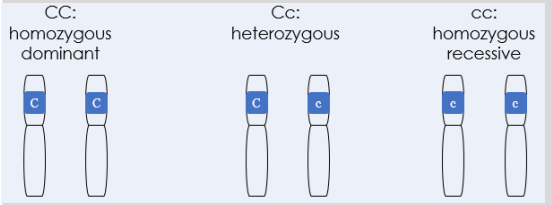


DNA Structure

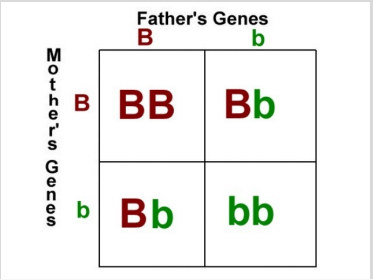
21



22 Inheritance



23 Punnet Squares – predicting inheritance



24 Embryo screening

- A cell can be taken from the embryo before being implanted and its genes can be analysed
- It is also possible to get DNA from the cell of an embryo that's already in the womb Genetic disorders (eg. cystic fibrosis) can be detected during this analysis

Year 9 Art and Design Spring Term Knowledge Organiser

Key Vocabulary:		
1	**The Formal Elements of Art**	The formal elements of art are used to make a piece of artwork. These elements are line, tone, texture, shape, pattern and colour. They are often used together, and how they are organised in a piece of art determines what the finished piece will look like.
2	**line**	A line is a mark or link between two points.
3	**mark**	Mark making describes the different lines, dots, marks, patterns and textures created to produce a work of art. Artists often use mark making and gestural qualities to express their feeling and emotions in response to something seen or something felt.
4	**tone**	Tone refers to the light and dark values of an object when drawing. There are three different types of tone. Shadows, mid-tones and highlights. Value in art is essentially how light or dark something is on a scale. For example, a tonal ladder.
5	**texture**	Texture stimulates two different senses such as sight and touch. For example, a visual or tactile texture.
6	**shape**	Shape is a flat enclosed area created by a closed line or by a solid colour.
7	**form**	Form can refer to a three-dimensional composition or object.
8	**pattern**	A repeated or mirrored design, which can be natural or manmade.
9	**colour**	Colour is the element of art that is produced when light, strikes an object, and is reflected back to the eye. A colour wheel is an illustrative organisation of colour hues around a circle, which shows the relationships between primary colours, secondary colours and tertiary colours.
10	**scale**	The scale of something is its size. To scale something is to enlarge it. To scale down is to do a smaller version or reduction.
11	**balance**	If a picture or piece of artwork has balance, then each part of it works well together in a whole piece.
12	**space**	If a picture has space, it has real or apparent depth and distance.
13	**complementary colours**	Complementary colours are directly opposite to each other on the colour wheel. The colour pairs always consist of either a primary with a secondary colour (red and green; yellow and purple; blue and orange) or two tertiary colours (red-orange and blue-green; yellow-green and red-purple; yellow-orange and blue-purple).
14	**tint**	Tint is when a colour becomes lighter by adding white.
15	**gesture drawing**	Gesture drawing is a loose form of sketching that attempts to capture the basic form of subjects. Drawing in this way can also express movement.
16	**pose**	A seated or moving position.
17	**composition**	The arrangement of elements in a piece of art.
18	**proportion**	Proportion is the principle in art that refers to relative size.

Year 9 Computing Spring Term Knowledge Organiser Business & Real World

Key Vocabulary:		
1	**Market**	A place where things are bought or sold, can be in a shop on a market stall or online.
2	**Market Research**	The collection of data to help business decisions
3	**Primary Research**	This is research carried out by yourself or the business/organisation you work for.
4	**Secondary Research**	This is research carried out by another person or different business/organisation.
5	**Competitor research**	Looking at similar products to your business
6	**Questionnaire**	A set of questions with a choice of answers
7	**Costs**	Costs are the things businesses have to pay for in order to produce a product or provide a service.
8	**Profit**	Money left over when costs are paid
9	**Revenue**	Money paid by customer for product
10	**Loss**	If costs are higher then revenue

11	**Professional**	Professional behaviour in the workplace is a combination of attitude, appearance and manners. It includes the way you speak, look, act and make decisions. A professional presentation would be formal in tone, with consideration for the audience.
12	**Formal Tone**	Appropriate tone for a business presentation. Use standard English without slang Use technical, subject specific terminology.

13	**Primary Research: This is research carried out by yourself or the business/organisation you work for.**		
14	Questionnaire	**Positive Features** • Cheaper than interviews • Easily target certain people	**Negative Features** • Difficult to predict how many will be completed • People may not understand the questions
15	**Secondary Research: This is research carried out by another person or business/organisation.**		
16	Internet Research	**Positive Features** • Cheap and already available to use	**Negative Features** • Not exactly what you need • Could be out of date • Could be unreliable

Key Calculations

17	**Revenue**	Selling price X Number Sold
18	**Profit/Loss**	Fixed Costs + Variable Costs

Year 9 Computing Spring Term Knowledge Organiser Python PART 2

Key Vocabulary:		
1	**Program**	Set of instructions.
2	**Algorithm**	A sequence of ordered instructions that are followed step-by-step to solve a problem.
3	**Sequence**	The order of the instructions in the code
4	**Iteration**	Repeat
5	**Selection**	A decision in the code.
6	**Conditional Statement (IF)**	A point where a decision is made by the user.
7	**Variable**	A piece of memory that stores a value temporarily
8	**Decomposition**	Break into smaller chunks
9	**Abstraction**	Remove unneeded parts of the code
10	**Program execution**	To run the code
11	**Syntax error**	A mistake in the spelling or punctuation
12	**Input**	Any method of getting data into the computer
13	**Output**	Any method of getting data out of the computer

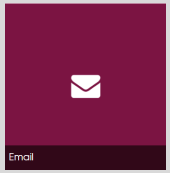
Accessing the Network & Email

9 How to log on to school network:

User name: R7FirstnameMiddleInitalSurname
(EG: Name: Joseph Rayner Stephens becomes R7JosephRStephens
No middle name: Joseph Stephens becomes R7JosephStephens)
Password: Your own secret word and number combination!

10 How to access school email:

To access your school email at home, go to the school website and scroll down to this button



User: R7FirstnameMiddleInitalSurname@rshs.spt.ac.uk
(EG: Name: Joseph Rayner Stephens becomes R7JosephRStephens@rshs.spt.ac.uk)
Password: Same secret password as logging onto school network

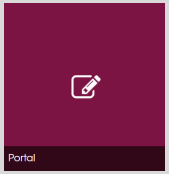
11 Who can see my school email & network area:

Your school email can be viewed by the School Network Manager, Technician, Learning Leaders and Teachers.

Emails are monitored and automatically scanned for inappropriate content to protect students. There are consequences for anyone misusing the school email system.

12 How to access network remotely via portal:

To access your school email at home, go to the school website and scroll down to this button. Use the same logging on details as you would in school.



User: R7FirstnameMiddleInitalSurname
Password: Same secret password as logging onto school network

Year 9 Drama Spring Term Knowledge Organiser

Key Vocabulary:

1	Stage Levels	To show power, status or just different locations for the scenes.
2	Staging	Where actors and set are in the space.
3	Genre	How the performance makes you feel: Comedy? Thriller? Science Fiction?
4	Monologue	A character speaks directly to the audience about their feelings
5	Theme	The topic of the performance e.g. Supernatural.
6	Stylised	How performance is presented non naturalistically.
7	Analysing	Realising how a performance is made up of theatrical skills.

Blood Brothers Rehearsals

8 Key Themes in Blood Brothers

Social Class – This is explored through Mickey and Eddie and how Eddie has a lot more allowances and opportunities in the play because of who he is and who his parents are

Education – Edward goes to a boarding school, Mickey goes to a comp school. Mickey's class is overcrowded and the teacher has no interest. Eddie's education allows him to go to university and then get a good job.

Money – Mickey and Mrs Johnstone live without money their whole lives and struggle to make ends meet. Eddie and his family are never without money and the benefits it brings. As a result Eddie doesn't understand Mickey's frustrations and anxieties.

Nature V's Nurture - In the play the two main characters are twins and it looks at how even though they both started in the same place, how different their lives turned out because of the way they had been brought up 'nurture'

Fate/ Destiny/ Superstition – Throughout the play Mrs Johnstone makes comments about being superstitious 'shoes upon the table' and the musical questions whether these brothers were always destined to die, or whether it was because of 'class' and the society they were in.

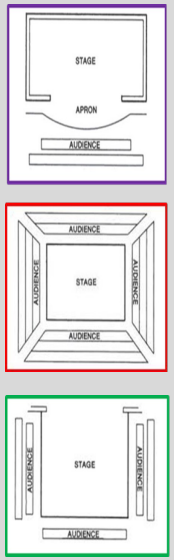
Blood Brothers Performance

9 Line Learning

When learning a script, it is important for a performer to also learn their cues . For example, a character's first line may follow a lighting change at the start of the play and even if they are on stage prior to the lighting change they must not speak until they have seen or heard their cue

10 Staging Configurations

Proscenium Arch	The original staging for Blood Brothers. The audience sits in front of the stage. The audience views the stage as though they were peeing through a picture frame or an invisible '4 th wall'
Theatre in the Round	A style of performance where the acting space has audience all the way around it in a circle shape. Often a number of entrances. Directors have to think carefully about use of furniture and scenery as audience sightlines can easily be blocked
Thrust	Rectangular in shape. The audience directly faces the stage from all three sides



11 Conventions of a Play Text

Character list – a list of names.
Scene title – usually the setting, a theme or even just a number.
Stage Directions – descriptions of action placed in brackets during dialogue or in italics elsewhere.
Character Names – written in the left hand margin, often in capitals or before a colon
Dialogue – speech between characters
Scene – a moment of continuous action
Act – a grouping of scenes within a play

Year 9 DT Knowledge Organiser Graphic Design - Spring Term

Key Vocabulary:

1	Design Brief	The brief outlines what problem a designer will solve. It should be referred to throughout the project to make sure what you are working on will solve the problem.
2	Specification	A list of requirements for a design to help us to analyse and describe a product.
3	Concept	A concept is a thought or idea. For instance, if you're redecorating your bedroom, you might want to start with a concept, such as "flower garden" or "outer space." It is a general idea generated before any detailed design work is undertaken.
4	Analysis	A detailed examination of the elements of something. It is the process of breaking a complex topic or product into smaller parts in order to gain a better understanding of it.
5	Annotate	Note on your design to explain them in further detail giving a reason or comment.
6	Typography	The arrangement of text into a form of design. The technique of arranging type to make written language legible, readable and appealing when displayed.
7	Layer	A layer is simply one image stacked on top of another.
8	Logo	A symbol or other small design adopted by an organisation to identify its products to promote public identification and recognition.

Key Concepts

9. CAD/CAM

CAD (Computer Aided Design) is the use of a computer to help you visualise the product. CAD allows us to change the design quickly and allows the design to shared easily via email etc. Multiple people can be working on the same design and the same time making the process very efficient.

CAM (Computer Aided Manufacturing) It is important to remember that CAD can happen on its own because its just a design, but for CAM to occur, CAD must be involved. CAM is when machines (such as the laser cutter) produces the work that you have created using CAM. The process is to send your CAD design to the CAM machine, and with a few simple instructions the CAM machine will make the product or part.

10. Finishing

The finish of a product is usually (but not always) the final part of your product. A finish is often based on the products intended use, by this I mean considering what the product will be used for. For example: If you have made a child's toy, you may wish to paint the product a bright colour to stimulate the child to play with it.
If you have made a garden bench, you may not require colour, but you do require a finish that is waterproof because it is going to live outside.
-Ceramic coating is a process that coats a mug's surface with a solid ceramic material.
-Durable water-repellent coating, or DWR, is a liquid polymer that coats the fabric and makes it resistant to water. The spray works for any type of clothing material including cotton t-shirts.

11. Evaluation

The evaluation of your product often is left to the end, but you should evaluate your product at every stage in order to make alterations and corrections as you go.

It is useful to use a structure when evaluation such as a SWOT analysis. Using a SWOT analysis tool allows you to Check all the main aspects of your product have been considered. A good evaluation DOES NOT only focus on the good parts of your product, but makes honest judgements that all you to make improvements next time, or as you go.

Year 9 Geography Topic 3 Knowledge Organiser: Exploring Resources

Vocab	Definition
Resource	Resources such as food, energy and was are what is needed for basic human development.
Renewable	A source of energy that does not run out and can be used again.
Non-Renewable	A source of energy that is going to run out and can not be used again.
Infrastructure	The physical structures that are in place to support a country, e.g. the road network and the power supply.
Water Scarcity	When there is not enough water to meet demand in a given area.
Drought	A prolonged shortage of water such as when it has not rained for a ling time.
Food security	the state of having reliable access to a sufficient quantity of affordable, **nutritious** food.
Genetically Modified Food	Foods derived from organisms whose genetic material (DNA) has been modified in a way that does not occur naturally.
Yield	A measurement of the amount of agricultural production harvested per unit of land area.
Pesticide	A substance used for destroying insects or other organisms harmful to cultivated plants or to animals.
Reservoirs	A large man made lake that used as a source of water supply.
Fossil Fuels	Sources of energy are made from decomposing plants and animals.
Food Bank	A place where food is supplied to people free of charge,

1. Demand outstripping supply

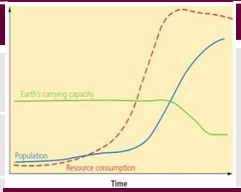
The demand for resources like food, water and energy is rising so quickly that supply cannot always keep up. Importantly, access to these resources varies dramatically in different locations.

Population Growth

- Currently the global population is 7.3 billion.
- Global population has risen exponentially this century.
- Global population is expected to reach 9 billion by 2050.
- With more people, the demand for food, water, energy, jobs and space will increase.

Economic Development

- As LIDCs and EDCs develop further, they require more energy for industry.
- LIDCs and EDCs want similar lifestyles to ACs, therefore they will need to consume more resources.
- Development means more water is required for food production as diets improve.



2. Dangers of demand outstripping supply.

Consumption – The act of using up resources or purchasing goods and produce.
Carry Capacity – A maximum number of species that can be supported.
Resource consumption exceeds Earth's ability to provide!

3. Energy Supply – Renewable and Non-renewable

	Advantages	Disadvantages
Solar	Renewable, no pollution, very reliable at certain points in the year and warmer countries.	Lots of energy to build, only works during the day, cannot increase power if needed.
Wind	Renewable, no pollution, no lasting damage to the environments, minimal running costs.	Not as reliable, do not work when there is no wind, can not increase supply when needed.
Hydroelectric	Renewable, no pollution, can increase power supply if needed.	A big impact on the environment from building, animals and plants may lose habitat.
Fossil Fuels	Reliable, enough to meet the current demand for energy, can produce more energy when the demand is higher, infrastructure is already in place.	Running out, releases carbon dioxide, leading to global warming, and also releases sulphur dioxide which causes acid rain.

4. Reasons for water scarcity.

There are three main factors that cause water scarcity: overuse, pollution and climate change.
- Water pollution caused 1.8 million deaths in 2015 and makes 1 billion people ill every year.
- 2 million tonnes of sewage, industrial and agricultural waste goes into the world's water every day.
- More than 2 billion people live in areas of water stress, this will increase due to increases in population and climate change.
- 160 million children live in areas at risk of drought.

5. Solutions for water scarcity.

	Methods	Impacts
Reservoirs	Increasing storage to hold more water and constructing more dams to control river flow can provide a reliable source of water.	• Can flood a large area of land and damage habitats and natural landscapes. • Dams can be a barrier for certain species to migrate upstream. • Natural flow of sediment is disrupted, which then reduces fertility of land further down.
Water Transfer	Constructing pipes and canals to divert water surplus to areas in need of a water supply.	• Large-scale engineering works can damage ecosystems along the route. • Lots of energy is required to pump water over long distances.

6. Food Availability in the UK

The UK population is around 65 million and enjoys a high level of food security.
- The UK produces 68% of its own food but this is steadily decreasing.
- The UK has to import the rest, especially seasonal food such as fruit and vegetables.
- Food production in the UK has increased by intensifying agriculture.

7. Global food inequality.

- This shows how many people are suffering from hunger or illness caused by lack of food.
- The index gives a value for each country from 0 (no hunger) to 100 (extreme hunger).

8. Solutions to food security in the UK.

Food Banks
- This is food that is donated by the public.
- They help people with a sudden loss of income.
- It is estimated that 1 million people rely on food banks for their own food security.

Urban Gardens
- These are large projects where groups work together to grow food and promote healthy living.
- This can involve planting crops in urban environments such as roundabouts.

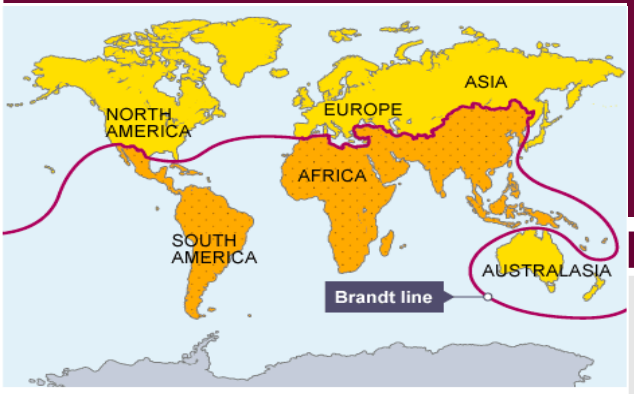
9. Global food security solutions.

Genetically Modified	Involves changing the DNA of foods to enhance their productivity and properties. Crops can be better protected from disease and drought, but also made larger or include more health benefits.
Allotments	This is an area of land that is divided into plots and rented to individuals to grow their own fruit and vegetables. Allows people in urban areas to produce their own cheap & healthily food close to home.
Intensive Farming	Makes the most of the land and allows for higher yields. This can make growing food more productive and therefore cheaper to produce. Chemical fertilisers, pesticides and herbicides can pollute the environment and harm people, animals and insects.

Year 9 Geography Topic 4 Knowledge Organiser: Exploring Inequality

Vocab	Definition
Globalisation	The process by which the world is becoming increasingly interconnected.
TNC	A Trans National Company is an organisation which operates globally.
Interconnected	Different organisations are connected through trade and come to economically depend on each other.
Westernisation	The adoption of the practices and culture of western Europe by societies and countries in other parts of the world.
Development Indicator	Development indicators are a method used to measure how developed a country or region is.
Industrialisation	The process of transforming the economy of a nation or region from a focus on agriculture to a reliance on manufacturing
Deindustrialisation	A decline in the importance of industrial activity for a place, a movement from manufacturing to the service sector.
NGO	A non-government organisation such as a charity.
Fast Fashion	Cheap clothing that samples ideas from the catwalk or celebrity culture and turns them into garments in high street stores quickly to meet consumer demand. An industry that causes extensive damage to the planet, exploits workers, and harms animals

1. The development gap



2. Development Indicators.

	Definition	High or Low in AC
GDP	Total value of goods and service produced per year.	↑
Life Expectancy	Average age a person lives to.	↑
Infant Mortality Rate	Number of babies who die under one year old, per 1000 live births.	↓
Calorie Intake	Average calories eaten per day.	↑
Energy Consumption	Average amount of energy used per person (indication of level of industry)	↑
Urban Population	Percentage of people living in towns or cities.	↑
Literacy Rate	Percentage of adults who can read or write.	↑
People per Doctor	The number of people per doctor, an indication of access to healthcare.	↓

3. Issues with development indicators.

1) Different indicators develop at different rates and all figures are averages – no measurement should be used on it own.
2) Information can be outdated or inaccurate – some countries can't or won't measure it.

4. Industrialisation and deindustrialisation in the UK.

From 1750 Britain went through a process of change in a number of key areas:
Agriculture – Industry – Transport and Communications – Technology.
There were also many scientific discoveries and technological inventions that changed society and industry

The UK has experienced **deindustrialisation**. There has been a decrease in the amount of manufacturing taking place in the country and a growth in the **tertiary** and **quaternary** sectors. Traditional industries, such as ship building and textiles, have declined.

5. Drivers of globalisation.

1. Improvements in transport – containerization and jest aircraft.
2. Free – trade agreements – easy to buy and sell internationally.
3. Communication improvement – Internet and phone, access to news, TV shows and social media.

6. Impacts of globalisation.

Access to new technologies that can improve levels of development in a country.
Helps provide new services for people in EDCs and LIDCs.
Governments have been able to improve economic growth and advance infrastructure.
Improved access to resources as countries trade with one another.
Higher paying job opportunities.
Countries rely n each other and are more likely to work together.
Ideas and skills are shared between countries which can lead to greater progress.

Deindustrialisation in AC's have led to job losses.
Some resources have been over exploited which means that they may run out and they can be taken from local people.
Local people in less developed countries are likely to be exploited with poor working conditions, low pay and unfair expectations.
It can create cultures that are all the same and countries can lose their individuality.
Large amounts of pollution created by air travel and the movement of goods on ships and lorries.
Diseases such as Covid-19 can spread from one country to another far easier with so many people and goods moving around the world.

7. Fast Fashion

- The world uses an estimated 80 billion pieces of clothing every year, a 400 percent increase from two decades ago.
- Textile production contributes more to climate change than international aviation and shipping combined.
- Buying just one white cotton shirt produces the same amount of emissions as driving 35 miles in a car.
- By 2030, global apparel consumption is projected to rise by 63%, from 62 million tons today to 102 million tons—equivalent to more than 500 billion additional T-shirts
- 75% of consumers believe that sustainability is important and one-third are willing to choose brands that help environmental and social improvement.
- The fashion industry is responsible for 10% of annual global carbon emissions.
- Around 300,000 tonnes of textile waste ends up in household black bins every year, sent to landfill or incinerators. Less than 1% of material used to produce clothing is recycled into new clothing at the end of its life
- Clothing companies create more than 1 million garments every day.
- Fast fashion emissions will grow by 50% by 2030, if current growth continues. Extending the life of clothes by just 9 months of active use would reduce carbon, water and waste footprints by 20-30% each.

Year 9 History Spring Term Knowledge Organiser: Rise of the Dictators

Key Vocabulary:

1	Democracy	a system of government where people vote in order to chose the government.
2	Dictatorship	a system of government where a single person has absolute power
3	Tsar	the Emperor of Russia (before 1917)
4	Industrialisation	development of industries using technology
5	Peasants	poor farm workers with no power and few rights.
6	Communism	all property is owned by the community and each person contributes and receives according to their ability and needs.
7	Fascism	a political system led by a dictator who violently removes opposition and promotes aggressive nationalistic and racists aims.
8	Treaty of Versailles	a harsh agreement Germany was forced to signed at the end of World War One which created many problems in the country.
9	Great Depression	caused high unemployment and lots of poverty in many countries in the 1930s
10	Totalitarian	a system of government that has high levels of control and a dictator
11	Ideology	a system of ideas
12	Propaganda	biased information, usually in poster form, intended to persuade you.

Why did countries become more and more extreme?

13 What are the features of a democracy?

1. People have the freedom to criticise the government and protest about its policies
2. People can follow any religion they wish
3. Everyone, including the government must obey the law
4. A government has limited time in power.
5. Newspapers and the media can say what they like.
6. All members of the population can vote in elections.

14 What are the features of a dictatorship?

1. The secret police keep people under control.
2. People who criticise the government may be imprisoned or tortured.
3. People are only allowed to follow beliefs that are approved by the government.
4. The government controls the media.
5. No choice of government- there is only one political party.
6. There are no elections

15 What was Russian society like?

- 85% of Russians are peasants and live in slave like conditions in the countryside
- The proletariat work long hours in factories and live in slums.
- The bourgeoise are the middle class and professionals.
- The Russian Orthodox Church places a curse on anyone who disobeys the Tsar.
- The Tsar rules the country and lives a life of luxury

16 What problems was Russia facing?

Social problems
- Many different nationalities, languages and religions.
- Russians were starving and freezing during WW1

Military problems
- Lost a war with Japan 1904
- 15 million men forced to fight in WW1- not enough men at home for the harvest, Tsar blamed for defeats in WW1

Economic problems
- Limited industrialisation ,WW1 caused economic chaos, Industrialised workers very poor and oppressed

Political problems
- Tsar Nicholas had a weak personality but refused help running the country, The bourgeois wanted more power.
- Russia was too big to rule with 125 million people.

Why did countries become more and more extreme?

17 What are the features of communism?

- Resources are shared equally
- Government owns all business
- No competition between businesses
- Everyone works together for the common good
- Eventually no armies or money will be needed
- All human activity goes towards benefitting society

18 Why did people vote for Hitler?

Economic problems
- Great Depression from 1929
- 6 million unemployed

Make Germany Great Again
- Get rid of the Treaty of Versailles
- Make Germany strong

Hitler and the Nazis
- Promised to get rid of communism
- Effective propaganda

19 What are the similarities between Stalin and Hitler?

Methods of control
- Secret police (Germany = Gestapo) and use of labour camps (Russia = gulags, Germany = concentration camps.)
- Use of propaganda including control of radio and newspapers

Control of lives of workers
- Reduced unemployment massively
- Building of factories and other buildings

Importance of young people
- Changed education to make sure children became loyal
- In Russia children would join the youth group the Pioneers and in Germany they would join the Hitler Youth

20 What are the differences between Stalin and Hitler?

Ideology
- Stalin = communism and Hitler = fascism.

Control of lives of workers
- Stalin got rid of private property and introduced collectivization.

Control of the lives of women.
- Stalin believed women should be equal and encouraged them to work by 1937 40% workforce was women, day cares set up in factories so women could work.
- Hitler believed women should be wives and mothers only

Year 9 History Spring Term Knowledge Organiser: Did Britain really win WW2?

Key Vocabulary:

1	Appeasement	Giving in to someone's demands as far as is reasonably possible to avoid conflict.
2	Evacuation	the policy or removing children and pregnant women from cities in case of bombing by the enemy
3	Allies	The alliance of the UK, the USA and France in World War Two.
4	Axis	The alliance of Germany, Italy and Japan in World War Two.
5	Diktat	This is what the Germans called the Treaty of Versailles as they saw it as a very harsh settlement forced on them by the allies.
6	Armistice	The agreement to end World War One
7	Anschluss	The union of Germany and Austria when Hitler marched his soldiers into Austria in 1938.

Treaty of Versailles and how Hitler destroyed it

8 What is it?

This is a treaty that Germany was forced to sign after the armistice at the end of World War One. Germans felt that they were treated unfairly and it was a 'diktat' something they were forced to do but didn't agree to and didn't think was fair.

9 What parts of the Treaty did the Germans dislike?

Guilt – Clause 231: Germany accepted blame for the war
Army – army/ 100,00 men only/ no submarines / no aeroplanes / 6 battleships / Rhineland demilitarized
Reparations - £6.6 million for damage
Germany Lost Land – Saar, Sudetenland, Danzig, Loss of Colonies
League of Nations set up
Extra Point – Forbade Anschluss

10 How Hitler destroyed the Treaty of Versailles:

Year	Event
1936	Hitler starts to rearm Germany, reintroduces conscription, enters demilitarised Rhineland
April 1938	Anschluss with Austria as 99% of Austria vote in favour of a union between Germany and Austria
Sept 1938	The Sudentenland is given to Germany at the Munich Conference
Mar 1939	Hitler marches into Czechoslovakia and seizes control of the rest of the nation.
Aug 1939	Germany and the USSR agree to the Nazi-Soviet Pact
Sep 1939	Hitler invades Poland and seizes control

11. Why Britain followed a policy of appeasement:

(1) Some British people approved of Hitler's policies
(2) The British people hoped that a strong Germany would stop the growth of Russian Communism
(3) Many people felt that events in Europe were not Britain's business
(4) Many people felt Britain was too weak and far away to help anyway.
(5) Many British people wanted peace
(6) Many British people agreed with Hitler that the Treaty of Versailles was unfair

Events in World War Two

12 Dunkirk

The evacuation of Allied soldiers during World War II from Dunkirk, between 26 May and 4 June 1940. This was due to large numbers of Belgian, British, and French troops being cut off and surrounded by Germans during the Battle of France.

14 Leningrad

Nazi Germany invaded Russia in June 1941 and advanced until they reached the city of Leningrad. The Germans laid siege to the city for 3 years which killed 650,000 Russians in 1942 alone, mostly from starvation, exposure, disease, and shelling. A million children, sick and elderly were evacuated.

15 Pearl Harbour

Pearl Harbour is a U.S. naval base in Hawaii, that was the scene of a devastating surprise attack by Japanese forces on December 7, 1941. This attack brought America into the war.

16 Burma:

Japan invaded Burma in 1942, then part of the British Empire. This war was fought in some of the most challenging terrain in the world, in a tropical climate that claimed many men before they had a chance to fight. It wasn't until Japan surrendered in 1945 after the dropping of the Atomic Bomb that the war in Burma was over

17 Battle of Midway

One of the most important naval battles win which the Japanese hoped to lure the Americans into a trap in the Pacific Ocean but American codebreakers found out the plan so the Americans were able to defend themselves and ended up destroying most of the Japanese navy. 3-6th June 1942

17 El Alamein

(1–27 July 1942, 23 October—11 November 1942), The Allies wanted to control the North Africa desert so they could carry supplies through the Suez Canal. The British used 300 Sherman tanks given to them by the Americans against the Germans and the Germans surrender in May 1943- this was important due to the land.

18. How did Commonwealth countries help Britain?

1. I million men and women (90% of the British Army in this area of the world) fought for Britain in the Far East in places like Burma. These soldiers came from India, Pakistan, and Bangladesh and 3% came from places in Africa.
2. 500,000 Australian and New Zealand soldiers fought in the Pacific with the Americans

Year 9 History Spring Term Knowledge Organiser Why were six million people murdered?

Key Vocabulary:

1	Kristallnacht	'The Night of Broken Glass'. 10th September 1938, Nazi police destroyed Jewish homes and synagogues. 20,000 were sent to concentration camps and around 100 were killed.
2	Concentration camps	Work camps set up by the Nazis to house Jews and other 'enemies'.
3	Synagogue	Jewish place of worship
4	Auschwitz	the largest death camp used by the Nazis
5	Warsaw Ghetto	area of Warsaw sectioned off for the Jewish people to live in.
6	Persecution	ill treatment of a person based on their race, political or religious beliefs.
7	Stereotype	a common belief about a group of people that is based on generalisations.
8	Anti-Semitism	hatred towards or prejudice against Jews.
9	Final Solution	The name given to the decision made a at the Wansee Conference to exterminate the Jewish race.
10	Star of David	the Jewish symbol that is a five pointed star.
11	Nuremberg Laws	Laws set up to persecute and limit the rights of Jews.
12	Holocaust	The persecution and killing of 6 million Jews during World War Two
13	Genocide	the killing of a large number of people from a particular nation or group of people with the aim of destroying that nation or group

Anti-Semitism throughout History

14 Ancient and Medieval anti-Semitism

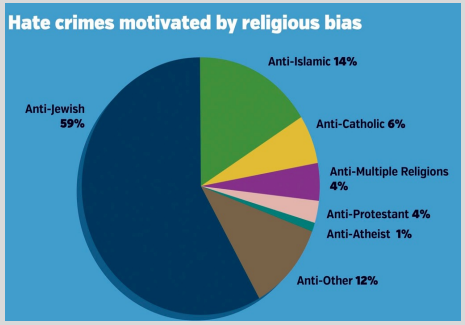
In 70AD, the Romans destroyed the Jewish city of Jerusalem and forced the Jews to leave. Jews were forced to travel and settle in different parts of Europe. In 1290, Edward I ordered that all Jews should be forced to leave England. Jews were brunt to death in Germany in the 1350s as they were blamed for the Black Death.

15 Renaissance and Industrial Revolution anti-Semitism:

Linear search algorithms search for an item within a data set by starting with the first item in the set and comparing it to the search criteria. If no match is found, then the next one is compared. If no match is found or the end of the set is reached.

16 Anti-Semitism today:

In America in 2015, most religious hate crimes were against Jewish people. In Britain in 2015, there was a 50% rise in anti-Semitic hate crime.



17 Genocide today:

Rwanda, Bosnia, Cambodia, Ukraine and Darfur, show us that the Holocaust was not unique that the Nazis were not the only group to try to destroy another due to religious, racial, nationalist hatred.

Timeline of events in Germany

1	April 1933 – Jewish and non-Jewish children could no longer play with each other
2	30th April 1933 – Jews could be evicted from their homes without a reason
3	May 1933 – All Jews were banned from public places, like parks, swimming baths, and hotels.
4	15th September 1935 – Nuremberg Laws: Jews are no longer classed as German citizens and could not vote.
5	15th September 1935 – Marriage between Jews and non-Jews was made illegal.
6	September 1936 – Jews were forbidden from having professional jobs, e.g., lawyers, vets or judges etc.
7	10th November 1938 – Kristallnacht – a night where synagogues and Jewish homes were destroyed. 20,000 were sent to concentration camps.
8	12th November 1938 – All Jewish businesses are closed down.
9	1st September 1939 – Germany invades Poland.
10	October 1940 – Polish Jews are forced to live in the Warsaw Ghetto
11	20th January 1942 – Wannsee Conference was held. The 'Final Solution' to the 'Jewish question' was implemented
12	April 1945 – Nazi concentration camps are liberated (freed) by the USSR, British, and American troops,

Year 9 Music Topic 3 Knowledge Organiser

Key Vocabulary:

1	Ensemble	A group of people playing instruments – including voices
2	Pentatonic	A pattern of only 5 notes – used in the music of Asia and other world music
3	World Music	Traditional music from countries around the world Each country has it's own musical identity and style
4	Syncopation	Music and rhythms played "off" the beat
5	Call and response	A musical way of the "leader" starting a musical conversation – the leader makes the musical call and the ensemble responds in music to it
6	Polyrhythm	Layers of different rhythms played at once – normally in African/world music
7	Fusion music	Where traditional music of a country is influenced and mixed with western musical styles
8	Solo	Opportunity to show off instrumental skills on your own
9	Traditional instruments	Instruments made with local resources – wood, skin etc

Music Knowledge

10 Music of the World

Music of the World refers to individual countries culture and music.
Uses traditional instruments and native language from that country
The music has a distinctive sound – uses unique rhythms and melodic patterns

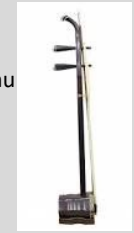
11 Instruments of China

Traditional music in China is played on solo instruments or in small ensembles of plucked and bowed stringed instruments, flutes, and various cymbals, gongs, and drums.
The scale is pentatonic. Bamboo pipes and qin are among the oldest known musical instruments from China

Pipa

Guqin

Erhu



12 Music of Brazil

The music is played with different drums: surdu drum, snare drums, solo drummer and different varieties of bells.

It is usually played as street music for carnivals and celebration

Music Knowledge

13

The music is played with different drums: surdo drum, snare drums, solo drummer and different varieties of bells.

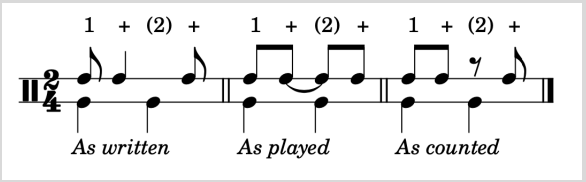
Samba music is known for its **call and response**; and solos, when one instrument is playing an exciting rhythm.

14 Syncopation

Syncopation is displacement of regular accents associated with given metrical patterns,

Disrupting the music giving it a "forward drive".

Syncopation can be accenting beats in a bar by tying over a note to the next bar or beat.



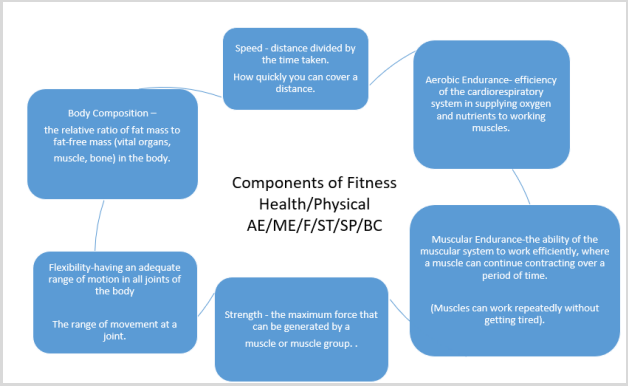
Year 9 Physical Education Spring Term Knowledge Organiser

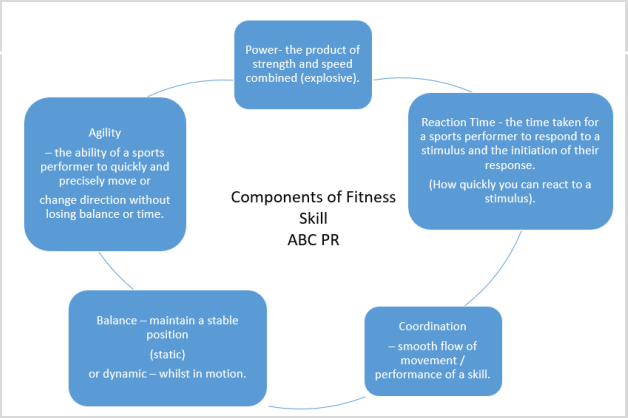
Key Vocabulary:

1	Methods of training	Different ways you can exercise the body to improve you health and well-being
2	Muscular system	The muscular system is an organ system consisting of skeletal, smooth, and cardiac muscle
3	Principles	Principles of training means exercising regularly to improve skills and fitness.
4	Cardio-respiratory system	The parts of the body that allow us to breathe and circulate oxygen.
5	Acceleration	Acceleration describes how quickly you can increase your velocity towards maximum speed.
6	Reps and sets	**Rep** = repetition of an exercise. E.G. perform 6 repetitions of an exercise before resting. **Set** = a group of repetitions (or reps) of that exercise
7	Body composition	Body composition is a method of describing what the body is made up of. Ratio of fat and fat free mass (bone / muscle).

Physiology - The human body

8 Muscular system





9 Principles of training

F – Frequency - How often your train

I - Intensity – how hard you train

T - Type – the method of training you use

T - Time – How long you train for

Body components

10 Methods of training

Aerobic Endurance Training

Continuous - a steady pace, moderate intensity 30mins+

Interval – periods of higher and lower intensity

Fartlek - form of continuous training where intensity is changed by running at different speeds or different terrains.

Circuit Training - circuit training involves a series of different activities performed at stations.

Speed Training

Interval - Work high intensity and rest

Hollow - Fast slow fast

Acceleration - Increase speed through zones

Weight Training – using free weights or resistance machines. It involves using ratios (high, medium or low) of weights, reps and sets to improve either strength, endurance or power.

Flexibility Training

Static stretches – no movement and active or passive

Dynamic – involve movement (e.g. heel flicks)

Plyometrics – exercises performed quickly to improve power

11 Careers

Reporter – using your English skills you could become a live TV presenter or part of the written media reporting on games

Stats/Anaylsis – using your maths skills you could become a statistician for a team/club or professional league

Physio – using you science knowledge of the body you could train to help sports people become better athletes and support them through their injuries

Spanish Year 9 Spring Knowledge Organiser-Oriéntate

Key vocabulary / grammar

1

¿En qué trabajas? *What's your job?*
Soy… I am…
camarero/a a waiter
cocinero/a a cook
dependiente/a a shop assistant
jardinero/a a gardener
limpiador(a) a cleaner
peluquero/a a hairdresser
recepcionista a receptionist

¿Qué tipo de persona eres? What type of person are you?
En mi opinión, soy… In my opinion, I am…
Creo que soy… I believe I am…
muy / bastante… very / quite…
ambicioso/a ambitious
hablador(a) talkative
independiente independent
inteligente intelligent
organizado/a organised
paciente patient
práctico/a practical
responsable responsible
sociable sociable
trabajador(a) hard-working

¿Cómo es un día típico? What is a typical day like**?**

Escribo correos (electrónicos). I write emails.
Hago reservas. I make reservations.
Hago entrevistas. I do interviews.
Organizo excursiones. I organise excursions.
Preparo el programa. I prepare the programme.
Salgo con los grupos. I go out with the groups.
Trabajo con mi equipo. I work with my team.
Viajo mucho. I travel a lot.
Voy a la oficina. I go to the office.
¿Qué idiomas hablas? What languages do you speak?
Hablo español, inglés y alemán. I speak Spanish, English and German.
Los idiomas son importantes. Languages are important.

¿Qué tienes que hacer? What do you have to do**?**

Tengo que… I have to…
ayudar a los clientes help customers
cortar el pelo a los clientes cut customers' hair
hablar por teléfono speak on the phone
limpiar habitaciones clean rooms
preparar comida prepare food
servir en el restaurant serve in the restaurant

Past activities

2

¿Te gusta tu trabajo? Do you like your job?
(No) Me gusta (nada) mi trabajo porque es…
I (don't) like my job (at all) because it is…
creativo creative
estresante stressful
fácil easy
interesante interesting
monótono monotonous
repetitivo repetitive
Mi jefe/a es severo/a. My boss is strict.
Los clientes (no) son simpáticos. The customers are (not) nice.
Los clientes son horrorosos. The customers are awful

Opinions

3

¿Te gusta tu trabajo? Do you like your job?
(No) Me gusta (nada) mi trabajo porque es…
I (don't) like my job (at all) because it is…
creativo creative
estresante stressful
fácil easy
interesante interesting
monótono monotonous
repetitivo repetitive
Mi jefe/a es severo/a. My boss is strict.
Los clientes (no) son simpáticos. The customers are (not) nice.
Los clientes son horrorosos. The customers are awful

Conditional tense – future plans

4

¿Qué te gustaría hacer? What would you like to do?
Me gustaría… I would like…
No me gustaría (nada)…I wouldn't like… (at all)
trabajar al aire libre to work in the open air
trabajar con animals to work with animals
trabajar con niños to work with children

trabajar en equipo to work in a team
trabajar en una oficina to work in an office
trabajar solo/a to work alone
hacer un trabajo creativo to do a creative job
hacer un trabajo manual to do a manual job
Por eso me gustaría ser… Therefore I would like to be…
cantante a singer
diseñador(a) a designer
enfermero/a a nurse
mecánico/a a mechanic
periodista a journalist
policía a police officer

5. Parallel Text:

1	Soy peluquero y	I am a hairdresser and
2	Tengo que cortar el pelo a los clientes	I have to cut the hair of customers
3	Mis clientes son simpáticos	My customers are nice
4	Soy muy práctico y paciente	I am very practical and patient
5	Pienso que soy ambicioso	I think I am ambitious
6	Me gustaría ser enfermo	I would like to be a nurse
7	Me gustaría trabajar en equipo	I would like to work in a team
8	Ayer escuché mis mensajes y	Yesterday I listened to my messages and
9	hablé con los clientes	chatted with customers
10	Por la tarde escribí muchos correos	In the afternoon I wrote lots of emails
11	Normalmente voy a la oficina	Normally I go to the office
12	Y preparo mis cosas	And prepare my things
13	En el futuro me gustaría	In the future I would like
14	hacer un trabajo interesante	To do an interesting job