LIGHT HALL KNOWLEDGE MATS
Year 9 Summer 1

English	2
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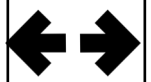
The best from everyone, all of the time.

KEY WORD	DEFINITION	IMAGE	IN A SENTENCE	LOOK, COVER, WRITE, CHECK	LOOK, COVER, WRITE, CHECK
juxtaposition	Two things placed together with contrasting effect.		Lightness and darkness are juxtaposing colours.		
inequality	The difference in social status between people.		Inequality exists in all societies.		
marginalisation	The treatment of a group as insignificant.		The marginalisation of the poor is cruel.		
periphery	The outer limits and edge of a thing or object.		I pushed the girl to the periphery.		
thresholds	The passing and barrier between two things.		He passed through a threshold to enter.		
idolisation	The act of admiring strongly.		Some people idolise pop stars.		
objectification	Degrading a person to be like an object.		Women are objectified in anti-feminist places.		
anguish	Severe mental and physical pain or suffering.		I felt anguished at the situation.		
perspective	A person's point of view.		From my perspective, it is not appropriate.		
prejudice	An unfair feeling of dislike of a person due to race ect.		There was prejudice in 1920s and 30s USA.		
morosely	In a bad, sullen and gloomy way.		He morosely entered the English classroom.		
Antithesis	A person or thing that is the direct opposite of another.		Salty and sweet are the **antithesis** of each other.		

Of Mice and Men- Summer A

1. ***There is a list of key vocabulary linked to your studies this half term. Learn the key words and definitions.***
2. ***Below there is a link of key knowledge. Understand what they all are.***

Grammar Knowledge:

Conjunctions [08/04/24]: a conjunction is a part of speech that connects words, phrases, or clauses. Examples include: include and, or, but, because, for, if, and when.

Simple, complex, compound [24/04/24]: Simple sentences contain a single independent clause. Compound sentences also contain only independent clauses - two or more of them. Complex sentences have both an independent and one or more dependent clauses.

Clauses[06/05/24]: A **clause** is a group of words that contain a subject and a verb. You get the independent clause which can be a sentence by itself and does not need more information to clarify and a subordinate clause which depends on information from the independent clause to make sense.

Key Words

- **Probability** – the chance that something will happen
- **Biased –** a built in error that makes all values wrong by a certain amount

Construct sample space diagrams

Sample space diagrams provide a systematic way to display outcomes from events

The possible outcomes from rolling a dice

The possible outcomes from tossing a coin

	1	2	3	4	5	6
H	1,H	2,H	3,H	4,H	5,H	6,H
T	1,T	2,T	3,T	4,T	5,T	6,T

This is the set notation to list the outcomes **S =**

S = { 1H, 2H, 3H, 4H, 5H, 6H, 1T, 2T, 3T, 4T, 5T, 6T }

In between the { } are a; the possible outcomes

Probability from sample space

The possible outcomes from rolling a dice

The possible outcomes from tossing a coin

	1	2	3	4	5	6
H	1,H	2,H	3,H	4,H	5,H	6,H
T	1,T	(2,T)	3,T	(4,T)	5,T	(6,T)

What is the probability that an outcome has an even number and a tails?

This is the set notation that represents the question **P**

P (Even number and Tails) = $\frac{3}{12}$

There are three even numbers with tails

There are twelve possible outcomes

Numerator: the event

Denominator: the total number of outcomes

In between the ( ) is the event asked for

Probability from two-way tables

	Car	Bus	Walk	Total
Boys	15	24	14	53
Girls	6	20	21	47
Total	21	44	35	100

P (Girl walk to school) = $\frac{21}{100}$

The event

The total in the set

The total number of items

Product Rule

The number of items in event a **X** The number of items in event b

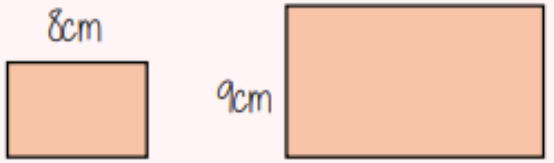
Key Words

- **Scale factor** – the multiplier of enlargement
- **Congruent** – The same size and shape

Identify similar shapes

Angles in similar shapes do not change.
e.g if a triangle gets bigger the angles can not go above 180°

Similar shapes



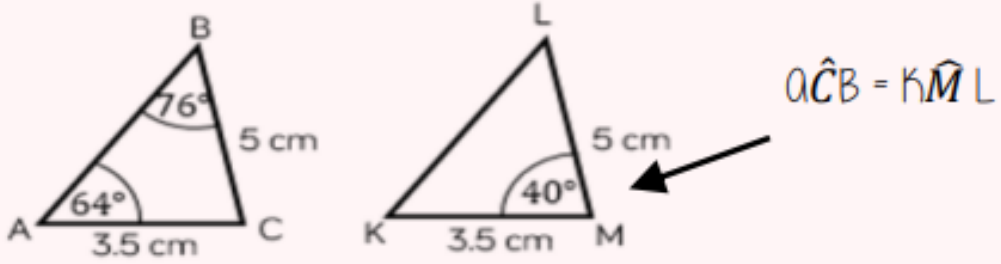
Scale Factor:
Both sides on the bigger shape are 1.5 times bigger

Compare sides: 6 : 9 = 2 : 3 8 : 12 = 2 : 3

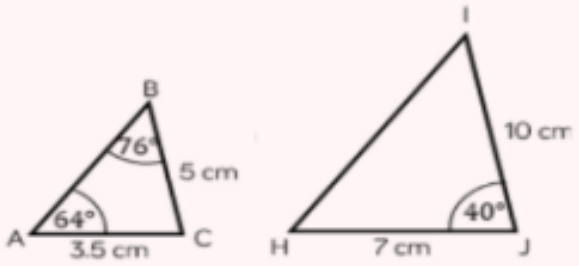
Both sets of sides are in the same ratio

Congruence and Similarity

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



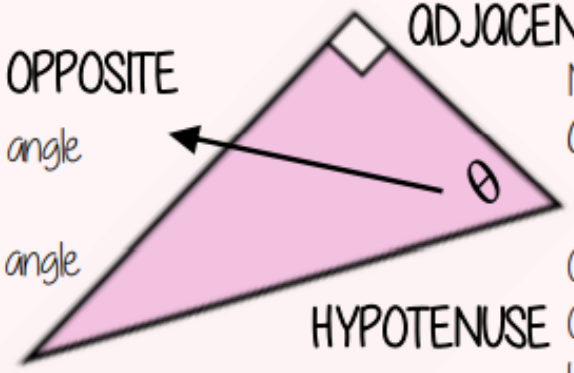
Because all the angles are the same and AC=KM BC=LM triangles ABC and KLM are **congruent**



Because all angles are the same, but all sides are enlarged by 2 ABC and HIJ are **similar**

Hypotenuse, adjacent and opposite

ONLY right-angled triangles are labelled in this way



ADJACENT
Next to the angle in question
Often labelled last

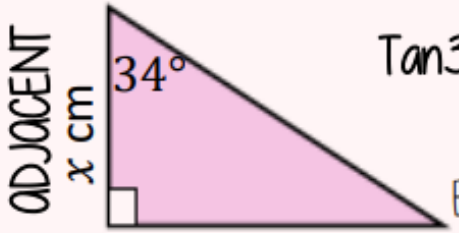
OPPOSITE
Always opposite an acute angle
Useful to label second
Position depend upon the angle in use for the question

HYPOTENUSE
Always the longest side
Always opposite the right angle
Useful to label this first

Tangent ratio: side lengths

$$\tan\theta = \frac{\text{opposite side}}{\text{adjacent side}}$$

Substitute the values into the tangent formula



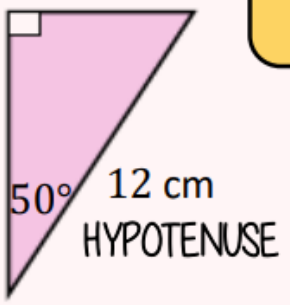
$$\tan 34 = \frac{10}{x}$$

Equations might need rearranging to solve

$$x \times \tan 34 = 10$$

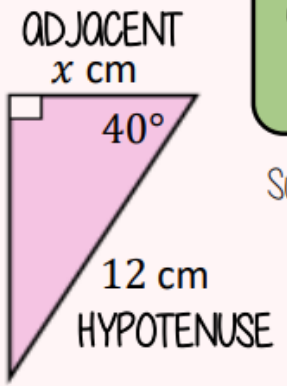
$$x = \frac{10}{\tan 34} = 14.8\text{cm}$$

Sin and Cos ratio: side lengths



$$\sin\theta = \frac{\text{opposite side}}{\text{hypotenuse side}}$$

NOTE
The $\sin(x)$ ratio is the same as the $\cos(90-x)$ ratio



$$\cos\theta = \frac{\text{adjacent side}}{\text{hypotenuse side}}$$

Substitute the values into the ratio formula

Equations might need rearranging to solve

Chemistry topic 1: Atomic structure

9. Properties – Groups 1 and 7

Group 1 (I)	Melting point	Density	Reactivity	Group 7 (VII)	Melting point	Density	Reactivity	Group 0 (VIII)	Melting point	Density	Reactivity
Lithium (Li)	**Decreases** down the group	**Increases** down the group	**Increases** down the group	Fluorine (F)	**Increases** down the group	**Increases** down the group	**Decreases** down the group	Helium (He)	**Increases** down the group	**Increases** down the group	**INERT** **(DO NOT REACT)**
Sodium (Na)				Chlorine (Cl)				Neon (Ne)			
Potassium (K)				Bromine (Br)				Argon (Ar)			
Rubidium (Rb)				Iodine (I)				Xenon (Xe)			

10. Transition metals (TRIPLE ONLY)

Properties compared to group 1 elements	Other useful properties
More dense	Ions can have different charges
Harder	Form coloured compounds
Stronger	Good catalysts
Higher melting points	
Less reactive	

11. Common separation techniques

1. **Chromatography**
Used to separate a mixture of dyes in ink.

2. **Filtration**
Used to separate insoluble solids from liquids (e.g. sand from water).

3. **Evaporation**
Used to separate a soluble salt from solution. The solution is heated strongly in an evaporating basin until dry crystals are left.

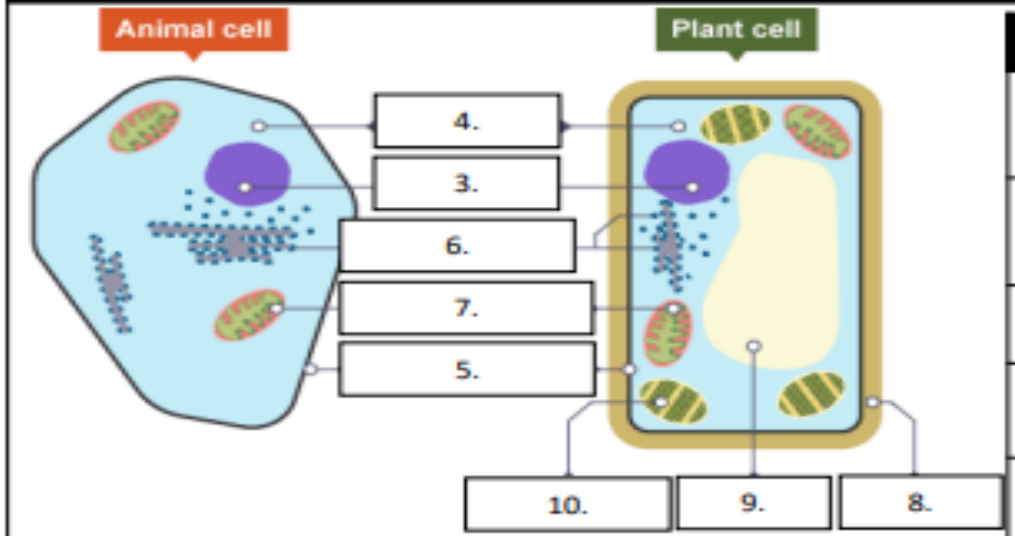
4. **Crystallisation**
Used to separate a soluble salt from solution. The solution is heated gently in an evaporating basin until crystals form; the remaining liquid is filtered out.

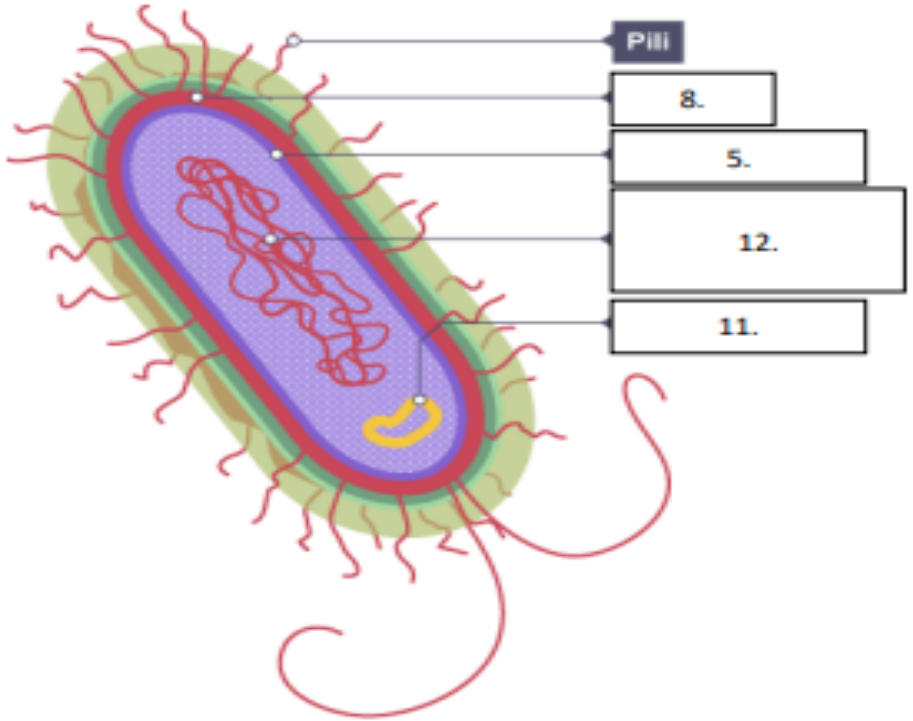
5. **Simple distillation**
Is used to separate a liquid from a solution – e.g. water from ink. A condenser is used to cool hot gas until it forms a liquid.

6. **Fractional distillation**
Used to separate a mixture of liquids with different boiling points.

Biology Topic 1: Cell Biology

1. Cell structure





Keywords	
1. Eukaryotic	A complex cell with a nucleus (e.g. animal or plant cells).
2. Prokaryotic	A smaller cell without a nucleus (e.g. bacterial cell).
3. Nucleus	Contains genetic material.
4. Cytoplasm	Where a cells chemical reactions happen.
5. Cell membrane	Controls what goes into and out of a cell.
6. Ribosome	Part of a cell where proteins are made.
7. Mitochondria	Where aerobic respiration takes place.
8. Cell wall	Only found in plant cells. Made of cellulose and supports the cell.
9. Vacuole	Only found in plant cells. Contains cell sap.
10. Chloroplasts	Only found in plant cells. Where photosynthesis takes place.
11. Plasmid	Only found in bacterial cells. A small loop of DNA.
12. Genetic material	Long strands of genes not tightly pack in a nucleus.

2. Specialised cells

Keywords	
Differentiation	A stem cell turning into a specialised cell
Stem cell	A special type of cell which can turn into other specialised cells
Adult stem cells	Can only produce certain types of cell -found in bone marrow
Embryonic stem cells	Can produce all types of cells - controversial
Meristems	Where plant stem cells are found

Sperm cells	Take male DNA to the egg • Tail to help it swim • Lots of mitochondria for energy
Nerve cells	Carry electrical signals around the body • Long to cover long distances • Branches to connect to other cells
Muscle Cells	Muscle cells contract • Long so have space to contract • Lots of mitochondria for energy
Root hair cells	Root hair cells absorb water and minerals • Long hairs • Big surface area for absorption
Phloem Cells	Phloem cells transport sugars (plants) • Long tube joined end to end
Xylem cells	Xylem cells transport water (plants) • Long tubes joined end to end • Hollow so water can flow through

Biology Topic 1: Cell Biology

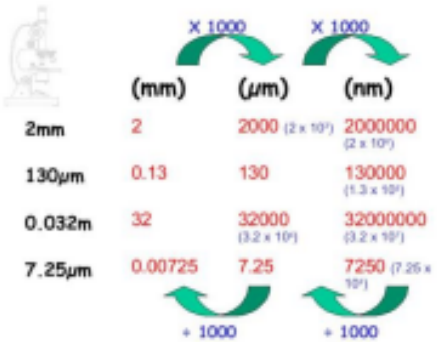
3. Comparing types of microscope

Type of microscope	Advantages	Disadvantages
Light microscope	1. Cheaper 2. Can see colours 3. Can see live specimen	1. Lower magnification
Electron microscope	1. Expensive 2. Higher magnification (x1000 more)	1. Can only see dead specimen 2. No colour

4. Calculating magnification

$$\text{magnification} = \frac{\text{size of image}}{\text{actual size of object}}$$

$$\text{actual size of object} = \frac{\text{size of image}}{\text{magnification}}$$



8. Transport in cells

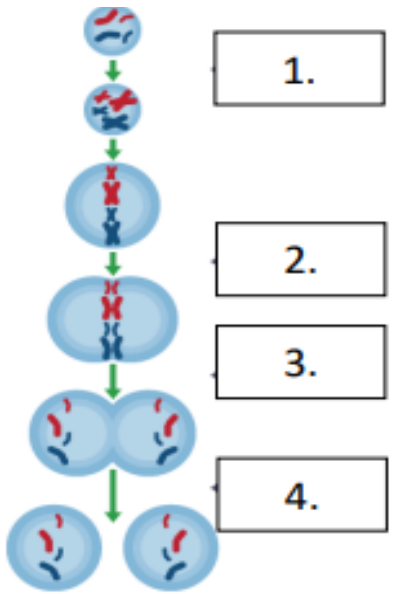
Keywords	Definition	Examples
Diffusion	The passive movement of a substance from an areas of high concentration to an area of low concentration	• Oxygen and carbon dioxide in the lungs • Perfume in a room
Osmosis	The movement of **water** molecules across a partially permeable membrane from a less concentrated solution to a more concentrated solution.	• Water uptake in plants • Water absorption in the intestine
Active transport	Movement of a substance from a lower concentration to a higher concentration, against the concentration gradient. **Uses energy.**	• Mineral absorption by roots • Glucose absorption by the intestine
Surface area to volume ratio	The surface area divided by the volume expressed as a ratio	All high • Unicellular organisms • Alveoli in the lungs • Villi in the intestines

6. Cell division

Keywords	
Chromosomes	Long strands of DNA containing genes. Found in 23 pairs in a human
Cell cycle	The process the cell goes through to divide
Mitosis	A type of cell division that creates 2 identical daughter cells
Therapeutic cloning	Using an embryo create to have the same genes as the patient. Controversial

7. Stages of mitosis

1.	The cell grows and copies all its DNA, mitochondria and ribosomes
2.	The nucleus dissolves and the copied chromosomes pair up
3.	The chromosomes are pulled to opposite sides of the cell
4.	The cytoplasm and cell membrane divides making two identical cells



9. Factors that effect the rate of diffusion/osmosis

Speed up	Slow down
High concentration gradient	Low concentration gradient
High temperature	Low temperature
High surface area of membrane	Low surface area of membrane

Physics topic 1: Energy

1. Key Term

Key Term	Definition
Kinetic energy (KE)	The energy an object has because it is moving
Gravitational potential energy (GPE)	The energy an object has because of its position
Elastic potential energy	The energy stored in a springy object when you stretch or squash it
Thermal energy	The energy a substance has because of its temperature
Chemical energy	The energy stored in fuels, food, and batteries
Conservation of energy	Energy cannot be created or destroyed only transferred.
Work done	The energy transferred by a force
Dissipation	The process of energy being transferred or lost to the surroundings
Friction	A force that opposes movement
System	An object or group of objects
Closed system	An isolated system where no energy transfers take place into or out of the energy stores in the system.
Useful energy	Energy in the place it is wanted in the form that it is needed in
Wasted energy	Energy that is not usefully transferred, usually as thermal.

2. Calculating efficiency

1. Efficiency = $\frac{\text{Useful output energy transferred by the device}}{\text{Total input energy supplied to the device}}$

2. Efficiency = $\frac{\text{Useful power out}}{\text{Total power in}}$

3. No device can be more than 100% efficient.

4. Machines waste energy because of friction between their moving parts, air resistance, electrical resistance, and noise.

5. Energy is transferred by:

1. Heating
2. Waves
3. Electric current
4. Force when it moves an object.

3. Equations to recall and apply

Work done, W (joules, J) = **force applied, F** (newtons, N) x **distanced moved, s** (metres, m)

Change in objects gravitational potential energy store, ΔE_p (joules, J) = **mass, m** (kilograms, kg) x **Gravitational field strength, g** (newtons per kilogram, N/kg) x **Change of height, Δh** (metres, m)

Elastic potential energy, E_e (joules, J) = ½ x **spring constant, k** (newtons per metre, N/m) x **extension², e²** (metres, m)

Kinetic energy, E_k (joules, J) = ½ x **mass, m** (kilograms, kg) x **speed², v²** (metres per second, m/s)

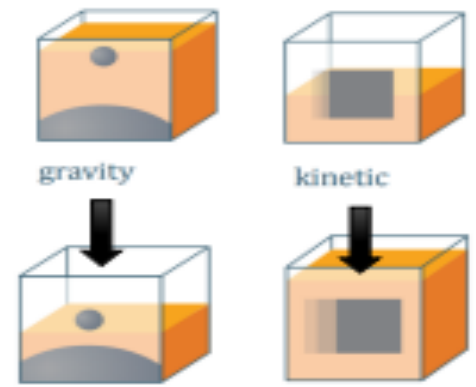
4. Power

1. The more powerful an appliance, the faster the rate at which it transfers energy

2. **Power, P** (watts, W) = $\frac{\text{Energy transferred to appliance, E (joules, J)}}{\text{Time taken for energy to be transferred, t (seconds, s)}}$

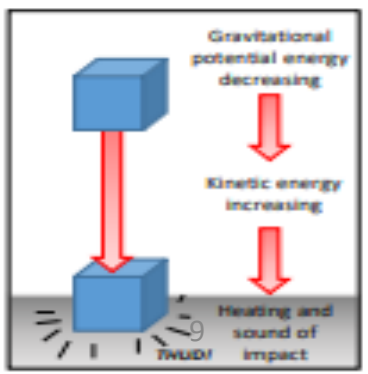
3. The power wasted by an appliance = total power input - useful power output

6. Conservation of energy in action



A falling object:

1. Decreases its GPE store
2. Increases its KE store as it falls
3. Waste energy transferred as thermal and sound



Year 9- Summer 1: How have political ideologies changed Britain and the world? Pre-war Jewish Life and the Holocaust

March 22nd 1933- First concentration camp set up at Dachau for political prisoners

April 1933: Jewish people are not allowed to work for the government

September 1935- Nuremberg Laws passed- 'Jew' now a race by blood

April 1938- Jews are eliminated from the economy

September 1939- Jewish ghettos set up

June 1941- First discussion of the Final Solution. Einsatzgruppen begin mass killings.

w.b. 8th April

July 1933- 30,000 people in concentration camps

June 30th 1934- Night of the Long Knives- persecution of homosexuals also begins

9th-10th November 1938- Kristallnacht-

September 1939- WW2 begins and Einsatgruppen begin killing squads.

January 1942- Wannsee Conference to discuss Final Solution

Enquiry 1: What was life like for Jewish people before Nazi persecution?

Key words:

Jewish: A person who believes in Judaism- originates from Israelites and Hebrews

Persecution: hostility and ill-treatment, especially because of race or political or religious beliefs; oppression.

Anti-Semitism: Anti-Jewish (similar to racism)

What I need to know:

- Hitler was not the first person to be anti-Semitic in History although many people think he started it.
- Jewish people lived perfectly normal lives before the rise of Hitler's dictatorship- they played football, had friends, went to parties, and socialised like everyone else.
- There were examples of anti-Semitism in their everyday life, for example being excluded from clubs as early as 1933 and facing discrimination, but despite this there were many examples of close knit Jewish communities.
- Jewish people tended to live in Jewish districts and stick to their community spirit.
- Jewish soldiers were an essential part of WW1 and many felt very patriotic towards their country

w.b. 22nd April

Enquiry 2: How were Jewish people persecuted?

Key words:

Nuremberg Laws: Laws passed to make Jewish people a 'race' rather than religion and take away their German citizenship rights.

Kristallnacht: Night of Broken Glass- a night of attacks on Jewish owned businesses, homes and synagogues

Pogrom: An organised attack on a specific group – i.e. Kristallnacht

Final Solution: Nazi plan to kill all the Jews (genocide)

What I need to know:

- Persecution of the Jews in Nazi Germany started off as social acts- for example boycotting shops, excluding Jewish people from sports clubs etc. but got worse as time went on- particularly after the 1935 Nuremberg Laws
- The Nuremberg Laws stated that a person was Jew by race/blood not religion and banned any relationship between a Jew and non-Jewish German.
- Another turning point in Jewish persecution was Kristallnacht on 9th-10th November 1938. This was the destruction of Jewish shops, homes, synagogues and even violent attack on people.
- The Final Solution title refers to 'The Final Solution to the Jewish problem' in Nazi Germany- Hitler wanted to kill all the Jews and erase them from Germany.
- The Final Solution has one of the highest death tolls in modern history- in Czechoslovakia 73% of the Jewish population was killed, in Germany it was 69%, in Hungary it was 78%, Poland 90%, and even France and Belgium lost 27%.

w.b. 6th May

Enquiry 3: How did Jewish people fight back?

Key words:

Resistance: To go against a person/group

Ghetto: An area where Jews were moved to.

Concentration camp: Large prison set up to house those who went against the Nazi beliefs.

What I need to know:

- Many Jewish people living in Ghettos resisted the Nazis by continuing to hold religious festivals in secret or children studying in secret. This was very dangerous as if they were caught they could be shot.
- Although it was extremely difficult there were armed uprisings in concentration camps by Jewish inmates against the Nazi guards.
- At Trebilinka in 1943 Jewish prisoners seized weapons from the Guards and set the building on fire they tried to get out the main gate of the camp but many were killed.
- At Sobibor in October 1943 Jewish prisoners killed 12 Nazi guards and 300 escaped, of these 300 50 survived until the end of the war.
- At Auschwitz Birkenau in October 1944 250 Jewish prisoner blew up buildings all were killed for their resistance.
- There was also resistance in the ghettos. The most famous was in the Warsaw Ghetto in April – May 1943. Jewish fighters shot at the Germn police and army who had come to move them. The Nazis responded by burning down the ghetto killing 7000 Jews.

w.b.20th May

Homework 1: Key Terms

w/c 8th April

Ecosystem - the name for an area where living and non-living organisms live together

Biome - Large scale ecosystem

Biotic factor - The living things in an ecosystem

Abotic factor - The non-living parts of an ecosystem

Desertification: when land is gradually turned into desert, usually on the edge of an existing desert.

Erosion: the wearing away or breaking down of rock

Transportation: the movement of eroded rock

Deposition: where eroded material has been dropped due to lack of energy

Urbanisation: the increase in the proportion of people living in urban areas.

Deprivation: a standard of leaving below that of the majority in a particular society that involves hardships and lack of access to resources

Homework 2: Economic development in biomes

w/c 22nd April

	Tropical Rainforest	Hot Desert
Opportunity	Cattle ranching Logging Mineral extraction Agriculture	Mineral extraction Tourism Energy Farming
Challenge	Loss of habitat and biodiversity Displacement of tribes Less trees to absorb carbon dioxide	Extreme temperatures Accessibility Water supply

Homework 3 and 4:

w/c 6th and 20th May

The **Favela Bairro Project** (Favela Neighbourhood Project) began in Rio de Janeiro in 1994 and ran until 2008. It aimed to recognise the favelas as neighbourhoods of the city in their own right and provide the inhabitants with essential services.

This project was undertaken by the local authority, who relocated some residents from the most unsafe houses sited on steep hillsides. Brick houses were built with electricity, running water and sanitation pipes installed. Some people were allowed to buy these homes, and were given legal rights to the land.

In Complexo de Alemao (German complex) favela, improvements included providing 26,000 residents with access to a clean water supply and drainage systems. It also involved the installation of street lighting and the construction of widened streets and pavements, which made the favela more accessible, especially for refuse collection and emergency services. Street lighting improved safety for residents, especially at night. The council installed underground cables, providing residents with a permanent electricity supply so they no longer need to tap into supplies illegally.

In Rio, schemes like these have had some success as living conditions have improved for some people. However, they are restricted by the steep surrounding mountains. Occasional heavy rains can also lead to flooding, impeding development. There is also not enough funding to make improvements for everyone living in favelas.

1. W/B 1902

Les mots essentiels • *High-frequency words*

Tier 2 vocabulary

à l'avenir	*in the future*
alors	*so*
c'est	*it is*
ce sont	*they are*
d'abord	*first*
deux fois par semaine	*twice a week*
en général	*in general*
en plus	*as well as that*
ensuite	*then*
finalement	*finally*
où	*where*
parce que	*because*
quand	*when*
tous les jours	*every day*
très	*very*
Voilà!	*That's that!/ Here you are!/ There you go!*

Les activités de vacances • *Holiday activities*

Je fais ...	*I do/I go ...*
du canoë-kayak	*canoeing*
du ski	*skiing*
du snowboard	*snowboarding*
du VTT	*mountain biking*
de la voile	*sailing*
de la planche à voile	*windsurfing*
de l'équitation	*horse riding*

29/04

2. W/B 04/03

Les vacances • *Holidays*

Je passe mes vacances ...	*I spend my holidays ...*
au bord de la mer	*at the seaside*
à la campagne	*in the countryside*
à la montagne	*in the mountains*
en colo	*at a holiday camp*
Je vais en vacances ...	*I go on holiday ...*
avec ma famille	*with my family*
avec mes parents	*with my parents*
avec mes copains	*with my friends*
Je reste ...	*I stay ...*
une semaine	*one week*
quinze jours	*a fortnight*
dix jours	*ten days*

15/04

Mes rêves • *My dreams*

Un jour, je voudrais ...	*One day, I would like to ...*
aller au pôle Nord	*go to the North Pole*
descendre l'Amazone en canoë	*go down the Amazon in a canoe*
faire de la plongée sous-marine	*go scuba diving*
faire des sports extrêmes	*do some extreme sports*
faire un safari en Afrique	*go on safari in Africa*
habiter sur une île déserte	*live on a desert island*

Common instruction phrases

Écoutez – listen	répondez - answers
Lisez – read	remplissez – fill in
Écrivez – write	parlez - speak
Décrivez – describe	ouvrez ton cahier – open your book

Les réactions • *Reactions*

Ouais! Cool!	*Yeah! Cool!*
Bonne idée!	*Good idea!*
Pourquoi pas?	*Why not?*
Quelle horreur!	*How horrible!*
Tu rigoles!	*You must be joking!*
Ce n'est pas mon truc.	*It's not my kind of thing.*

Les verbes pronominaux • Reflexive verbs

Je me baigne.	*I swim.*
Je me coiffe.	*I do my hair.*
Je me douche.	*I have a shower.*
Je me fais bronzer.	*I sunbathe.*
Je me fais piquer.	*I get stung.*
Je m'ennuie.	*I get bored.*

Des vacances • *Disastrous holidays* désastreuses

J'ai oublié mon passeport.	*I forgot my passport.*
J'ai perdu mon portemonnaie.	*I lost my purse.*
J'ai cassé mon appareil photo.	*I broke my camera.*
J'ai pris un coup de soleil.	*I got sunburnt.*
J'ai mangé quelque chose de mauvais.	*I ate something bad.*
On a raté l'avion.	*We missed the plane.*
Aïe!	*Oh, no!/Ouch!*
Mince!	*Damn!*
Oh là là!	*Oh, dear!*
C'est pas possible!	*No way!*
Quel désastre!	*What a disaster!*

13/05

3. W/B 18/03

À la base de loisirs • *At the leisure park*

J'ai ...	*I ...*
Il/Elle a ...	*He/She ...*
fait du tir à l'arc	*did archery*
fait du trampoline	*did trampolining*
fait de l'escalade	*went climbing*
Je suis ...	*I ...*
Il/Elle est ...	*He/She ...*
allé(e) à la pêche	*went fishing*

Les mots essentiels • *High-frequency words*

où?	*where?*
avec qui?	*who with?*
combien de?	*how much?/how many?*
que? / qu'est-ce que?	*what?*
normalement	*usually, normally*
quel/quelle	*which/what (a)*
alors / donc	*so/therefore*
quand	*when*
mon/ma/mes	*my*
ton/ta/tes	*your*
son/sa/ses	*his/her*
d'abord	*first of all*
ensuite	*then/next*
puis	*then*
après	*afterwards*
finalement	*finally*

Light Hall Yr 9 Knowledge Mat Spanish HT5 — Jovenes en acción

Las nacionalidades — Nationalities

¿Cuál es su nacionalidad?	What is his/her nationality?
Es…	He/She is…
argentino/a	Argentinian
boliviano/a	Bolivian
colombiano/a	Colombian
mexicano/a	Mexican
norteamericano/a	North American
peruano/a	Peruvian
inglés/inglesa	English
español(a)	Spanish
pakistaní	Pakistani

8th April

Common instructions phrases

Lee- read	escucha – listen
Explica – explain	pon- put
Escribe – write	apunta – fil in
Empareja – pair up	traduce – translate

22nd April

Sobre su vida — About his/her life

¿De dónde es?	Where is he/she from?
Es de…	He/She is from…
¿Dónde vive?	Where does he/she live?
Vive en…	He/She lives in…
¿Con quién vive?	Who does he/she live with?
Vive con sus padres.	He/She lives with his/her parents.
¿Qué hace por la mañana?	What does he/she do in the morning?
Desayuna.	He/She has breakfast.

	his/her things.
Va al insti.	He/She goes to school.
¿Qué hace durante el día?	What does he/she do during the day?
Ayuda a su madre.	He/She helps his/her mother.
Estudia.	He/She studies.
Hace los deberes.	He/She does his/her homework.
Prepara la cena.	He/She prepares dinner.

Mis derechos — My rights

Tengo derecho…	I have the right…
al amor y a la familia	to love and to family
al juego	to play
a la educación	to an education
a la libertad de expresión	to freedom of expression
a la protección	to protection
a un medio ambiente sano	to a healthy environment
No puedo…	I cannot…
dar mi opinión	give my opinion
ir al insti(tuto)	go to school
jugar con mis amigos	play with my friends
respirar	breathe
salir a la calle	go out in the street
vivir con mi familia	live with my family
porque…	because…
soy un(a) chico/a	I am a boy/girl
mi padre es muy estricto	my father is very strict
tengo que ganar dinero	I have to earn money
tengo que trabajar	I have to work
el aire está contaminado	the air is polluted
en mi país a veces hay violencia	in my country sometimes there is violence
¡No es justo!	It isn't fair!
Es inaceptable.	It is unacceptable.

6th May

¿Cómo vas al insti? — How do you get to school?

Voy a caballo.	I go on a horse.
Voy a pie.	I go on foot. / I walk.
Voy en autobús.	I go by bus.
Voy en barco.	I go by boat.
Voy en bici.	I go by bike.
Voy en coche.	I go by car.
Voy en metro.	I go by underground.
Voy en tren.	I go by train.
¿Por qué?	Why?
Porque es…	Because it is…
más rápido que ir a pie	quicker than walking
más verde que ir en autobús	greener than going by bus
más barato que ir en taxi	cheaper than going by taxi
más práctico que ir en coche	more practical than going by car
más seguro que nadar	safer than swimming
la única opción	the only option

20th May

Un mundo mejor — A better world

Para ser un instituto verde…	In order to be a green school…
apagamos la luz	we switch off the light
conservamos electricidad	we save electricity
no malgastamos agua	we don't waste water
plantamos árboles y flores	we plant trees and flowers
reciclamos botellas de plástico	we recycle plastic bottles
reciclamos papel y vidrio	we recycle paper and glass
reducimos el consumo eléctrico	we reduce our consumption of electricity
tenemos un jardín	we have a garden
vamos en bici	we go by bike
Para hacer un mundo mejor…	In order to create a better world…
vamos a escribir cartas para Amnistía Internacional	we are going to write letters for Amnesty International
vamos a organizar un evento	we are going to organise an event
vamos a recaudar fondos	we are going to raise funds
vamos a vender pasteles	we are going to sell cakes

Client Requirements

How will the client tell me what they want?

This can be done using several different methods:

W/c 15th April 24

Client Brief: This is a statement of what is needed. This will be the method used to express what the client needs in your set assignments.

Specification: This is a more detailed version of a client brief. It will supply comprehensive details on all aspects of the clients product. This is a more official method and will normally contain signatures, dates and version numbers.

Script: These are used by films, TV programs and plays. You would breakdown the script into it different elements, such as:

- Location
- Dialogue
- Lighting
- Camera shots and movements

Genre: This will depend on the type of product and its purpose.

Product	Some examples of Genre
Website	Gaming Retail Services
Comic Book	Action and Adventure Superhero Romance Slice of life
Music	Pop Rock Rap Heavy Metal Classical
Game	RPG Simulation Puzzle Sport

W/c 13th May 24

W/c 29th April 24

Key Term	Definition
Variable	Variables are data values that can change when the user is asked a question, for example, their age. Variables may change during program execution. A variable is a memory location
Constant	Data values that stay the same every time a program is executed are known as constants. Constants are not expected to change. Literal constants are actual values fixed into the source code
Data Type	A data type or simply type is an attribute of data which tells the compiler or interpreter how the programmer intends to use the data.
Syntax	The syntax of a computer language is the set of rules that defines the combinations of symbols that are considered to be correctly structured
IDE	An integrated development environment (IDE) is software for building applications that combines common developer tools into a single graphical user interface

W/C 15th April
Micronutrients Minerals

Minerals

Nutrient	Function	Sources
Calcium	Helps to build and maintain strong bones and teeth.	Dairy, calcium-fortified dairy-alternatives, canned fish (where soft bones are eaten) and bread.
Iron	Helps to make red blood cells, which carry oxygen around the body.	Offal, red meat, beans, pulses, nuts and seeds, fish, quinoa, wholemeal bread and dried fruit.
Phosphorus	Helps to build strong bones and teeth and helps to release energy from food.	Red meat, poultry, fish, milk, cheese, yogurt, eggs, bread and wholegrains.
Sodium	Helps regulate the water content in the body.	Very small amounts found in foods. Often added as salt.
Fluoride	Helps with the formation of strong teeth and reduce the risk of tooth decay.	Tap water, tea (and toothpaste).
Potassium	Helps regulate the water content in the body and maintain a normal blood pressure.	Some fruit and vegetables, dried fruit, poultry, red meat, fish, milk and wholegrain breakfast cereals.
Iodine	Helps to make thyroid hormones. It also helps the brain to function normally.	Milk, yogurt, cheese, fish, shellfish and eggs.

W/C 29th April
Micronutrients – Vitamins and Minerals

W/C 13th May

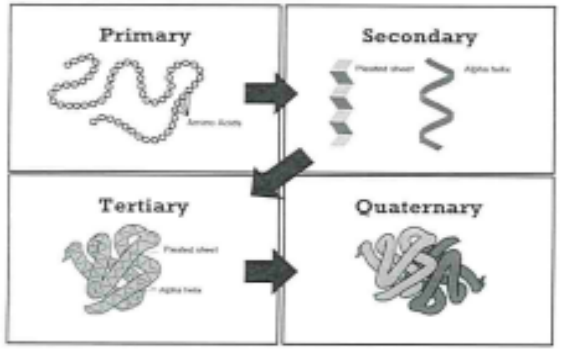
Vitamins

Nutrient	Function	Sources
Vitamin A	Helps the immune system to work as it should and with vision.	Liver, cheese, eggs, dark green leafy vegetables and orange-coloured fruits and vegetables.
B vitamins	Thiamin, riboflavin, niacin, folate, and vitamin B12 have a range of functions within the body.	Different for each B Vitamin.
Vitamin C	Helps to protect cells from damage and with the formation of collagen.	Fruit (especially citrus fruits), green vegetables, peppers and tomatoes.
Vitamin D	Helps the body to absorb calcium & helps to keep bones strong.	Oily fish, eggs, fortified breakfast cereals and fat spreads.
Vitamin E	Helps to protect the cells in our bodies against damage.	Vegetable and seed oils, nuts and seeds, avocados and olives.
Vitamin K	Needed for the normal clotting of blood and is required for normal bone structure.	Green vegetables and some oils (rapeseed, olive and soya oil).

Proteins

Macromolecules built of thousands of amino acids bonded together into long chains
Amino acids → peptides → polypeptides (proteins)

The structure of proteins:



Functional and chemical properties:

1. **Denaturation** – damage to the protein's structure caused by:
   a. **Heat** – during cooking, proteins vibrate quickly and as a result hydrogen bonds in them rupture
   b. **Acid** – because hydrogen atoms from the acid bind with nitrogen from the protein, preventing it from forming hydrogen bonds within protein molecule and so it cannot form a 3D structure
   c. or **mechanical action (physical)** – during whisking, protein uncoils and exposes hydrophobic areas, which stick together and form a foam
2. **Coagulation** – aggregation of protein particles into larger lumps, causing it to set. Examples of protein coagulation include cheese becoming rubbery when overheated and egg whites becoming solid when cooked.

During cooking, the protein in eggs coagulates and denatures, and causes the eggs to set.

3. **Syneresis** – leakage of water from overcooked (and over-coagulated) proteins. Usually associated with eggs.
4. **Gluten formation** – complex, net-like protein built of glutenin and gliadin, simple proteins present in wheat, rye, barley and oats; the two proteins cross-link with each other, creating a net (as in a sweater) which can hold air bubbles during proving and baking of bread and bakery products

   glutenin + gliadin + water → gluten net → soft, springy texture
5. **Foam formation** – air bubbles trapped in a liquid (e.g. egg white). Whisking makes proteins unravel and denature.

Sustainability in Design YEAR 9

Wb 15th April

The Six Rs	
Reduce	**minimise the amount of energy and resources used** in the manufacture of a product – this will help protect valuable resources
Reuse	**Reuse the whole or part of a product for something else** so you don't need to throw it away
Recycle	**separate the materials of a product and reprocess** them so you can use the material again to make a new product **– uses far less energy than making the material from raw materials.** E.g. aluminium uses only 5% of energy to recycle compared to manufacturing from ore
Rethink	**design a product in a different way** so it has less of an impact on the environment whether in manufacture or use
Refuse	**do not buy products** or materials that are unsustainable
	roduct i d of throwing products away, mend them their i

Wb 29th April

Modernism
1880 - 1940

Designers were focused on producing affordable, functional designs that highlighted simple shapes and forms and made a feature out of the materials.

Villa Savoye by Architiect Le Corbusier 1931

House of Falling Water by Architect Frank Lloyd Wright 1935

Art Deco
1920 - 1939

Chrysler Building
Building in New York City
•Architect: William Van Alen

Art Deco was highly decorative and used lots of patterns.

Surrealism
1925 - 1930

Longaberger Basket Company HQ,1997

Ordos Museum in China, appropriately designed by MAD, 2017

w/b 13TH May

L.C.A. Life Cycle Assessment	
Also called 'Life Cycle Analysis' and abbreviated to LCA, this is a tool that allows the assessment of the environmental impact of a product from its origin to disposal. Here are five of the main areas that can be assessed:	
Raw Materials	**Extraction of materials** to make products will impact the environment – mining, deforestation, pollution from machinery, impact on communities, natural habitats
Manufacture	**Make the materials and products**. Factories use energy to make products, give off emissions like CO^2, waste disposal
Transport	**Materials taken to factories, components transported between factories,** products distributed to warehouses or shops, imported from/exported to other countries
Use	**Use the products.** Some products will let off emissions, pollution or use energy – batteries, charging, electricity etc.
Disposal	Whether the product can be **recycled, reused or if it goes to landfill** or requires specialist disposal (hazardous goods)

Design and Technology - METALS HT5 GGA

Metal Categories

Wb. 15th April

Ferrous metals	Non- Ferrous Metals	Alloys
Ferrous metals contain Iron. Most commonly used metals – High melting point of 1600°C or higher and most are silvery grey in colour Most Ferrous metals have poor corrosive resistance (can rust) and are magnetic	Non-Ferrous metals have very good corrosion resistance (Don't rust) but they can Tarnish. They are Non-Magnetic. So when sorting metals for recycling they can be separated using magnets	Most metals are used as Alloys. They can be both Ferrous and Mon Ferrous Alloys. An Alloy is a mixture of two or more metals created by melting the metals and adding them together

Wb. 29th April

Cast Iron – Good Hardness and compressive strength. Poor Tensile strength and brittle under tension	**Aluminium** – Good strength to weight ratio. Lighter in weight than steel – but not as strong Can be cast and formed into shape easily.	**Brass – (Non Ferrous alloy)** Mixture of Copper and Zinc Low friction, Corrosion resistant, Malleable
Low Carbon Steel – Tough, less expensive, easy to machine. Prone to corrosion	**Copper** - Excellent conductor of heat and electricity – prone to tarnishing	**Stainless Steel – Ferrous Alloy** **Iron and Chromium & Carbon** – Tough, hard, corrosion resistance
High Carbon Steel – Very Strong, More brittle, Less Ductile than low carbon steel	**Zinc** – Hard, Brittle, but becomes malleable between 100 -150°C & has a relatively low meting point 419.5°C	**High carbon Steel -** (HSS) Small amounts of other metals, inc. Carbon, Tungsten, Molybdenum, - Very hard, even at higher temperatures – Tools can cut faster, Tough but

w/b 13th May

Tools and Equipment	
Scriber – Used for scribing a design on to metal once the surface has had engineers blue ink applied to it and allowed to dry.	
Centre Punch - Used to for an indent into the metal surface in order to locate the position for the drill prior to drilling a hole	
Engineers Square – Used to mark out a 90°angle perpendicular to an face edge or face side. Check the corners are at right angles	
Junior Hacksaw - used to cut thin sheets of metal and small diameter rods	
Polishing wheel/ Buffing machine used to polish metal to improve the appearance of the metal to make it more shiny	

SAMBA

Samba is a musical genre and dance style with its roots in Africa via the West African slave trade and African religious traditions. Samba is an expression of Brazilian cultural expression and is a symbol of carnival. Samba schools formed and compete bringing people together.

A. Key Words and Terms in Samba Music

Section a w.c. 15th April

CALL AND RESPONSE – one person plays or sings a musical phrase, then another person/group responds with a different phrase or copies the first one.
CYCLIC RHYTHM – a rhythm that is repeated over and over again.
IMPROVISATION – making up music as you go along, without preparation.
OSTINATO – a repeated pattern. Can be rhythmic or melodic; usually short.
PERCUSSION – Instruments that are mostly hit, scraped or shaken to produce sound. Samba uses many percussion instruments which together are called a **BATERIA**.
POLYRHYTHM – the use of several rhythms performed simultaneously, often overlapping each other to create a thick texture.
PULSE – a regular beat that is felt throughout music
RHYTHM – a series of notes of different lengths that create a pattern. Usually fits with a regular beat or pulse.
SYNCOPATION – accenting or emphasising the weaker beats of the bar (often a half beat (quaver) followed by a full beat (crotchet)) giving the rhythm an **OFFBEAT** feel.
SAMBISTA – the leader of a Samba band or ensemble, often signalling cues to the rest of the band of when to change sections within the music with an **APITO** (Samba whistle)

B. Form and Structure of Samba

Section B – w.c. 29th April

Samba music often starts with an **INTRODUCTION** often featuring **CALL AND RESPONSE RHYTHMS** between the Samba Leader and ensemble. The main Ostinato rhythm of Samba is called the **GROOVE** when all the instruments of the Samba Band play their respective rhythms over and over again **(CYCLIC RHYTHMS)** forming the main body of the piece. The **GROOVE** is broken up by **BREAKS** - 4 or 8 beat rhythms providing contrast and **MID SECTIONS** – one or two instruments change the rhythm of their ostinato and the others stay the same or stop. Sometimes **BREAKS** and **MID SECTIONS** feature a **SOLOIST** who "shows off" their rhythms. The **SAMBISTA** must signal to the group when to change to a different section which is normally done with an **APITO** (Samba Whistle – loud!). A piece of Samba can end (this section is called the **CODA**) with either a **CALL AND RESPONSE** pattern or a pre-rehearsed ending phrase of rhythm. The **FORM AND STRUCTURE** of a piece of Samba may look like the following:

Intro	Groove	Break	Groove	Mid-Section	Groove	Mid-Section	Groove	Break	Groove	Coda

C. Texture of Samba Music

Texture varies in Samba music, often **MONOPHONIC** where a single rhythm is heard as in **CALL AND RESPONSE** sections, sometimes **POLYPHONIC** where sections of the Samba band play different rhythms **(OSTINATOS)** creating **CROSS-RHYTHMS** (when two rhythmic patterns that "conflict" with each other occur simultaneously) creating a thick texture of interweaving and interlocking rhythms – a **POLYRHYHM** or a **POLYRHYTHMIC TEXTURE**.

D. Dynamics of Samba Music

The dynamics of Samba music are normally **VERY LOUD** – it is music designed to be performed outdoors at carnivals and is played by large numbers of instrumentalists and to accompany dancers and processions with large audiences watching and listening. Sometimes, a **CRESCENDO** is used at the end of a piece of Samba music for dramatic effect.

E. Tempo of Samba Music

Samba music is generally **FAST** at around 104 bpm and keeps a constant tempo to assist the dancers or processional nature of the music. Sometimes the **SAMBISTA** (Samba leader) uses **(TEMPO) RUBATO** – tiny fluctuations in tempo for expressive effect.

Sections C, D & E – w.c. 13th May

F. Instruments, Timbres and Sonorities of Samba

SURDO

REPINIQUE

TAMBORIM

CHOCOLO

RECO-RECO

APITO

AGOGO BELLS

CAIXA DE GUERRO