Hartford Church of England High School

CARITAS ET VERITAS

Year 11
Knowledge
Organiser

Contents

Maths

Indices:

$$a^m \times a^n = a^{m+n}$$

$$a^m \div a^n = a^{m-n}$$

$$x^0 = 1$$

$$(x^a)^b = x^{ab}$$

Standard form
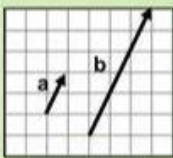
Any number between 1 and less than 10

$$A \times 10^n$$

Any integer

Vectors:

$$\binom{a}{b} + \binom{c}{d} = \binom{a+c}{b+d}$$

$\binom{a}{b}$ a moves right/ left

b moves up/ down

Parallel Vectors

$a = \binom{1}{2}$

Vectors are parallel if one is the scalar multiple of the other.

$a = \binom{1}{2} \times 3 \quad b = \binom{3}{6}$

$b = \binom{3}{6}$

Translations
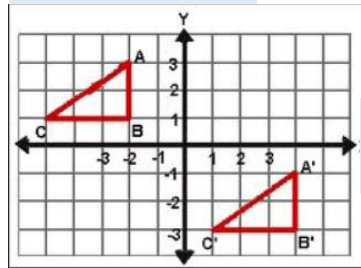
Describe with a vector

$\binom{3}{2}$ Squares right/left
Squares up/down

Transformations
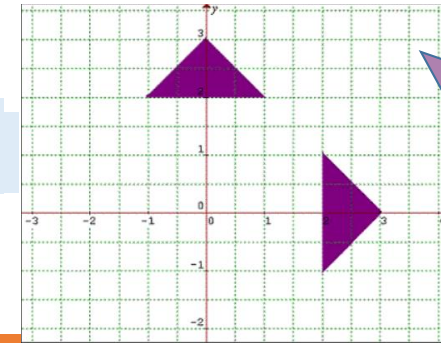
Rotation

To describe a rotation you need:
- The angle of rotation
- The direction
- The coordinates of the centre

Reflection

Describe with a line of symmetry

Reflection in the line y=1

Use tracing paper for reflection and rotation

Enlargement

To describe an enlargement you need:
- Scale factor
- Centre of enlargement

Capture recapture:

$$N = \frac{MC}{R}$$

Where:
N = Size of the population
M = Number of fish tagged
C = Number of fish sampled
R = Number of tagged fish in the sample.
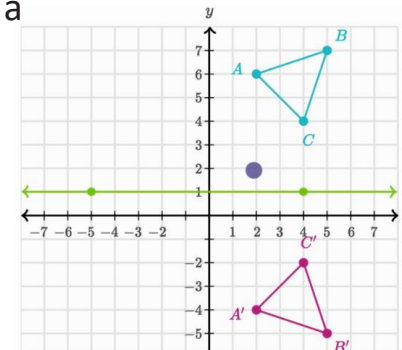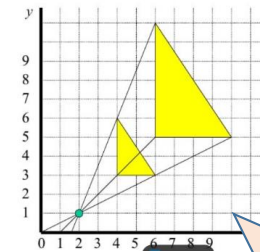
Speed Distance Time

Speed = $\frac{Distance}{Time}$

Distance = Speed x Time

Time = $\frac{Distance}{Speed}$

Force Area Pressure

Pressure = $\frac{Force}{Area}$

Area = $\frac{Force}{Pressure}$

Force = Area x Pressure

Mass Density Volume

Volume = $\frac{Mass}{Density}$

Density = $\frac{Mass}{Volume}$

Mass = Density x Volume

Histograms:
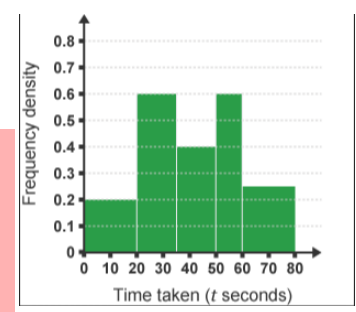
frequency density = $\frac{frequency}{class\ width}$

Velocity Time Graphs

www.cazoommaths.com

Horizontal line shows constant speed

Steeper gradient shows quicker acceleration

Sloped downwards gradient shows constant deceleration

TOTAL AREA UNDER THE GRAPH REPRESENTS DISPLACEMENT

Sloped upwards gradient shows acceleration

Boxplots:

(Lower quartile) Q_1 (Median) Q_2 (Upper quartile) Q_3

Lowest value   Highest value
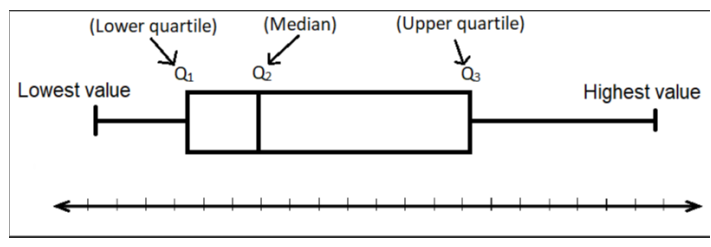
Lower quartile = 25% of the data
Upper quartile = 75% of the data
Interquartile range = upper quartile - lower quartile
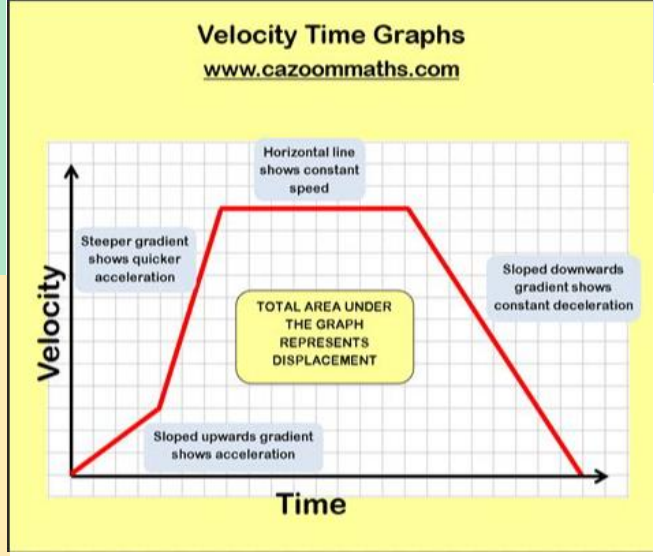
$f(x) \pm d$	**Shifts the graph up/down d units**
$f(x \pm d)$	Shifts the graph right/left d units
$-f(x)$	Reflects in the x axis
$f(-x)$	Reflects in the y axis

Reciprocal Graphs $y = \frac{a}{x}$

Reciprocal graphs have 2 asymptotes

Highest power is -1

Exponential Graphs $y = a^x$

Exponential graphs have 1 horizontal asymptote

Highest power is x

English

Hartford Church of England High School — CARITAS ET VERITAS

Language Paper 1: Reading

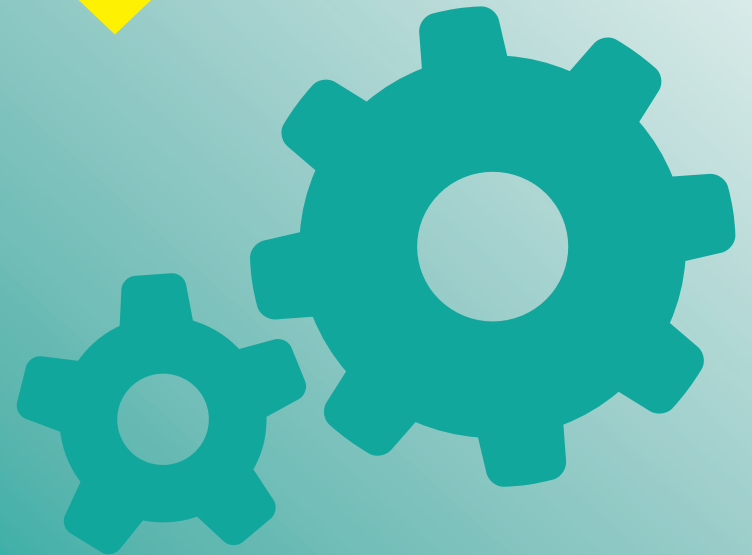| Q2/ 4 Word class	Definition	Example
Verb	A **verb** is a word or set of words that shows action (*runs, is going, has been painting*); feeling (*loves, envies*); or state of being (*am, are, is, have been, was, seem*)..	The normally subdued child, <u>tore</u> off the wrapping paper and <u>beamed</u> at her gift. She <u>was</u> elated.
Adverb	An adverb labels how, when or where something happens (and they often end in '–ly').	The dog growled <u>menacingly</u> whenever the inquisitive bird flew <u>gracefully</u> towards the window.
Noun	Nouns are names, places and things; they also signify imagined things like 'a ghost'; and ideas or concepts, such as 'love', 'guilt' or 'fate'.	The was a flash of <u>hope</u> in his <u>eyes</u> as he looked through the <u>window</u>.
Pronoun	Words used instead of a noun i.e. 'he', 'she', 'they', 'it'.	<u>She</u> was surprised <u>it</u> was happening.
Adjective	An adjective is a describing word or phrase that adds qualities to a noun. It normally comes before a noun, or after verbs like 'am', 'is', 'was', 'appears' or 'seems'.	He was normally such an <u>insular</u> character; his newly <u>vibrant</u> demeanour had surprised everyone.
Preposition	Prepositions are short words and phrases that give information about place, time and manner	The money was hidden <u>under</u> the bed, <u>beside</u> the old duvet, <u>on top of</u> the shoe box.

Sentence types	Examples
Imperative (giving a command)	Accept that there is nothing to be done. Change the way you think. Pick up the litter.
Declarative (stating information)	It is wrong to assume that everyone is as fortunate as you. There was a disconcerting quality to his grin. As a group, they felt forlorn by their lack of freedom.
Interrogative (asking a question. They end with a question mark)	Was it everything you wished for? How could she not feel exasperated by their ignorance?
Exclamatory (expressing a heightened emotion. They end with an exclamation mark)	I felt obliged! I have resigned myself to the fact that nothing can be done!

Q2/ Q4 Language Features	Definition	Example
Metaphor	A descriptive technique that names a person, thing or action as something else.	The mesmerising circus was a magnet for the children.
Simile	A descriptive technique that compares one thing with another, usually using 'as' or 'like'.	The horse's majestic mane was like fire.
Personification	Describing an inanimate object as having human feelings.	The carpet lamented the demise of his beloved hoover.
Zoomorphism	A technique in which animal attributes are imposed upon non-animal objects, humans, and events.	The maid had a brusque manner; she snarled at anyone who dared to approach her.
Imagery	A technique in which the author appeals to the senses i.e. seeing, hearing, touching.	The earthy, unmistakable aroma of coffee weaved through the air.
Semantic field	Words from a the semantic field are part of a common category.	The writer includes a series of words from the semantic field of nature, 'Seedling…hedge…..plant'.
Intensifier	A word, especially an adverb or adjective, that has little meaning itself but is used to add emphasis to another adjective, verb, or adverb.	He was <u>too</u> dispirited to continue. The contract was <u>very</u> confusing. The card was <u>extremely</u> sentimental.
Minimiser	A word that is used to make another adjective, verb or adverb sound lesser.	She was <u>slightly</u> traumatised. They were <u>just</u> considering it. We were <u>a little</u> forlorn.
Listing	When the writer includes several words/ phrases/ ideas, one after the other.	The familiar <u>tapping, scratching, tearing and shouting</u> echoed down the street.
Oxymoron	A phrase combining two or more contradictory terms.	There was a <u>deafening silence</u>.
Pathetic fallacy	A type of personification where emotions are given to a setting, an object or the weather.	The clouds crowded together suspiciously overhead as the sky darkened forebodingly.

Q3/ Q4 Structural Features	Definition
Opening	The first mood/ image of the text.
Cyclical	When end of the text repeats an idea/ character/ setting from the opening.
Widening/ narrowing the perspective	When the writer switches from a broader overview (i.e. describing a crowd) to a more specific point of view (i.e. an individual).
Character development	When the writer presents a character differently as the text progresses.
Repetition	When a word/ phrase is noticeably repeated throughout a sentence/ paragraph/ whole text.
Shift in tense	When the writer deliberately changes tense i.e. I <u>was</u> powerless, I <u>was</u> beaten, I <u>was</u> a wreck. I <u>will</u> never feel that way again.
Juxtaposition	Two ideas placed together for contrasting effect.
Foreshadowing	A warning/ hint about what is going to happen next.
Introduction of speech	Direct speech between characters.
Change of mood/ tone	When the writer alters the overall feeling of the text.
Shift in focus	Focusing on a different topic/ place/ character.
Shift in the narrator's point of view	When the speaker (the voice telling the story) changes their mind about something.
Connections/ links across paragraphs	A pattern that can be identified across the text.
Ending	The final mood/image of the text.

Writing: Paper 1

Language Techniques	Definition	Example
Metaphor	A descriptive technique that names a person, thing or action as something else.	The mesmerising circus was a magnet for the children.
Simile	A descriptive technique that compares one thing with another, usually using 'as' or 'like'.	The horse's majestic mane was like fire.
Personification	Describing an inanimate object as having human feelings.	The carpet lamented the demise of his beloved hoover.
Zoomorphism	A technique in which animal attributes are imposed upon non-animal objects, humans, and events.	The maid had a brusque manner; she snarled at anyone who dared to approach her.
Imagery	A technique in which the author appeals to the senses i.e. seeing, hearing, touching.	The earthy, unmistakable aroma of coffee weaved through the air.
Listing	When the writer includes several words/ phrases/ ideas, one after the other.	The familiar tapping, scratching, tearing and shouting echoed down the street.
Oxymoron	A phrase combining two or more contradictory terms.	There was a deafening silence.
Pathetic fallacy	A type of personification where emotions are given to a setting, an object or the weather.	The clouds crowded together suspiciously overhead as the sky darkened forebodingly.
Semantic field	Words from a the semantic field are part of a common category.	The writer includes a series of words from the semantic field of nature, 'Seedling…hedge…..plant'.

Sentences connecting paragraphs

The sound of….cut into his thoughts…….
She regarded her surroundings…..
As the figure came closer, her appearance sharpened….
They ambled towards….
The words radiated around him and….
The familiar words echoed…..
The surprising view of…..nudged into her vision…..
Her mind was transported back to….

Paper 1 Sentence Types

Begin with a verb:
Regarding the inside of the cave, they knew they had gone too far.

Begin with an adverb:
Hastily, she gripped the handle.

Begin with an emotion:
Desperate, they contemplated leaving her behind.

Use a hyphen to add extra information at the end:
They saw several icicles - the majority looming down at them from the ceiling.

Use hyphens to add extra information in the middle of a sentence:
She took a tentative step further in - then two or three steps - always expecting to feel woodwork against the tips of her fingers.

Use a semi colon to add more detail to a description:
His sleep had been fitful; his eyes burned and his body ached.

Use a semi colon to show the difference between the 'inside' and 'outside':
To the crowd, she appeared content; inside, she was reeling.

Use a colon to introduce a list:
The beach was a hive of activity: parents wrestling with umbrellas, children squealing delightedly and crabs dodging the clatter of human feet.

Use a colon to expand on the first part of the sentence:
His mood was notoriously difficult to predict: he regularly jolted between pleasant and peevish, without any warning.

Begin with a time connective:
Now, there was nothing to do but wait in terrified silence.

List a series of actions:
She immediately stepped into the wardrobe and immersed herself among the coats, rubbing her face against them, breathing in the musty scent and believing herself to be utterly safe.

Structural Techniques	Definition
Cyclical structure	When the conditions at the end are in the some way the same as they are at the beginning
One sentence paragraph	Using a one sentence paragraph to create emphasis, meaning or a turning point/change in tone.
Flashback	a scene in a novel, etc. set in a time earlier than the main story
Cliff-hanger	a story or event with a strong element of suspense/ unanswered questions
Climax	the most intense, exciting, or important point; the culmination of the story.

" "	quotation marks	used to show what someone said
'	apostrophe	used to show possession or to represent missing letters in contractions
( )	parentheses	used to set off less important details such as an afterthought or a personal comment
:	colon	used to introduce a list; used in time and in Bible verses
;	semi-colon	used to join two related sentences or used to separate items in a series that have commas
/	slash	used to indicate line breaks when quoting poetry
—	hyphen	used to divide a word or in compound words
,	comma	used to indicate a pause, to set off a phrase, or to separate items in a series

PUNCTUATION

There — "Look over there!" "There it is!" "He is there, by the park."

Their — "Their books are red." "Sob wants to play with their toys."

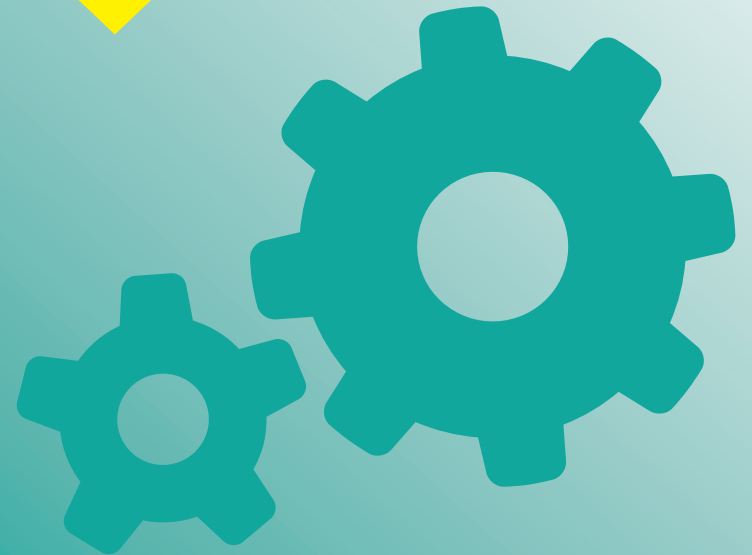They're (they are) — "They're my best friends!" "They're having fun."

where – is an adverb relating to place/position. I know where you left it.

were – is the plural past tense of the verb 'are'. We were playing outside?

we're – is a contraction of 'we are'. We're going to the park.

wear – is used when talking about clothing. I don't know what to wear.

Science

Response to internal and external change

Controls in the human body
- Blood glucose concentration
- Body temperature
- Water levels

These automatic control systems may involve nervous responses or chemical responses.

The regulation of internal conditions of a cell or organism to maintain optimum conditions for function.

Homeostasis maintains optimal conditions for enzyme action (thermoregulation) and all cell functions (osmoregulation).

Homeostasis
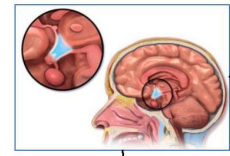
Water and nitrogen balance (Biology only)

If body cells lose or gain too much water by osmosis they do no function efficiently.

Uncontrolled water/ion urea loss	Water exhaled in lungs, water, ions and urea in sweat.
Controlled water/ion/urea loss	Via the kidneys in urine.

Kidney failure is treated by organ transplant or dialysis.

Kidney function — *Maintain water balance of the body.* — Produce urine by filtration of the blood and selective reabsorption of glucose, ions and water.

A dialysis machine removes urea from the blood by diffusion while maintaining ion and glucose levels.

(HT only) ADH — *Acts on kidney tubules to control water levels.* — Released by pituitary gland when blood is too concentrated. Water is reabsorbed back into the blood from the kidney tubules **(NEGATIVE FEEDBACK).**

(HT only) digestion of proteins results in excess amino acids. In the liver they are deaminated to form toxic ammonia which is converted to urea

---

Thermoregulatory centre (hypothalamus)

Control of body temperature (Biology only)

Monitoring body temperature

Thermoregulatory centre	Contains receptors sensitive to the temperature of the blood.
Skin (dermis and epidermis)	Contains temperature receptors, sends nervous impulses to the thermoregulatory centre.

Body temperature

Too high	Blood vessels dilate (vasodilation), sweat produced from sweat glands.	(HT) Thermal energy is lost from blood near the surface of the skin, sweat evaporates transferring thermal energy.
Too low	Blood vessels constrict (vasoconstriction), sweating stops, muscles contract (shivering).	(HT) Thermal energy loss at the surface of the skin is reduced, respiring muscles cells transfer chemical to thermal energy.

EDEXCEL GCSE BIOLOGY ANIMAL COORDINATION PART 1

Human endocrine system

Male / Female
- Pituitary gland
- Pineal gland
- Thyroid
- Thymus
- Adrenal gland
- Pancreas
- Ovaries
- Testes

Endocrine system — *Composed of glands which secrete chemicals called hormones directly into the bloodstream.* — The blood carries the hormone to a target organ where is produces an effect. Compared to the nervous system effects are slower but act for longer.

Pituitary gland — *'Master gland'; secretes several hormones into the blood* — Stimulates other glands to produce hormones to bring about effects.

Control of blood glucose concentration

Negative feedback (HT only)

Adrenaline	Produced in adrenal glands, increases breathing/heart rate, blood flow to muscles, stimulates liver to convert glycogen to glucose. Prepares body for 'fight or flight'.
Thyroxine	Produced in the thyroid gland, stimulates the basal metabolic rate. Important in growth and development.

Increasing thyroxine levels prevent the release of thyroid stimulating hormone which stops the release of thyroxine.
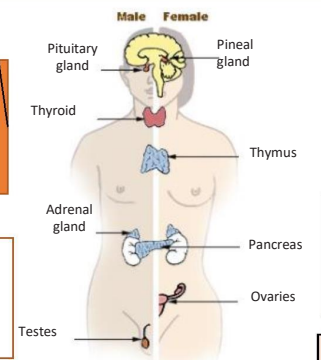
Blood glucose concentration	
Monitored and controlled by the pancreas	
Too high	(HT only) Too low
Pancreas produces the hormone insulin, glucose moves from the blood into the cells. In liver and muscle cells excess glucose is converted to glycogen for storage.	Pancreas produces the hormone glucagon that causes glycogen to be converted into glucose and released into the blood.

Diabetes	
Type 1	Type 2
Pancreas fails to produce sufficient insulin leading to uncontrolled blood glucose levels. Normally treated by insulin injection.	Obesity is a risk factor. Body cells no longer respond to insulin. Common treatments include changing by diet and increasing exercise.

(HT) Rising glucose levels inhibit the release of glucagon in a negative feedback system. Insulin is released to reduce glucose levels and which cause the pancreas to release glucagon

FSH and LH are used as 'fertility drugs' to help someone become pregnant in the normal way

Hormones are used in Assisted Reproductive Technology (ART) to treat infertility

In Vitro Fertilisation (IVF) treatment.

Involves giving a mother FSH and LH to stimulate the maturation of several eggs (clomifene therapy)

The eggs are collected from the mother and fertilised by sperm from the father in a laboratory.
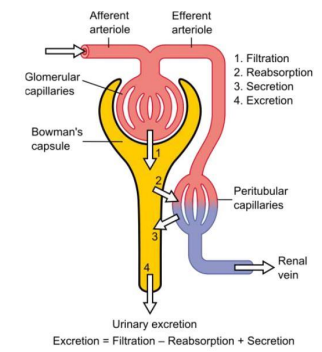
The fertilised eggs develop into embryos.

At the stage when they are tiny balls of cells, one or two embryos are inserted into the mother's uterus (womb).

The use of hormone to treat infertility (HT only)

EDEXCEL GCSE BIOLOGY ANIMAL COORDINATION PART 2

Contraception

Structure of the urinary system		
Renal veins and arteries	Carries blood to and from the kidneys.
Ureter	Carries urine from kidney to bladder.
Bladder	Stores urine
Urethra	Carries urine from bladder to outside of body.
Kidneys	Remove substances from blood to make urine.

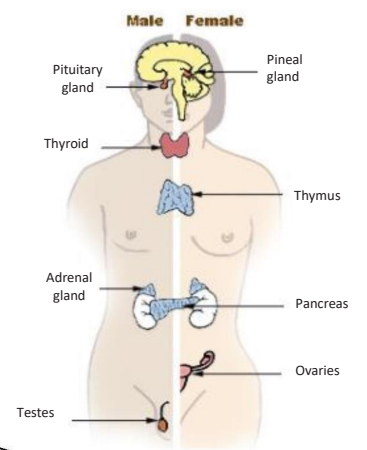| Structure and function of the nephron in kidney | | |
|---|---|
| *Glomerulus* | Filtration of small molecules e.g. water, urea and glucose into the nephron. |
| *Bowman's capsule* | |
| *Selective reabsorption of glucose* | Active transport of useful substances back into the blood e.g. glucose and mineral ions. |
| *Reabsorption of water* | Osmosis moves water back into the blood in the loop of Henle. |

Afferent arteriole
Efferent arteriole
1. Filtration
2. Reabsorption
3. Secretion
4. Excretion
Glomerular capillaries
Bowman's capsule
Peritubular capillaries
Renal vein
Urinary excretion
Excretion = Filtration – Reabsorption + Secretion

Potential disadvantages of IVF	Emotional and physical stress.
	Success rates are not high.
	Multiple births risk to mother and babies.

**Hormones in human reproduction**

During puberty reproductive hormones cause secondary sexual characteristics to develop	
Oestrogen (main female reproductive hormone)	*Testosterone (main male reproductive hormone)*
Produced in the ovaries. At puberty eggs being to mature releasing one every 28 days – **ovulation**.	Produced in the testes stimulation sperm production.

Male   Female
Pituitary gland
Pineal gland
Thyroid
Thymus
Adrenal gland
Pancreas
Ovaries
Testes

Fertility can be controlled by hormonal and non hormonal methods	*Oral contraceptives*	Contain hormones to inhibit FSH production so that no eggs mature.
	Injection, implant, skin patch	For slow release of progesterone to inhibit the maturation and release of eggs for months or years.
	Barrier methods	Condoms or diaphragms which prevent sperm reaching the egg.
	Intrauterine devices	Prevent implantation of an embryo or release a hormone.
	Spermicidal agents	Kill or disable sperm.
	Surgery	Male or female sterilisation.

(HT only) a graph of hormone levels over time

oestrogen   progesterone
FSH   LH
OVUM
OVULATION
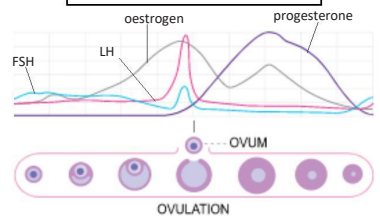
Menstrual cycle	*Follicle stimulating hormone (FSH)*	Causes maturation of an egg in the ovary.	**(HT)** FSH stimulates ovaries to produce oestrogen.
	Luteinising hormone (LH)	Stimulates release of an egg.	**(HT)** Oestrogen stops FSH production and stimulates LH production in pituitary gland.
	Oestrogen and progesterone	Maintain uterus lining.	

Alkali metals

Halogens **Noble gases**

	1	2												3	4	5	6	7	0
H																			He
	Li	Be			**Transition metals**									B	C	N	O	F	Ne
	Na	Mg												Al	Si	P	S	Cl	Ar
	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
	Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
	Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	?	?	?						

The Periodic table

Elements arranged in order of atomic number	*Elements with similar properties are in columns called groups*	Elements in the same group have the same number of outer shell electrons and elements in the same period (row) have the same number of electron shells.

Alkali metals

Soft and easily cut	Low melting and boiling points.
Very reactive with oxygen, water and chlorine	Only have one electron in their outer shell. Form +1 ions.
Reactivity increases down the group	Negative outer electron is further away from the positive nucleus so is more easily lost.

Halogens

Consist of molecules made of a pair of atoms	Have seven electrons in their outer shell. Form -1 ions.
Melting and boiling points increase down the group (gas → liquid → solid)	Increasing atomic mass number.
Reactivity decreases down the group	Increasing proton number means an electron is less easily gained as outer shell is further away from nucleus, therefore the attraction force is weaker.

Group 1

EDEXCEL TOPIC SC 17: Groups in Periodic Table

Metal	Reaction with water	Word equation
Lithium	Fizzing	**Lithium + water → lithium hydroxide + hydrogen**
Sodium	**Fizzing more vigorously than lithium**	**Sodium + water → sodium hydroxide + hydrogen**
Potassium	**Fizzes and burns with a lilac flame**	**Potassium + water → potassium hydroxide + hydrogen**

Halogen	Colour at room temperature	State at room temperature
Chlorine	**Yellow-green**	**Gas**
Bromine	**Red-brown**	**Liquid**
Iodine	**Dark purple**	**Solid**

Group 7

Group 0

Noble gases

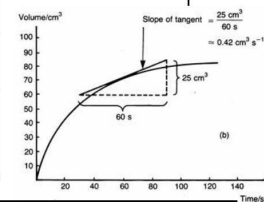| *Unreactive, do not form molecules*	This is due to having full outer shells of electrons.
Boiling points increase down the group	Increasing atomic number.

With metals	*Forms a metal halide*	Metal + halogen → metal halide e.g. Sodium + chlorine → sodium chloride	e.g. NaCl metal atom loses outer shell electrons and halogen gains an outer shell electron
With hydrogen	*Forms a hydrogen halide*	Hydrogen + halogen → hydrogen halide e.g. Hydrogen + bromine → hydrogen bromide	Dissolve in water to form acidic solutions.
With aqueous solution of a halide salt	*A more reactive halogen will displace the less reactive halogen from the salt*	Chlorine + potassium bromide → potassium chloride + bromine	(HT) These are redox reactions. The halogen gains electrons and the halide ion from the compound loses electrons.

Helium	*Used in balloons*	Due to being less dense than air, which means balloons will float.
Neon	*Used in signs*	Glows when electricity flows through it.
Argon	*Used in filament light bulbs*	Stops the heated filament reacting with oxygen. Bulbs filled with unreactive argon instead.

PiXL Partners in excellence

Rates of reaction

EDEXCEL TOPIC SC18-19
Rates & Energy in reactions

Rate of chemical reaction	*This can be calculated by measuring the quantity of reactant used or product formed in a given time.*	Rate = quantity of reactant used / time taken Rate = quantity of product formed / time taken

Calculating rates of reactions

Quantity	Unit
Mass	Grams (g)
Volume	cm^3
Rate of reaction	Grams per cm^3 (g/cm^3) HT: moles per second (mol/s)

Volume/cm³ graph — Slope of tangent = 25 cm³ / 60 s ≈ 0.42 cm³ s⁻¹

Factors affecting rates

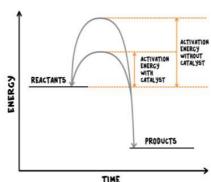| Factors affecting the rate of reaction	
Temperature	*The higher the temperature, the quicker the rate of reaction.*
Concentration	*The higher the concentration, the quicker the rate of reaction.*
Surface area	*The larger the surface area of a reactant solid, the quicker the rate of reaction.*
Pressure (of gases)	*When gases react, the higher the pressure upon them, the quicker the rate of reaction.*

Collision theory and activation energy
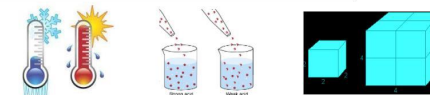
Collision theory	*Chemical reactions can only occur when reacting particles collide with each other with sufficient energy.*	Increasing the temperature increases the frequency of collisions and makes the collisions more energetic, therefore increasing the rate of reaction.
Activation energy	*This is the minimum amount of energy colliding particles in a reaction need in order to react.*	Increasing the concentration, pressure (gases) and surface area (solids) of reactions increases the frequency of collisions, therefore increasing the rate of reaction.

Catalysts

Catalyst	A catalyst changes the rate of a chemical reaction but is not used in the reaction.
Enzymes	These are biological catalysts.
How do they work?	Catalysts provide a different reaction pathway where reactants do not require as much energy to react when they collide.

If a catalyst is used in a reaction, it is not shown in the word equation.

Heat energy changes in chemical reactions

Bond energy calculation

Calculate the overall energy change for the forward reaction

$N_2 + 3H_2 \rightleftharpoons 2NH_3$

Bond energies (in kJ/mol): H-H 436, H-N 391, N≡N 945

Bond breaking: 945 + (3 x 436) = 945 + 1308 = 2253 kJ/mol

Bond making: 6 x 391 = 2346 kJ/mol

Overall energy change = 2253 - 2346 = -93kJ/mol

Therefore reaction is exothermic overall.

Heat energy changes

Occur in the following:
- Salts dissolving in water
- Neutralisation reactions
- Displacement reactions
- Precipitation reactions

Exothermic reactions — Heat energy is given out as bonds are being formed.

Endothermic reactions — Heat energy is taken in as bonds are being broken.

Endothermic

Products are at a higher energy level than the reactants. As the reactants form products, energy is transferred from the surroundings to the reaction mixture. The temperature of the surroundings decreases because energy is taken in during the reaction.

Exothermic

Products are at a lower energy level than the reactants. When the reactants form products, energy is transferred to the surroundings. The temperature of the surroundings increases because energy is released during the reaction.

PiXL Partners in excellence

Cell	Battery	Switch	Lamp	Ammeter	Volt meter	Diode	LED	LDR	Fuse	Resistor	Variable resistor	Thermistor	Motor
Store of chemical energy	*Two or more cells in series*	*Breaks circuit, turning current off*	*Lights when current flows*	*Measures current*	*Measures potential difference*	*Current flows one way*	*Emits light when current flows*	*Resistance low in bright light*	*Melts when current is too high*	*Affects the size of current flowing*	*Allows current to be varied*	*Resistance low at high temp*	*Converts electrical energy into mechanical energy*

Ammeter Set up in series with components	Measures current in amps in the component	**Series** *A circuit with one loop*
Volt meter Set up parallel to components	Measures p.d. in volts across the component	**Parallel** *A circuit with two or more loops*
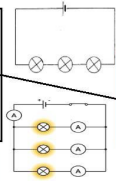
Electric Circuits
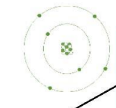
Atom structure

Particle	Charge	Size	Found
Proton	+	1	*In the nucleus*
Neutron	None	1	
Electron	-	Tiny	Orbits the nucleus

Potential difference *The energy transferred by a component for every per unit of charge passed*	1 volt = 1 joule per coulomb (1V = 1J/C)

Current, Potential difference, Charge and Energy.

EDEXCEL TOPIC 10 ELECTRCITY AND CIRCUITS

Resistance

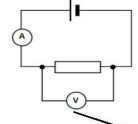|	Series circuit	Ammeter reading are the same.	Volt meter readings are shared.	Total resistance increases as you add resistors in series.
	Parallel circuit	Ammeters readings are shared between branches.	Volt meter readings are the same.	Total resistance decreases as you add resistors in parallel.

$E = Q \times V$ — Energy transferred = Charge moved X potential difference

$Q = I \times t$ — Charge = Current X time

$V = I \times R$ — Potential difference = Current X Resistance

Resistance Ohms (Ω)	*A measurement of how much current flow is reduced*

The higher the resistance, the more difficult it is for current to flow.

Increasing resistance, reduces current.

Increasing voltage, increases current.

Current	*Flow of electrical charge*	Ampere (A)
Potential difference (p.d.)	*How much electrical work is done by a cell*	Volt (V)
Charge	*Amount of electricity travelling in a circuit*	Coulomb (C)

Current is conserved at a junction in a circuit.

Current in metals is the flow of electrons.

Current only flows when the circuit is closed and there is a p.d. across a component.

Core Practical	
Relationship between p.d., current and resistance of a lamp and resistor	*To test series and parallel circuits using resistors and lamps*
Circuit set up like standard test circuit.	

|	
Standard test circuit	*Used to investigate relationship between current, p.d. and resistance of components*

Insert variable resistor, in series, to change current and measure current and p.d.

Energy transferred	*Joules (J)*
Charge	*Coulombs (C)*
Potential difference	*Volts (V)*
Current	*Amps (A)*
Time	*Seconds (s)*
Resistance	*Ohms (Ω)*

Thermistor	LDR
Resistance varies with temperature	*Resistance varies with light intensity*
Resistance decreases as temperature increases.	Resistance decreases as light increases.

Fixed resistor	*At a constant temperature, current is directly proportional to the p.d. across the resistor.*
Filament lamp	*As current increases, the resistance increases. The temperature increases as current flows.*
Diode	*Current flows when p.d. flows forward. Very high resistance in reverse.*

PiXL Partners in excellence

EDEXCEL TOPIC 10 ELECTRCITY AND CIRCUITS

Electrical safety
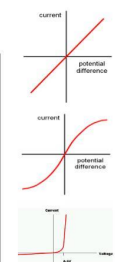
3 pin plug

Live - Brown	Carries p.d from mains supply.	p.d between live and earth = 230V
Neutral - Blue	Completes the circuit.	p.d. = OV
Earth – Green and Yellow stripes	Only carries current if there is a fault.	p.d. = 0V

Safety features

Fuse	Thin wire inside the plug connected to live wire.	If current exceeds a certain value, the wire melts breaking the circuit.
Circuit breaker	'Trips' the switch.	Detect change in current and switch off the supply.
Switch	Connected to the live wire.	When turned off, no current goes through the appliance.
Earthing	Earth wire joins the metal case.	Earth wire takes current to the ground instead of conducting in the metal.

Electric shock

A connection between the live wire and earth	The live wire carries 230V, your body is at 0V so there is a large potential difference across your body and current flows through you.

Power rating

Power rating measured in watts	The power rating equals the number of joules transferred every second by the device from mans electrical supply to an energy store.

Power

Power	*Energy transferred per second*	Measured in Watts (W).

Power transfer

Depends on p.d. across and current flowing through device

Both affect the rate of energy transfer and the rate at which energy is transferred to other energy stores.

Current equals how much charge passes per unit time.

p.d. equals how much energy each unit of charge transfers.

Power (W) = current X potential difference — $P = I \times V$

Power = (current)^2 X resistance — $P = I^2 \times R$

HIGHER ONLY section

Reducing unwanted energy transfer	Use low resistance metals in wire. Thicker wires have lower resistance. Resistance can be decreased by cooling wires so the lattice ions do not vibrate as much.
Energy transfer	*Electrons flow through lattice of vibrating ions, they collide with ions.* The more collisions, the harder it is for electrons to pass through so higher electrical resistance.

$P = E \div t$

Power = Energy transferred ÷ time

Thermal energy dissipates into surroundings thermal energy store and the temperature rises.

Energy transferred by heating and the resistor becomes warmer.

Current in a resistor	*When current flows circuits warm up*	Energy is transferred as work is done against the resistance.

Advantages	Disadvantages
Used to heat objects	*Efficiency is reduced*
Toasters have a coil of wire with high resistance. Current flows and wire glows red giving off IR radiation. IR radiation transfers energy to bread.	Less energy transferred as useful, more 'wasted' as thermal.
	Too hot, components may melt and circuit stops working.

Lamps and heaters work in the same way.

Transferring energy

Transferring energy by electricity

| Alternating current	Direct current
p.d. switches direction many times a second, current switches direction	*p.d. remains in one direction, current flows the same direction*
Generator.	Cell or battery.

Mains supply
Frequency 50Hz, 230V

Battery operated fan	*Energy from the chemical energy store*	Electrical energy transferred.	Kinetic energy store of the fan.
		Thermal energy transferred by work done.	Thermal energy store of the wires, motor and surroundings.

Kettle	*Electrical energy from the mains*	Thermal energy transferred by work done.	Thermal energy store of the water.
			Thermal energy store of the kettle and surroundings.

Energy transferred	*Joules (J)*
Potential difference	*Volts (V)*
Power	*Watts (W)9*
Current	*Amps (A)*
Time	*Seconds (s)*
Resistance	*Ohms (Ω)*

History
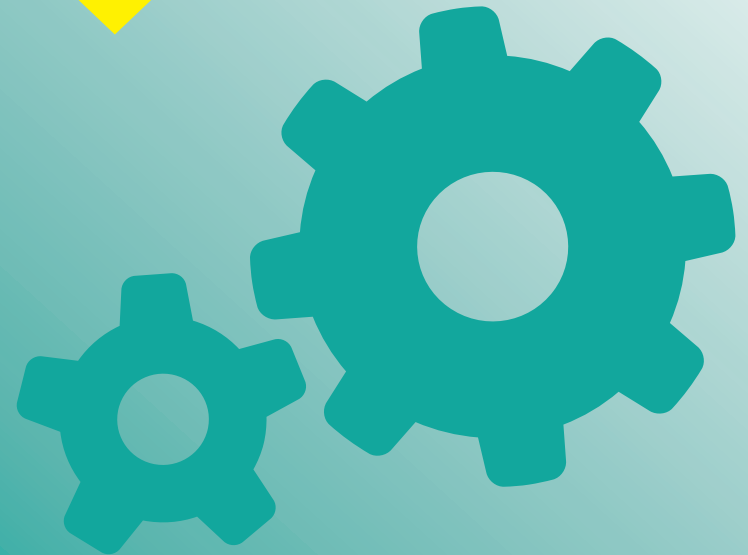
Feudal System	A hierarchy of land ownership
Barons	The king's chief supporters who would own lots of land and grant it to knights.
Villeins	Peasants who worked the land
Charter of liberties	An agreement which bound the king to certain laws.
Magna Carta	A set of rules which the king had to abide by in ruling England
Battle of Bouvines	Victory for France which fuelled opposition to King John.
Runnymede	The place where the Magna Carta was signed
constitution	The laws for governing the land
The Provisions of Oxford	A series of changes in the way England was governed where Henry III lost power over the government to council of 15
Revolt	To take violent action against something or someone
Smithfield	Where the peasants met the king and Wat Tyler was stabbed
Poll tax	A tax levied by the king to pay for his wars in France.
Work Service	Where some peasants had to work on the lords land for 2 days without pay

Key events

Magna Carta
The barons challenge the power of the king over his laws and rebel. They manage to get him to sign a charter with rules for governing England at Runnymede in 1215. This represented the beginnings of Parliament

Simon de Montford's rebellion
When Simon led a rebellion against the misrule of the king and called a Parliament, it was the first Parliament to which representatives from counties and towns were summoned to give advice. For the first time, it was not just the great barons who were being consulted, but representatives of a much wider section of the community.

Peasants Revolt
Dissatisfied with their lot in life peasants from the south of England march to London to meet the king to discuss his laws in the hope of forcing a change. It failed when the leaders were arrested and killed and the demands not met.

Key individuals

| King John	Henry III	Simon de Montford	John Ball	Wat Tyler
Considered to be the worst king of England who was brought to account by the barons and forced to sign the magna Carta in 1215	He faces a rebellion in Wales and discontent from English barons. The Provisions of Oxford create a Privy Council to advise the king. It also establishes that Parliament is to be held three times a year.	Led a rebellion against Henry II land then called a new parliament to decide on a new constitution. He was later killed and mutilated at the battle of Evesham.	Leader of the peasants revolt who intended to march to the king and petition him for a fairer deal. He was later executed for his role in the rebellion.	Leader of the Peasants revolt marching from Canterbury to London to oppose the poll tax. He was stabbed while riding over to speak to the king.

Research

Research what happened at the Battle of Evesham
What happened to King John's crown jewels?
What happened during the reintroduction of a new Poll Tax in 1990?

Geography
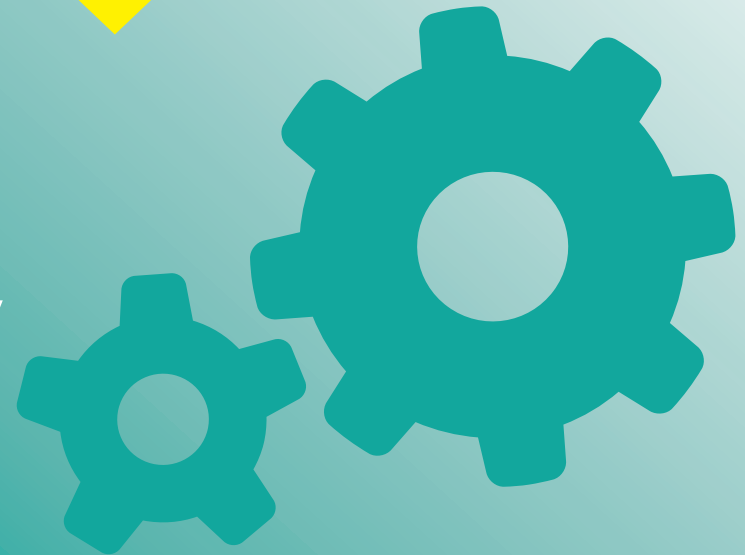
Development Gap and Nigeria

A single measure of development can give a false picture as it gives an average for the whole country. Data could be out of date and the informal economy is not often included

The human development index (HDI)

is a better measure as it includes 3 development indicators:

Life expectancy, GDP and adult literacy

Indicator	Description	High or low
GDP/GNI	Economic indicator. A measure of a countries wealth	High in a developed country
Birth rate	Number of births per 1000 per year	Low in a developed country
Death rate	Number of deaths per 1000 per year	Low in a developed country
Adult literacy	% adults who can read and write	High in a developed country
Infant mortality	% babies that die before the age of one	Low in a developed country
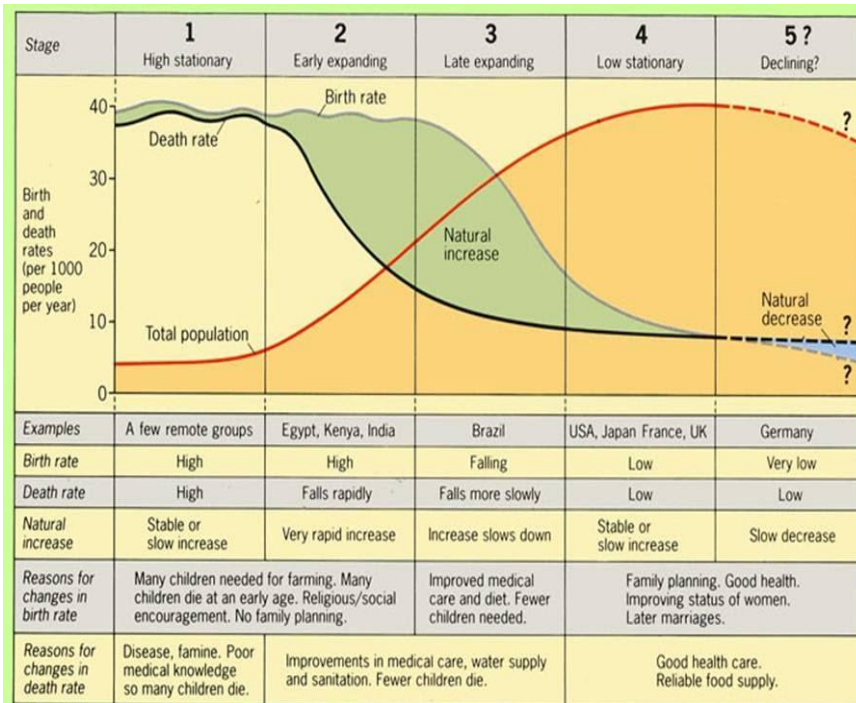
The demographic transition model is a guide as to how countries population can change over time. Their populations will go through a series of stages as their birth rates and death rates change. Developments in sanitation and medicine will begin to have an impact on these two indicators.
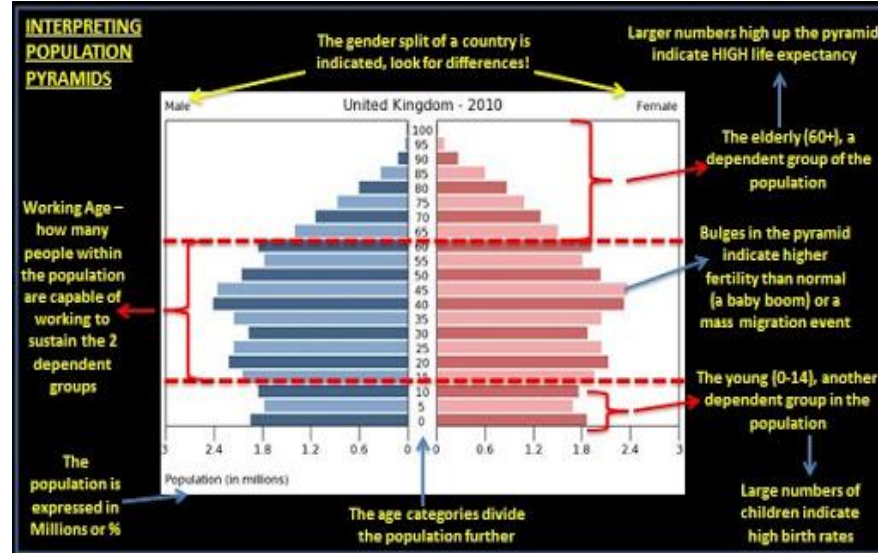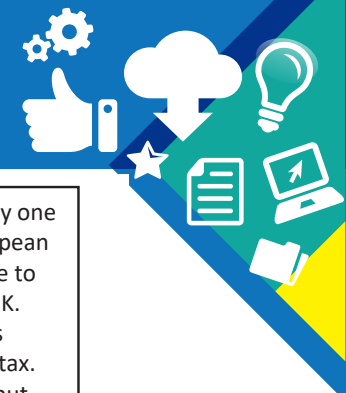
Causes of uneven development

Physical: The nature of the landscape (deserts/mountains/tropical rainforests) can make development challenging. Extreme natural events (tropical storms/earthquakes) can lead to money spent on recovery not development. Some countries are landlocked making trade expensive and politically challenging.

Historical: Many European nations had African countries all colonies. They took their resources and when these countries got Independence it resulted in civil wars hampering development

Economic: Many pooper nations trade primary goods(raw materials) these have a low value and the price fluctuates world trade is dominated by the wealthy countries. Processing which adds value takes place in richer countries.
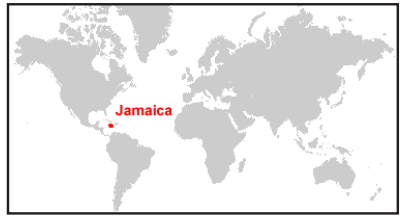
Reducing the development gap: Aid

Aid is when a government or non government organisation **NGO** gives help to another country in the form of money, emergency supplies, food or specialist skills. It can help by enabling countries to invest in roads, health care and education. **Only Aid that is long term and freely given can really help to close the development gap.**

Jamaica is a small Caribbean Island chosen **tourism** as a way to close the development gap. There are positives and negatives to this. It has

Disparities in wealth can affect health

In rich countries there is money to pay for hospital and vaccines. In poorer countries there is less money for health care. In **LIC's** death is usually from infections diseases and in childbirth. In **HIC's** death is related to old age or lifestyle choices leading to cancers and heart problems.

Reducing the development gap: Investment

Countries and TNC's invest money and expertise in LIC's China have invested in a railway in Nigeria and a power station in Zimbabwe. There are some benefits but many think it's a type of exploitation benefitting China

Reducing the development gap: Intermediate technology.

Intermediate technology is sustainable and appropriate to the needs, knowledge and wealth of the local people. EG: Adis Nifra In Ethiopia where as small dam was created to help with irrigation

Economy
Tourism is 24% of GDP in Jamaica ✓
Some money earned from tourism goes to the HIC travel companies ✗
Infrastructure
Investment in roads and airports ✓
Some parts of the island remain isolated ✗
Quality of life. In the popular resorts locals benefit. ✓
In the rural areas life remains very hard
The environment ✗
Conservation has created jobs ✓
Mass tourism creates a lot of waste ✗

Disparities in wealth can affect migration..

Migration = people move from place to place.
Internal migration = within a country
International migration = across country borders
Economic migration = moving to earn more money
Refugee = fleeing from a place of danger

Middle East crisis of 2015. Civil war in Syria lead to the migration of millions of people into Europe to seek safety. An estimated 1.1 million migrants entered Germany in 2015

Reducing the development gap: Industrial Development

Countries invest in manufacturing housing is built and hospitals roads and railways. Population becomes better educated and healthier and industry can expand. This is called the **POSITIVE MULTIPLIER EFFECT**

Closing the development gap: Fair Trade

Fair trade is an international movement that sets standards for trade to ensure that producers in LICs get a fair deal. Fair trade also helps to fund local community projects and all farming is done in environmentally friendly way

Reducing the development gap : Micro finance.
This involves small scale financial support. Itt helps people especially women to start up small businesses. The Garmeen bank is an example

Up to 2016 any one from the European Union was free to move to the UK. Most migrants work and pay tax. Migrants can put pressure on services like schools

Reducing the development gap: Tourism

Countries with Tropical beaches etc. can attract tourists. Investment in the local area can benefit the local economy and people get jobs. However there can be damage to the natural environment and it is vulnerable to recession

What is Free trade?. Free trade is when countries can trade with each other without tariffs (taxes). This has the potential to benefit the worlds poorest. However subsidies are a barrier to free trade. This is when rich countries give money to their farmers to help them produce goods cheaply. This can steal trade from Lic's.

What is a trading group? Countries can join together to get higher prices for their goods. EG the EU

Exploring Nigeria: CASE STUDY

Nigeria's Importance
2014 Nigeria was the 21st largest economy in the world.
It had a population of 195.9 million in 2018
Nigeria contribute the UN peace keeping force.
It has the largest population in Africa.
It has the fastest growing economy in Africa

Semi desert

Tropical grassland and Savannah

High temperatures and high rainfall

Political Links:
OPEC and the United Nations. Also the African Union

Background: Nigeria is a multi ethnic country. There was a civil war between 1967 and 1970. Christians to the South Muslims to the North where there is a terrorist group called Boko Haram
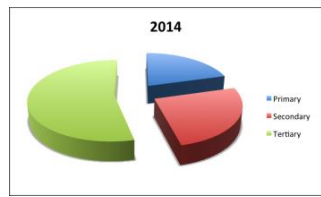
Political Context:
During colonial times Nigeria was ruled by the UK. It got its independence in 1960. Up to 1990 there was Political instability. Since then the Government has been more stable. Today China invest heavily in Nigeria

Nollywood is the second largest film industry in the world

Manufacturing in Nigeria.
Today manufacturing accounts for 10% of Nigeria's economy. EG Volkswagen. Regular paid work gives people an income. Industry stimulates growth in other areas of the supply chain. People pay taxes to the Government. *This is an example of the multiplier effect*

Trade: Nigeria *exports:* crude and refined petroleum, natural gas, rubber, cocoa and cotton.
Imports: refined petroleum from the EU and the USA cars from Brazil and the USA telephones from China
Today oil accounts for 95% of Nigerias export earnings

2014

TNC's in Nigeria : Two main Trans National companies in Nigeria are: Unilvever and Shell oil

The effect of development on the Environment:
Industrial Growth: Pollution from factories gets in to the water supply. Gases get into the atmosphere. Many forests have been cleared for Industrial development
Urban Growth: Waste from homes is a major issue. Traffic congestion pollutes the air. More deforestation when the new capital ABUJA was built.
Mining and oil extraction: Tin mining leads to soil erosion. Oil spills can harm the coast and cause fires. Very bad spill BODO 2008-9
Commercial farming: Water pollution due to the use of chemicals, Soils erosion due to forest clearnce leads also to the loss of species

Advantages of TNC's
Employment and learning new skills ✓
Investment in local infrastructure ✓
Disadvantages of TNC's
Poorly paid ✗
Poor working conditions ✗
Profit goes abroad ✗

Unilever. Anglo-Dutch TNC. Employs 1500 people. Helped to promote health care and education

Problems with AID
Corruption is a major problem in the loss of AID donations
Donors may have political influence on where the Aid is sent
Nigeria could become dependant on the AID

Quality of life There have been many benefits to development: Higher disposable incomes. Improvements to infrastructure. Better access to safe water. Better quality health care.
HOWEVER:
Many people are still very poor. The gap between the rich and poor is wider. Over dependant on oil which could be a problem in the future.
Nigeria's HDI has increased from 0.46 in 2005 to 0.50 in 2013

Aid in Nigeria Aid from the USA has helped to prevent the spread of AIDS. The world bank approved AID for loans for business

60% of Nigerians still live in Poverty and there remain real threats to the environment

Shell One of the worlds largest oil companies.
Major contributions in taxes ✓
Employs 65000people ✓
Many oils pills have caused environmental damage ✗

Spanish
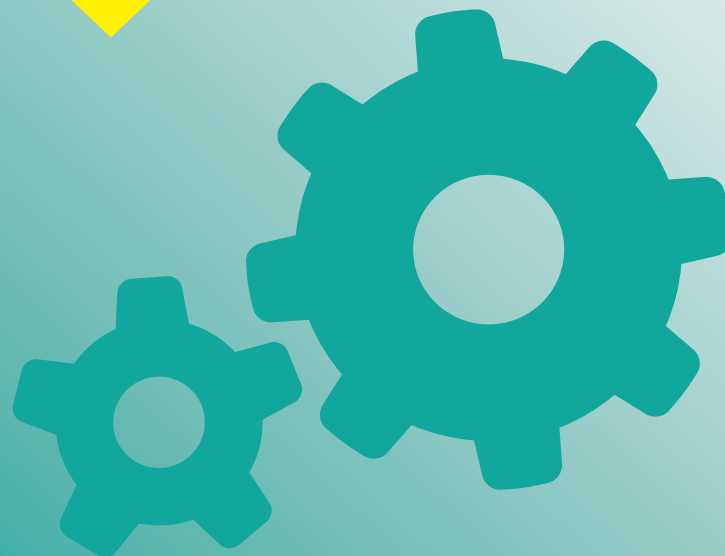
Knowledge organiser: el colegio

Las Asignaturas

El dibujo	art	La biología	biology
El inglès	English	La geografía	geography
El francés	French	La historia	history
La educación física	PE	La informática	ICT
La física	physics	La lengua	language
La religión	RE	La química	chemistry
La tecnología	DT	Los idiomas	languages
Los empresariales	Business studies	Las matemáticas	maths
Las ciencias	science	Una asignatura	School subject
La ESO	GCSE	La pizarra	Board

Reasons

bueno/a/os/as	Good	sencillo/a/os/as	Easy
malo/a/os/as	Bad	difícil (es)	Difficult
divertido/a/os/as	Fun	fácil (es)	Easy
aburrido/a/os/as	Boring	útil (s)	Useful
duro/a/os/as	Hard	inútil (s)	Useless

Mis Profesores (My teachers)

Mi profe…	My teacher…	nunca se enfada	never gets angry
enseña / explica bien	teaches / explains well	me hace pensar	makes me think
tiene buen sentido del humor	has a good sense of humour	nos da consejos / estrategias	gives us advice / strategies
crea un buen ambiente de trabajo	creates a good working atmosphere	nos pone muchos deberes	gives us a lot of homework

Las Reglas (Rules)

Las normas son estrictas		Rules are strict	
Las normas son necesarias		Rules are necessary	
Positive		Negative	
Se puede	One can	No puedo	I cannot
Tengo que…	I have to	No se permite	One cannot
Hay que	You must …	Está prohibido	It is banned
Se debe	You shoud	No debería	I should not
Ser puntual	To be on time	Correr por los pasillos	Run in the corridors
Respetar a los demas	Respect one another	Comer chicle	To chew gum
Hacer los deberes	To do homework	usar el móvil en clase	To use mobile in class
Ser amable	To be nice	dañar las instalaciones	To damage the facilities
Ser puntual	To be on time	ser agresivo o grosero	To be aggressive
Respetar a los demas	Respect one another	Correr por los pasillos	Run in the corridors

Opinions

Me gusta(n)	I like
Me encanta(n)	I love
Saco buenas/malas notas en	I get good/ bad grades
Se me da(n) bien / mal	I am good / bad at
Mi asignatura favorita	My favourite subject
La asinatura que más me gusta	The subject that I like the most
Más … que / menos…que	More/ less … than
Tan … como	As….as

Spanish

El colegio y La educación

Los verbos

Estudiar	To study
Aprender	To learn
Enseñar	To teach
Mejorar	To imporve
Ayudar/apoyar	To help
Aprobar	To pass an exam
Suspender	To fail an exam
Castigar	To punish
Preguntar	To ask
Contestar	To answer
Durar	To last
Llevar	To wear
Acosar	To bully
Elegir	To choose
Dejar de + infinitive	To drop/ stop/quit
Cambiar	To change /exchange
Terminar/ Empezar	To finish/ to start
Repasar	To revise
Entender	To understand
Hacer	To do
Saber (sé)	To know (I know)
Comportarse	To behave
Esforzarse	To put the effort in
Asistir a clase	Attend class

Las Instalaciones (Facilities)		El Uniforme (Uniform)	
(En) Mi colegio/ instituto	(In) mu school	Llevo	I wear
hay	There is/ are	Los chicos llevan	Boys wear
tiene	(it) has	Las chicas llevan	Girls wear
tenemos	We have	El uniforme	Uniform
tengo	I have	un jersey	A jumper
un patio	A yard	Un vestido	A dress
un edificio	A building	Una falda	A skirt
un aula	A classroom	Una camisa	A shirt
un comedor	A dining room	Una chaqueta	Jacket/ Blazer
un laboratorio	A lab	Una camiseta	A T-shirt
un campo de fútbol	A football pitch	Una bufanda	A scarf
un gimnasio	A gym	Una corbata	A tie
una piscina	A pool	Unas zapatillas	Trainers
una sala de profesores	A staff room	Unos pantalones	Trousers
una biblioteca	A library	Un abrigo	A coat
Un vestuario	A changing room	Mi Horario (Timetable)	
Los servicios	Toilets		
muchos alumnos	Many pupils		
Mi colegio/ insti es	My school is		
Grande	Big		
Pequeño	Small		
Viejo	Old		
Moderno	Modern		
Cusio	Dirty		
limpio	clean		

Describing your school

mixto	mixed
femenino	all girls
masculino	all boys
público/a	state school
privado /a	private school
grande	big
obligatorio/a	compulsory
estresante	stressful
pequeño/a	small
moderno /a	modern
antiguo-a / viejo-a	old
feo-a / bonito-a	ugly / pretty
cómodo-a / incómodo-a	comfy/ uncomfortable
largo-a/ corto-a	long / short
Está cerca de mi casa	It is near my home
Está lejos de mic asa	It is far from home

Las actividades extraescolares	Extra curriular
Los deportes	Sports
Toco instrumentos	I play instru,emts
Canto en el coro…	I sing in the choir
Voy al club de…	I attend the club
Soy miembro del club de…	I am a member
Ajedrez	chess
desde hace … años / meses	*for years / months*

Spanish

Knowledge organiser: El Trabajo y el Futuro

Los verbos para el trabajo / future

Trabajar	To work
Conseguir	To achieve
Ganar	To earn/gain
Continuar	To continue
Tomar	To take
Buscar	To search
Solicitar	To apply
Esperar	To hope
Desear	To wish
Convertirse en	To become
Querer	**To want**
Hacer	**To do**
Tener	**To have**
Ir	**To go**

Los sustantivos Post 16

Una carrera	A degree
Un aprendizaje	Apprenticeship
Los conocimientos	Knowledge
Las abilidades	The skills
Un empleo	A job
Un empleo a tiempo parcial	A part time job
Las practicas laborales	Work experience
La Universidad	University
El colegio superior	Colleague
Un año sábatico	A gap year
Trabajo en equipo	Team work
El paro / desempleo	Unemployment
El dinero	Money
Sueldo	Salary/wages

Los sustantivos - Empleos

Abogado/a	Lawyer	Albañil	Bricklayer/builder
Amo de casa	Housewife	Azafato/A	Flight attendant
Hombre de negocio	Business man	Bombero/A	Fireman
Mujer de negocios	Business woman	Cocinero/A	Cook
Veterinario/A	Vet	Diseñador/A	Designer
Camarero/A	Waiter	Enfermero/A	Nurse
Escritor/A	Writer	Fontanero/A	Plumber
Ingeniero/A	Engineer	Funcionario/A	Civil servant
Jardinero/A	Gardener	Mecánico/A	Mechanic
Médico/A	Doctor	Soldado	Soldier
Peluquero/A	Hairdresser	Periodista	Journalist
Policia	Police officer	Recepcionista	Receptionist
Cajero/A	Cashier	Canguro/A	Babysitter
Encargado/A	Manager	Jefe	Boss
Contable	Accountant	Dependiente	Shop assistant

Los verbos para ganar dinero de bolsillo

Para ganar dinero, ayudo en casa		To earn money, I help at home	
Tengo que / Suelo …		I have to / I usually …	
Hacer de canguro	To babysit	Cocinar	To cook
Pasar la aspiradora	To hoover	Planchar la ropa	To iron the clothes
Pasear el perro	To walk the dog	Cuidar a mis hermanos	Look after my brothers
Lavar los platos	To do the dishes	Sacar la basura	To take the rubbish out
Limpiar el baño	To clean the bathroom	Cocinar	To cook

Los adjetivos

|	
Bien /mal pagado	Well/ badly paid
Agotador/cansado-a	Tiring
Estresante	Stressful
Gratificante	Rewarding
Exigente	Demanding
Molesto/a	Annoying
Variado/a	Varied
Estás de pie todo el rato	You are on your feet all the time

La Importancia de los idiomas

Aprender idiomas es importante porque ...	To learn languages is important because...
Te abre la mente	It opens your mind
Aumenta tu confianza	It increases your confidence
Te hace parecer más atractivo	It makes you feel happy
Mejora tus prespectivas laborales	It improves your job opportunities
Te ayuda a conocer nuevos sitios	It helps you to meet new friends
Te permite hacer nuevos amigos	It allows you to make new friends
Te permite trabajar en el extranjero	It allows you to work abroad
Te permite estudiar en el extranjero	It allows you study abroad
Estimula el cerebro	It stimulates the brain
Te permite descubrir nuevas culturas	It allows you to discover new cultures
Te ayuda a mejorar tu lengua maternal	It allows you to improve your mother tongue

Very Important

Saber	To know (knowledge)
Sé	I know
No sé	I do not know
Conocer	To know (people) / To meet
Conozco	I know (people) / I meet (people)

Ir a la Universidad

Lo bueno de ir a la universidad es que ...	The good thing is that ...
puedes tener más libertad	you can have more freedom
aprendes nuevas abilidades	you learn new skills
conoces a gente nueva	meet new people
puedes un mejor trabajo si vas a la universidad	you can get a better job if you go to university
puedes recibir una beca para estudiar en el extranjero	you can receive a grant to study abroad
Lo malo de ir a la universidad es que	The bad thing is that ...
puede ser cara	it can be expensive
echas de menos a tus padres	you miss your family
terminas con muchas deudas	you end up with a lot of debts
tienes que irte de casa	you have to leave home

Gramátca

Este	This (masculine + singular)
Esta	This (feminine + singular)
Estos	These (masculine + singular)
Estas	These (feminine + plural)

Be careful

Esta Está	This It is

Religious Studies
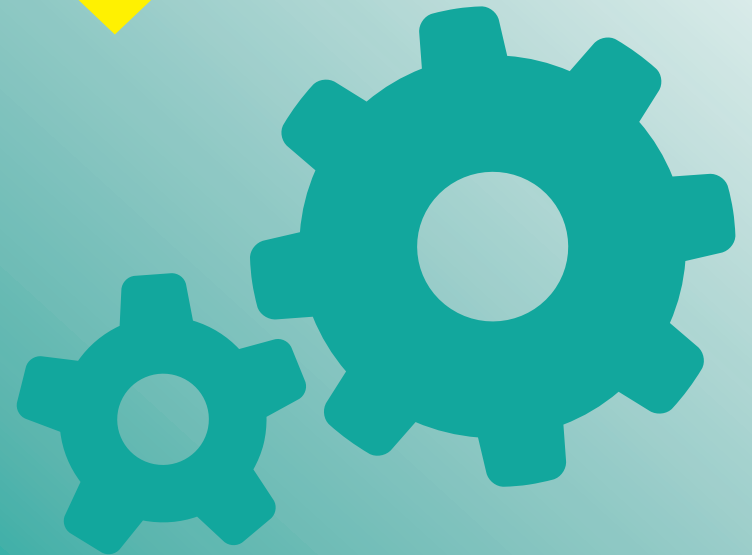
Islam Beliefs

Sunni and Shi'a beliefs: split over leadership (Abu Bakr v Ali) and differ over e.g. imams and divine justice
Sunni- 6 Articles of Faith (tawhid/angels/books/prophets/afterlife/predestination)
Shi'a- 5 Roots of Usul ad-Din (tawhid/divine justice/prophethood/imams/Day of resurrection)

Nature of Allah- Tawhid=Allah is the one God who created and sustained the earth- *'he is God the one', 'God the eternal', he was not born and has no children, 'no one is comparable to him'* (Qur'an) This means: only worship God, nothing should be more important than God, there should be no images of him. Shirk (putting something above God) is the worst sin.
God is:
- Infinite- has no beginning or end
- Omnipotent- (all powerful), shown by creation
- Merciful- sends prophets and cares for people: *'the merciful and compassionate'* (Qur'an)
- Transcendent- outside universe and beyond understanding
- Immanent- present and active in the world e.g. answering prayer
- Just- will judge people fairly of the Day of Judgment

Qur'an- most important holy book believed to be final undistorted message from Allah. First words of the Qur'an given by Jibril to Muhammad on the Night of Power. It has remained in Arabic exactly as given to Muhammad. Sunni - it is eternal like God and has always existed/Shi'a - it is the essence of God but not eternal and it can be added to and interpreted by imams
Other books (though these are believed to have been corrupted):
- Sahifah (Scrolls of Abraham)- no longer exist
- Tawrat (Torah)-revealed to Moses and in the Bible
- Zabur (Psalms)- songs of praise revealed to David
- Injil (Gospel)- revealed to Jesus but some lost
Other sources of authority- Sunnah (what Muhammad did), Hadith (what Muhammad said)
Shi'a also use Hadith of Ali and the imamate (leaders descended from Muhammad) who can interpret the Qur'an correctly

Prophets- give Allah's messages to people, 25 prophets mentioned in Qur'an e.g.
Adam- first prophet, angels bowed to him, he disobeyed God and ate forbidden fruit in Garden of Bliss, then forgiven by God and given job of looking after the world (stewardship)
Ibrahim- showed faith in God by rejecting polytheism by destroying idols, rebuilding the ka'aba and being prepared to sacrifice his son
Muhammad- final prophet *'seal of the prophets', 'God's messenger'* (Qur'an) Qur'an revealed to him on Night of Power; taken by angel on Night Journey to Jerusalem and then into heaven; after battle reclaimed Makkah as a Muslim city

Predestination- belief that everything that happens is known and planned by Allah
Sunni- God has already decided everything that will happen
- Allah knows what will happen and this was written in the 'Preserved tablet' before creation
- Allah's overall plan cannot be changed so Muslims should accept the will of Allah-*'only Allah has decreed what will happen to us'* (Qur'an)
Shi'a- God knows what will happen but does not decide it, so he can judge fairly
- God is eternal so he knows what choices people make but they have freewill to make the choices- *'God does not change the condition of a people… unless they change what is in themselves'* (Qur'an)

Angels- 80+ references in the Qur'an
- God's first creation made from light
- do not have freewill so are completely obedient to Allah
- serve and praise Allah
- protect humans
- give God's messages through the prophets
- record people's good and bad deeds on the 'book of deeds' that will be used by Allah on the day of Judgement.
Specific angels- Jibril: chief angel who revealed Qur'an to Muhammad/ Israfil: blows the trumpet at the Last Judgement/ Mikail: sends weather at Allah's command/ Izra'il: angel of death who takes final breath and takes person to heaven or hell

Afterlife (akhirah)-life is seen as a test and preparation for the afterlife. Muslims will try and obey Allah and behave well so they can look forward to paradise
Barzakh-waiting time between death and Day of Judgement. Questioned by angels on faith
Day of Judgment: Sunni- Jesus will appear and gather true Muslims together/Shi'a- 12th imam will return
Allah will judge everyone according to the 'book of deeds'. More good deeds than bad + martyrs   heaven
More bad deeds than good + enemies of Islam   hell
Heaven (al Jannah)- paradise, *'garden',* peace in presence of Allah
Hell (jahannan)- separation from God and constant pain- *7 levels*

Food Technology
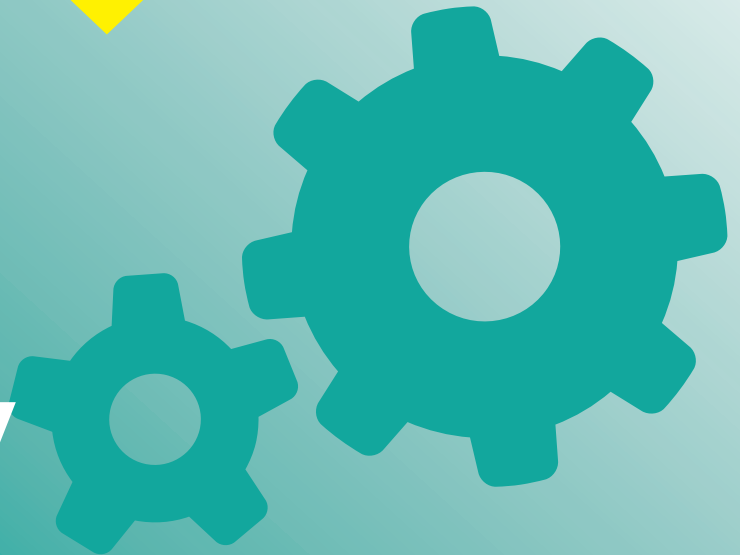
KS4 Y10 Food Knowledge HT6: Food Choice & food provenance

Food choice
Food choices for a balanced diet depend on many factors, such as:
- advertising and other point of sale information;
- cost and economic considerations;
- cultural or religious practices;
- environmental and ethical considerations;
- food availability;
- food preferences;
- food provenance;
- health concerns;
- individual energy and nutrient needs;
- portion size;
- social considerations.

Consumer information
Information can help consumers make informed choices, including:
- advertising and marketing;
- media, online blogs/forums;
- packaging, nutrition and health claims;
- point of purchase information and product placement;
- recipe ideas.

Cost and economic considerations
The cost of food and money available will influence people's food choices. If money is limited, people may choose to buy more basic items. Luxury items might then be selected for special occasions.

Food prices
Food prices can and do change throughout the year and over time. This may be due to a variety of reasons, including:
- climate and weather patterns;
- crop failure;
- crop disease;
- seasonality;
- consumer demand;
- agricultural costs increase;
- fuel prices go up;
- increased use of bio fuels.

Budgeting
There are many things that we can do to spend money wisely on food. Examples can include:
- eating the seasons;
- stocking up on food with a long shelf-life;
- taking time to plan meals and write a shopping list;
- cooking using one pot;
- making fake-aways rather than buying takeaways;
- using leftovers;
- replacing branded items with cheaper items;
- comparing prices and shop around to find the cheapest items;
- growing your own food.

Cultural or religious practices
People around the world choose to eat or avoid certain food due to their cultural or religious practices.

Religion	Pork	Beef	Lamb	Chicken	Fish
Islam	x	Halal only	Halal only	Halal only	✓
Hinduism	x	x	✓	✓	✓
Judaism	x	Kosher only	Kosher only	Kosher only	✓
Sikhism	x	x	✓	✓	✓
Buddism (strict)	x	x	x	x	x
Seventh-day Adventist Church	x	x	x	✓	✓
Rastafari movement	x	x	x	x	x

Environmental and ethical considerations
Some considerations when buying food might be:
- fair trade;
- local food;
- genetically modified (GM) food;
- organic food;
- free range.

Food availability
Buying food when it is in season will often mean that the price is lower. Technology and the importation of food has allowed food to be available all year round.

To find out more, go to: https://bit.ly/3dpC9Fj

Personal preferences
A number of factors can influence personal preferences, including:
- colour, size and shape of crockery and cutlery used;
- portion size;
- serving style;
- taste, aroma, texture, appearance, shape and colour of food.

Food provenance
Food provenance is about where food is grown, caught or reared, and how it was produced. Food certification and assurance schemes guarantee defined standards of food safety or animal welfare. There are many in the UK, including:

Red Tractor   **The British Lion mark**   **Marine Stewardship Council**

Health concerns
People may choose their food based on their own or their family's health and wellbeing:
- allergy and intolerance, e.g. lactose intolerance, coeliac disease, wheat allergy, diary allergy;
- body image;
- health issues, e.g. coronary heart disease, type 2 diabetes, inflammatory bowel disease, over or under malnutrition;
- mental health.

Individual energy and nutrient needs
The amount of energy and nutrients needed differs between different age groups and between males and females.
Energy needs also depend on activity levels. For example, athletes will have much higher energy requirements due to their high level of physical activity.

Key terms
Advertising: Advertising is a form of communication for marketing and used to encourage, persuade, or manipulate an audience to continue or take some new action.
Ethical: Relating to personal beliefs about what is morally right and wrong.
Food certification and assurance schemes: Defined standards of food safety, quality or animal welfare.
Food provenance: Knowing where food was grown, caught or reared and how it was produced.
Marketing: Promoting and selling products or services, including market research and advertising.
Religion: A particular system of faith and worship.
Seasonal food: Food grown at a particular time of year.
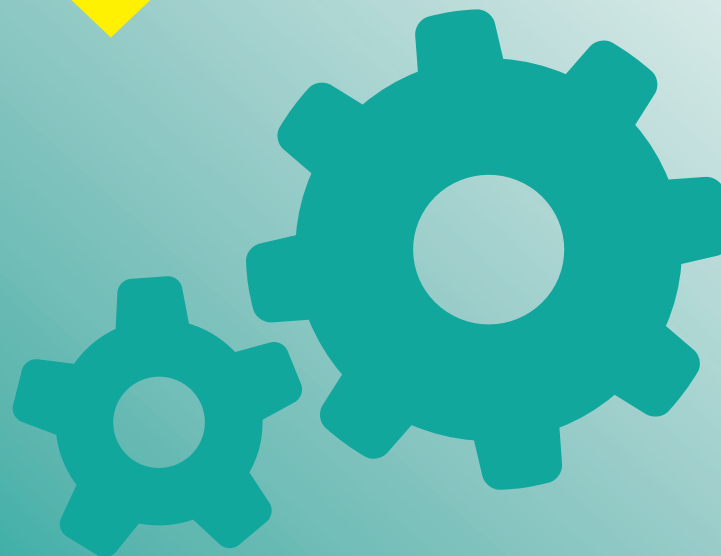
Portion size
Having a healthy, balanced diet is about getting the right types of foods and drinks in the right amounts.

Social considerations
- Body image and peer pressure.
- Development of ready meals and a wider range of convenience foods.
- Development of labour saving devices.
- Lack of competence and confidence in the kitchen.
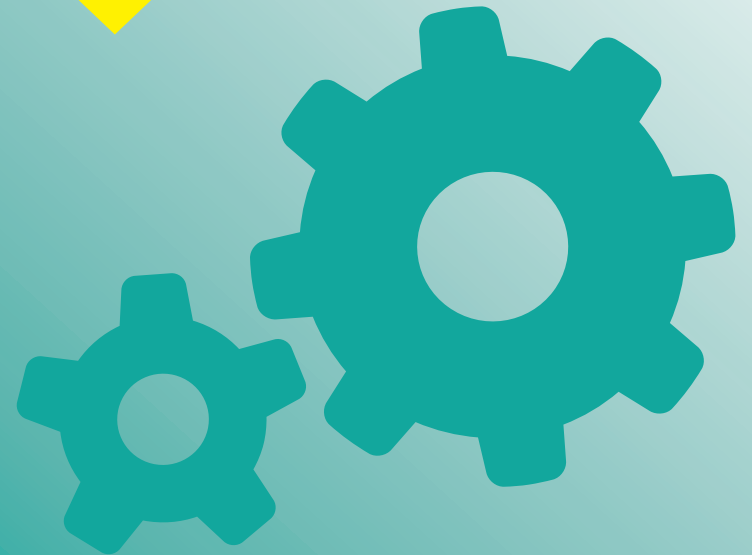- Lack of time.
- Living arrangement (e.g. living alone).

Tasks
1. Consider your own household and create a mind map of the social and economic considerations that affect your food choice. Explain how different this might be to your grandparents at your age.
2. Explain why food provenance is important to some consumers. Include examples of UK food certification and assurance schemes.

IT

Understand how date and information can be collect, stored and used

Project life cycle	Criteria		
	MB1: 1 to 3 marks	**MB2: 4 to 6 marks**	**MB3: 7 to 10 marks**
Use of IT Tools and Techniques **1a** To initiate/plan	**Limited** use of tools and features results in potential of technology being under-utilised for the intended purpose. May use only one application but where more than one is being used they are used in isolation. [1 2 3]	**Adequate** use of tools and features results in potential of technology being utilised for the intended purpose. There are aspects of integration across two or more applications that are used. [4 5 6]	**Effective** use of tools and features results in potential of technology being fully utilised and clearly aligned to the intended purpose. Applications used are fully integrated. [7 8 9 10]
	MB1: 1 to 4 marks	**MB2: 5 to 8 marks**	**MB3: 9 to 13 marks**
Project Life Cycle Processes and Methods **2a** Analysis of brief and planning approach (Initiation/ planning)	Objectives and requirements are stated and there is a list of tasks. Consideration of dependencies can be assumed but there is no evidence of it. Success criteria are **described**. Constraints, risks, resources and milestones have been **identified** although some obvious ones have been missed and no links are made between them. Although there are obvious gaps in planning activities, the plan is feasible. [1 2 3 4]	Objectives and requirements are stated. There are logical dependencies shown for **some** tasks and sub-tasks although it is not presented as a critical path. There is an **explanation** behind the choice of success criteria. Links between constraints, risks and resources have been identified although **some** links are missed or not made clear. Ways to mitigate are **stated** but the consequences of actions are not evidenced. [5 6 7 8]	Objectives and requirements are stated. A critical path is defined, with logical dependencies shown between key milestones and sub-tasks. There is a **justification** of the success criteria chosen. Links between constraints, risks and resources are clearly defined and contingencies identified. Mitigation for the plan is **explained**. [9 10 11 12 13]

Computer Science

FETCH

The address is generated by the Program Counter (PC) and is carried to the Memory Address Register (MAR) using the **Address Bus**. The PC then updates and stores the next memory address, ready for the next round of the cycle. The data or instruction that is in that memory location is placed onto the **Data Bus** and carried to the processor and is stored in the Memory Data Register (MDR).

DECODE

The data or instruction is then decoded to find out if it is a piece of data or if it is an instruction to do something such as ADD, STORE, SWITCH, REPEAT etc.

EXECUTE

The CPU performs the actions required by the instruction. If it is an instruction to control input or output devices the Control Unit will execute the instruction. If it is a calculation then the Arithmetic and Logic Unit (ALU) will execute the instruction. The results of any calculations are recorded in the Accumulator.

VON NEUMANN ARCHITECTURE
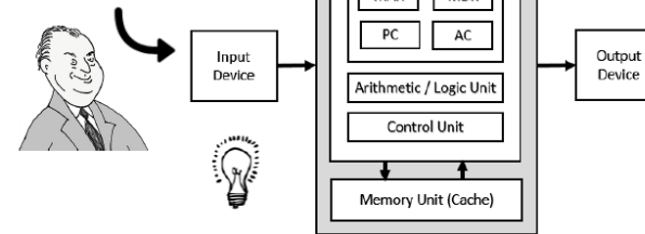
Performance of the CPU

Clock speed
The clock speed describes how fast the CPU can run. This is measured in megahertz (MHz) or gigahertz (GHz) and shows how many fetch-execute cycles the CPU can deal with in a second.

Cache size
The more data that can be held in the cache, the shorter the trips the electric pulses need to make so this speeds up the processing time of each of those billions of electrical signals, making the computer noticeable faster overall.

Cores
CPUs with multiple cores have more power to run multiple programs at the same time.

Creative iMedia

What are the different purposes of websites?

- To entertain
- To promote
- To inform
- To communicate
- To advertise
- To Educate
- To sell
- To help

What are the different devices used to access websites?

- Mobile Phone
- Smart watch
- Tablet
- Laptop / PC
- Smart speaker
- Smart TV
- Games Console
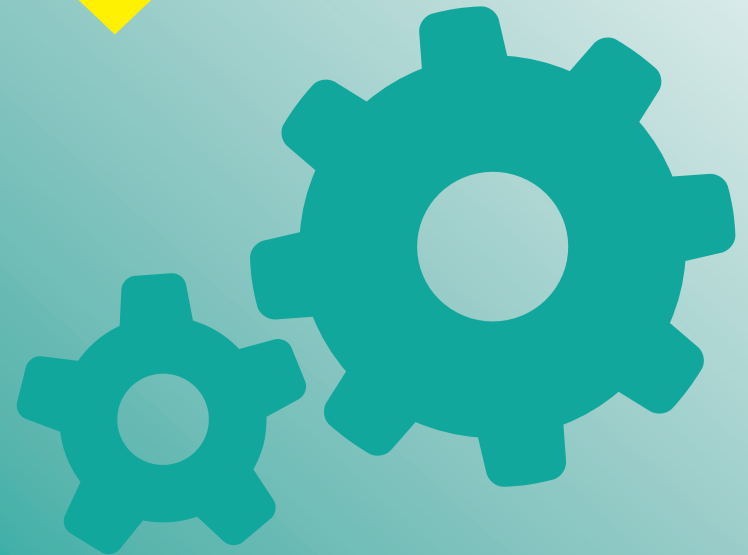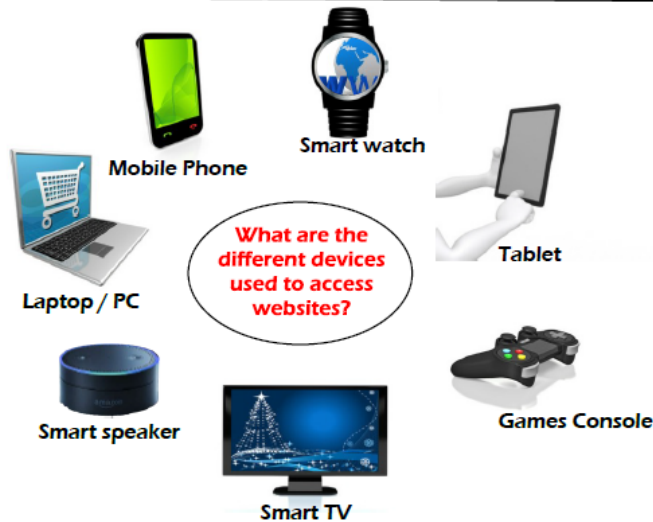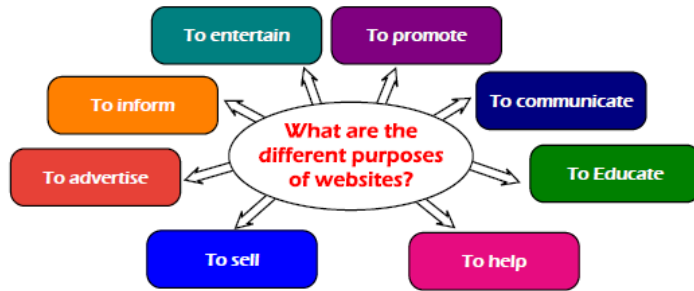
Which different ways can be used to connect to the Internet?

1. ADSL Broadband over existing phone lines.
2. Cable Broadband -.through cables shared by the TV service
3. Fibre Broadband.- High speed fibre optic cables
4. Ethernet - a cable running from a router / network point
5. Wi-fi - wireless signal from a wireless router
6. Mobile Data 3G and 4G

How does the appearance of websites change on different devices?

1. The screen resolution you are using can change the look of a site.
2. The operating system used can change the look of a site.
3. Fewer images may be used on mobile versions.
4. The web browser used may change things.
5. The orientation can change.

Advantages and disadvantages of using the Internet

Advantages	Disadvantages
1. Easy communication across the world	1. Viruses
2. 24/7 access to information	2. Cyber-bullying / Trolling
3. Entertainment	3. Viruses
4. Online Banking	4. Exposure to inappropriate material
5. Online Shopping	5. Identity theft
6. Learning Resources and information availability	6. Leakage of private information

What are the common features of websites?

- Banner
- Navigation Bar
- Logo / Title
- Shopping basket
- Search bar
- Images
- Multimedia
- Page Titles
- Internal Links / Buttons
- Text
- Social Media
- Web Links
- Email links
- Copyright information

Vestibulum

Vestibulum Tellus
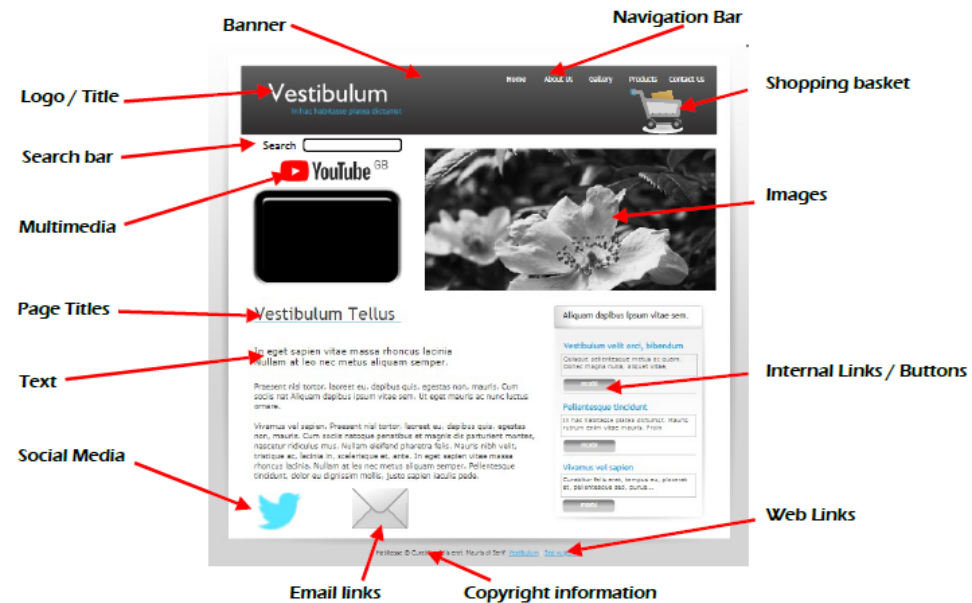
Interactive elements: e.g. rollovers, animations, games, adverts, surveys, forums, quizzes, comment boxes, audio files

Art

A02

Refine work by exploring ideas, selecting and experimenting with appropriate media, materials, techniques and processes

REFINE
EXPERIMENT
EXPLORE TECHNIQUES AND SKILLS
SELECT
EXPLAIN
PHOTOGRAPHS
IDEAS

You need to develop and explore ideas using media, processes and resources, reviewing, modifying and refining work as it progresses.

This assessment objective allows you to demonstrate to the examiner how creative and versatile you are. You need to start with an idea or theme and develop it, exploring lots of possible solutions using different materials and techniques and processes.

For every project/theme

Try out different materials and techniques.
Explore and experiment
Refine ideas and compositions

Expectations:
•It is expected that you will complete quite a lot of work for this course through the homework programme, approximately two hours per week
•It is advisable to attend GCSE Art club sessions each week
•You will need to hand in a sketchbook as part of your portfolio component.

Review
Select
Organise
Explore
Experiment
Refine

Assessment

At the end of each project your work will be formally assessed by you and your teacher. However as your project progresses your teacher will assess your progress both with written and verbal feedback in lessons. This should give you a good indication of how well you have met the success criteria for each assessment objective and whether you are meeting your targets.
Please remember grades are not set in stone and any improvements you make to your work can be re assessed by your teacher.

Design Technology
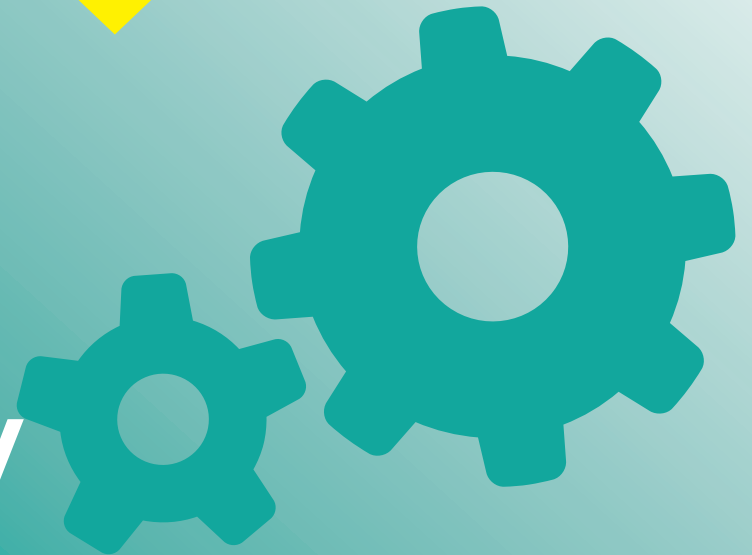
Identifying & Investigating Design Possibilities

Mark band	Description
9 – 10	Design possibilities identified and thoroughly explored, directly linked to a contextual challenge demonstrating excellent understanding of the problems/opportunities.
	A user/client has been clearly identified and is entirely relevant in all aspects to the contextual challenge and student has undertaken a comprehensive investigation of their needs and wants, with a clear explanation and justification of all aspects of these.
	Comprehensive investigation into the work of others that clearly informs ideas.
	Excellent design focus and full understanding of the impact on society including; economic and social effects.
	Extensive evidence that investigation of design possibilities has taken place throughout the project with excellent justification and understanding of possibilities identified.
6 – 8	Design possibilities identified and explored, linked to a contextual challenge demonstrating a good understanding of the problems/opportunities.
	A user/client has been identified that is mostly relevant to the contextual challenge and student has undertaken an investigation of their needs and wants, with a good explanation and justification of most aspects of these.
	Detailed investigation into the work of others that has influenced ideas.
	Good design focus and understanding of the impact on society including; economic and social effects.
	Evidence of investigation of design possibilities at various stages in the project with good justification and understanding of possibilities identified.
3 – 5	Design possibilities identified and explored with some link to a contextual challenge demonstrating adequate understanding of the problems/ opportunities.
	A user/client has been identified that is partially relevant to the contextual

DO:

- Investigate the contexts thoroughly
- Identify and choose a client wisely
- Look at work of others
- Investigate the impact on society with social and economic effects
- Make sure the research helps your designs
- Explain where the sources have come from
- Address a NEED!

DO NOT:

- Investigate research that is irrelevant
- Chose a client that cannot provide feedback
- Ignore existing products
- Design with yourself in mind rather than the client
- Copy information without extraction and analysis
- Forget to tell a story and how the work has influenced your design thinking

Mood Board

Just Remember!

Collect images that you think are relevant to the potential problem.

Collect images that you think are relevant to the contextual challenge theme. This may inspire you.

Highlight and comment on images that inspire you, you find interesting.

Pictures can also be products, work of other designers, lifestyle, colours, patterns, graphics, inspiration from nature etc.

Client Profile – Client Profile – Client Profile

- *Who is your user?*
- *Who is your target market?*
- *What age are they?*
- *What are their hobbies?*
- *Who is your Client (Primary User)?*
- *What is their likely budget?*

Just Remember!

This cannot be a member of your class or your DT Teacher.

Choose someone who can give you constant feedback and you can access/contact easily.

Choose someone who is of a relevant age for the product you have in mind.

Choose someone who can physically test the product at the end.

Section A Possible student Pathway

Contextual Brainstorm · Mood board · Client Identification · Client Survey/Interview · Looking at Existing Products · Product Disassembly · Design Problem Possibilities · Work of Others, initial sketches · Economic, Social, cultural, moral impact of your design · Clients Needs & Summary
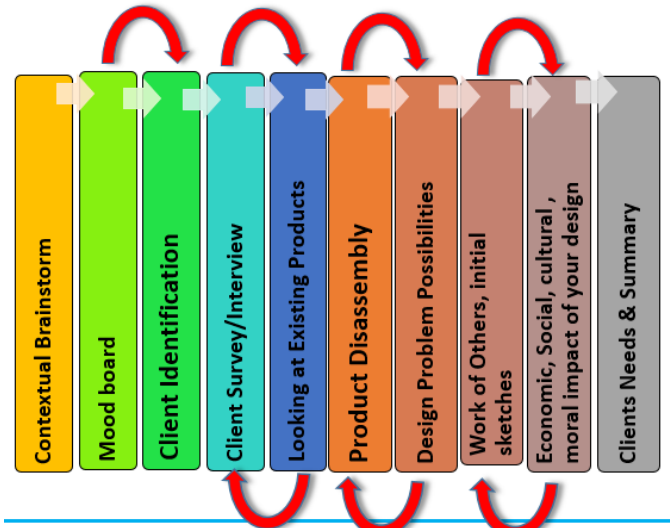
Client Survey

Just Remember!

Give these questions to your client or selected target market/Users.

What do you need to find out?

Ask a mixture of open and closed questions?

Make the questionnaire is user friendly, easy to follow , simple Q&A.

Existing Products

Just Remember! And

Use the internet and sites such as Google, Amazon and Google shopping.

What do you need to find out?

Use the table and find out the information shown.

Now you have looked at them what have you found out, style, cost, materials, negative and positive reviews?

SMSC

Just Remember!

Environmental issues regarding your product are important factors in today's society.

Social, cultural and moral issues regarding your product are important factors in today's society.

Inclusive design and Design for all regarding your product are important factors in today's society.
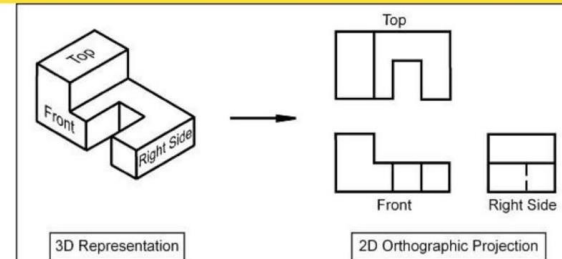
Engineering Design
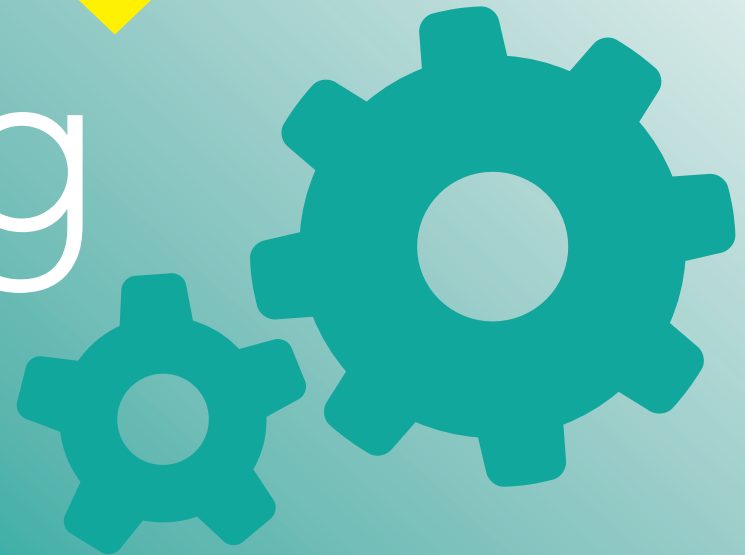
R107: OCR Engineering design
Designing and developing Ideas

ORTHOGRAPHIC PROJECTION.

Top

Front

Right Side

Top

Front   Right Side
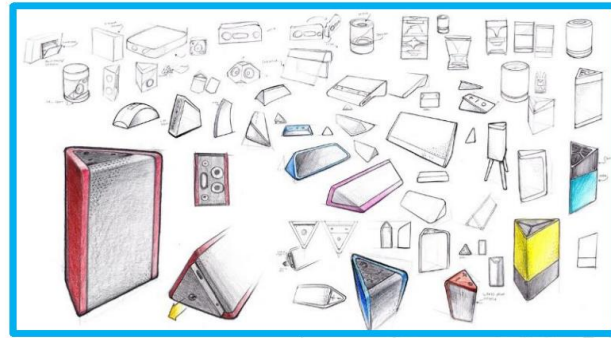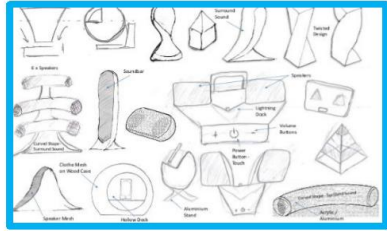
3D Representation   2D Orthographic Projection

Key Words:
Thumbnail sketch
Initial idea
Developed idea
Working drawing
Dimension
CAD
Standardised
Component
Oblique
One Point Perspective
Two point perspective
Orographic Projection
Freehand
Thick and Thin lines
Rendering
Annotation
Two Dimensions
Three Dimensions
Exploded View
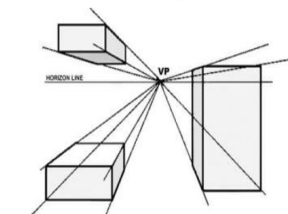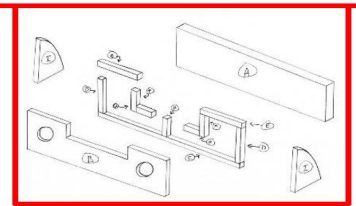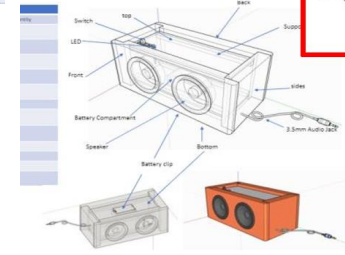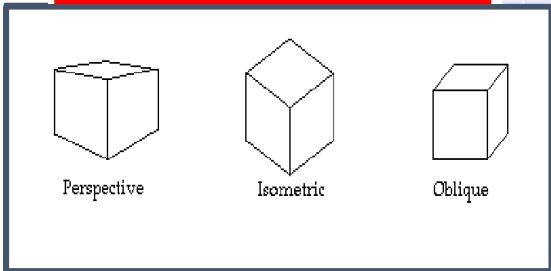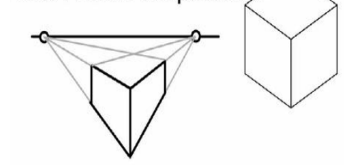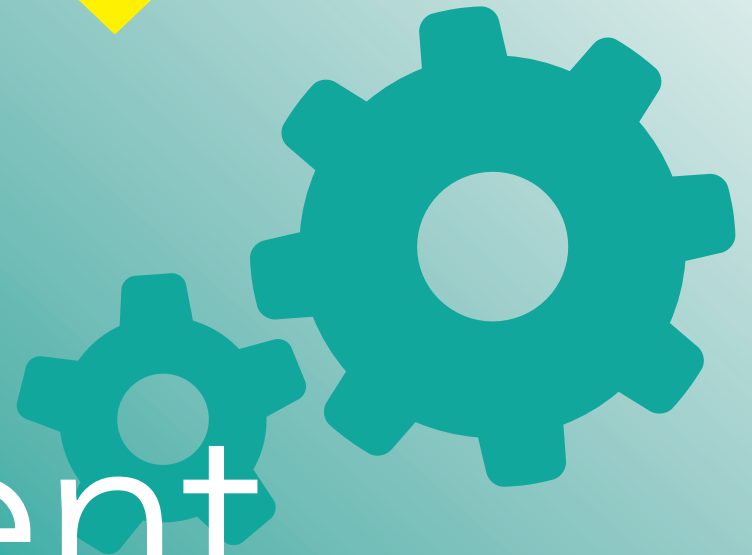
Switch   LED   Top

Side   Back

Supports

Speaker   Side

Battery Clip   Base

Battery Component   3.5mm Audio Jac

One Point Perspective

HORIZON LINE

VP

Two Point Perspective

1 Pont perspective:
Horizon
Vanishing point
Construction line
3D
Illusion

Perspective   Isometric   Oblique

Child Development

Component 3: Supporting children to play, learn and develop

Physical circumstances that may impact learning/development

Sensory impairment
If a child has a sensory impairment this means that they have difficulty in seeing (visual impairment) or hearing (hearing impairment).

Restricted gross motor skills
A child is unable to control the large muscles in their bodies as well as other children of the same age

Restricted fine motor skills
A child is unable to control the small muscles in their hands and fingers as well as other children of the same age

Delayed gross motor skills
The large movements of a child's body are not progressing as quickly as other children of the same age.

Delayed fine motor skills
The small movements of a child's hands and fingers are not progressing as quickly as other children of the same age

Intellectual circumstances that may impact learning/development

Poor concentration levels
When children find it difficult to focus on what they are doing and/or

Delayed literacy skills
When a child's reading and writing skills are not progressing as quickly as other children of the same age.

Communication/language circumstances that may impact learning/development

English as an additional language
When English is not the first language of a child and the first language is the language to which the child has been exposed to since birth

Social and emotional circumstances that may impact learning/development

Limited interaction with adults?

Poor awareness of social norms and values?

Difficulty forming bonds with adults ?

Limited experience of play?

Friendships

What is expected across the age ranges?
0-18 months: Children will look at other children and play along side them
18 months- 3 years: Children usually start to form friendships at the end of this period
3-5 years: Children have usually developed one or two close friendships and may have a best friend

Disruptive behaviour

Types of disruptive behavior

- Challenging the authority of adults
- Trying to get attention
- Temper tantrums
- Hurting others
- Breaking toys

A child experiencing transition

Starting school
Moving between educational providers
Birth of a new sibling
Death of a family member
Moving house

Individual circumstances

What does not meeting expected milestones mean?

What does not initiating play mean?

What does unable to access learning activities at varying levels mean?

What does unable to grasp small objects mean?
What does difficulty understanding the rules of play mean?

What does difficulty communicating preferences and choices mean?

Component 3: Supporting children to play, learn and develop

Physical circumstance that may impact learning and development

Restricted gross motor skills
A child is unable to control the large muscles in their bodies as well as other of the same age

Restricted fine motor skills
A child is unable to control the small muscles in their hands and fingers as well as other children of the same age

Delayed gross motor skills
The large movements of a child's body are not progressing as quickly as other children of the same age

Delayed fine motor skills
The small movements of a child's hands and fingers are not progressing as quickly as other children of the same age

Sensory impairment
If a child has a sensory impairment this means that they have difficulty in seeing (hearing impairment) or hearing (hearing impairment).

Q How could visual impairment affect learning?

Intellectual circumstances that may impact development

Poor concentration levels
Some children have a short attention span and find it difficult to focus on what they are doing. This can lead to disruptive behaviour.

Delayed Literacy skills
When a child's reading and writing skills are not progressing as quickly as other children of the same age.

Q Can you remember when you learnt to ready and write? How old were you?

Social and emotional circumstances that may impact development

Limited interaction with adults
Not much communication and contact with adults.

Bond
An emotional ties between two people

Social norms and values
Attitudes and behaviours that are considered normal in society

Negative role model
Someone who does not set a good example

Q How does interaction with adults support children's learning and development?

What are individual circumstances?

Give an example of a child that may have individual circumstances?

How are children with individual circumstances supported in our school to help them to learn and develop?

Communication and language circumstances that may impact learning

English as an additional language

When English is not the first language of the child and the first language is the language to which the child has been exposed to from birth.

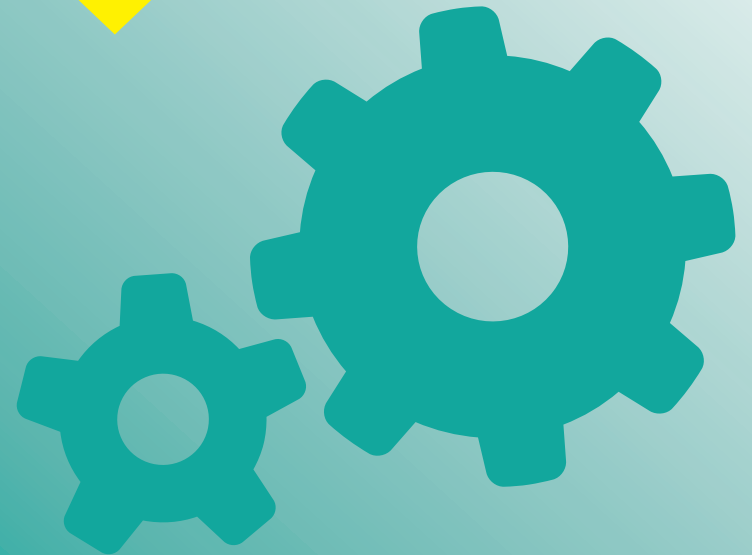**Q Give a benefit of being a child learning English as an additional language**

Friendships – what are they?

Disruptive behaviour – what is this?

What is a transition?

What is an expected milestone?

What are the different areas of development

Music

Learning Aim A: Plan, deliver and develop a music product

Any music product you create planning needs to be evidenced from the start.

Management skills to help develop your product and how to evidence it	
Management skill	**Evidence**
Focus/preparedness to work: the more work you put into a product the more you will get out of it	Diary/log
Time management: each task needs a deadline	Diary/log, minutes
Sharing responsibility/supporting colleagues: share out tasks so each person in your group has the ability to work effectively and to their strength.	Minutes E-mails
Motivation: keep busy, keep going!	Diary/log
Listening to feedback/respecting the opinions of others: keep talking to your target audience and peers. Ask them for feedback at each stage of your product.	Questionnaires Screen shots
Adaptable/trying out new things: if something is going according to plan make some changes	Diary/log
Communication: speak to people who can help deliver your product, make sure communication is effective, polite and mature.	E-mails, minutes
Research: important to gauge the success of similar products	Written documents
Monitoring progress: regularly review progress, adjust plans where necessary to ensure deadlines are met	Diary/log, minutes

Target Audience

It is extremely important you identify your target audience and involve them in the planning of your product.

1. Research what your target audience would like to listen to. Ask them and/or research using the internet
2. Get your target audience involved by:
   - Asking opinions of song choices
   - Asking for feedback on draft versions of your product

Other Evidence
Rehearsal schedules
Audio/visual evidence

Learning Aim B: Promote a music product

PROMOTIONAL MATERIAL
- Press release
- Poster
- Website
- Audio advert
- Video advert
- Merchandise
- Album/single cover (recording)
- Letter/email to friends and family

INDUSTRY PRACTICE The Music Industry is constantly changing and to be aware current promotional strategies research is essential.

STEPS TO SUCCESSFUL MARKETING
1) Look at successful products, similar to yours, and research how the product was promoted.
2) Choose one method of promotion for your own musical product
3) Find many examples of your chosen method of promotion and find commonalities in communicating essential information and industry practice.
4) Research which way is best to communicate information to your target audience.
5) Using all this information create your promotional material
6) Evaluate, on a regular basis, if your promotional material is successful.

INDUSTRY PRACTICE
From promotional material the target audience must be able to access your music product. However, audiences may also appreciate accessing information via a website/social networking.
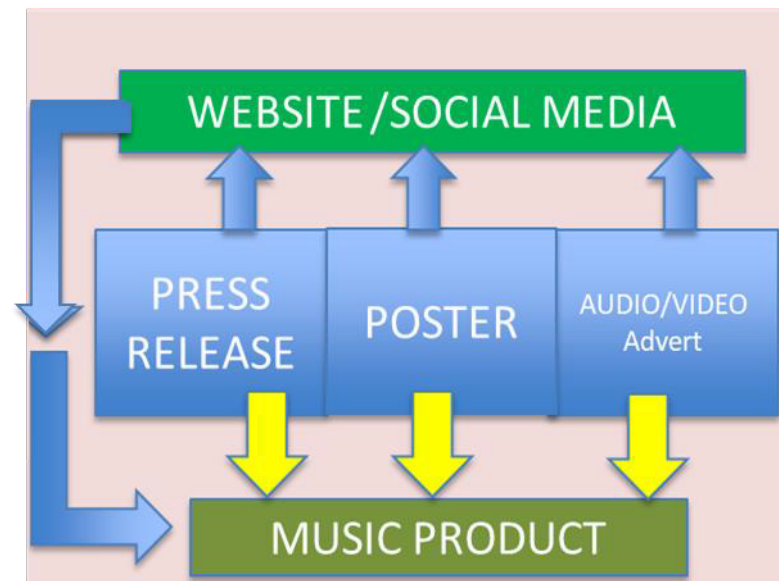
HELPFUL WEBSITES
Designing CD Covers
http://www.musicbizacademy.com/knab/articles/cdcover.htm
Promoting a concert
https://www.attendstar.com/how-to-promote-a-concert/

WEBSITE /SOCIAL MEDIA
PRESS RELEASE — POSTER — AUDIO/VIDEO Advert
MUSIC PRODUCT

Learning Aim C: Review the management of a music product

Now your product is complete you must review the work undertaken by you, your peers and others leading to the product's success, or lack of success.

MANAGEMENT PROCESS – Questions to ask yourself

Focus/preparedness to work. Were you and your team always focussed and ready to work?

Time management. Did you and your team organise your team effectively?

Sharing responsibility/supporting colleagues. Did you share responsibilities and support others who were falling behind?

Motivation. Did you keep motivated throughout the task?

Listening to feedback/respecting the opinions of others. Did you listen to feedback and make any changes because of it?

Adaptable/trying out new things. Did you try anything innovative?

Communication. How well did you communicate instructions?

Research. Did your research help in any of your ideas.

Monitoring progress. Did you regularly monitor your progress and the progress of your teams.

Artistic drive: Were your ideas successful? Did you think outside the box?

Marketing. Was it successful? Did you attract your target audience?

Structuring a paragraph

Identify an element of your product which was successful or identify an element of your product which needs improving.

Explain why this element of your product was a success/needed improving based on your management process.

The sentences above should be justified with any evidence you have to support your findings

An example – the product was a concert:
The room had a audience capacity of 50 and we managed to sell 40 tickets. Our marketing strategy was successful; we targeted friends and family of our performers by giving each performer a letter to give to their parents with details on how to purchase tickets. From the minutes of our meetings it is clear we expected, through our 15 performers, we'd sell 2 – 3 tickets per performer and therefore an audience of 30 – 45. To promote it further we could have promoted it throughout our school however we ran the risk of exceeding capacity for the room.

Use your evidence to justify a point you have made

Log book	Minutes to meetings	Screen shots
Feedback	Questionnaires	Recordings
Rehearsal schedule	Product sales	Research

Sport

Knowledge Organiser

Pearson BTEC
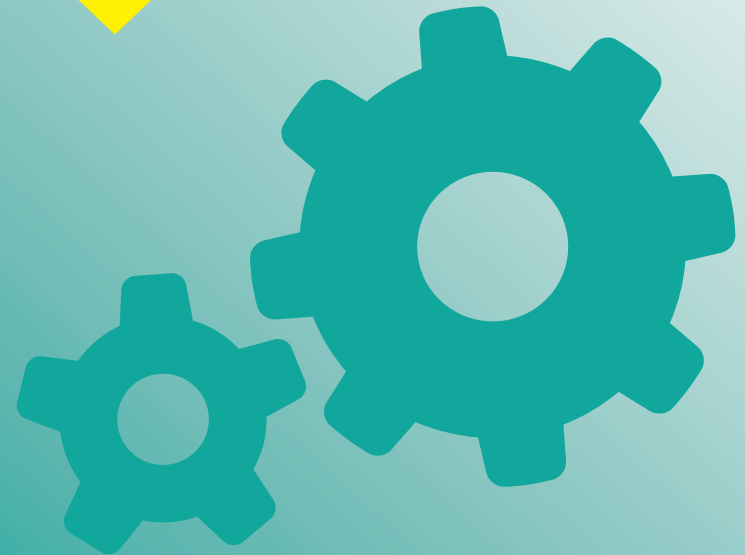
Unit 5 BTEC Sport Level 2

The Sports Performer in Action

P3 - Short-term effects of exercise

This part of the assignment requires you to explain the short-term effects that your training programme will have on your body!

You need to explain:

Short-term effects on the MUSCULOSKELETAL system	Short-term effects on the CARDIORESPIRATORY system
Increased joint range of movement	Increased heart rate and breathing rate
Micro tears in muscle fibres	Increased build-up of lactic acid

Energy Transfer Systems and Exercise

% Capacity of Energy System — 100%
Anaerobic Glycolysis
Aerobic Energy System
ATP - CP
10 sec | 30 sec | 2 min | 5 min +

Health Benefits of Physical Activity for Adults

IMMEDIATE — A single bout of moderate-to-vigorous physical activity provides immediate benefits for your health.

LONG-TERM — Regular physical activity provides important health benefits for chronic disease prevention.

Sleep — Improves sleep quality

Less Anxiety — Reduces feelings of anxiety

Blood Pressure — Reduces blood pressure

Brain Health — Reduces risk of developing dementia (including Alzheimer's disease) and reduces risk of depression

Heart Health — Lowers risk of heart disease, stroke, and type 2 diabetes

Cancer Prevention — Lowers risk of eight cancers: bladder, breast, colon, endometrium, esophagus, kidney, lung, and stomach

Healthy Weight — Reduces risk of weight gain

Bone Strength — Improves bone health

Balance and Coordination — Reduces risks of falls

Emerging research suggest physical activity may also help boost immune function.

CDC · ACTIVE PEOPLE HEALTHY NATION

REGULAR PHYSICAL ACTIVITY AND EXERCISE

- improving overall health
- physical and mental performance
- Better weight control
- better energy and mood
- Improve blood circulation and delivery of oxygen to the muscles
- cardiovascular & metabolic changes
- Stronger muscles and bones
- quality of sleep

Summary of Energy Systems

☐ High Intensity Energy Demands are met –ATP-PC system (10s)

☐ - Lactic Acid System (10-3minutes)

☐ Lower Intensity Exercise (3 minutes and above)- Aerobic Glycolysis

☐ Energy systems overlap- any intensity lasting more than 10 minutes is fueled increasingly by the aerobic energy system (aeroboic glycolysis).
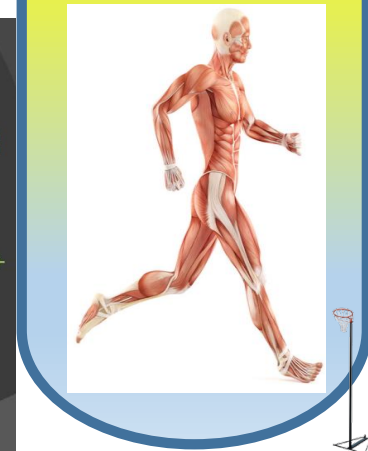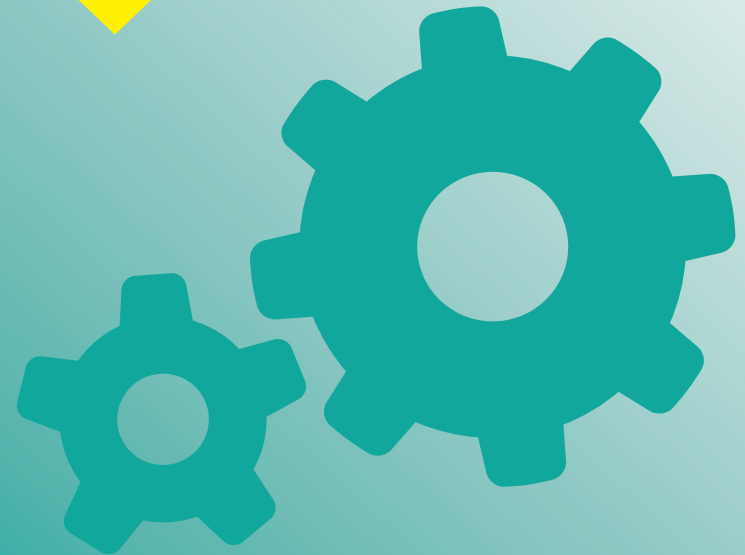
Long term effects of exercise

Muscular system
- Muscular hypertrophy occurs (Increase in size)
- Muscular trength increases
- Muscular endurance increases
- Muscular resistance to fatigue increases
- Strength of tendons increases
- Increase in capillarisation at the muscles

Cardiovascular system
- Cardiovascular hypertrophy occurs (increase in size)
- Heart srength increases
- Increase in resting stroke volume
- Increase in resting Cardiac output
- Decrease in resting heart rate
- Increase in rate of recovery from exercise
- Bradycardia occurs (Heart rate below 60 bpm)
- Reduced risk of heart attacks / CHD

Respiratory system
- Increase in aerobic capacity
- Increase in strength of respiratory muscles (Intercostals)
- Increase in tidal volume during exercise
- Increase in minute volume during exercise
- Increase in capillarisation around the alveoli

Skeletal system
- Increase in bone density

FIT BODY · FIT BRAIN

Dance

Tech Award DANCE Component 3 - Responding to a brief

Getting started with your choreography

Task 1: Ideas Log

Stage 1

What is the theme? Stimulus?   What ideas spring to mind straight away?
How many are in your group? What advantages do you think this will have (to compliment the theme, create group shapes, to organise solos, duos, trios, group sections).
Have a team meeting to discuss the stimulus and explore ideas - Think about what research you would like to do.

Stage 2

Things to think about as you start getting ideas together:

Will you use props? If so how will you use them and how do they relate to the stimulus?

What music have you thought of using? How will you use it and how does it relate to the stimulus?

What style or styles of dance would you like to use? How would this relate to the stimulus?

How many sections would you like the piece to have and why?

Have you thought about WHO you are making the piece for? Who is your **Target Audience**? What has influenced this decision?

Stage 3

MEETINGS and DISCUSSIONS in your group.

When did you meet? (what day, before, during or after the rehearsal).

What points or items did you discuss?

How well did you get across ideas in a team?

Stage 4

Setting choreographic tasks or creating your movements.

What THREE ideas related to the stimulus would you all as a group like to try out first?

Organisation Top Tips

Listen to a variety of music, with different dynamics. You will need contrast and a climax to make your dance interesting

Research the stimulus! Create a mind map full of your ideas

Write a story with a clear start, middle and end. Where is the climax (the most exciting part?)

Keep a log of your choreography journey

Plan your rehearsal schedules and rehearsals

Keep a record of your strengths and targets

Group work top tips

Set clear goals

Avoid negativity

Ensure everyone contributes

What is a target audience?

Finding a target audience means discovering what kind of people are most likely to be interested in your service or product. A particular group at which a product such as a film or performance is aimed.

Getting started with your choreography
Task 1: Ideas Log

Use Inspiration from our three choreographers

Stage 5 – Ideas log questions

What is the concept behind your performance? What is the story or idea?

If you were to try and 'sell' your idea to a theatre what would the title of the piece be? Also what would the short description be? Or maybe you have a 'tag line'.

How do these ideas above relate to the stimulus on the 'Brief'?

What were your initial ideas?

How did you explore these ideas in your group?

Did you look at any other pieces of art or dance that related to the theme?

How did you use this ideas, or movements or words?

How did these develop in the first rehearsals?

How did you get your ideas across to your group? Meetings etc.

How well are your group working so far? Are you putting ideas forward? Or making suggestions? What has been effective?

Have you created a rehearsal schedule? Where and when?

Did you plan a meeting schedule? Where and when?

What resources do you need to make your piece? Research? Music? Props? Costume? Other sound? Other works or art (paintings/poems/dance works).

How has these other works influenced your piece? Is it the style? Structure? Theme?

What style of styles of dance or dance theatre are you using?

Give a quick description of a moment in the piece so far?

Who is your target audience?

How did you get to this audience from the stimulus? Or group meetings?

How are you managing these? Have a quick discussion with your teacher and note down answers on the back of this page.

BINTLEY

- His work is guided by a strong sense of morality that results from his own spiritual belief.
- Strong sense of theatre and explores a theme
- Tackles contentious issues
- Often finds inspiration in music
- Blends classical and contemporary techniques

BRUCE

- Pieces have emotional or dramatic content, make an impact on the audience
- He said ballets are not basically about movement but about ideas
Shown awareness, idealism and sensitivity in dance
- Created works directly concerned with social, political and ecological issues.
- Range of stimuli extensive – literature, art and music
- Combines all aspects of his training – classical ballet, Graham-based technique and popular dance forms
- Blends classical and contemporary techniques - Folk dance in "Ghost Dances"
Tap in "Swansong"

FAGAN

- Style is a mix of ballet and modern dance, spiced up with his Afro-Caribbean roots.

- He developed the Fagan Technique

- - a unique and evolving vocabulary, which fuses the weight of modern dance, the vitality of Afro-Caribbean movement, and the speed and precision of ballet with the risk-taking experimentation of post modernism.

Health & Social Care
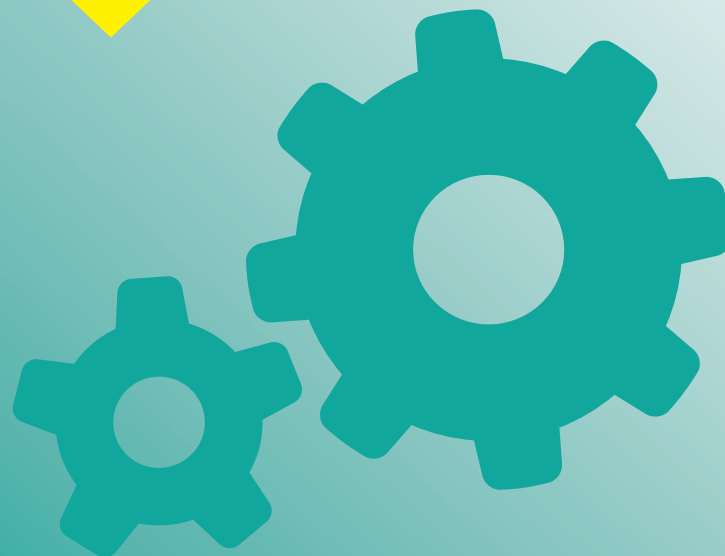
Learning Aim A: Understand human growth and development across life stages and the factors that affect it

How do people grow and develop throughout their lives? How can factors such as lifestyle choice, relationships affect this? Understanding these processes is essential knowledge and understanding for health and social care practititioners.

A1. Growth and development across life stages

Lifestages
1. Infancy (0-2 years)
2. Early childhood (3-8 years)
3. Adolescence (9-18 years)
4. Early adulthood (19-45 years)
5. Middle adulthood (46-65 years)
6. Later adulthood (65+ years)

Holistic Development
1. Physical development – physical growth and physiological change
2. Intellectual development – developing thinking and language skills and common activities that promote learning and development
3. Emotional development – developing feeling about self and others
4. Social development – forming relationships

A2. Factors affecting growth and development

1. Physical factors
- a) Genetic inheritance
- b) Diet and lifestyle choice
- c) Experience of illness and disease
- d) Appearance

2. Economic factors
- a) Income / Wealth
- b) Material possessions

3. Social, cultural and emotional factors
- a) Educational experiences
- b) Culture e.g. community involvement, religion, gender
- c) Influence of role models
- d) Influence of social isolation
- e) Personal relationships with family and friends

Learning Aim B: Investigate how individuals deal with life events

B1. Different types of life events

1. Physical events
- a) Accident / injury
- b) Ill health

2. Life circumstances
- a) Moving house, school or job
- b) Exclusion from education
- c) Redundancy
- d) Imprisonment
- e) Retirement

3. Relationship changes
- a) Entering a relationship
- b) Marriage
- c) Divorce
- d) Parenthood
- e) Bereavement

B2. Coping with change caused by life events

1. How individuals adapt to these changes

2. Sources of support
- a) Family, friends, partners
- b) Professional carers and services
- c) Community groups, voluntary and faith based organisations

3. Types of support
- a) Emotional
- b) Information advice
- c) practical help e.g. financial assistance, child care, transport

---

Use connectives to extend your sentences and link each paragraph….

Explain an idea
- Although
- Except
- Unless
- However
- Therefore

Sequencing
- Firstly
- Secondly
- Next
- Finally
- Since

Give examples
- Such as
- In the case of
- For example
- As revealed by
- For instance

Adding to
- And
- Also
- As well as
- Moreover
- Too
- Furthermore

Cause and Effect
- Because
- So
- Therefore
- Consequently
- Thus
- As a result of

To compare
- Likewise
- Equally
- In the same way
- Similarly

Contrasting
- Whereas
- Instead of
- Alternatively
- Otherwise
- In another way
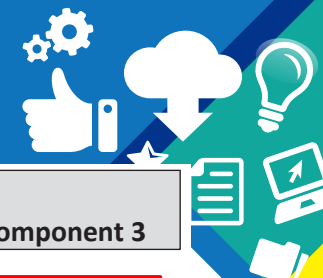- Then again

To Emphasise
- Above all
- Ultimately
- Especially
- Significantly

Elaborating your ideas. Ask "So what?"
- This suggests
- This shows
- This signifies
- This implies
- This means
- Therefore
- However
- Furthermore

What do you think? language
- In conclusion…
- It is clear that…
- From looking at…
- The evidence suggests…
- Overall…

Knowledge Organiser | **A1. Factors affecting Health & Wellbeing** | **Physical & Lifestyle factors**

Health & Social Care
BTEC Technical Award - Component 3

Health & wellbeing
What you need to know: - definition, factors

Not just the absence of disease but a holistic attitude/the whole person:
Physical (healthy body, regular exercise, a healthy diet, sleep, shelter & warmth, personal hygiene)
Intellectual (keeping the brain healthy, concentrate, learn new knowledge/skills, communicate & solve problems)
Emotional (feeling safe & secure, express emotions, deal with negative emotions, self-concept)
Social (friendships, relationships with friends and family)

_Genetic inheritance
What you need to know:
- inherited conditions - predispositions

Genetic inheritance is a physical factor that can have positive and negative effects
Genes are inherited from both birth parents

Inherited characteristics
- height, eye colour, hair colour
- This can effect self image (how you see yourself) & self esteem, (how you feel about yourself)

Inherited conditions
Different versions of genes are called alleles.
Some alleles can be faulty and pass on conditions
Dominant condition
(one parent passes faulty allele on)
i.e. Huntington's – involuntary movements and loss of intellectual ability
Recessive condition
(both parents pass faulty allele on)
i.e. Cystic fibrosis – sticky mucus on the lungs

Genetic predisposition
Some people are predisposed (more likely) to develop a condition due to genetic makeup
i.e. heart disease, cancer, diabetes.
Whether they end up developing the conditions depends on their lifestyle & environmental factors
 (.e. Diet, exercise)

Physical activity
What you need to know:
- recommendations
– benefits at each life stage

Exercise is a lifestyle choice
- gentle – walking, housework
- moderate – light jog, steady swim
- vigorous – spinning, football

Lack of exercise:
Stiff joints
Poor stamina/strength
Obesity
Stroke
Heart disease
Osteoporosis
Poorly formed muscle

How much?
Changes depending on age. Adult:
approx. 150 mins moderate per week

Why?
P – lower BMI, energy, stamina, strengthen bones & muscle
I – links to better memory and thinking skills
E – increases confidence, Relieve stress, concentrate, relax
S – social interaction, communication, teamwork

Ill Health
Ill health -a physical factor which can have a negative effect on health & wellbeing

What you need to know:
- Effects on a persons PIES, difference between acute & chronic

Chronic	Management:
Comes on more slowly, lasts a long time Usually treated, not cured i.e. diabetes, arthritis, asthma, heart disease	Address the negative impacts on the person and try to control the symptoms (i.e. use of medication, counselling, schooling in hospital, support groups)

Effect on PIES –
P – growth rates, restricted movements
I – disrupted learning, difficulties in thinking./problem solving, memory problems
E – negative self-concept, stress
S – isolation, loss of independence, difficulties forming relationships

Acute
Starts quickly, lasts for a short period of time. Usually cured
i.e. bacterial/viral infection, flu, broken bones, pneumonia
Management - Usually with medication

Diet
What you need to know: - amounts, quality, effects of poor diet
Diet - lifestyle choice. Diet = The balance of foods a person eats (diet doesn't mean weight loss!)

Foods to avoid
Salt – raises blood pressure –> heart disease

Saturated fat – raises blood cholesterol –> heart disease
*found in animal fats such as meat, butter

Sugar – rots teeth, high in kcals (energy) -> tooth decay & weight gain

Fruit & vegetables | Starchy foods
Meat, fish eggs, beans | Dairy | Oils

Section	Nutrient	Needed for
Starchy	Carbohydrates (& fibre if wholemeal)	Carbohydrates - Provides energy Fibre – Digestive system/prevents constipation
Fruit & vegetables	Vitamins Fibre	Vitamins - Keep the body healthy Fibre – Digestive system/prevents constipation
Meat, fish, eggs, beans	Protein	Growth and repair of cells and muscles
Dairy	Calcium	Strong bones and teeth
Oils	Unsaturated fats	Reduces cholesterol, Keeps the body warm, Protects organs

Other points:
Water is important to stay hydrated
Control calorie intake to manage weight.
More energy in (food) than expended in exercise causes weight gain
Less energy in (food) than expended in exercise causes weight loss

Substance misuse

Alcohol - a lifestyle choice
Men & women should drink <14 units/week
1 unit = 1 single spirit
1.5 units = 1 pint, 1 small glass of wine
Avoid saving units for 'binge'
Can increase risk of addiction & cancers.

Smoking & Nicotine – a lifestyle choice.
Nicotine is an addictive drug found in tobacco products.
Cigarette smoke contains nicotine, tar, carbon dioxide & soot which are all harmful.
People smoke to relieve stress, peer pressure, or are unable to quit. Passive smoking also carries risk to others

Drugs – including legal and illegal.
Prescription misuse - when people take for non medical (recreational use), become addicted to them, take excess, or take someone else's.
Stimulants - alertness, excitability (i.e. Cocaine, nicotine)
Depressants –calm, relax (i.e. cannabis, alcohol, heroine)
Hallucinogens – cause hallucinations i.e. LSD, ketamine)

Effect on PIES
P – dependence (alcoholism) damage to organs (mouth, liver, breast), infertility, weight gain
I – difficulty in decision making, depression, anxiety, stroke & brain damage
E – poor judgement leading to risky behaviour
S – relationship breakdown, domestic violence

Effect on PIES
P – increases risk of disease (cancer, stroke, coronary heart disease and others)
I – addiction leads to irritation, distraction & stress when unable to smoke. Increase chance of anxiety and depression.
E – poor self concept. May worry about negative impacts on health and costs.
S – may feel socially excluded when smoking, people may avoid smokers due to smell.

Effect of drug misuses
Addictive drugs are taken to change the mental state, to give an immediate feeling of wellbeing or happiness but they have long term effects. i.e. Paranoia,, sleep problems, anxiety, depression, suicidal feelings,

Personal hygiene

The cleanliness of a persons body. Essential for health & wellbeing

Good personal hygiene
Prevents spread of infection
Improves self concept
-Hand washing
- Washing
- Nails clean
-Tissue for cough/sneeze
-Brushing and washing hair
-Brushing teeth
-Clean clothes
-Flushing the toilet

Effect on PIES of poor personal hygiene
P - Catching & spreading disease
Poor body odour, bad breath & tooth decay
Illness such as food poisoning, sore throat, athletes foot.
I – may reduce chance of job
E – poor self – concept, bullied
S – social isolation, loss of friendship.

Key Words
Health & Wellbeing – how physically fit and mentally stable a person is (not just absence of disease)
Genetic Predisposition – more likely to inherit a condition based on genes
Chronic illness – gradual, long term illness, treated not cured. i.e. asthma
Acute illness – illness comes on quickly, short term & curable i.e. cold
Balanced diet - variety of different types of food and providing adequate amounts of the nutrients necessary for good health.
Substance misuse - continued misuse of any mind-altering substance that affects a person's health & wellbeing (drugs, alcohol, smoking)
Hygiene - cleanliness of body and clothing to maintain health & wellbeing.