BOURNEMOUTH SCHOOL

Year 9

Knowledge Organiser 1

Autumn Term: 2023-24

Name:_____

✓Hard Work ✓Discipline ✓Smart Appearance ✓Respect

Bournemouth School

Knowledge Organiser: Year 9 Autumn Term 1

'Knowledge is power' by Francis Bacon

A knowledge organiser provides you with all the most important knowledge you need for each unit of study this half term. Your aim is to transfer all of this information into your long-term memory so you can use it in your lessons and further expand your understanding of this work.

How to use your knowledge organiser (KO):

1. Ensure you have your KO with you at all times in school and when you need to do your homework at home.
2. Ensure you have your Homework Learning Journal with you at all times in school and when you need to do your homework at home.
3. In lessons when you have covered information that appears on your KO, your teacher will ask you to put a tick next to that section. This means that is now added to what you must learn for homework.
4. Initially, follow your homework timetable to decide what to revise each evening.
5. There are 4 strategies that you can use to revise. They are progressively more challenging so always start with the first in the list.
    a. **Look Cover Write Check**
        i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
        ii. LOOK carefully at the subject and section of your KO you want to revise and try to remember as much as you can. Remember this should be a ticked section.
        iii. Now COVER this information so you can't read it.
        iv. WRITE out what you can remember word for word in your Homework Learning Journal.
        v. CHECK what you have written by comparing it to your KO. Tick each correct word in green pen and correct any errors you have made.
        vi. Repeat this process until you are confident you can remember everything you need.

        AIM:

        You should be able to repeat the information by rote
    b. **Self or peer quizzing**
        i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
        ii. Write out a list of questions you could ask either yourself or a friend about this section of the KO. Write these in your Homework Learning Journal.
        iii. If you are working on your own, cover the KO and write a full answer to each question.
        iv. If you are working with a partner swap books and copy down their questions and have a go at answering them.
        v. Now uncover the KO and with a green pen correct your work.

        AIM:

        You should be able to repeat the information by rote but with a good understanding

    c. **Playing with words and sentences**

i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
ii. You now want to check how well you have learnt the information in your KO.
iii. Definitions – look at words that are used in this section. Can you write a definition in your own words?
iv. Rephrasing – can you rewrite the sentences or explanations in your own words?
v. Summary – can you summarise the main points of this section of the KO?
vi. Synonyms – can you write synonyms for key words and ideas?
vii. New Sentences – can you write a sentence that includes the key vocabulary or definitions that you have learnt?

AIM

You should be able to use the information in your KO in a flexible and confident way in your writing.

d. Think it, Link it

i. This is a technique to use towards the end of the half term when you are revising all of the KO.
ii. Think of the links or connections between different sections of your KO.
iii. Write these out in your own words in your Homework Learning Journal.
iv. Think about the links between a particular section of your KO and what you have learnt in your lessons. Can you expand on this section by linking it to your wider knowledge?
v. Write this out in your Homework Learning Journal.

AIM

You should be able to link your homework and your lessons to show a confident understand of the work covered.

Homework Learning Journal

1. Always write the subject and the date when you start your homework.
2. Always write the strategy that you are going to use for your homework.
3. Use a blue or black pen to complete your homework or a pencil if you need to draw.
4. Always use a ruler to underline titles and dates.
5. Use a green pen to complete corrections of your work.

Checking:

Your tutor will check your Homework Learning Journal at least once a week. If they are concerned that you aren't doing your homework properly they will offer support and guidance. If you don't respond to this guidance you will be added to the afterschool 'Success club' where a member of staff will help you complete your homework.

DO NOW tasks:

At the start of every lesson you should expect a Do Now task. This is a low stakes retrieval quiz on what you have learnt so far. If you have completed your homework this should be easy. The aim is to get 100% in each of these. If you miss this target occasionally, don't worry. If it happens regularly your teacher will ask your tutor to have a chat and offer you support.

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Year 9 'Power & Conflict' Knowledge organiser

Poem	Themes	✓	Content	✓	First class quotations	✓	Context	✓
Bayonet Charge	• Traumatic nature of war • Emotional intensity • Vulnerability • Patriotism • Honour		Describes a soldier leaving a trench to charge at the enemy. Speaker questions their purpose in the war.		"The patriotic tear that brimmed in his eye Sweating like molten iron" "Cold clockwork of the stars and nations"		Hughes' father had survived the battle of Gallipoli in World War 1. He draws attention to the hardships of trench warfare.	
Exposure	• Shared endurance • Power of nature • Despair • Loss of faith		Speaker describes war as a battle against the weather and conditions, comments on the suffering around him and thoughts of home.		"Pale flakes with fingering stealth come feeling for our faces" "Our brains ache"		Written in 1917 before Owen went on to win the Military Cross for bravery, and was then killed in battle in 1918. One of the coldest winters in history, lots of men died from infection or the cold.	
Charge of the Light Brigade	• Admiration • Disbelief • Horror • Honour		A lightly armed cavalry charge against Russians. Over half were killed, injured or taken prisoner. Symbolises their courage.		"Into the valley of Death" "Jaws of death"		Published after the disastrous Battle of Balaclava in the Crimean War, a war heavily criticised in the media.	
Remains	• Trauma • Violence • Emotional intensity • Guilt		Speaker describes shooting a looter dead in Iraq and how it has affected him afterwards. Gives an insight into his mental health.		"He's here in my head when I close my eyes / dug in behind enemy lines" "His bloody life in my bloody hands		Based on Guardsman Tromans, who fought in Iraq in 2003 and suffered with PTSD. Coincided with a Channel 4 documentary. Armitage was Poet Laureate.	
War Photographer	• Suffering • Helplessness • Guilt • Trauma		Developing photos at home and they bring back memories. Others are indifferent to the horror.		"All flesh is grass" "Blood stained into a foreign dust"		Duffy was Poet Laureate. Inspired by a friend who was a war photographer who felt helpless.	

Exam Technique		✓
Assessment Objectives	• AO1: Meaningful comparison between poems. Evidence to support points. • AO2: Subject terminology and effect of techniques. • AO3: Knowledge of context.	
Writing an introduction	<u>Three sentences.</u> 1. Identify key word in the question. 2. Discuss what themes both poems tackle. 3. Identify what both poems do differently.	

Key words		✓
Power	The ability or capacity to do something or act in a particular way, sometimes to become or seem stronger than something or someone else.	
Conflict	A serious disagreement or argument Confusion within oneself, including second-guessing and guilt	

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Year 9 'Paper 1 (Dystopian)' Knowledge organiser

Dystopian conventions: society	✓
Propaganda	
Restricted freedom/ thought	
Leader/ concept is worshipped	
Under surveillance	
Fear of the outside world	
Citizens dehumanised	
Conform to uniform expectations	
Illusion of the perfect utopia	
Natural world banished	
Dystopian conventions: protagonist	✓
Feels trapped	
Questions social and political systems	
Believes something is wrong with society	

Contained narrative plan	✓
Establish a thread	
Drop the reader into the setting	
Zoom in on a character	
Shift to another time or place	
Return/ zoom in on the character again	
Zoom out and close the narrative	
Motif will run throughout	

Language devices	Definition	✓
Metaphor	Saying something IS something else.	
Simile	Comparison using 'like' or 'as'.	
Personification	Giving human characteristics to a non-human object.	
Onomatopoeia	Words as sounds, e.g. 'bang'.	
Sensory imagery	Imagery that plays on the senses (touch, taste, sight, sound, smell)	
Pathetic fallacy	The weather/ nature is used to convey emotion.	
Semantic field	Group of words with a similar meaning/ effect.	
Sibilance	Repetition of 's' or 'sh' sound in a sentence.	
Alliteration	Repetition of consonants at the beginning of successive words.	

Structural devices	Definition	✓
Plot	The main events of a story.	
Tone	General attitude/ feeling of a story or situation.	
Shift	Changes in focus (character, time, location, tone).	
Zooming in/ out	Moving closely towards, or further away from a character/ situation.	
Flashback/ flash forward	Shifts in time, e.g. past memories/ future events.	
Foreshadow	An indication or hint of a particular future event.	
Repetition	Ideas/ motifs/ images/ words are repeated for greater effect.	

Sentence forms	Definition/ effect	✓
Exclamatory	Expresses strong emotion (!)	
Declarative	Makes a statement.	
Interrogative	Asks a question.	
Imperative	Gives a command, more forceful.	
Embedded clause	Gives more information.	
List	List of items, uses commas.	
Adverbial phrase	Gives information about how something is done.	

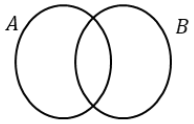
Glossary		
Key term	**Meaning**	✓
Implicit	Something implied but not said directly	
Explicit	Fully and clearly expressed	
Ascended	Go up	
Glaucoma	Condition in the eye that causes loss of sight	
Sanguine	Optimistic or positive	
Eddies	Circular movement	
Fitfully	Intermittent movement	
Cohesion	Forming a united whole	
Hasp	Metal hinge on a door lock	
Kerosene	Fuel oil, flammable	

Keyword	Definition	Example(s)
Combinations	The number of ways of combining objects, found by multiplying the number of options for each choice	*Choose 2 students from a class of 30.* $\frac{30 \times 29}{2} = 435$
Estimating	Rounding values to 1 or 2sf to simplify a calculation	
Factor	A number that divides exactly into a given number	8 *is a factor of* 24
Multiple	A number in the given numbers times table	18 *is a multiple of* 6
Prime Factor Tree	Breaks up a number into products of its prime factors	12 → 4, 3 → 2, 2, 3
Prime Factor Decomposition	A number written as a multiplication of its prime factors, normally written in index form.	$140 = 2^2 \times 5 \times 7$
HCF (highest common factor)	The largest number that divides into 2 numbers with no remainder	*HCF of 20 and 28* 4
LCM (lowest common multiple)	The smallest number that 2 numbers divide into exactly	*LCM of 20 and 28* 140
Standard form	A number written in the form $A \times 10^n$, where $0 < A \leq 10$ and n is an integer	$0.00284 = 2.84 \times 10^{-3}$
Surd	An irrational number, written exactly using square or cube roots	$\sqrt{5}, \sqrt[3]{8}$
Rational	A number that can be expressed in the form $\frac{a}{b}$	$\frac{6}{7}, 1.5, 0.\dot{6}$
Irrational	A non-terminating decimal with no recurring pattern	π, $\sqrt{2}$, $3\sqrt{5}$
Rationalising a denominator	Multiplying $\frac{a}{\sqrt{b}}$ by $\frac{\sqrt{b}}{\sqrt{b}}$ to attain an integer denominator of b	

Keyword	Definition	Example(s)
Identity	The ≡ symbol shows an identity. In an identity the two expressions are equal for all values of the variables.	$2(x+5) \equiv 2x+10$
Equation	An equation is only true for certain values of the variable. An equation has an equals sign, the variable and numbers. It can be solved to find the value of the variable.	$2y - 4 = 9y + 1$
Consecutive integers	Numbers one after the other in order.	$2, 3, 4,$ or $-8, -7, -6$
Expression	An expression contains letter and/or number terms but no equals sign	$2ab$ $2ab + 3b$ $2ab - 7$
Term	Separate parts of expressions, equations, formulae and identities separated by addition or subtraction	Within $2ab + 3b - 7$ there are 3 terms
Coefficient	The numerical value in an algebraic term	3 is the coefficient in $3x^2$
Formula	A formula has an equals sign and letters to represent different quantities.	$A = \pi r^2$
Subject of a formula	The subject of a formula is the letter on its own, on one side of the equals sign.	s is the subject of $s = ut + \frac{1}{2}at^2$
The nth term	The nth term of a sequence tells you how to work out the term at position n (any position). It is also called the general term of the sequence	
u_n	u_n denotes the nth term of a sequence,	u_1 is the first term, u_2 is the second term, and so on.
Arithmetic sequence	Terms increase by a fixed number called the common difference. General form $An + B$	$3, 7, 11, 15, \ldots$ nth term = $4n - 1$
Geometric sequence	Terms increase by a constant multiplier called the ratio. General form $a \times r^n$ or $a \times r^{n-1}$	$2, 6, 18, 54, \ldots$ nth term = $2 \times 3^{n-1}$
Quadratic expression	A quadratic expression contains a term in n^2 but no higher power of n General form $an^2 + bn + c$	$3, 8, 15, 24, \ldots$ nth term = $n^2 + 2n$
Expand	Remove brackets by multiplying terms	$2(2x+1) \equiv 4x+2$
Factorise	Arrange an expression into a product of its factors by placing terms in brackets.	$4x + 2 \equiv 2(2x+1)$

After completing a Prime Factor Decomposition for numbers A and B:

$HCF = A \cap B$
$LCM = A \cup B$



Surd Laws

- $a\sqrt{b} \times c\sqrt{d} = ac\sqrt{bd}$
- $\frac{a\sqrt{b}}{c\sqrt{d}} = \frac{a}{c}\sqrt{\frac{b}{d}}$
- $\sqrt{a^2} = \sqrt{a}^2 = a$

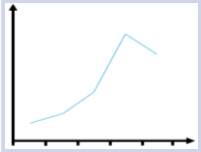
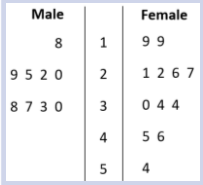
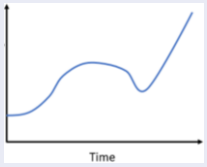
Standard form operations

- $(A \times 10^n) \times (B \times 10^m) = (AB) \times 10^{n+m}$
- $(A \times 10^n) \div (B \times 10^m) = \left(\frac{A}{B}\right) \times 10^{n-m}$
- $(A \times 10^n) \pm (B \times 10^n) = (A \pm B) \times 10^n$

note the powers must be the same

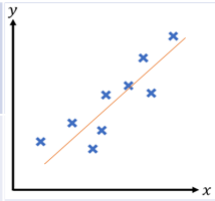
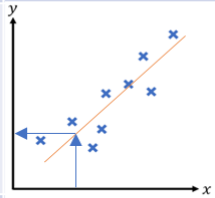
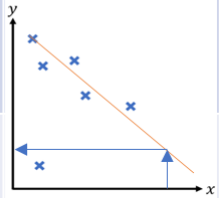
Index Laws

- $x^a \times x^b = x^{a+b}$
- $x^a \div x^b = x^{a-b}$
- $(x^a)^b = x^{ab}$
- $x^0 = 1$
- $x^{\frac{1}{a}} = \sqrt[a]{x}$
- $x^{-a} = \left(\frac{1}{x}\right)^a$

Keyword		Definition	Example(s)
Qualitative		Describes a characteristic of the data	*Colour, Brand*
Quantitative		Data counted or measured in numerical values	*Height, Weight*
Discrete		Data that takes fixed values	*Shoe size, Year*
Continuous		Data that can take any value	*Foot length, Time*
Frequency polygon		Used for grouped data with even class-widths. Plot midpoint against frequency	
Pie chart		Shows portions of a whole, split into sectors	
Stem-and-leaf diagram		Simplifies writing long lists of numbers by using common digits as a stem. Must have a key.	
Median		The middle piece of data when in order of size, found using $\frac{n+1}{2}$.	*Find the median of the males:* 29
Range		A measure of spread. Difference between largest and smallest.	*Find the range of the males* 20
Time-series		A graph that shows how data varies over time	

Pie chart

$$Sector\ angle = \frac{f}{\Sigma f} \times 360$$

Keyword		Definition	Example(s)
Scatter graph		Displays bivariate data. Used to show if there is a relationship.	
Line of best fit		Drawn on a scatter graph to show the trend and predict data values.	
Correlation		A description of the relationship of bivariate data.	*Positive, negative, no*
Interpolation		Predicting within the range of data.	
Extrapolation		Predicting outside of the range of data	
Anomaly		A piece of data that does not fit the trend.	
Mode		The most common piece of data.	*Find the mode of 2, 6, 3, 6, 4* = 6
Mean		The sum of all the pieces of data, divided by how many there are	*Find the mean of 2, 6, 3, 6, 4* *= 4.2*

Mean from grouped data $= \frac{\Sigma fx}{\Sigma f}$

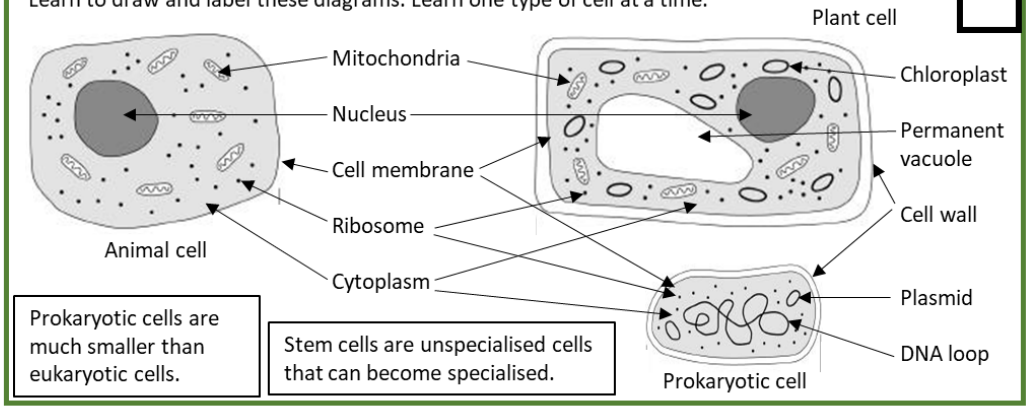
Mean from individual data $= \frac{\Sigma x}{f}$

B1 Cell Structure

Keyword	Learn	✓
Eukaryotic cell	Plant and animal cells with DNA contained within a nucleus.	
Prokaryotic cell	Bacteria cell with genetic material NOT in a nucleus.	
DNA	The molecule that holds the genetic information in a cell.	
Chromosome	Found in the nucleus of a cell, made of DNA. Usually found in pairs. Humans have 46 chromosomes (23 pairs).	
Stem cell	Undifferentiated cell that can make copies of itself or can become specialized through differentiation.	
Cell differentiation	A cell becomes specialised by developing different sub-cellular structures to enable it to carry out a certain function.	
Magnification	Magnification = size of image ÷ size of real object	
Resolution	The level of detail you can see with a microscope. Higher resolution means seeing smaller detail.	
Light microscope	Maximum magnification of 1500x and low resolution. Cheaper and portable.	
Electron microscope	Higher magnification and resolving power, can see sub-cellular structure. Very expensive.	

Sub-cellular structure - Learn all nine names and descriptions.		✓
Nucleus	Contains genetic material; controls the cell's activities.	
Cytoplasm	A jelly-like substance; site of most of the chemical reactions.	
Cell membrane	Controls the movement of substances into and out of the cell.	
Mitochondria	Site of respiration.	
Ribosome	Site of protein synthesis.	
Chloroplast	Contains chlorophyll; site of photosynthesis.	
Plasmid	A small ring of DNA.	
Cell wall	Strengthens the cell and supports the plant; made of cellulose	
Vacuole	Filled with sap to help keep the cell turgid (stiff) to provide support.	

Learn to draw and label these diagrams. Learn one type of cell at a time.

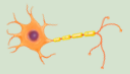
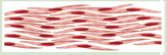
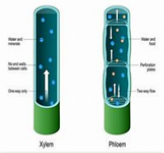


Prokaryotic cells are much smaller than eukaryotic cells.

Stem cells are unspecialised cells that can become specialised.

Sources of stem cells which can be used to help conditions such as diabetes and paralysis.

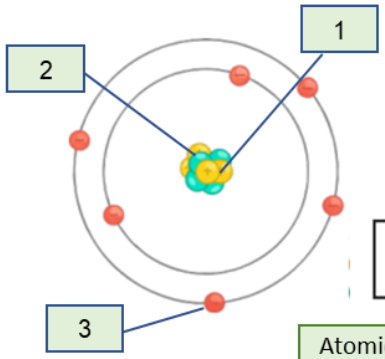
Embryo : can be cloned and made to differentiate into most types of cell.	Adult bone marrow : can form many types of cell including blood cells.	Meristem : Can differentiate into any type of plant cell, throughout the life of the plant.

Specialised cells - Learn how the structure relates to the function			✓
Nerve cell		Elongated : Transmits electrical impulses over a distance	
Sperm cell		Tail : Allows it to swim Many mitochondria : Releases lots of energy	
Muscle cell		Can contract : Enables movement	
Root hair cell		Large surface area : Increases water and mineral absorption	
Xylem cell		Dead, no end walls, thickened with lignin : Transports water and dissolved ions. (up)	
Phloem cell		Alive : Transports dissolved sugars. (Up and down)	

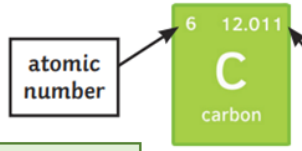
Chapter 1 – Atomic Structure and the Periodic Table

Keyword	Learn	✓
Atom	The smallest part of an element that can exist.	
Element	A substance made up of only one type of atom.	
Compound	A substance made up of two or more types of atom, chemically combined in fixed proportions.	
Mixture	A substance made up of two or more different elements or compounds, not chemically combined together.	
Filtration	The process of separating insoluble solids from liquids using filter paper and a filter funnel.	
Evaporation	The process of removing a solvent by heating so that it changes state into a gas.	
Crystallisation	The process of obtaining crystals of a solid solute from a solution.	
Distillation	A technique used to obtain pure solvent from a solution by evaporating and condensing the solvent.	
Chromatography	A technique used to separate a mixture of soluble substances.	
Rf Value	Rf = Distance moved by substance / Distance moved by solvent	
Solute	The substance that is dissolved in a solution	
Solvent	A substance that dissolves a solute, making a solution.	
Solution	A mixture formed by a solid or gas (solute) dissolving in a solvent.	
Saturated	A solution in which no more solute can dissolve at that temperature.	
Isotope	An atom of an element with the same number of protons (atomic number) but different number of neutrons.	

Atomic Structure



	Particle	Relative Mass	Charge
1	proton	1	+1
2	neutron	1	0
3	electron	Very small	-1



Atomic number = number of protons

Mass number = number of protons + number of neutrons

The Periodic Table

MODERN PERIODIC TABLE
- Elements ordered by atomic number
- Metals on left; non-metals on right
- Elements organized into groups (vertical columns) based on number of electrons in outer shell
- Elements organised into periods based on number of electron shells
- Group 1 = alkali metals
- Group 7 = halogens
- Group 0 = noble gases
- Centre block - transition metals

MENDELEEV'S PERIODIC TABLE (1869)
- Elements ordered by atomic mass
- Elements in groups with other elements having similar properties
- Left gaps to make elements fit the pattern.
- Predicted properties of missing elements, which were later discovered, matching his predictions

Key Equation

$$\text{relative atomic mass } (A_r) = \frac{\text{sum of (isotope abundance} \times \text{isotope mass number)}}{\text{sum of abundances of all isotopes}}$$

Bournemouth School – Knowledge Organiser – Year 9

CHEMISTRY

Keyword	Learn	✓
Energy store	Name the different stores: kinetic, chemical, thermal (internal), gravitational potential, magnetic, electrostatic, elastic potential and nuclear	
Energy transfer	Can be done by waves (light and sound), electrical and work.	
System	An object or a group of objects that interact	
Principle of conservation of energy	Energy can be transferred from one store to another, but energy cannot be created or destroyed	
Kinetic energy	The amount of energy stored in a moving object	
Gravitational potential energy	The amount of energy stored in an object raised above the ground	
Elastic potential energy	The amount of energy stored in a stretched spring	
Spring constant	The force needed to stretch a spring 1 metre	
Work	1 joule of work is done when a force of 1 N causes an object to move 1 m	
Power	The rate at which energy is transferred (or rate at which work is done)	
Specific heat capacity	The amount of energy required to raise the temperature of 1 kg of a substance by 1°C	
Dissipate	To scatter in all directions or to use wastefully	
Thermal conductivity	The higher the thermal conductivity of the material the more the material allows heat to conduct through,	
Efficiency	The proportion of energy that is usefully transferred	
Non-renewable energy resources	Coal, Oil, Gas and Nuclear. These will run out, because there are finite reserves, which cannot be replenished.	
Renewable energy resources	Solar, Wind, Hydroelectric, Wave, Tidal, Geothermal, Biomass/fuel. These will never run out. They are replenished as they are used.	

Quantity	Unit	Symbol
Energy	joule	J
Work	joule	J
Power	watt	W
Mass	kilogram	kg
Extension	metre	m
Height	metre	m
Force	newton	N
Temperature	degrees Celsius	°C
Speed	metres per second	m / s
Spring constant	newtons per metre	N / m
Gravitational field strength	newtons per kilogram	N / kg
Specific heat capacity	joules per kilogram per degree Celsius	J / kg°C

Equations

Kinetic energy = ½ x mass x speed² $E_k = \frac{1}{2} \times m \times v^2$

Elastic potential energy = ½ x spring constant x extension² $E_e = \frac{1}{2} \times k \times e^2$

Gravitational potential energy = mass x gravitational field strength x height $E_p = m \times g \times h$

Work = force x distance moved in the direction of the force $W = F \times s$

$Power = \frac{Energy\ transferred}{Time}$ $P = \frac{E}{t}$ OR $Power = \frac{Work\ done}{Time}$ $P = \frac{W}{t}$

$Efficiency = \frac{Useful\ output}{Total\ input}$

Practical work vocabulary – the words have the same meaning in all three science subjects. You are expected to know these definitions in the exams. Learn the spellings and definitions.

Vocabulary taught in Topic 1 - Energy		
Vocabulary	**Learn**	✓
Data	Information, either qualitative or quantitative, that has been collected	
Fair Test	A fair test is one in which only the independent variable has been allowed to affect the dependent variable	
Interval	The quantity between readings	
Reproducible	If the investigation is repeated by another person, or by using different equipment or techniques, and the same results are obtained	
Resolution	This is the smallest change in the quantity that can be measured by the measuring instrument	
Variables	These are physical, chemical or biological quantities or characteristics	
Categoric variables	These have values that are labels, e.g. names of plants or types of material	
Continuous variables	These can have values that can be given a magnitude either by counting or by measurement	
Control variable	This is one which may, in addition to the independent variable, affect the outcome of the investigation and therefore has to be kept constant or at least monitored	
Dependent variable	The variable of which the value is measured for each and every change in the independent variable	
Independent variable	The variable for which values are changed or selected by the investigator	

Vocabulary taught in Topic 5a – Forces		
Vocabulary	**Learn**	✓
Accuracy	A measurement result is considered accurate if it is judged to be close to the true value	
Measurement error	The difference between a measured value and the true value	
True value	This is the value that would be obtained in an ideal measurement	
Calibration	Marking a scale on a measuring instrument.	
Systematic error	These cause readings to differ from the true value by a consistent amount each time a measurement is made.	
Zero error	Any indication that a measuring system gives a false reading when the true value of a measured quantity is zero, eg the needle on an ammeter failing to return to zero when no current flows.	
Hypothesis	A proposal intended to explain certain facts or observations	
Prediction	A prediction is a statement suggesting what will happen in the future, based on observation, experience or a hypothesis	

Vocabulary taught in Topic 3 – Particle Model of Matter		
Vocabulary	**Learn**	
Anomalies	These are values in a set of results which are judged not to be part of the variation caused by random uncertainty	
Random Error	These cause readings to be spread about the true value, due to results varying in an unpredictable way from one measurement to the next. Random errors are present when any measurement is made and cannot be corrected. The effect of random errors can be reduced by making more measurements and calculating a new mean	
Range	The maximum and minimum values of the independent or dependent variables; important in ensuring that any pattern is detected.	
Precision	Precise measurements are ones in which there is very little spread about the mean value. Precision depends only on the extent of random errors – it gives no indication of how close results are to the true value	
Repeatable	A measurement is repeatable if the original experimenter repeats the investigation using same method and equipment and obtains the same results.	
Sketch graph	A line graph, not necessarily on a grid, that shows the general shape of the relationship between two variables. It will not have any points plotted and although the axes should be labelled they may not be scaled	

Vocabulary taught in Topic 8 - Space		
Vocabulary	**Learn**	✓
Evidence	Data which has been shown to be valid	
Validity	Suitability of the investigative procedure to answer the question being asked	
Valid conclusion	A conclusion supported by valid data, obtained from an appropriate experimental design and based on sound reasoning	

Prefix	Abbreviation	Power of ten
Giga–	G	10^9
Mega–	M	10^6
Kilo–	k	10^3
Centi–	c	10^{-2}
Milli–	m	10^{-3}
Micro–	μ	10^{-6}
Nano–	n	10^{-9}

Shekhinah	The Divine Presence of God.
Aseitic	Self-existent, not dependent on anything for his existence
Sovereign	Reigns supreme – is not subject to anyone
Transcendent	Above and beyond the understanding of humans.
Monotheism	The central belief that there is only one God, who is infinitely powerful, loving and wise.
Omnibenevolent	The belief that God possesses unlimited goodness, mercy and compassion.
Omnipotent	The belief that God has unlimited in power.
Omniscient	The belief that God possesses infinite knowledge and wisdom.
Hashem	Literally 'the name'. Jews replace God's name YHWH with Hashem because His name is too holy to utter.
Maimonides and Hashem	Maimonides wrote that there is no language in existence that can describe the uniqueness of God.
Judah Ha Levi and Hashem	Judah Ha Levi wrote that ''If I understand Him I would be Him''.
The Shema	The central statement of Jewish belief – Monotheism. The Shema is the Jews' most important prayer. It is a declaration of faith, which is 'Belief in one God'.
The Shema Declaration / Teaching	"Hear O Israel, the Lord is our God, the Lord is one. Love the Lord your God with all your heart, with all your soul, and with all your strength. Never forget these commands that I am giving you today.
The Shekhinah	God's divine presence, such as at the burning bush, and on Mount Sinai, when God gave the Torah to Moses.

The Messianic Age	A future period of time when the messiah (Mashiach) will reign and bring universal peace on earth. He will be a great political leader descended from King David and will be will be well-versed in Jewish law.
Why belief in a Messiah is important	The arrival of the Mashiach signals the end of persecution of Jews. YHWH will be made known to all nations, and everyone will follow God and abide by the laws of the Torah.
Abrahamic Covenant	Abraham lived in the land of Ur, where people were wicked. God called Abraham to leave Ur and made a covenant with him, which was sealed through the blood of circumcision.
Abraham's side of the covenant	• Worship the one true living God (YHWH). • Move out of the land of Ur and taking all his belongings with him. • Obey God (live holy lives).
God's side of the covenant	• Abraham's descendants would be given a land of their own. • Abraham's descendant would become a great nation and a blessing to others. • Abraham's descendants would become God's chosen people.

The Ten Commandments	
1	Do not have any other Gods before me.
2	Do not make any graven images of Me.
3	Do not take the name of the Lord your God in vain
4	Remember the Sabbath Day and keep it holy.
5	Honour your father and your mother.
6	Do not kill.
7	Do not commit adultery.
8	Do not steal.
9	Do not give a false testimony against your neighbour.
10	Do not covet (be jealous of) your neighbour's possessions.

Pikuach Nefesh	The principle in Judaism that the preservation of human life takes priority over virtually any other religious duty.
Can rules be broken to save lives?	When the life of a person is in danger, almost any mitzvah of the Torah becomes redundant, except three: idolatry, sexual immorality and murder.
Do Jews have free will?	In Judaism, free will is considered a fundamental aspect of human nature. God has granted humans the ability to make choices, which Jews refer to as yetzer hatov and yetzer ha ra.
Yetzer Hatov	The inclination to make good choices.
Yetzer Hara	The inclination to make bad choices.
Responsibility	To be accountable for our actions. Free will agents are morally accountable.
Does observance of the Torah remove free will?	Humans are not expected to obey the mitzvot robotically. The principle of Pikuach Nefesh allows humans to use reason to decide when mitzvot may be broken due to extenuating circumstances.
How do Jews perceive the Mitzvot?	Jews believe the mitzvot contain God's instructions on how to live holy lives. They are perceived as a gift from God because they reveal actions that offend God, and teach Jews how to live righteously.
What is the purpose of the mitzvot?	The mitzvot reveal what actions are sinful, enabling humans to live harmoniously with God and with our neighbour, granting us rights such as freedom from oppression.

Bournemouth School: History Department: Knowledge Organiser: Year 9: Autumn 1: Weimar Republic 1918-29

Timeline of key events:

Oct. 1918: New govt. formed by Prince Max of Baden
Oct. 1918: Mutiny of German sailors at Kiel
Nov. 1918: Kaiser Wilhelm II abdicates
Nov. 1918: Armistice signed
Dec 1918/Jan 1919: Spartacist Uprising
Jan. 1919: Ebert sets up Constituent Assembly
Aug. 1919: Weimar Constitution established
Nov. 1919: Treaty of Versailles signed
March 1920: Kapp Putsch
June 1922: Walter Rathenau, Foreign Secretary, assassinated
January 1923: French troops invade and occupy the Ruhr region of Germany
Jan. - Nov. 1923: Hyperinflation
August 1923: Stresemann becomes Chancellor of Germany and introduces the Rentenmark
Nov. 1923: Munich Putsch
August 1924: Dawes Plan: US loan Germany 800 million marks to Germany
Oct. 1925: Locarno Pact: Britain, France, Germany & Italy agree existing borders
Sept 1926: League of Nations set up
July 1927: Unemployment Act introduced to provide benefits for the unemployed
Aug. 1928: Kellogg-Briand Pact:
Aug. 1929: Young Plan reduces reparations to £1,850 million
Oct. 1929: Wall Street Crash

Key terms/definitions

Term	Definition	✓
Abdicate	To voluntarily step down from your position as king or queen	
Armistice	The agreement reached by the warring nations to end WWI	
Article 48	Law allowing the president to rule alone through emergency powers in a crisis	
Bauhaus Movement	A school of design known for being simple and modern	
Chancellor	The leader of the Weimar government, appointed by the President	
Coalition	A government run by lots of small parties working together	
Communism	A political idea where workers have power and wealth is shared	
Constitution	A set of laws that set out how a government should run	
Demilitarized	No soldiers or anything military allowed	
Democracy	Government based on ordinary people voting for leaders	
Dolchstoss Theory	Stab in the back theory - Germany had been betrayed during WWI by Jews and Socialists	
Freikorps	Ex-soldiers who set up private armies after the war was over	
General strike	When workers from different industries go on strike at the same time	
Golden Years	The period 1923-29 in which The Weimar Republic recovered	
Hyperinflation	When the value of money declines rapidly, causing prices to increase	
Kaiser	The Emperor of Germany before 1918	
League of Nations	An international organisation set up in 1918 to prevent future wars	
Modern Art	Art that challenges traditional ideas of what art should be	
Mutinies	When soldiers refuse to take orders or fought against their commanders	
Nationalist	Supporting traditional ideas, in particular the Kaiser and the army	
November Criminals	Term used by nationalists to accuse Weimar politicians of surrendering during WWI	
Passive Resistance	Opposition to the French Ruhr invasion without using violence	
President	The head of state in the Weimar Republic, elected every 7 years.	
Proportional Representation	A type of democracy where parties receive seats in a parliament according to the percentage of the vote which they receive	
Putsch	An attempted takeover of government	
Reichstag	The German parliament	
Reichswehr	German army and navy	
Reparations	Money Germany had to pay to Britain and France for damages during WWI	
Rentenmark	New German currency introduced to restore confidence after hyperinflation	
Revolution	When the people rise up against their leaders, sometimes violently	
Scapegoat	Someone who is unfairly blamed for something	
Spartacists	Radical, communist group who attempted to overthrow the Weimar Republic	
Social Democrats	The largest party in the Reichstag, stood for democracy and a welfare state	
Trade Unions	Organisations set up by workers to defend their rights	
Unemployment benefits	Money given by the government to support unemployed people	
Weimar Republic	Germany's new government from 1919 - 'republic' because there was no Kaiser, and 'Weimar' after the town politicians relocated to due to the instability in Berlin after WWI	

Bournemouth School – Knowledge Organiser – Year 9

HISTORY

Bournemouth School: History Department: Knowledge Organiser: Year 9: Autumn 1: Hitler's Rise to Power

Timeline of key events:

August 1914: WWI starts and Hitler joins the German army
1918: Hitler awarded the Iron Cross for bravery in WWI
Sept. 1919: Anton Drexler founds DAP
Feb. 1920: Twenty Five Point Programme written declaring the main policies of the Nazi Party
1921: SA formed by Ernst Rohm
1923: Hyperinflation
Nov. 1923: The Munich Putsch; the failed attempt by Nazi party to overthrow the regional government of Bavaria and national government of Germany by force
April 1924: Hitler sentenced to 5 years in Landsberg Prison (released after only 9 months)
1924: Ban on Nazi Party lifted
1926: Bamberg Conference
1928 Election: Nazis won 12 seats in the Reichstag
29 Oct. 1929: Wall Street Crash; more than 16 million shares were traded in panic selling, triggering further sales and leading to a world economic crisis
1928-30: Muller government
1930-May 1932: Bruning government
Sept 1932 Election: Nazis win 107 seats in the Reichstag
1932: Presidential Election: Hindenburg wins, but Hitler polls 13.4m votes
July 1932 Election: Nazis win 230 seats in the Reichstag
November 1932 Elections: Nazis win 196 seats in the Reichstag
30 January 1933: Hitler appointed Chancellor of Germany by Hindenburg

Key terms/definitions

Term	Definition	✓
Balanced budget	When a nation does not spend more than it earns	
Bamberg Conference	Nazi Party meeting where Hitler strengthened his power and reorganised the Nazi party	
Centre Party (ZP)	A Catholic Party occupying the middle ground in political views	
Charisma	A quality in leadership which arouses loyalty and enthusiasm for a public figure	
Civil Servants	Citizens who work for and are paid by the government	
Communist	Supporter of communism: a political idea where workers have power and wealth is shared	
DAP	German Workers Party; the early Nazi Party, established by Anton Drexler in 1919	
Fuhrer	Leader; title given to Hitler to define his role of absolute authority	
Fuhrerprinzip	The idea that the Nazi Party and Germany should have one leader, obeyed by all	
Gaultier	The leader of branches of the Nazi Party (Gaue)	
General Elections	Elections held for the German people to choose deputies to sit in the Reichstag	
Great Depression	Slump in the economy in the 1930s which led to high unemployment	
Heil Hitler	Raised arm salute to Hitler	
Hitlerjugend	Hitler Youth movement, set up for the young in Germany, to convert them to Nazi ideas	
Indoctrination	Converting people to a set of ideas using education and propaganda	
Informant	Person who gives information to the authorities about the activities of other people	
Left wing	People who favour socialism and /or communism	
Manifesto	A public declaration of the policy of a political party	
Mein Kampf	Book containing autobiography/political views of Hitler written in 1924 in Landsberg Prison	
NSDAP	National Socialist Party or Nazi Party	
Presidential Election	Elections held for the people of Germany to choose the President of the Weimar Republic	
Political Intrigue	Trickery and secret deals used in politics instead of open political debate	
Propaganda	Use of a variety of means including newspapers, broadcasts and education to accept political ideas without question	
Querfront	'Cross front': bringing together different strands of left & right-wing parties to rule Germany	
RFB	Red Front Fighters; Communist private army (militia)	
Right Wing	People who favour groups that are nationalistic, patriotic and sometimes racist	
SA	Sturmabteilung; paramilitary storm troopers of the Nazi Party	
SS	Schutzstaffel: originally Hitler's bodyguard, they became the most powerful troops in Nazi Germany and were responsible for concentration camps and the Final Solution	
Stock market	The place where stocks and shares are traded; Wall Street in New York was the most important Stock Market in the world in the 1920s	
Taxes	Money paid by workers to the government to fund public works, schools, unemployment benefits etc	
Treason	The act of betraying your country; considered to be one of the most serious criminal acts	
Unemployment	The number of people who are without a job in a country	
Unemployment benefit	Money given to the unemployed by the government (unemployment insurance)	

YEAR 9 GEOGRAPHY

8 Billion and Counting

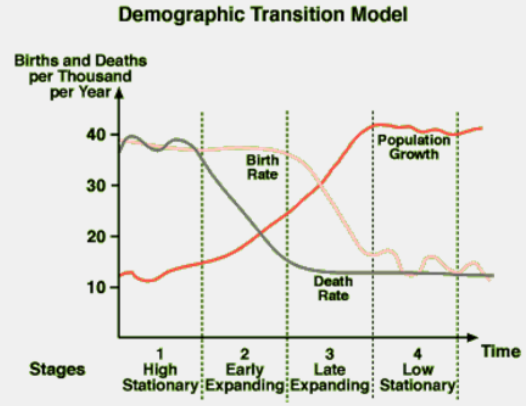
Section 1: How are populations changing?

- The world population currently exceeds **8 Billion**.
- World population remained steady and under 1 Billion. until the 1800's.
- Improvements during the **Industrial Revolution**, medical care, sanitation and farming led to a **population explosion**.
- Future population growth is expected to slow down and it will largely be caused for growth in countries like **Nigeria** and **Pakistan**.
- Over half the worlds future growth will occur in **Africa**.

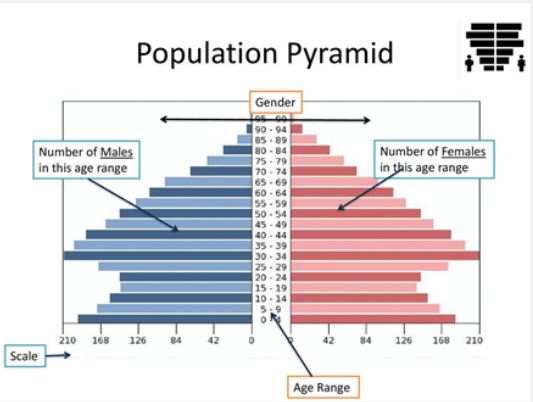
Section 2: Population Distribtion?

- Distribution is the spread of people around the world.
- The worlds population distribution is uneven. Some places are **densely** populated like India, other places are **sparsely** populated like Antarctica.
- People like to populate places that have lots of resources.
- In 2018 China had the worlds largest population.

Section 3: Population Structure



Section 4: Population Pyramids



Section 5: Ageing Populations Japan

Facts	Causes	Impacts
• Over 20% of Japans Population is over 65. • Japan has an ageing population.	• Life expectancy increasing • Healthy diet and lifestyle- many in Japan live to be 100 • Birth rate declining • Number of marriages decreasing	• **Government raised retirement age** from 60 to 65 • **Increasing costs of medical care** – mental health in the very old • Increase in numbers of people in nursing homes • **Increase in costs of pensions** as they are fewer people of working age to contribute – high dependency ratio

Section 6: Youthful Populations Mexico

Facts

- 28% of population under the age of 15.
- Population has grown by 50 million over the last 40 years.

Causes

- **Low death rate** improvements in healthcare.
- **Falling birth rate**

Impacts

-Major need for school places – schools having to be built to accommodate pupils.

-Young people have major competition for work so some emigrate to USA for work.

-Growing manufacturing industry.

-Strongly Catholic religion but abortion has been legalised to reduce number of children.

Section 7: Pro-natalist policies

- Pro-natalist policies are policies that try to **INCREASE** birth rates and total fertility rates. You can not force people to have children, so you have to offer incentives e.g. free education.

Singapore has:

- **increased maternity leave**
- **increased child benefits**
- **The government has also sponsored dating organizations**

Definitions

Birth Rate	Numbers of babies being born /1000
Death Rate	Number of people dying /1000
Natural Increase	The difference between Birth Rate and Death Rate
Population distribution	The pattern where people live and how they are spread out.
Overpopulated	A country has too many people and not enough resources.
Underpopulated	A country doesn't have enough people to make use of resources

Bournemouth School – Knowledge Organiser – Year 9

GEOGRAPHY

YEAR 9 GEOGRAPHY

8 Billion and Counting

Section 8: Anti-natalist policies

- In 1979, the One Child Rule was introduced in China.
- It is an anti-natal policy. It was brought in because of concerns about the size of China's population.
- In the 1960s the fertility rate was as high as 5.7 and the country could not support this rate of population growth.
- The new policy meant that any couple having a second child would get a heavy fine, around £3,000, which only the very affluent could afford.
- There were financial incentives to follow the policy.
- In time the policy has been adapted and two births were permitted if:
- The people lived in the rural areas, parents were from a one-child household themselves, The first child was a female, The first child had a disability, The first child died in the sichuan earthquake in 2008, There was a multiple birth
- The fertility rate has dropped from 5.7 in 1960 to 1.5 in 2011.
- About 400 million births may have been prevented.
- In urban areas the policy was very effective.
- It has led to an ageing population with a high dependency ratio.
- The cultural preference for boys meant that there is a gender imbalance in China

Section 9: Migration

- Migration occurs because of **push and pull factors**.
- **Push factors** are factors that make people want to leave a particular location. Cold climate, Lack of natural resources for building or fuel, Remote location, Lack of healthcare and education.
- **Pull factors** are factors that will attract people to live in a new location. Good water supply, Fertile soils for growing crops, Lots of jobs, Good access to healthcare and education.

Section 10: UK Migration policies

- **Open Door:** Post War immigrants came to the UK from colonies in the Caribbean (1950-1960 - 250, 000 people came from the Caribbean)
- Positives – Met shortage of unskilled and semi-skilled labour, Helped with the reconstruction of the country post WW2.
- Negatives – Public money spent on meeting needs of the immigrants – housing etc. During the 1970's recession a lot of these immigrants became unemployed. Racism.
- In 2004 600,000 immigrants were able to move from Eastern Europe to the UK. They found jobs in low skilled work including construction, picking crops, packing in warehouses, cleaners, and taxi drivers.
- **Points Based System:** The UK now operates a points based system. Tier 1 – Highly skilled workers – scientists and entrepreneurs. Tier 2 – Skilled workers – teachers and nurses. Tier 3 – Low skilled workers – construction workers Tier 4 – Students Tier 5 – Temporary workers – musicians playing in a concert for example.

Section 11: Mexico-USA Migration

- **Push factors from Mexico:** Low life expectancy, Poor literacy rates, Lack of Doctors, Poor job prospects.
- **Pull Factors to the USA:** Longer life expectancy 76 years, Many low skilled jobs available, excellent medical facilities, Good access to education.

•**Impacts on USA:** Illegal migration costs the USA millions of dollars for border patrols and prisons, Mexicans are seen as a drain on the USA economy, Migrant workers keep wages low which affects Americans, They cause problems in cities due cultural and racial issues, Mexican migrants benefit the US economy by working for low wages, Mexican culture has enriched the US border states with food, language and music, The incidents of disease have been increasing greatly due to the increased migration.

•**Impacts on Mexico:** The Mexican countryside has a shortage of economically active people, Many men emigrate leaving a majority of women who have trouble finding partners, Young people tend to migrate leaving the old and the very young, Certain villages such as Santa Ines have lost 2/3 of its inhabitants.

Section 12: Definitions

Voluntary Migrant	Someone that moves from one place to another, to live permanently or temporarily for work or study.
Refugee	A person forced to leave their country to escape war, persecution or a natural disaster.
Forced migrant	Someone who has no choice but to move to a new location.

Section 13: Population Theories

- **Thomas Malthus** believed that resources would fail to keep up with population. This meant that at times disease, war and famine would cause natural checks and the population would decline.
- **Ester Boserup** believed that necessity was the mother of invention and improvements in farming would allow the worlds population to grow and resources to keep up.

Avoir	To have
J'ai	I have
Tu as	You have
Il/Elle a	He/She has
Nous avons	We have
Vous avez	You all have
Ils/Elles ont	They have

Etre	To be
Je suis	I am
Tu es	You are
Il/Elle est	He/She is
Nous sommes	We are
Vous êtes	You all are
Ils/Elles sont	They are

Regular ER verb endings. Remove the ER and add the following endings		For example Regarder= To watch
Je	-e	Je regarde
Tu	-es	Tu regardes
Il/Elle/On	-e	Il regarde
Nous	-ons	Nous regardons
Vous	-ez	Vous regardez
Ils/Elles	-ent	Ils regardent

Faire	To do
Je fais	I do
Tu fais	You do
Il/Elle/on fait	He/She does
Nous faisons	We do
Vous faites	You do
Ils/Elles font	They do

Aller	To go
Je vais	I go
Tu vas	You go
Il/Elle va	He/She goes
Nous allons	We go
Vous allez	You all go
Ils/Elles vont	They go

Negatives	
Negatives go around the conjugated verb	
ne…pas	not any
ne ….jamais	never
ne…rien	neither …..nor
ne…que	nobody, not anyone
ne…pas	not any, not a single

Most adjectives go after the noun they are describing. They need to agree with their noun.

Regular adjective endings

Feminine sing – e
Feminine plural – es
Masculine plural – s

Common adjective endings

Eur – euse
Eux - euse
If – ive
Ien - ienne

Adjective placement
These adjectives go before the noun

B – Beauty
A – Age
N – Number
G – Goodness
S - Size

The near future:

It is the equivalent of 'I am going to do' in English.

Pronoun + form of ALLER + infinitive
e.g. Je + vais + faire

Irregular adjectives

Beau/belle/beaux/belles bel before a masc sing noun
Vieux/vieille/vieux/vieilles vieil before a masc sing noun

Activiities on line		
Je lis mes messages.	I read my messages.	
Je poste des messages.	I post messages.	
Je mets à jour ma page perso	I update my page.	
Je télécharge des chansons	to download	
Je fais des quiz.	I do quizzes.	
Je joue à des jeux.	I play games.	
Je commente des photos.	I comment on photos.	
Je passe des heures…	I spend hours.	
On organise des sorties.	We organise outings.	
On partage des photos.	We share photos.	
Les réseaux sociaux	Social media/network	

Connectives and intensifiers		
très	very	
assez	quite	
un peu	a bit	
trop	too (much)	
vraiment	really	
parce que/ car	because	
donc	Therefore	
puis	Then	
ensuite	Next	
cependant	However	
tandis que	Whereas	
en plus	Also	

Adjectives to describe people		
ennuyeux(-euse)	boring	
barbant(e)	boring	
amusant(e)	fun	
drôle	funny	
marrant(e)	funny	
intéressant(e)	interesting	
arrogant(e)	arrogant	
beau/belle	beautiful	
charmant(e)	charming	
égoïste	selfish	
génial(e)	great	
casse-pieds	annoying	
sympa	nice	

Opinion structures		
À mon avis	In my opinion	
Le foot me plaît	I like football	
Je m'intéresse à	I'm interested in	
À mon avis	In my opinion	
Je pense que	I think that	
Je crois que	I believe that	
Je trouve que	I find that	
J'aime	I like	
J'adore	I love	
Je n'aime	I don't like	
Je déteste	I hate	
Mon père aime	My dad likes	
Mes amis adorent	My friends love	
On adore	We love	

Past tense verbs (passé composé)		
Je suis allé(e)	I went	
Je suis resté(e)	I stayed	
J'ai téléchargé	I downloaded	
J'ai bu	I drank	
J'ai fait	I did	
J'ai écouté	I listened	
J'ai joué	I played	
J'ai mangé	I ate	
J'ai regardé	I watched	
J'ai dansé	I danced	
C'était	It was	
Ce n'était pas	It wasn't	
Il faisait beau	It was nice weather	

Picture description		
Sur la photo	On the photo	
Je peux voir	I can see	
On peut voir	We/you can see	
Il y a	There is/are	
De plus je peux voir	Also I can see	
À gauche	On the left	
À droite	On the right	
Au centre	In the centre	
À l'arrière plan	In the background	
Au gros plan	In the foreground	
Il est en train de …	He is in the middle of	
Ils sont en train de …	They are in the middle of	

Der Tagesablauf – My daily routine		
Ich wache auf.	I wake up	
Ich stehe auf.	I get up.	
Ich wasche mich.	I get washed.	
Ich dusche mich.	I have a shower.	
Ich ziehe mich an.	I get dressed.	
Ich frühstücke.	I have breakfast.	
Ich gehe aus.	I go out.	
Ich komme zurück.	I come back.	
Ich esse zu Abend	I have dinner.	
Ich ziehe mich aus.	I get undressed.	
Ich gehe ins Bett.	I go to bed.	
Ich schlafe ein.	I go to sleep	

Was trägst du? – What are you wearing?		
Ich trage	*I wear/am wearing*	
einen kurzen Rock	*a short skirt*	
einen langen Mantel	*a long coat*	
einen schicken Anzug	*a smart suit*	
einen lockeren Kapuzenpulli	*a casual hoodie*	
eine weite Hose	*a baggy pair of trousers*	
eine schmale Jeanshose	*a pair of skinny jeans*	
ein kariertes Hemd	*a checked shirt*	
ein gepunktetes Kleid	*a spotty dress*	
ein gestreiftes T-Shirt	*a stripy T-shirt*	
schicke Stiefel	*smart boots*	

Zeitangaben – Time phrases		
wenn	when (if)	
immer	always	
zum Beispiel	for example	
zuerst	first of all	
seit	since (for)	
für	for	
möglich	possible	
pro Jahr	per year	
nächstes Jahr	next year	
teuer	expensive	
alle	all/everyone	
um .....zu	in order to	

Der Tagesablauf – My daily routine		
Ich mache mich fertig	I get myself ready	
Ich style mir die Haare	I style my hair	
Ich mache mir die Haare	I do my hair	
Ich putze mir die Zähne	I clean my teeth	
Ich schminke mich	I put make-up on	
Ich sehe mich im Spiegel an	I look at myself in the mirror	
Ich benutze ein Deo	I put deodorant on	
Ich wähle meine Kleider aus	I choose my clothes	

In der Jugendherberge - in the youth hostel		
die Hausordnung	rules of the house	
Man muss ...	You have to	
vor 22:00 Uhr ins Bett gehen.	go to bed before 10 o'clock.	
das Bett machen.	make the bed.	
das Zimmer sauber halten.	keep the room clean.	
vor acht Uhr aufstehen.	get up before eight o'clock.	
abwaschen.	wash up.	
Man darf nicht...	You must not	
rauchen.	smoke.	
im Zimmer essen.	eat in the room.	

Wie komme ich...? How do I get to ...?		
zum Bahnhof	*station*	
zum Park	*park*	
zur Bushaltestelle	*bus stop*	
zur Kirche	*church*	
zum Schwimmbad / zum Hallenbad	*swimming pool/ indoor swimming pool*	
zum Museum	*museum*	
zum Markt	*market (place)*	
zum Souvenir-geschäft	souvenir shop	

Adjective Endings Group 1 (after der etc)

	Männlich	Weiblich	Sächlich	Plural
Nom	Adj + e	Adj + e	Adj + e	Adj + en
Acc	Adj + en	Adj + e	Adj + e	Adj + en
Dat	Adj + en	Adj + en	Adj + en	Adj + en
Gen	Adj + en	Adj + en	Adj + en	Adj + en

Adjective Endings Group 2 (after eine, eine etc)

	Männlich	Weiblich	Sächlich	Plural
Nom	Adj + er	Adj + e	Adj + es	Adj + en
Acc	Adj + en	Adj + e	Adj + es	Adj + en
Dat	Adj + en	Adj + en	Adj + en	Adj + en
Gen	Adj + en	Adj + en	Adj + en	Adj + en

To use a regular present tense verb you need:

subject + **stem** + **ending**

Ich	I
Du	you
Er/Sie/Es	he/she/it
Wir	we
Ihr	you
sie	they
Sie	You (polite)

Chop the –en off the infinitive

For example:
machen
stem = mach

- **e**
- **st**
- **t**
- **en**
- **t**
- **en**
- **en**

Strong verbs have a vowel change in the stem for ***the du and er/sie/es forms only:***

a → ä
e → i
e → ie

	essen	***tragen***	***lesen***	***arbeiten***
ich	*esse*	*trage*	*lese*	*arbeite*
du	***i**sst*	*trägst*	*l**ie**st*	*arbeit**e**st**
er/sie/es	***i**sst*	*trägt*	*l**ie**st*	*arbeit**e**t**

müssen – to be have to/must		
ich muss	I have to	
du must	you have to	
er/sie/es/man muss	he/she/it/one has to	
wir müssen	we have to	
ihr müsst	you have to	
sie/Sie müssen	they/you have to	

dürfen – to be allowed to		
ich darf	I am allowed to	
du darfst	you are allowed to	
er/sie/es/man darf	he/she/it/one is allowed to	
wir dürfen	we are allowed to	
ihr dürft	you are allowed to	
sie/Sie dürfen	they/you are allowed to	

machen – to make, to do		
ich mache	I make/do	
du machst	you make/do	
er/sie/es/man macht	he/she/it/one makes/does	
wir machen	we make/do	
ihr macht	you make/do	
sie/Sie machen	they/you make/do	

-ar verb endings present			
-o		-amos	
-as		-áis	
-a		-an	

-er verb endings present			
-o		-emos	
-es		-éis	
-e		-en	

-ir verb endings present			
-o		-imos	
-es		-ís	
-e		-en	

Present tense ir (to go)		
voy	I am going	
vas	You are (s) going	
va	He/she is going	
vamos	We are going	
vais	You are (pl) going	
van	They are going	

Infinitives		
comer	to eat	
beber	to drink	
salir	to go out	
vivir	to live	
escribir	to write	
leer	to read	
vender	to sell	

tomar (to take) in the present tense			
tomo		tomamos	
tomas		tomáis	
toma		toman	

comer (to eat) in the present tense			
como		comemos	
comes		coméis	
come		comen	

vivir (to live) in the present tense			
vivo		vivimos	
vives		vivís	
vive		viven	

Common irregular verbs		
hago	I do	
tengo	I have	
soy	I am	
estoy	I am	
juego	I play	
puedo	I can	

The near future:

It is the equivalent of 'I am going to do' in English.

Form of 'ir' + a + infinitive
e.g. Voy + a + hacer

Regular –ar verb endings. • Remove the '–ar' and add the following endings			visitar (to visit) in the preterite tense		
Yo	-é		visité	I visited	
Tú	-aste		visitaste	you (s) visited	
Él/Ella	-ó		visitó	he / she visited	
Nosotros	-amos		visitamos	we visited	
Vosotros	-asteis		visitasteis	you (pl) visited	
Ellos/Ellas	-aron		visitaron	they visited	

'ir' (to go) in the preterite tense		
fui	I went	
fuiste	You went	
fue	He/She went **& it was**	
fuimos	We went	
fuisteis	You all went	
fueron	They went	

Describe la foto (Describe the photo)		
En la foto	On the photo	
Hay	There is/are	
Puedo ver	I can see	
A la izquierda / derecha	On the left / right	
En en centro / medio	In the centre	

The near future		
voy a comer	I am going to eat	
vas a beber	you are going to drink	
va a salir	he / she is going to go out	
vamos a vivir	we are going to live	
vais a escribir	you (pl) are going to write	
van a leer	they are going to read	

Time phrases		
normalmente	normally	
generalmente	generally	
todos los años	every year	
cada año	each year	
todos los veranos	every summer	
el año pasado	last year	
el verano pasado	last summer	
el año proximo	next year	
el año que viene	next year	
en verano	in the summer	
el verano que viene	next summer	

Locations		
está en el sur	It is in the south	
en el norte	in the north	
en el oeste	in the west	
en el este	in the east	
en el noreste	in the northeast	
en el suroeste	in the southwest	
en las montañas	in the mountains	
en el campo	in the countryside	
al lado del mar	on the seaside	
en el centro	in the centre	

¿Con quién fuiste? (Who did you go with?)		
fui con mi familia	I went with my family	
con mi clase	with my class	
con mis amigos	with my friends	
con mis padres	with my parents	

Activities in the infinitive form		
visitar monumentos	to visit monuments	
comprar una camiseta	to buy a t-shirt	
sacar fotos	to take photos	
montar en bici	to ride a bike	
descansar en la playa	to relax at the beach	
mandar SMS	to send texts	
bailar	to dance	
nadar en el mar	to swim in the sea	
tomar el sol	to sunbathe	
comer en muchos restaurantes	to eat in a lot of restaurants	
salir al centro	to go out to the city centre	
comprar en el mercado	to buy at the market	
ir a la playa	to go to the beach	
jugar al fútbol	to play football	

¿Qué tiempo hace? (What is the weather like?)		
hace buen tiempo	it's nice weather	
hace mal tiempo	it's bad weather	
hace calor/frío	it's hot/cold	
hace sol	it's sunny	
hace viento	it's windy	
llueve	it's raining	
nieva	it's snowing	
el tiempo es variable	the weather is variable	
hay niebla/tormenta	there's fog/a storm	
hay chubascos	there are showers	
está nublado	it's cloudy	
llueve a cántaros (idiom)	it's raining cats and dogs	

Adjectives		
tranquilo/a	quiet	
aburrido/a	boring	
grande	big	
pequeño/a	small	
ruidoso/a	noisy	
moderno/a	modern	
viejo/a	old	
tradicional	traditional	
limpio/a	clean	
sucio/a	old	
caro/a	expensive	
barato/a	cheap	

¿Cómo viajas? (How do you travel?)		
Viajo a pie	I travel on foot	
en coche	by car	
en avión	by plane	
en barco	by boat	
en tren	by train	
en motocicleta	by motorbike	
en autocar	by coach	
en bicicleta	by bike	

Countries		
Escocia	Scotland	
España	Spain	
Francia	France	
Gales	Wales	
Grecia	Greece	
Inglaterra	England	
Irlanda	Ireland	
Italia	Italy	

3.1.1.1 The structure and function of the Musculo-skeletal System (KO 1 of 3)

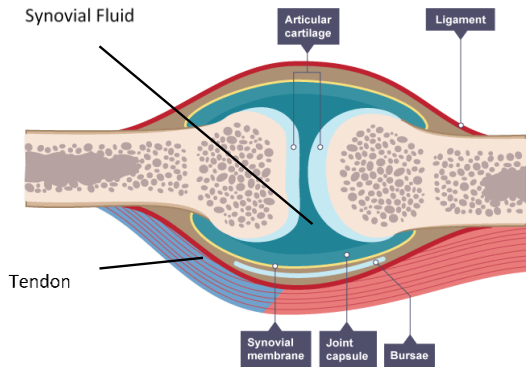
Types of Bones

FLAT bones	protect vital organs e.g. cranium protects your brain, ribs protect heart and lungs.
LONG bones	enable gross (large) movements e.g. femur, tibia and fibula in the leg which allow us to run, humerus, radius and ulna in arm which allows us to throw a ball.
SHORT bones	enable fine (small) movements e.g. fingers allowing you to spin a cricket ball.

Synovial Joint - Key Terms

Ligaments	Attaches bone to bone to keep the joint stable eg knee when kicking the ball or restricts movement/prevents movement to stop injury.
Cartilage	Found between bones and prevents friction by stopping the bones from rubbing together.
Synovial Membrane	Secrets synovial fluid.
Synovial Fluid	Is produced by the synovial membrane and helps lubricate the joint.
Joint Capsule	This is lined with synovial membrane. It encloses the joint making sure the cartilage and synovial fluid remain in place.
Bursae	Fluid filled sac providing cushion between bones and tendons. This stops friction at the joint.
Tendons	Attach muscle to bone. When a muscle contracts to move a joint, it is the tendon which pulls on the bone, keeps muscles/bones stable or holds join in place.

Synovial Joints



Head and Neck =	Cranium and Vertebrae
Shoulder =	Scapula and Humerus
Chest =	Ribs and Sternum
Elbow =	Humerus, Radius, Ulna
Hip =	Pelvis, Femur
Knee =	Femur, Tibia (Patella doesn't articulate)
Ankle =	Tibia, Fibula, Talus

Function of a Skeleton

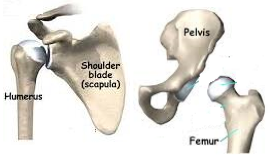
Support:	the bones are solid and rigid. They keep us upright and hold the rest of the body – the muscles and organs – in place.
Movement:	the skeleton helps the body move by providing anchor points for the muscles to pull against.
Structural shape and points for attachment:	the skeleton gives us our general shape such as height and build. The skeleton also provides anchorage points for the muscles to attach via tendons, so when muscles contract movement occurs.
Protection:	certain parts of the skeleton enclose and protect the body's organs from external forces e.g. the brain is inside the cranium. This function is especially important in activities that involve contact. E.g. rugby, boxing.
Production of Blood Cells:	the bone marrow in long bones and ribs produce red and white blood cells.
Mineral Storage:	bones store several minerals e.g. calcium, which can be released into the blood when needed.

Types of Joint & Bones of the Skeleton

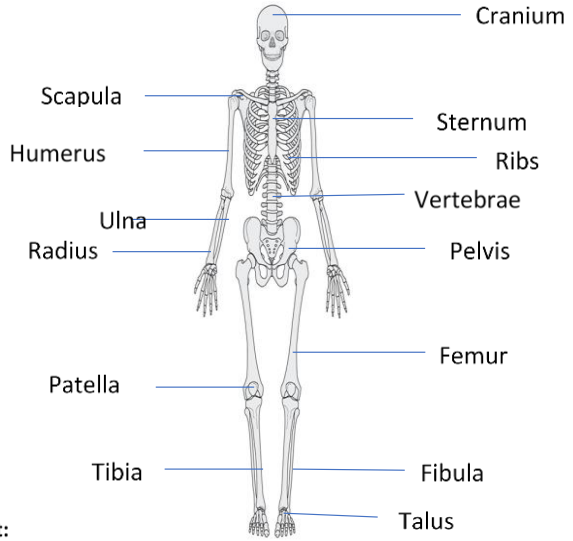
Hinge Joint

Location in Body: Knee and Elbow
Type of Movement Allowed by Joint: Flexion and Extension

Ball and Socket Joint



Location in Body: Shoulder and Hip
Type of Movement Allowed by Joint: Flexion, Extension, Adduction, Abduction, Rotation & Cirdumction



Keyword	Definition – read, cover, write, review
Clay ◯	Clay is a natural material made up of tiny particles of rock. When clay is mixed with enough water, it feels like soft, gluey mud. Unlike plain mud, however, clay holds its shape. Clay can be pinched, rolled, cut, or built up in layers to form shapes of all kinds.
Kiln ◯	A special oven that gets super hot to turn clay into ceramics.
Slip ◯	Used to join clay using a process of scoring and slip. This can be apply using your hands or a brush. It's made from soft clay and water mixed together to form a paste.
Score ◯	Is when you cross hatch the clay on the surfaces you want to join, this creates a rough area to they apply slip and join the two pieces together.
Coil ◯	Long thin role of clay made by rolling with your hands.
Pinch pot ◯	A bowl made by pinching a sphere of clay.
Slab ◯	A flat "pancake" of clay made hands, a rolling pin or clay press.
Glaze ◯	Is what you paint onto clay when it is fired it becomes glassy.
Ceramics ◯	Is the word for fired clay.
Pottery ◯	Is a ceramic container like a bowl.
Bisque ◯	Clay has been fired once, it can now be glazed or painted.
Bone dry ◯	Room temperature, ready to be fired.
Glaze ware ◯	A ceramic piece that has had glaze applied and has gone through the second firing process.

◯ Please tick circle once you have learnt the definition

When working with clay

- ◯ Clay must be thoroughly covered up with PLASTIC to keep it from drying out. This applies to works in progress and wet clay.
- ◯ Clay DUST is harmful to breathe in if you are exposed to it for long periods of time, because it contains SILICA.
- ◯ Clay can be no thicker than your thumb. For clay to stick together it must be scored and slipped together while the clay is moist or leather hard.
- ◯ Tool selection – practise textures on a piece of scrap clay or purpose roll out clay to use as experiments, this will inform AO2.

◯ Slats and roller-slats are used to enable you to roll out an even slab of clay.

Purpose of Business		☑
Definition: Factors of production are the resources that business use to provide their goods and services		
Land	the natural resources used in the production of a product such as water, oil, fields or wood.	
Labour	the people that work in the business such as teachers, joiners, builders or doctors	
Capital	the money and equipment used to produce the product or service such as machinery or delivery trucks.	
Enterprise	having an idea of how to use the land, labour and capital to make a profit.	

Business Enterprise and Entrepreneurship		☑
Characteristics of an entrepreneur:	1. Hard working 2. Innovative 3. Organised 4. Willingness to take risks	
Objectives of an entrepreneur:		
1. Flexible working hours 2. To pursue an interest 3. Earn more money 4. Identify a gap in the market 5. Dissatisfaction with current job 6. Be their own boss		

Reasons for starting a business	☑
1. Producing goods 2. Supplying services 3. Distributing products 4. Fulfilling a business opportunity 5. Providing a good or service to benefit others	

Definitions		☑
Good	A physical product such as a car	
Service	An intangible product such as financial advice or a hair cut	
Need	Something that needs to be fulfilled in order for survival	
Want	Products we would like to have that are not essential	
Factors of production	Resources required to produce goods and services. These include Land, Labour, Capital and Enterprise	
Opportunity cost	The benefit lost from the next best alternative foregone	
Primary industry	Made of organisations that use and extract raw materials.	
Secondary industry	Made of organisations that use raw materials in the production of goods.	
Tertiary Industry	Made of organisations who provide a service	
Entrepreneur	Someone who is willing to take risks with the reward of profit.	
Enterprise	The process of identifying and taking advantage of business opportunities.	

Basic functions and types of business		☑
Four main function of a business	Marketing, Operations, Human Resources, Finance	
There are three main types of business. They operate in the following sectors:	Primary e.g. Farming Secondary e.g. Manufacturing cars Tertiary e.g. Financial Advice	

Dynamic Nature of Business	☑
Business face a constantly changing business environment due to changes in:	
1. Technology 2. Economic situation 3. Legislation 4. Environmental expectations	

Different Legal Structures					
Anyone starting up a business needs to think about what business ownership they will have.					
Legal Structure	**Definition**	**Advantages**	**Disadvantages**	**Examples**	
Sole trader	An Entrepreneur who sets up a business own their own.	Quick and easy to set up The owner keeps all profits The entrepreneur is their own boss	Unlimited liability Sole trader is required to be a specialist in all business functions Lack finance	Gardener Hari dresser Photographer	
Partnership	Two or more people entrepreneurs join together in a business enterprise	Share workload & skills Access to increased sources of finance	Unlimited liability Conflict between partners Slower decision making	Law firm Accountants	
Private Limited Company	A company that has shareholders who are sold shares privately	Limited liability Increased source of finance from share issues	Complicated to set up Financial documents are published Increased stakeholders	Medium size business LTD after the company name	
Public Limited Company	A company where shares are sold to the public via the Stock Exchange.	Access to high numbers of investors High status	Risk of hostile takeover Controlled by greater legislation Conflict between shareholders	Tesco Tesla	
Not for profit organisation	Set up to achieve objectives other than profit.	Access to grants and tax relief Good publicity	Rely on donations so income is unpredictable Reliance on volunteers	Oxfam Local sports team WWF	

Definitions		
Unlimited liability	Personal possessions of the owners of a business are at risk if the business accrues debt.	
Limited Liability	The owners of the business are only liable for the debts of the business up to the amount they invested.	
Dividend payment	Proportion of profit paid to shareholders.	
Deed of partnership	An agreement between partners that sets out the rules of the partnership such as voting rights.	
Shareholder	A person or organisation that owns part of a company.	

2.2 Programming Fundamentals

Keyword	Definition / Example	Tick
Variable	A label/identifier which is used to identify a memory location used to store a value that *can be changed* while the program is running.	
Constant	A label/identifier which is used to identify a memory location used to store a value that *cannot be changed* while the program is running.	
Input	Data sent to a computer to be processed. `name = input("Please enter your name.")`	
Output	Processed information that is sent out from a computer. `print("Hello world!")`	
Assignment	The allocation of data values to variables, constants, arrays and other data structures so that the values can be stored. `answer = 6 + 7`	
Data Types	Determines what type of value the variable will hold. *Integer* – Whole number: `age = 12` *Real / float* – Number that *can* have a fractional part: `height = 1.52` *Character* – A single letter, symbol or number: `letter = 'a'` *String* – Multiple characters: `name = "Bart"` *Boolean* – Has two values: true or false.: `a = True` `b = False`	
Arithmetic operators	Mathematical functions that take two operands and performs a calculation on them. *Add*: `7 + 2 = 9` — OCR Ref. `7 + 2` *Subtract*: `7 - 2 = 5` — OCR Ref. `7 - 2` *Multiply*: `7 * 2 = 14` — OCR Ref. `7 * 2` *Divide*: `4 / 2 = 2` — OCR Ref. `4 / 2` *Power*: `2 ** 3 = 8` — OCR Ref. `2 ^ 3` *Integer/floor division*: `7 // 2 = 3` — OCR Ref. `7 DIV 2` *Modulus*: `7 % 2 = 1` — OCR Ref. `7 MOD 2`	

2.2 Programming Fundamentals

Keyword	Definition / Example	Tick
Relational operators	Allow the comparison of values. *Less than* `<` `7 < 2` `False` *Greater than* `>` `7 > 2` `True` *Equal to* `==` `7 == 2` `False` *Not equal to* `!=` `7 != 2` `True` *Less than or equal to* `<=` `7 <= 2` `False` *Greater than or equal to* `>=` `7 >= 2` `True`	
Casting	Convert from one data type to another. Python: `str()` / OCR Ref.: `str()` / Converts to: `String` Python: `int()` / OCR Ref.: `int()` / Converts to: `Integer` Python: `float()` / OCR Ref.: `real()` / Converts to: `Real`	

Sequence	This programming construct represents a set of steps. Each line of code will have some operation and these operations will be carried out in order line-by-line.
	`a = 1`
	`b = 2`
	`c = a + b`
	`print(c)`	

Selection (definition)	This programming construct is used to make decisions in a program based on the result of a Boolean condition.	

Selection (example)	**Python**
	`if value > 50:`
	`  print("Over 50")`
	`elif value >= 20:`
	`  print("20 or over")`
	`else:`
	`  print("Under 20")`
	OCR Ref.
	`if value > 50 then`
	`  print("Over 50")`
	`elseif value >= 20 then`
	`  print("20 or over")`
	`else`
	`  print("Under 20")`
	`endif`	

2.2 Programming Fundamentals

Keyword	Definition / Example	Tick
Array	A data structure that stores a collection of values with the same data type under one name/identifier. Each value is called an element and is accessed by an index position.	

1D array	A row of data values stored under one name.
	
	`names = ["Bob", "Tom", "Fred"]`
	`print(names[2]) #Outputs Fred`	

2D array	Represents a table structure with rows and columns.
	Python
	`class = [["Bob", "Tom", "Fred"],`
	`["Joe", "Shirley", "Steven"]]`
	`print(class[1][0]) #Outputs Joe`
	OCR Ref.
	`class = [["Bob", "Tom", "Fred"],`
	`["Joe", "Shirley", "Steven"]]`
	`print(class[1,0]) #Outputs Joe`	

Iteration (definition)	This programming construct used to repeat sections of code a number of times.	

Iteration – count controlled	FOR loops are used when we know beforehand the exact number of iterations we wish to make.
	Python
	`#Outputs 1-10`
	`for count in range (1,11):`
	`print(count)`
	OCR Ref.
	`#Outputs 1-10`
	`for count = 1 to 10`
	`print(count)`
	`next count`	

2.2 Programming Fundamentals

Keyword	Definition / Example	Tick

Iteration – condition controlled	WHILE loops are used when the we do not know beforehand the number of iterations needed and this varies according to some condition.
	Python
	`continue = "Y"`
	`while continue == "Y":`
	`continue = input("Continue?")`
	OCR Ref.
	`continue = "Y"`
	`while continue == "Y"`
	`continue = input("Continue?")`
	`endwhile`	

Concatenation	The action of joining strings together. `print("Hello " + name + "!")`	

Subject	Term	Definition/how it links to new technologies	
Industry	Industry	Tasks/activities are carried out much quicker and more efficiently and this then reduces costs and improves the quality of products.	☐
	Demographic movement	The way in which the population's structure changes, for example as a result of an ageing community or migration into an area.	☐
	Science and Technology parks	When STEM businesses associate with a particular centre/place of knowledge such as a university or research organisation.	☐
Enterprise	Small enterprise	An enterprise is a business which is started by a person(s) who has shown the initiative for a new product.	☐
	Crowd funding	This is the method of raising money/funds from many people for an enterprise – usually via online platforms.	☐
	Government funding	Loans given by governments for new businesses which have lower interest rates.	☐
	Not for profit	When organisations reinvest the money they make (donations) into their chosen cause i.e. healthcare apps on phones/charity work etc.	☐
Sustainability	Sustainable technologies	These are technologies which have been driven by environmental awareness and the rising costs of fossil fuels.	☐
	Pollution	Companies have an economic and environmental responsibility to keep pollution to a minimum by using new technologies available.	☐
	Waste generated	This is the waste produced during manufacture of a product and the manufacturing inefficiencies.	☐
People	Workforce	Technology has allowed some people to choose how they work i.e. working from home remotely.	☐
	Children	Technology can offer rich opportunities for education and entertainment – developing children's academic and practical skills.	☐
People	Wage levels	The higher the skilled worker with their technology = the higher the wage. Companies may need to pay more to attract staff with these skills.	☐
	Highly skilled workforce	Technology leads to more automation or repetitive production systems that were previously labour intensive jobs. Demand is now growing, instead, for highly skilled managers and professionals.	☐
	Apprenticeships	Manual trades are enhanced by new technologies, new technologies can create training opportunities for apprentices.	☐
Culture	Population movement within the EU	This refers to the movement of people from one permanent home to the other and is very common within the EU. This movement may start to change now due to the Brexit. Immigrants can bring energy, innovation and experience in different skills sets.	☐
	Social segregation	When groups of people purposefully disassociate themselves from the majority of others.	☐
Society	Internet of things	The system of interrelated devices that are connected via the internet i.e. a home's heating can be remotely turned on via an app.	☐
	Video conferencing	A two-way audio video telecommunication to allow people to connect from 2 or more sites for a meeting.	☐
Environment	Waste disposal	Businesses need to manage their waste by trying to eliminate it through the use of new technologies/thinking of ways to make it more biodegradable.	☐
	Material separation	Technology has been developed so it can separate materials for waste and recycling so fewer raw materials are being extracted.	☐

Quantity production	Description	Examples/uses	Advantages	Disadvantages
One-off ☐	A single, unique product is made by skilled workers.	• Custom built products (i.e. built-in wardrobes, engagement rings etc.) • Complex, large scale products (i.e. yachts)	• High quality products • Bespoke to the client/special (fits their exact specification)	• High cost (due to materials & highly skilled labourers) • Labour intensive • Long production times
Batch ☐	A set quantity of the same product is made, for a limited time.	• Olympic medals • Books with a limited print run • White goods • Fashion/clothing for boutiques	• Reduces inventory/storage space • Can use manufacturing aids i.e. jigs, formers, templates etc.	Downtime needed in-between different batches for reconfiguring
Mass ☐	When 1000s of the same product are made.	• Cars • Toys • Apple products	• Lots of automation • Cheap to produce once set up • Quick to make (cars in 48 hours!)	• High initial set up costs • Repetitive (for workers) • If production line breaks, manufacture is halted
Continuous ☐	When products are constantly manufactured 24 hours a day.	• Sheet materials (i.e. glass, paper etc.) • Standard/everyday components (i.e. screws, bolts etc.)	• Lots of automation • Cheap to produce once set up • Quick to make • Good profit	• Automation can lead to staff redundancy • Low flexibility in designs

Production technique	Description	Examples/uses	Advantages	Disadvantages
Lean manufacturing ☐	A philosophy which aims to reduce waste in design, manufacture and distribution. Multi-skilled teams used to oversee production of individual parts.	• Car manufacturing	• Collaboration amongst staff and departments • Efficiency improved • Higher quality products • Waste is reduced = more profits	• Needs disruptive changes to existing processes to make lean changes • Time consuming data analysis to set up
JIT production ☐	Uses computerised stock control and ordering so that parts only arrive at each stage of the production line as they are needed.	• Car manufacturing	• Increases efficiency • Cost saving no storage needed • Reduces waste	• A break in the chain stops the whole of production • Higher delivery costs (due to lots of them)
Standardised components ☐	Same components/modular systems in design. Manufactured in large numbers.	• Clock parts • Drawer runners • Hinges	• QC checks are carried out by the manufacturer • Consistency in products • Can buy in bulk for cheaper	• Needs disruptive changes to existing processes if they are to be changed • Cannot be modified – all are the same

Term	Definition/how it might effect future generations
Natural disasters	E.g. floods, earthquakes, etc. New technologies can help predict natural disasters, reduce the impact of disasters by designing to withstand them, and help recovery from disasters. ☐
Medical advances	E.g. artificial organs, implants and prosthetic limbs; medical equipment such as magnetic resonance imaging (MRI) scanners. These help to diagnose illnesses. Although advances help people live longer, this creates a need to support the elderly. ☐
Travel	Even with technological advances, travel has not become significantly quicker over the last 50 years. Most forms of transport are now comfortable, efficient and safe but environmental impact is a concern. ☐
Global warming **(Climate change)**	Caused by emission of greenhouse gases, especially burning fossil fuels. New technologies provide new sources of energy, low-carbon and zero-carbon technologies, allowing sustainable development. ☐
Communication	This is now cheap, quick, global and easy because of the internet but designers should not assume that the target audience has access to the hardware, software, infrastructure and power sources needed. Is there another way we can communicate without using the internet? Is there a cost effective way to allow everyone access to the internet? ☐

Carbon footprint

What does this mean?

Carbon footprint refers to the amount of harmful gases released during the life of a product.

How can companies reduce their carbon footprint?

- Recycling waste
- Using renewable energy
- Identifying carbon offsetting methods that will reduce the overall amount of emissions
- Use biodegradable materials
- Maximising energy efficiency

☐

Manufacture & transportation

What does this refer to?

The extraction, transportation and emissions of fossil fuels harm the environment. Renewable resources can even harm the environment by impacting on habitats.

Transporting goods burns petroleum, so companies should use energy-efficient vehicles to distribute . Making energy cleaner tends to cost more but reduces the environmental cost.

☐

Life-cycle analysis (LCA)

What is an LCA?

These should be carried out by designers when developing an idea. They are used to predict and evaluate how much of an impact a product has on the environment.

What are the main stages of an LCA?

- Raw material extraction
- Material processing
- Manufacturing
- Assembly
- Usage
- End of life

☐

Source	What it is & how it is converted/used	Advantages	Disadvantages
Biomass ☐	• Organic matter such as wood, crops, rubbish, landfill gas • Can be burnt to produce heat or converted to electricity	• Uses waste products	• Large areas needed to cultivate crops • Emits fumes that add to global warming
Biodiesel ☐	• Made from plants, vegetables and fermented waste cooking oil • Can be used in diesel powered vehicles without modifying the engine	• Uses waste products • Does not give off harmful chemicals	• Large areas needed to cultivate crops
Tidal ☐	• Turbines turned by tidal movement of water, generating electricity • Artificial barriers constructed on tidal rivers, bays, estuaries, trapping water	• No emissions • Very powerful • Predicable & stable • Barriers can be use as bridges	• Low energy output • Barriers have ecological impact • Expensive to build • Limited places to build
Wind ☐	• Turbines turned by propeller blades, creating electricity through a generator	• Freely available • Can be used in remote areas • No emissions	• Can restrict shipping if placed at sea • Wind is unpredictable • Often regarded as unsightly • Expensive to set up
Solar ☐	• Photovoltaic cells convert sunlight into electricity • Thermal plants heat fluid, which then turn water to steam, driving turbines and generating electricity	• Reliable source in warmer countries • Can be small scale for homes • More electricity in stronger sunshine	• Can impact ecology when large solar farms replace traditional • Expensive to set up • Power generated depends on location
Hydro-electric ☐	• Dam built to trap water, which turns turbines and generators	• Large amount of low-cost power • Can be used as water reserve	• Expensive to set up • Construction may harm the environment.

Type	How converted to energy	Advantages	Disadvantages
Coal  ☐	Heat and hot gases convert water into steam which is used to turn a turbine, which creates high voltage electricity.	• Generates stable, large-scale and high-power electricity • Relatively cheap to extract and convert • Reliable	• Coal power plants emit pollution • Technologies to reduce emissions are expensive • Coal mining has a big impact on the environment
Oil  ☐	In power plants oil products are burnt to heat water into steam, which turns turbines to produce electricity.	• Generates stable, large-scale and high-powered electricity • Relatively cheap to extract and convert	• Oil power plants are highly polluting • Oil exploration impacts on the landscape • Oil extraction risks environmental disasters
Gas  ☐	Burning gas powers turbines; waste heat used to turn steam turbines. It has lower emissions that other fossil fuels – half the rate of coal.	• Generates stable, large-scale and high-powered electricity • Relatively cheap to extract and use as ready-made fuel • Cleaner that oil or coal	• Burning gases is still highly polluting.

Name: Date:

Year 9 Health and Safety and Hygiene

- Good food safety and hygiene practices are essential to reduce the risk of food poisoning.

Food poisoning

Food poisoning can be caused by:

- bacteria, e.g. through cross-contamination from pests, unclean hands and dirty equipment, or bacteria already present in the food, such as salmonella;
- physical contaminants, e.g. hair, plasters, egg shells, packaging;
- chemicals, e.g. cleaning chemicals.

Bacterial contamination is the most common cause.
Microorganisms occur naturally in the environment, on cereals, vegetables, fruit, animals, people, water, soil and in the air. Most bacteria are harmless but a small number can cause illness.
Harmful bacteria are called pathogenic bacteria.
The process of food becoming unfit to eat through oxidation, contamination or growth of micro-organisms is known as food spoilage.

Bacterial growth and multiplication

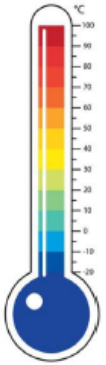
Most bacteria, including those that are harmful, have four requirements to survive and grow:

- food;
- moisture;
- warmth;
- Oxygen

Temperatures to remember

To reduce the risk of food poisoning, good temperature control is vital:

- 5-63°C – the danger zone where bacteria grow most readily.
- 37°C – body temperature, optimum temperature for bacterial growth.
- 0-5°C – operating range of your fridge
- 75°C – if cooking food, the core temperature, middle or thickest part should reach at least this temperature.
- 75°C – if reheating food, it should reach at least this temperature. Remember to reheat food only once!
- 18 Degrees C correct temperature for a freezer.



Allergen and food intolerance awareness

There are 14 ingredients (allergens) that are the main reason for adverse reactions to food. Cross-contamination of food containing these allergens must be prevented to reduce the risk of harm. They must also be labelled on pre-packaged food and menus so that consumers can make safe choices. The 14

Celery (and celeriac)	Milk
Cereals containing gluten	Molluscs
Crustaceans	Mustard
Eggs	Nuts
Fish	Peanuts
Lupin	Sesame
	Soybeans
	Sulphur dioxide

Where should food be stored in the fridge?

Cheese, dairy and egg-based products
The temperature is usually coolest and most constant at the top of the fridge, allowing these foods to keep best here.

Cooked meats
Cooked meats should always be stored above raw meats to prevent contamination from raw meat.

Raw meats and fish
Raw meats and fish should be below cooked meats and sealed in containers to prevent contamination of salad and vegetables.

Salad and vegetables
These should be stored in the drawer(s) at the bottom of the fridge. The lidded drawers hold more moisture, preventing the leaves from drying out.

Key terms

Allergens: Substances that can cause an adverse reaction to food. Cross-contamination must be prevented to reduce the risk of harm.
Bacteria: Small living organisms that can reproduce to form colonies. Some bacteria can be harmful (pathogenic) and others are necessary for food production, e.g. to make cheese and yogurt.
Cross-contamination: The transfer of bacteria from one source to another. Usually raw food to ready-to-eat food but can also be the transfer of bacteria from unclean hands, equipment, cloths or pests. Can also relate to allergens.
Food poisoning: Illness resulting from eating food which contains food poisoning micro-organisms or toxins produced by micro-organisms.
High risk ingredients: Food which is ready to eat, e.g. cooked meat and fish, cooked eggs, dairy products, sandwiches and ready meals. These are usually moist high protein foods but can include those kept warm on hotplates like Gravies, soups and stews.

High risk food

Bacteria easily multiply on foods known as 'high-risk food'. These are often high in protein or fat, such as cooked meat and fish, dairy foods and eggs. Cooked pasta and rice are also regarded as high risk foods if they are not cooled quickly after cooking and stored below 5°C.

Moisture

Bacteria need moisture to survive. Dried foods, such as powdered milk, cereals or dried egg do not support bacterial growth, if properly stored. However, if moisture is added, any bacteria still alive can quickly begin to multiply.

Time

When bacteria spend enough time on the right types of food, at warm temperatures, they multiply and cause illness. They multiply by Binary Fission.
Reheat food only once and eat leftovers within 48 hours.

Getting ready to cook

- Remove blazers/jumpers and roll up long sleeves.
- Tie up long hair and tuck in ties or head coverings.
- Thoroughly wash and dry hands.
- Put on a clean apron.

Use-by-date

You've got until the end of this date to use or freeze the food before it becomes too risky to eat. These are usually high risk foods.

USE BY:

25/08/20

KEEP REFRIGERATED

Best-before-date

You can eat food past this date but it might not be at its best quality.

BEST BEFORE:

25/08/21

STORE IN A COOL DRY PLACE

Food poisoning Bacteria e.g.
Salmonella
Listeria
E-Coli
Campylobacter
Bacillus Cereus
Staphylococcus aureus
Clostridium perfringens
These are all Pathogenic bacteria.

People at risk

Elderly people, babies and anyone who is ill or pregnant needs to be extra careful about the food they eat.

Why clean?

To remove grease, dirt and grime, and prevent food poisoning and pests. Dirty surfaces and equipment encourage flies etc

Symptoms of food poisoning

The symptoms of food poisoning include:

- nausea;
- vomiting;
- stomach pains;
- diarrhoea.

Chopping boards- White- Dairy and Bakery.
Red – raw meat Blue- Raw Fish
Yellow- Cooked Meat
Brown- Vegetables
Green- Fruit

Knife Safety- Different knives are used to cut and chop all sorts of foods, it is imperative to use the right knife for the right job and to ensure the correct hold, either the bridge or the claw.
Paring Knife-Fruit and Vegetables
Palette knife- spreading mixtures
Table knife- spreading and mixing liquid into dry mixtures.
Filleting knife – flexible blade to cut flesh from fish bones.
Chef's Knife- cutting meat etc
Serrated edge carving knives- cutting bread etc

Health and Safety- Before using electrical equipment- Ensure all plugs are secure and cables are intact. Food processors, blenders and deep fat fryers should be on a level surface, do not over fill them. Do not allow cables and leads to become a trip hazard.
Do not allow electrical components near to water, only wipe these parts down with a damp cloth. Be careful of sharp blades when cleaning them.
When using hand held electric whisks ensure loose garments and hair are tied away.

Typography terms

Keyword	Definition	tick
Script	Script typefaces are fonts or type based upon historical or modern handwriting styles and are more fluid than traditional typefaces.	
Slab serif	Slab serif fonts feature a geometric feel compared to traditional serif fonts and feature serifs that are square and larger, bolder.	

Though there are no set rules for when to use a serif or sans serif font, [it's suggested that](#) sans serif fonts should be used for online body text and serif fonts for headlines and print. Use script and fantasy fonts for accents or large headlines with very few words.

abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
0123456789 (!@#$%&.,?:;)

abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ
0123456789 (!@#$%&.,?:;)

Keyword	Definition	Tick
Typography	Typography is the visual component of the written word,". All visually displayed text, whether on paper, screen or billboard, involves typography.	
Kerning	Kerning refers to the space between two specific letters (or other characters: numbers, punctuation, etc.) and the process of adjusting that space improves legibility.	
Tracking	Tracking is similar to kerning in that it refers to the spacing between letters or characters. However, instead of focusing on the spacing between individual letters (kerning), tracking measures space between groups of letters.	
Hierarchy	Typographic hierarchy is an essential part of any design or layout and even if you're not familiar with the term, you'll be sure to have seen hierarchy in action on any website, newspaper or magazine.	
Lorum Ipsum	Lorem Ipsum is simply dummy text used by the design industry. It's used as placeholder text and has a more-or-less average distribution of letters, making it look like readable English, as opposed to using 'Add content here, add content here' within designs when the copy isn't quite ready.	
Sans serif	A serif is the little extra stroke or curves, at the ends of letters.	
Sans	"Sans" literally means "without", and a sans serif font does not include any extra stroke at the ends of the letters.	
Ascender / Descender	The ascender is the portion of a lowercase letter that extends above the mean line of a font *(the x-height)*. On the other hand, the descender is the portion of a letter that extends below the baseline of a font.	
X-height	The x-height refers to the distance between the baseline and the mean line of lower-case letters in a typeface	

Keyword	Learn	✓
Transition	The process or a period of changing from one state or condition to another:	
Skill	Something you can learn or develop through practice that can help you succeed.	
Quality	A personal characteristic, attribute or personality trait.	
Transferrable skills	Skills and abilities that are relevant and helpful across different areas of life: socially, professionally and at school.	
Revision	Repeatedly, over a long period of time, actively engaging with the knowledge, skills and understanding	
Positive peer pressure	A feeling that you must do something beneficial due to the influence of your friends, age group or classmates in order to be liked.	
Negative peer pressure	A feeling that you must do something dangerous, risky or harmful due to the influence of your friends, age group or classmates in order to be liked.	
Cyber-bullying	Bullying that takes place via mobile phones, social media or online.	
Homophobic language	Language used as a form of abuse towards the LTGB+ community - the language is often directed at someone or something perceived to be inferior.	

Some useful websites:
https://www.bbc.co.uk/bitesize/articles/zw8qpbk
https://www.childnet.com/young-people/
https://www.childline.org.uk/
https://www.bournemouth-school.org/255/report-a-concern

Personal Development is
Personal – to do with ourselves
Relationships – how we relate to others and how they relate to us
Sex – how we interact and relate to others in a sexual sense
Health – about looking after our bodies, mentally and physically
Careers – how we plan and develop our careers
Economics – all about managing our money (the E also stands for education too)

Characteristics of a good friend:
Regardless of the situation they will:

- support and encourage you to act in a positive manner
- be trustworthy and honest
- listen to you as you would listen to them.
- accept you for who you are.
- respect you and your boundaries.
- Forgive you where they can
- Accept your forgiveness when they mess up

What should you do if you are bullied or see bullying?
- Do not put up with it or just accept it
- Get help, talk to a friend, report it to a teacher, your parents or another adult

PD Classroom Rules

Openness: Be open and honest. However, do not discuss others' personal/private lives - try to use examples.
Keep the conversation in the room: You should feel safe discussing issues and be confident that your contributions will not be shared outside this room. If your teacher has concerns that someone is at risk of harm they have a duty to refer.
Non-judgmental approach: It is okay for us to disagree with another person's point of view but do not judge, make fun of, or put anybody down. - 'challenge the opinion, not the person'.
Right to pass: Taking part is important. However, you have the right to pass on answering a question and you will not put anyone 'on the spot'.
Make no assumptions: Do not make assumptions about people's values, attitudes, behaviours, identity, life experiences or feelings. Listen to other people's views respectfully and expect to be listened to.
Use appropriate language: Use the correct terms rather than slang terms - they can be offensive.
Ask questions: You are encouraged to ask questions. However, do not ask personal questions or say anything to embarrass someone.

How long should I spend on my homework?

Monday		Tuesday		Wednesday		Thursday		Friday	
Maths	15	Maths	15	Maths	15	Maths	15	Free Choice	15
English	15	English	15	English	15	English	15	Free Choice	15
Science	15	Science	15	Science	15	Science	15	Free Choice	15
MFL	15	MFL	15	MFL	15	MFL	15	Free Choice	15
Hums	15	Hums	15	Hums	15	Hums	15	Free Choice	15
Free Choice	20	Free Choice	20	Free Choice	20	Free Choice	20	Free Choice	20
Reading	25	Reading	25	Reading	25	Reading	25	Reading	25

- You should spend a maximum of 2 Hours revising each day.
- You can decide what you revise in each slot that is called Free Choice. You can do this at the start of the year and have a fixed plan or you can decide on each day based on how well you feel you know your Knowledge Organisers.

Timetable

	1Mon	1Tue	1Wed	1Thu	1Fri	2Mon	2Tue	2Wed	2Thu	2Fri
Reg										
1										
2										
Break										
3										
4										
Reg										
Lunch										
5										
6										