Thomas Estley Community College
Year 9 Summer Term
Knowledge Organiser

What are Knowledge Organisers?

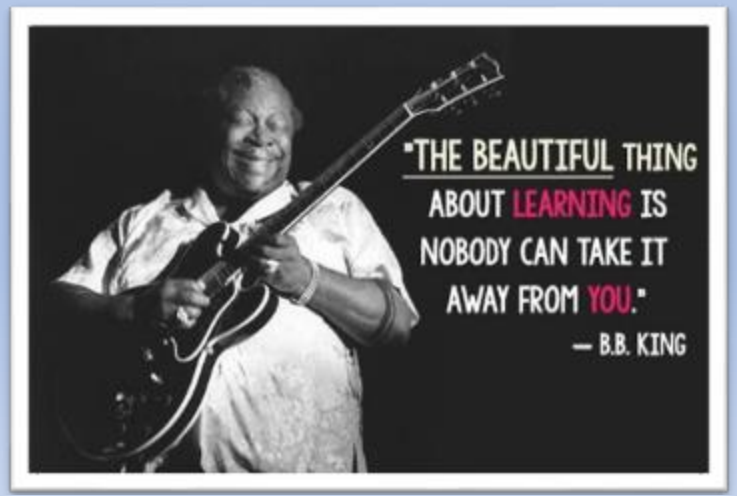
A knowledge organiser is an easy way that each subject can summarise the most important information. Each subject section will include key terms, short explanations, glossary words, diagrams etc making it clear to the student as to what is essential to learn. Each grid has an overall theme and these vary according to the subject being taught.

It will be the students responsibility to keep the knowledge organisers safe and refer to them over the whole academic year.

How will these be used at Thomas Estley?

At Key stage 3, you will be given a knowledge organiser each term. You need to keep these safe in your learning packs that you were provided with at the start of the academic year.

Your subject teachers will use these in a variety of ways, for both class work, remote learning opportunities and homework. They will be used to help with revision for class quizzes and retrieval practice activities. They will also be used for flip learning activities, where subject teachers will ask you to learn some information and then go in to it in more detail in class.



SUCCESS
THOMAS ESTLEY COMMUNITY COLLEGE

Revision Tips and Tricks!

Record It

Record yourself on your phone or tablet reading out the information. These can be listened to as many times as you want!

Teach it!

Teach someone your key facts and the get them to test you, or even test them!

Flash Cards

Write the key word or date on one side and the explanation on the other. Test your memory by asking someone to quiz you on either side.

Back to front

Write down the answers and then write out what the questions the teacher may ask to get those answers.

Hide and Seek

Read through your knowledge organiser, put it down and try and write out as much as you can remember. Then keep adding to it until its full!

Sketch it

Draw pictures to represent each of the facts or dates. It could be a simple drawing or something that reminds you of the answer.

Post its

Using a pack of post-it notes, write out as many of the keywords or dates as you can remember in only 1 minute!

Practice!

Some find they remember by simply writing the facts over and over again.

Read Aloud

Simply speak the facts and dates out loud as you're reading the Knowledge Organiser. Even try to act out some of the facts – it really helps you remember!

¿Adónde fuiste de vacaciones?

(where did you go on holiday?)

El año pasado Last year	**fui** *I went*	a España	***To Spain***	**¡Qué** *(How)*	bien!	***good***
		a Italia	***To Italy***		bonito!	***pretty***
		a Francia	***To France***		guay!	***cool***
		a Escocia	***To Scotland***		divertido!	***Fun***
		a Gales	***To Wales***		aburrido!	***Boring***
	fuiste *you (1) went*	a Grecia	***To Greece***		suerte!	***Lucky***
El verano pasado Last summer		a Alemania	***To Germany***		rollo!	***Annoying***
	fue *he/she went*	con mi familia	***With my family***	**Fue** *(It was)*	divertido	***Fun***
		con mi clase	***With my class***		estupendo	***Stupendous***
Hace <u>dos</u> años <u>*Two*</u> years ago		con mis amigos	***With my friends***		fenomenal	***Phenomenal***
	fuimos *we went*	con mis padres	***With my parents***		flipante	***Amazing***
		en autocar	***By coach***		genial	***Great***
Recientemente Recently		en avion	***By plane***		guay	***Cool***
	fueron *they went*	en tren	***By train***		regular	***OK***
		en coche	***By car***		un desastre	***Disaster***
		en barco	***By boat***		horroroso	***Horrific***
		en metro	***By subway/underground***		raro	***Strange***

su/sus =
his/her

¿Qué hiciste?

(what did you do?)

El primer día The first day	**AR VERBS**	**Visitar** monumentos	***To visit monuments***
		Montar en bici	***To ride a bike***
		Descansar en la playa	***To relax on the beach***
Luego Then		**Tomar** el sol	***To sunbathe***
		Comprar una camiseta	***To buy a t-shirt***
		Mandar SMS	***To send texts***
Más tarde Later		**Bailar**	***To dance***
		Nadar en el mar	***To swim in the sea***
		Sacar* fotos	***To take photos***
Finalmente Finally	**ER/IR VERBS**	**Beber** limonada	***To drink lemonade***
		Comer paella	***To eat paella***
Otro día Another day		**Conocer** un chico guapo/ una chica guapa	***To get to know a good looking boy/good looking girl***
		Ver un castillo interesante	***To see an interesting castle***
		Salir con mi hermano/a	***To go out with my brother/sister***
El último día The last day		**Escribir** un postal	***To write a postcard***

AR VERB ENDINGS

Take off AR and add the correct ending

-AR verb endings

-é	**-amos**
-aste	**-asteis**
-ó	**-aron**

Remember some verbs are irregular* and may not follow the same pattern.

ER/IR VERB ENDINGS

Take off ER/IR and add the correct ending

-ER and -IR verb endings

-í	**-imos**
-iste	**-isteis**
-ió	**-ieron**

C2 The periodic table
Knowledge organiser

The periodic table

- The periodic table is organised in **periods** (rows) and **groups** (columns) and are ordered by **atomic number** from the top left to bottom right of the periodic table. Elements with similar properties are in the same group. They have the same number of **outer electrons** and therefore react in a similar way to one another. The period an element is in tells us how many shells of electrons that element has.

Development of the periodic table

- The early ideas of how to order the elements involved doing so by **atomic mass**. As not all elements had been discovered then, many of the groupings of elements weren't done so by their properties.
- **Mendeleev** developed the periodic table and grouped elements with similar properties together, this meant changing the order of some of the elements. He also left gaps, predicting that undiscovered elements would fit the missing places.

Metals and non-metals

- Metals are found on the left hand side of the periodic table and form **positive ions**.
- Non-metals are found on the top right hand side of the periodic table and form **negative ions.**
- Metals generally **conduct electricity and heat,** have **high melting and boiling points**, are **solid** at room temperature and are **hard**. They have a **high density** and the transition metals will form **coloured compounds**

Key words

atomic number ion atomic mass
Mendeleev conduction density
noble gas halogen alkali metal

Group 0, 1 and 7

- **Group 0** non-metal elements are on the far right of the periodic table. They are called the **noble gases**. Their name comes from the fact that they have a **full outer shell of electrons** and are therefore considered to be **very stable**. For a noble gas to react, the conditions must be very extreme. The boiling points of noble gases increase as you go down the group.
- **Group 1** metals are on the far left of the periodic table. They are called the **alkali metals** because when they react with water they produce an aqueous alkaline solution. They have **1 outer shell electron**. This makes them **very reactive** as they can easily lose this electron. Their reactivity **increases down the group**.
- When they **react with water** they produce a **metal hydroxide** and **hydrogen gas,** the metal will **move along the surface of the water** due to its low density, some **bubbling** will occur as hydrogen gas is produced and **a flame** occurs with sodium (orange flame) and potassium (lilac flame)**.** The pH of the end solution is great than 7 turning the universal indicator blue or purple. **The reaction gets more vigorous down the group** e.g. $2Na_{(s)} + 2H_2O_{(l)} \rightarrow 2NaOH_{(aq)} + H_{2(g)}$
- When they **react with chlorine** they will produce chlorides which are white solids. They will dissolve in water to make a neutral solution e.g. $2Na_{(s)} + Cl_{2(g)} \rightarrow 2NaCl_{(s)}$ Again, the reaction will get more vigorous going down the group.
- When they **react with oxygen** they will burn in air and form solid oxides. Sodium will produce an orange flame and potassium will produce a lilac flame e.g. $4Na_{(s)} + O_{2\,(g)} \rightarrow 2Na_2O_{(s)}$
- **Group 7** non-metals are on the right hand side of the periodic table. They are called the **halogens**. They have **7 outer shell electrons**. They exist as **diatomic molecules** (a pair e.g. Cl_2 not Cl). Their reactivity **decreases down the group.** Their **melting and boiling point increase down the group** as their relative molecular mass increases.
- When they react with metals and non-metals they produce halides e.g. sodium reacting with chlorine would product sodium chloride.
- The more reactive halogen can **displace** the less reactive halogen in an aqueous salt solution e.g. $2KI + Br_2 \rightarrow 2KBr + I_2$

Properties of transition metals (TRIPLE ONLY)

- The transition metals are found in the middle block of the periodic table. They have slightly different properties to the Group 1 alkali metals. In comparison they have the following properties:
  - Higher melting and boiling points
  - Harder and denser solids
  - Produce coloured compounds
- Whereas, the group 1 metals will float on water because they are less dense, they can be cut easily because they are soft and they produce white compounds.

C1 Atomic structure
Knowledge organiser

Atoms, elements and compounds

- All matter is made from atoms which are the smallest part of the element. Each element is represented by a **chemical symbol** e.g. iron has the symbol **Fe**, oxygen has the symbol **O**. These elements are arranged on the periodic table.
- **Compounds** are formed when **chemical reactions** take place. They contain 2 or more different elements which are **chemically combined.** These reactions can be represented as **symbol equations.**
- The **law of conservation of mass** states that no matter can be created or destroyed. This means that in a symbol equation there must be the same number or atoms for each element on either side of the equation. Use this QR code to watch short demonstrations on how to balance a symbol equation.

Separating mixtures

- A mixture is made of 2 or more elements or compounds which are not chemically combined. The properties of each element or compound remain unchanged.
- They can be separated by the physical properties using techniques such as **filtration**, **crystallisation**, **simple distillation**, **fractional distillation** and **chromatography**.
- Separation techniques do not produce new compounds as no chemical reactions are taking place.

The development of the model of the atom

- The first thought about an atom were that they were tiny spheres of matter that couldn't be divided.
- The **plum pudding model** suggested that the atom was a ball of positive charge with negative electrons embedded in it.
- The **alpha particle scattering experiment** showed that the mass of an atom was concentrated at the centre (nucleus) and had a positive charge. This new model was named the **nuclear model**.
- **Niels Bohr** suggested that electrons orbit around the nucleus at specific distances, which was shown in experimental observations.
- The name **proton** was given later when it was found that the nucleus could be divided into smaller sub-atomic particles.
- **James Chadwick's** experimental observations provided evidence to show that **neutrons** exist within the nucleus.

The subatomic particles

- Atoms have no overall electrical charge because the number of protons and electrons is always equal. Their opposing charges balance one another out.

Sub-atomic particle	Relative Charge	Relative Mass
Proton	+1	1
Neutron	0	1
Electron	-1	0 (very small)

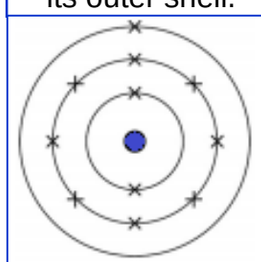
- The **atomic number** of an element is the same as the **number of protons**. Each element has a set number of protons which cannot change.
- The size of an atoms radius is about 0.1nm (1 x 10^{-10}m). The radius of a nucleus is about 1 x 10^{-14}m. Almost all of the mass of an atom is in the **nucleus**.
- The **atomic mass** of an element is the number of **protons** and **neutrons** in the nucleus added together e.g. Na has the numbers ^{23}Na and $_{11}$Na. 23 is the atomic mass and 11 is the atomic number. The mass number is always the larger of the two numbers.

Relative atomic mass

- The **relative atomic mass** is the average mass of all of the common **isotopes** of the element. An isotope is where the element has the same number of protons and electrons but a different number of neutrons. This affects the overall mass of the atom, but not the chemistry of how this atom will react.
- To calculate the relative atomic mass you must know the **relative abundance** of each isotope of the element e.g. Cl has 2 common isotopes – ^{35}Cl with 75% abundance and ^{37}Cl with 25% abundance.
- $A_r = \frac{(mass\ 1\ x\ abudance\ 1)+(mass\ 2\ x\ abudance\ 2)\ldots}{100} = \frac{(35\ x\ 75)+(37\ x\ 25)}{100} = 35.5$

Electronic structures

- The electrons in an atom will occupy the shells closest to the nucleus. These shells are arranged around the nucleus and can hold a maximum number of electrons. The 1st shell can hold **2 electrons**, the 2nd shell can hold **8 electrons** and the 3rd shell can hold **8 electrons**. You can represent the electrons in an atom or ion as an image (shown below) or as an **electronic configuration** which is shown as numbers e.g. Na has an electron configuration of 2.8.1. It has 2 electrons in its 1st shell, 8 in its 2nd shell and 1 in its outer shell.



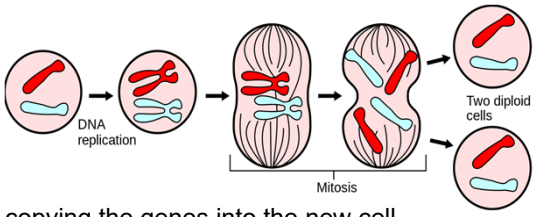
Key words

proton neutron electron
atomic number atomic mass nucleus
relative abundance fractional distillation
chromatography filtration crystallisation

B2 Cell division
Knowledge organiser

Mitosis and the cell cycle

- New cells are needed when an organism grow or to replace cells that are worn out or damaged this is done by mitosis
- It is important that any new cells are identical to the cells they replace. This is done by carefully copying the genes into the new cell.



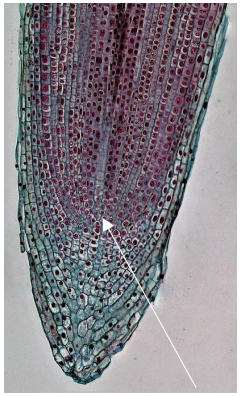
- All cells go through the **cell cycle** consisting of three phases:
  - Phase 1**, growth,** is where the cell grows bigger and produces new organelles such as mitochondria and ribosomes. This is the longest stage of the cell cycle.
  - Phase 2, **DNA synthesis,** is where the DNA replicates to form two copies of each chromosome.
  - Phase 3, **mitosis**, shown above, one set of chromosomes is pulled to each end of the cell. The nucleus reforms and the cell membrane splits into two identical cells.

Cloning

- Producing identical offspring is known as **cloning.** It is possible to produce many identical plant clones by taking stem or leaf cuttings of a plant.
- Under the right conditions the cells in the cutting of a plant can undifferentiated and start to undergo mitosis producing many cells. These cells can re-differentiate back into all of the various types of specialised plant cells such as xylem, phloem or palisade cells and build a new plant.
- As the cells from this new plant have come from only the one parent plant, they will produce a genetically identical daughter plant. This is a great way of producing plants which have desirable characteristics such as flower colour.
- Cloning of animals is much harder as most animal cells differentiate permanently in early development.

Differentiation

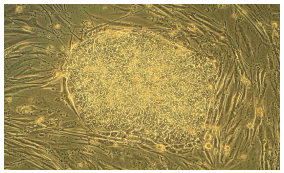
- Your life began when a sperm cell fertilised an egg. At that point you are only 1 cell big, now you have approx. 40 trillion cells of many different types.
- Very early in your life your cells were special, known as **embryonic stem cells**. They had the capacity to **differentiate** in to any other type of human cell.
- As cells differentiate different genes are turned on or off making the cells have specialised shapes and functions. From this point onwards when a cell undergoes mitosis they can only produce an identical daughter cell.
- Your body maintains a supply of **adult stem cells** which have only partially differentiated. These have a limited number of different cells they can produce e.g. some adult stem cells are found in your bone marrow and are able to produce different types of blood cell.



Root meristem

- Unlike animal cells many plant cells are capable of differentiating all through their lives. Areas of undifferentiated cells are kept in active regions such as in the tips of stems and roots known as the **meristem**. Mitosis takes place in these areas almost continuously producing new cells which go on to differentiate into the many types specialist plant cell. You can see the meristem in the diagram above

Stem cells and cloning



- The picture is of a human stem cells, these are undifferentiated cells. They can divide to form more undifferentiated cells which go on to differentiate into all of the other types in your body including skin, liver, muscle cells etc.

1. Embryonic stem cells – can be cloned and made to differentiate into most cell types. Used for **therapeutic cloning** where the nucleus is taken from patient and inserted into an embryonic stem cell (such as a human egg cell) from another person and cloned to replace damaged tissue. The body does not reject this tissue as it is genetically identical, however there is a risk of infection.
2. Adult stem cells – Can form many types of cell e.g. blood cells. Tissue matching is used to avoid rejection however there are only a few types of cell that can be formed this way. It also carries a risk of infection.
3. Meristems – can differentiate into any plant cell throughout the life of the plant. Use to produce clones quickly and economically. Very useful when producing many copies of rare species quickly without waiting for seeds.

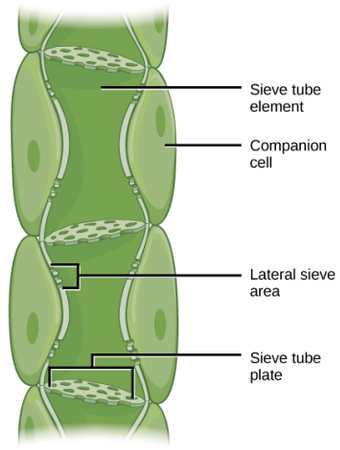
The use of stem cells carries some moral and religious concerns, however research on stem cells continue because they could be used to treat spinal cord injuries, diabetes, heart attacks, eyesight and damaged bone and many more.

B1 Cells

Knowledge organiser – page 2

Plant cell specialisation

- Plants also require many different types of cell
- **Root hair cells** are found in the plant roots. They increase the surface area to allow more efficient uptake of water, have permanent vacuoles to speed up the movement of water and lots of mitochondria for releasing energy for active transport
- **Palisade cells** are found in the plant leaf. They contain large numbers of chloroplasts for absorbing light energy, are positioned on the upper surface of the leaf to be in full sunlight and have large permanent vacuoles to store water and keep the leaf tissue rigid.



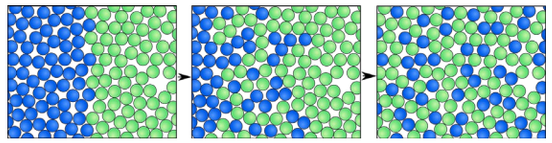
- **Xylem cells** are found in the stems of plants. They transport water upwards from the roots to the leaves to be used in photosynthesis. They are made from dead cells constructed from spirals of lignin. These make them very strong to withstand the pressure of moving water.
- **Phloem cells** are also found in plant stems. They carry the food made in photosynthesis up and down the plant. The cell walls between the cells break down to form sieve plates and they have companion cells to support them and keep them alive

Exchanging materials with the environment

- Cells need to take in and give out substances from their surroundings such as glucose for respiration. This exchange of materials is done by diffusion, osmosis or active transport.
- As organisms get bigger, these three process by themselves is not enough. You for example cannot absorb enough oxygen through your skin to supply all the cells in your body. In fact as an organism gets larger, its **surface area to volume ratio** decreases. Organisms have adapted to make the transfer of substances more efficient:
  - Larger surface areas allow greater movement of substances, for example **villi** in the small intestines and **alveoli** in the lungs.
  - Thin membranes through which substances must travel allow substances to move more rapidly such as the a thin filaments in a fish's gills or the membrane of the **capillaries.**
  - **Ventilation** makes gas exchange more efficient by ensuring that the concentration gradient remains steep such as the movement of air into and out of the lungs to replenish the oxygen.

Diffusion

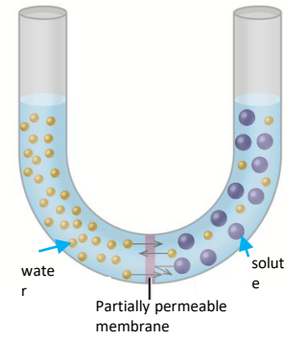
- **Diffusion** is the spreading out of the particles of a gas or any dissolved substances. Whilst the movement of the individual particles is random, the net movement (the overall movement) is always from an area of higher concentration to an area of lower concentration.



- Dissolved substances such as oxygen, carbon dioxide or waste products such as urea move into or out of cells via diffusion.
- Diffusion is fastest when there is a big difference between the concentration in two areas. We call this difference the **concentration gradient.**
- Diffusion is a passive process, meaning that is does not require energy use.

Osmosis

- When substances are separated by a **partially permeable membrane**, such as the cell membrane, it stops larger particles from being able to diffuse; water however, being very small, can move freely.
- **Osmosis** is the movement of water from an area of high water concentration (a dilute solution) to an area of low water concentration (a concentrated solution) across a partially permeable membrane.



- If the two sides of the membrane have the same solute concentration then we say they are **isotonic**, if the solution is more concentrated outside the cell it is hypertonic to the cell, if it is less concentrated outside the cell it is hypotonic to the cell. In the example given in the diagram the water will move to the right.
- Plants rely on osmosis to provide water to support stems and leaves. When water moves into the cell it swells it builds pressure known as **turgor**. If cells are filled with water they are **turgid**, if the pressure is removed, such as on hot dry days, the cells become **flaccid**. If the cell vacuole and cytoplasm shrink too much they can pull the membrane away from the cell wall. This is known as **plasmolysis** which can kill the cell.

Active transport

- Sometimes substances needed by a cell need to move against its concentration gradient across the partially permeable membrane. This is done by using energy in a process called **active transport**. Active transport can be seen in:
  - Root hair cells. Mineral ions are found in very low concentrations in the soil but need to be absorbed into the plant against its concentration
  - The small intestines. After a meal there is a very high concentration on glucose in the gut which can diffuse into the blood. After some time without eating this concentration decreases. Active transport is used to extract whatever is left before the next meal.

B1 Cells

Knowledge organiser – page 1

Using a microscope

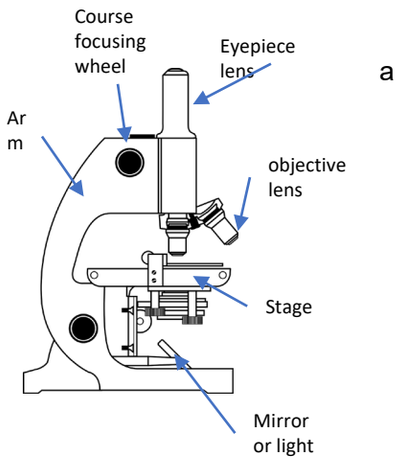
- Light microscopes use visible light to **magnify** an image by up to 2000 times.
- The **magnification** of a microscope is calculated by multiplying the eyepiece lens magnification by the objective lens magnification. For example, if an eye piece is 10X and an objective lens is 4X then the total magnification would be 10 X 4 = 40X.
- To calculate the size of an object use this formula:

  size of real object = image size ÷ magnification

- For example, if you are using a microscope with magnification of 40X and the image of a cell through the microscope measures 2mm, then:

  size of the cell = 2mm ÷ 40

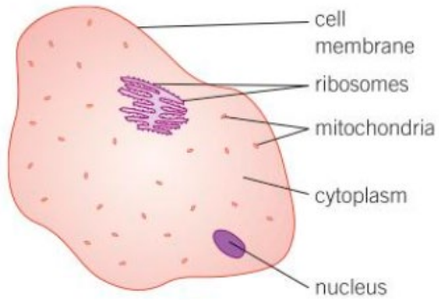
- The cell therefore has a size of 0.05mm or **50µm**



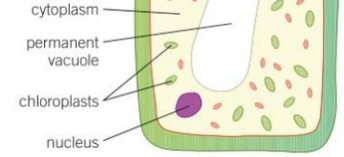
- The quality of an image through a microscope is more than just magnification. If two points are very small or close together it can be difficult to see them as two separate points and instead they appear as a single point. This is called **Resolution.** The greater the resolving power of a microscope, the more detail that can be seen.

Animal and plant cells

- All living things are made from **cells which** contain a number of structures within them.
- **Both animal and plant cells contain:**
  - **Nucleus – s**surrounded by a nuclear membrane, it contains the genes on chromosomes which carry the instructions for producing the proteins involved in cellular activity.
  - **Cytoplasm** – A jelly like liquid which holds all of the other cellular structures. It is also where most of the chemical reactions take place that are needed for a cell to live.

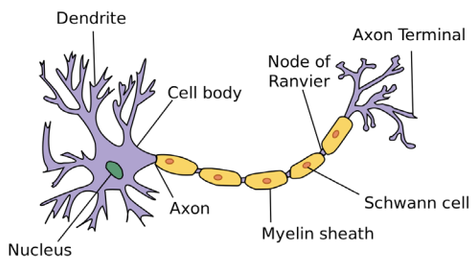


  - **Cell membrane** – A thin layer made from fat and protein which controls the passage of substances into and out of the cell.
  - **Mitochondria** – Very small structures containing lots of folds of membrane across which aerobic respiration takes place. This process releases energy from glucose to be used by the cell.
  - **Ribosomes –** Very small structures which are the site of protein synthesis.
- **Plant cells also contain:**
  - **Chloroplasts** – Small structures which contain a green substance called **chlorophyll**. They absorb light for photosynthesis.
  - **Permanent vacuole** – An area in the cell which contains cell sap. This is important in keeping the cell turgid to support the plant
  - **Cell wall** – cellulose structure that supports the cell.



Animal cell specialisation

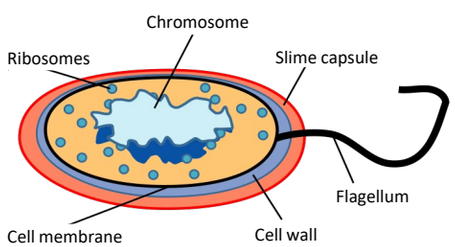
- Plants and animals are made from many different types of cell, each with a specialised functions. They differentiate into these special cells as the organism develops.
- Nerve cells are specialised communicate information in the form of electrical impulses around your body. They have **dendrites** to make connections. They have long axons to cover large distances and they have synapses pass information from one nerve cell to another.



- **Muscle cells** are cells which contain special proteins allowing them to contract and relax. They contain many mitochondria and glycogen to release energy.
- Sperm cells are used to fertilise eggs. They have long tails for movement, many mitochondria for releasing energy and enzyme containing acrosomes for breaking into the egg

Eukaryotic and prokaryotic cells

- Animal and plant cells are examples of **eukaryotic** cells. They have a membrane, cytoplasm and genetic material contained within a nucleus.
- Bacteria are examples of **prokaryotic** cells, they are around 100x smaller than eukaryotes. They consist of cytoplasm within a cell membrane and cell wall (although not made of cellulose). The genetic material is also not contained within a nucleus but is instead a large ring floating within the cytoplasm.
- As well as the main chromosome, prokaryotes have several extra small loops of DNA called plasmids.
- Prokaryotes may also have a protective slime capsule around the cell wall, flagella for movement



KS3 Athletics

Using the tables, keep a record of what level you are at for each event you try in PE. Put your own scores in the appropriate box on the left

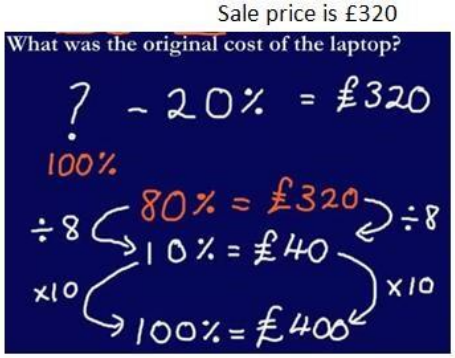
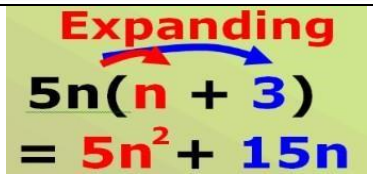
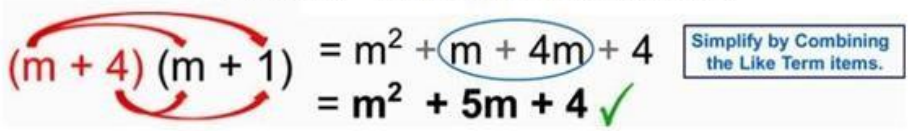
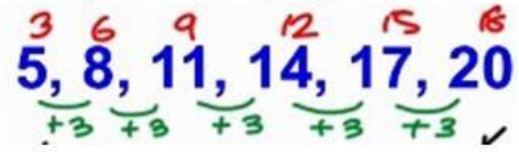
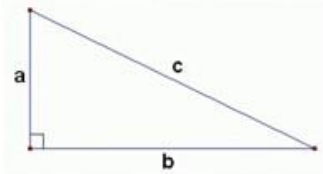
Girls Results

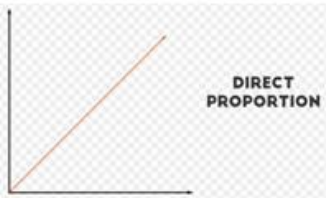
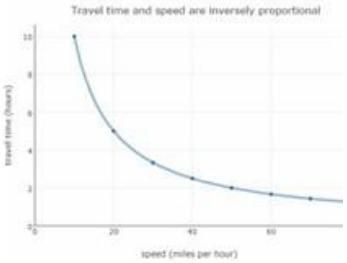
STAGE PROGRESSIONS	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9
SPRINTS	1 Star	2 Star	3 Star	Bronze	Silver	Gold	Platinum	Elite	Podium
50m Standards	14.8s	12.2s	10.6s	9.9s	9.2s	8.6s	8.1s	7.7s	7.3s
75m Standards	21.0s	17.3s	15.3s	13.8s	12.8s	12.1s	11.5s	11.0s	10.5s
100m Standards	23.0s	19.0s	17.0s	15.5s	15.0s	14.6s	14.2s	13.9s	13.7s
200m Standards	-	-	-	31.7s	30.8s	30.5s	29.7s	29.2s	28.5s
300m Standards	-	-	-	55.0s	53.5s	52.0s	50.0s	48.5s	46.0s
HURDLES	1 Star	2 Star	3 Star	Bronze	Silver	Gold	Platinum	Elite	Podium
60m Standards	25.0s	19.3s	16.0s	14.0s	12.5s	11.5s	11.0s	10.5s	10.1s
70m Standards	24.0s	21.0s	18.9s	17.3s	15.9s	14.6s	13.7s	13.1s	12.7s
75m Standards	23.0s	21.0s	18.5s	17.0s	16.0s	15.0s	14.0s	13.7s	13.4s
80m Standards	-	-	-	-	-	15.0s	14.2s	13.9s	13.6s
ENDURANCE	1 Star	2 Star	3 Star	Bronze	Silver	Gold	Platinum	Elite	Podium
400m Standards	3m 20s	2m 30s	2m 10s	1m 55s	1m 40s	1m 25s	1m 15s	1m 10s	1m 05s
600m Standards	6m 00s	4m 30s	3m 30s	3m 00s	2m 40s	2m 30s	2m 20s	2m 10s	2m 00s
800m Standards	5m 00s	4m 45s	4m 30s	4m 10s	3m 45s	3m 20s	2m 55s	2m 45s	2m 35s
1500m Standards	7m 20s	7m 00s	6m 44s	6m 30s	6m 17s	6m 06s	5m 55s	5m 42s	5m 24s
JUMPS	1 Star	2 Star	3 Star	Bronze	Silver	Gold	Platinum	Elite	Podium
Standing Long Jump	0.35m	0.90m	1.35m	1.55m	1.70m	1.90m	2.20m	2.40m	2.60m
Long Jump	1.00m	1.80m	2.30m	2.80m	3.10m	3.40m	3.70m	4.00m	4.30m
Standing Triple Jump	1.00m	2.40m	3.60m	4.40m	4.80m	5.20m	-	-	-
High Jump	0.20m	0.50m	0.75m	0.90m	1.00m	1.10m	1.20m	1.28m	1.36m
THROWS	1 Star	2 Star	3 Star	Bronze	Silver	Gold	Platinum	Elite	Podium
Shot Put	1.00m	2.00m	3.00m	4.25m	5.25m	6.00m	6.50m	7.00m	8.00m
Javelin	1.00m	5.00m	7.00m	9.00m	12.00m	15.00m	18.00m	21.00m	24.00m
Discus	1.00m	3.00m	5.00m	7.00m	9.00m	13.00m	17.00m	19.00m	21.00m

Boys Results

STAGE PROGRESSIONS	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7	Stage 8	Stage 9
SPRINTS	1 Star	2 Star	3 Star	Bronze	Silver	Gold	Platinum	Elite	Podium
50m Standards	14.8s	12.0s	10.3s	9.6s	8.9s	8.3s	7.8s	7.4s	7.0s
75m Standards	21.0s	17.0s	15.0s	13.5s	12.5s	11.5s	10.7s	10.0s	9.5s
100m Standards	23.0s	18.7s	16.7s	14.6s	14.2s	13.8s	13.4s	13.0s	12.7s
200m Standards	-	-	-	30.3s	29.3s	28.8s	27.6s	27.0s	26.0s
300m Standards	-	-	-	56.5s	54.0s	51.5s	48.5s	45.0s	42.5s
HURDLES	1 Star	2 Star	3 Star	Bronze	Silver	Gold	Platinum	Elite	Podium
60m Standards	25.0s	19.0s	15.5s	13.5s	12.0s	11.0s	10.5s	10.1s	9.7s
70m Standards	24.0s	20.4s	17.3s	15.8s	14.5s	13.6s	13.0s	12.5s	12.2s
75m Standards	23.0s	21.0s	18.0s	16.5s	15.3s	14.5s	13.8s	13.5s	13.2s
80m Standards	-	-	-	-	-	15.2s	14.4s	14.0s	13.4s
ENDURANCE	1 Star	2 Star	3 Star	Bronze	Silver	Gold	Platinum	Elite	Podium
400m Standards	3m 20s	2m 30s	2m 05s	1m 45s	1m 35s	1m 20s	1m 10s	1m 05s	1m 00s
600m Standards	6m 00s	4m 30s	3m 20s	2m 50s	2m 30s	2m 15s	2m 05s	2m 00s	1m 50s
800m Standards	4m 00s	3m 40s	3m 20s	3m 00s	2m 50s	2m 41s	2m 33s	2m 27s	2m 20s
1500m Standards	6m 20s	6m 05s	5m 50s	5m 38s	5m 28s	5m 19s	5m 10s	4m 59s	4m 46s
JUMPS	1 Star	2 Star	3 Star	Bronze	Silver	Gold	Platinum	Elite	Podium
Standing Long Jump	0.35m	0.90m	1.40m	1.60m	1.80m	2.00m	2.30m	2.60m	2.80m
Long Jump	1.00m	1.80m	2.40m	3.00m	3.50m	4.00m	4.40m	4.70m	5.05m
Standing Triple Jump	1.00m	2.40m	4.00m	4.60m	5.10m	5.60m	-	-	-
Triple Jump	-	-	-	-	-	6.40m	8.50m	9.70m	10.60m
High Jump	0.20m	0.50m	0.80m	1.00m	1.10m	1.20m	1.30m	1.40m	1.50m
THROWS	1 Star	2 Star	3 Star	Bronze	Silver	Gold	Platinum	Elite	Podium
Shot Put	1.00m	2.00m	3.25m	4.80m	5.80m	6.80m	8.00m	9.40m	10.15m
Javelin	1.00m	5.00m	10.00m	12.00m	15.00m	19.00m	26.00m	30.00m	33.50m
Discus	1.00m	5.00m	8.00m	10.00m	12.00m	17.00m	22.00m	24.00m	26.00m

Year 9 Spring Maths Knowledge Organiser

Topic	Key fact	Hegarty maths clip number
Percentage of Amount	Turn the percentage into a decimal and multiply it by the amount. e.g. 45% of 60 is 0.45 x 60 = 27 The 0.45 is called the decimal multiplier.	83 to 87
Percentage Increase & Decrease	If it is a percentage increase, the decimal multiplier will be 1.something because you are getting more than 100%. If it is a percentage decrease, the decimal multiplier will be 0.something because you are getting less than 100% e.g increase £200 by 40% would be 200 x 1.4 decrease £200 by 40% would be 200 x 0.6	88 to 92
Reverse percentages		96
Expanding a single bracket		160 – 161
Expanding double brackets	Expanding – multiplying out the brackets. 	162 - 165
Linear sequences (nth term) & Special Sequences	Square: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, … Cube: 1, 8, 27, 64, 125,… Triangular: 1, 3, 6, 10, 15, 21, 28, 36, 45, … nth term: General rule for a sequence. Find the difference between each term, then how do you get from that times table to the sequence: (e.g. 3n + 2) 	196 – 198
Pythagoras' Theorem	 c = hypotenuse $a^2 + b^2 = c^2$ $c^2 - b^2 = a^2$ $c^2 - a^2 = b^2$ Remember to square root your answer to find the missing side.	497 – 504

Indices	$a^m \times a^n = a^{m+n}$ $a^m / a^n = a^{m-n}$ $(a^m)^n = a^{mxn}$ $a^0 = 1$ $a^1 = a$	102 to 106
Calculations with numbers in standard form	Multiplying & dividing: do the 'normal' numbers like usual; then use index laws for the $\times 10^n$ Adding & subtracting: make them ordinary numbers first; do column addition or subtraction; change back to standard form	125 to 128
Negative and Fractional Indices	$m^{a/b} = \sqrt[b]{m^a}$ $a^{-c} = \frac{1}{a^c}$ $\left(\frac{1}{a}\right)^{-c} = a^c$ $\left(\frac{x}{y}\right)^{-c} = \frac{y^c}{x^c}$	104 to 108
Direct Proportion	One quantity **increases** at the same rate as the other quantity **increases**. 	339
Inverse Proportion	One quantity **increases** at the same rate as the other quantity **decreases**. 	342

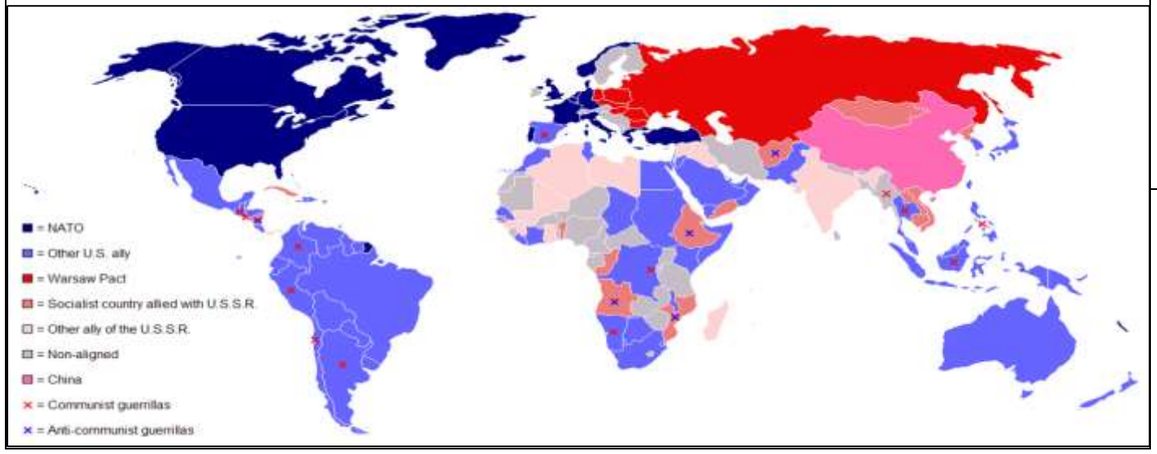
Key Vocabulary

- Integer – A whole number.
- Power/Indices - The index of a number says how many times to use the number in a multiplication. It is written as a small number to the right and above the base number.
- Square number - the answer you get when you multiple a number by itself.
- Cube number - the answer you get when you multiply a number by itself 3 times. ○ Root – The inverse operation of a power.
- Expand – to multiply the term before bracket by the terms in the bracket using the ○ Factorise – To put into brackets by taking out the highest common factor.
- Hypotenuse – the longest side in a right0angled triangle. ○ Direct proportion - one quantity increases at the same rate as the other quantity increases. ○ Inverse proportion - one quantity increases at the same rate as the other quantity decreases. ○ $n^{th}term$ – the position to term rule for a sequence. Can be used to find any number in a sequence.

THE COLD WAR KNOWLEDGE ORGANISER

Overview and Map

The Cold War was a long period of open, yet restrained, tension between the democracies of the western world and the communist countries of the east. The democratic west was led by the United States, whilst the communist east was spear-headed by the Soviet Union – the two world superpowers at the time. Whilst the two superpowers never directly declared war on one another, they fought indirectly via proxy wars, an arms race, and the space race, in order to gain political and ideological dominance. The map below shows the extent of their alliances in 1980, towards the end of the Cold War.



Key People

Dwight Eisenhower – (1890-1969) Dwight Eisenhower was a five star general of the US army and supreme commander of the Allied forces in western Europe, before becoming the 34th President of the United States. As President, he articulated his views on the 'Domino Theory', suggesting that Communism should be stopped before it spread. Whilst he ended the Korean War, he was the first President to send troops to Vietnam, and made preparations to make interventions in Cuba. He made efforts to limit nuclear weapons proliferation, but these were unsuccessful.

Joseph Stalin – (1878-1953) was the Communist leader/ dictator of the USSR during WWII. After the death of the Communist Leader Lenin, Stalin won a vicious grapple for power before eventually establishing himself as a totalitarian dictator. His own policies became known as 'Stalinism.' After World War II, Stalin became committed to taking both political and ideological control of eastern European states, believing this to be integral to creating a buffer between the democratic West. This quest for domination is seen as one of the predominant factors in starting the Cold War.

John F. Kennedy – (1917-1963) Commonly known as JFK, John F. Kennedy was the 35th President of the United States, who served between 1961-1963 at the height of the Cold War. The majority of his presidency involved managing relations with the Soviet Union. He authorized the failed Bay of Pigs invasion, but subsequently helped to diffuse the Cuban Missile Crisis, and made a famous speech about the Berlin Wall as being symbolic of Communist failure. He also expanded the US space programme. He was assassinated in 1963.

Nikita Khrushchev – (1894-1971) Nikita Khrushchev was the successor to Joseph Stalin, who led the Soviet Union between 1953 and 1964 – the tensest years of the Cold War. He was more liberal than his predecessor in domestic policy, and also cut Soviet forces. However, he built up the number of nuclear missiles. He was involved in the Cuban Missile Crisis, when nuclear war between the US and Soviet Union seemed to be imminent. In 1964, he was removed by his colleagues, replaced by Leonid Brezhnev.

Sir Winston Churchill – (1874-1965) was a British politician who served as the Prime Minister between 1940 and 1945 and again from 1951 to 1955. He took over after a disastrous start to the war in which Nazi Germany conquered much of Europe. The manner in which he forged crucial alliances with countries like the US and Russia undoubtedly aided the Allies victory. After the war, he was one of the first public figures to hypothesise about the significant dangers of an 'Iron Curtain' descending across Europe.

Fidel Castro – (1926-2016) Fidel Castro was a Cuban communist, revolutionary, and politician, who helped to lead the Communist revolution in Cuba. He was allied with the Soviet Union, and caused grave concern to the US as communism was now in the Americas. The CIA took charge of trying to overthrow Castro's government, using Cuban exiles, but got their strategy disastrously wrong in the Bay of Pigs invasion. Castro became a hero for his victory, and stayed in power right up until 2011.

Major Events

Event	Image	Description	Date/s	Fact
The Truman Doctrine		The Truman Doctrine was an American foreign policy created with the aim of countering Soviet geopolitical expansion. Announced to congress by President Harry S. Truman, the doctrine alleged that communist totalitarian regimes represented a significant threat to international peace. As a result, American support would be provided to countries threatened by Soviet communism.	12th March 1947	The Doctrine led to the formation of NATO, an alliance that is still in effect.
Berlin Blockade		During multinational occupation of post-World War II Germany, the Soviet Union blocked the Western Allies' railway, road and canal access to parts of Berlin under western control, in response to western introduction of the Deutsche mark. Via the 'Berlin Airlift', Allied planes were able to deliver vital supplies to Berliners.	24th June 1948 – 12th May 1949	It proved to be a PR disaster for Stalin, who had to remove the blockade in May 1949.
The Korean War		As a result of the Cold War, Korea had split into two states, with both claiming to be the sole legitimate government of all of Korea. This broke into war when communist North Korea (aided by Russia and China) invaded the South (backed by USA). The war eventually ended in stalemate. The country remained divided.	25th June 1950 – 27th July 1953	As no peace treaty was signed, the countries are still technically at war!
The Vietnam War		Vietnam was split – the North (backed Soviet Union) and South (backed by USA) engaged in a war lasting over 19 years. It also sprouted the Laotian and Cambodian Civil Wars, and resulted in all 3 states becoming Communist. It was an extremely deadly war, with around 2 million innocent civilians believed to have perished.	1st November 1955 – 30th April 1975	Images of napalm-burnt villagers turned public opinion against the war in the USA.
The Space Race		The USA and USSR intensified competition for spaceflight superiority. The race had origins in the nuclear arms race, in that successes demonstrated technological strength. USSR completed the first manned spaceflight, whilst USA were the first to send man to the moon.	2nd August 1955 – c.1975	USSR launched the first satellite into space on 4th Oct 1957 – *Sputnik 1.*
U-2 Plane Incident		A United States U-2 spyplane was shot down by the Soviet Air Defence Forces, whilst photographing targeted Soviet sites whilst deep into Soviet territory. Embarrassingly, the US was forced to admit this purpose after the USSR produced the pilot and evidence.	1st May 1960	The pilot, Gary Powers, was captured and convicted of espionage.
The Bay of Pigs Invasion		The Bay of Pigs Invasion was a failed military invasion of Cuba. The CIA-sponsored Brigade 2506 intended to overthrow the increasingly communist government of Fidel Castro, but were defeated after only 3 days.	17th -20th April 1961	The outcome made Castro a national hero.
Cuban Missile Crisis		The missile crisis was a 13-day confrontation between the USA and the USSR. The USA initiated ballistic missile deployment in Italy and Turkey, whilst the USSR deployed missiles in Cuba. It is often considered the point at which the Cold War came closest to all-out nuclear war. After tense negotiations, missiles were dismantled.	16th – 28th October 1962	Soviet missiles in Cuba were only 90km from Florida in the USA.
Non-Proliferation Treaty		The treaty on the non-proliferation of nuclear weapons, also known as the NPT, is an agreement to prevent the spread of nuclear weapons technology, and to promote peaceful use of nuclear energy. Both the US and the Soviet Union signed the treaty on 1st July 1968, alongside other nuclear-armed states, reducing tensions.	1st July 1968	Although it did not stop nuclear development, the NPT reduced US/ USSR tensions.
Fall of the Berlin Wall		The Berlin Wall had separated communist eastern section of Berlin Germany from west Berlin since 1961. However, the Soviet Union was beginning to collapse, and was struggling to hold onto East Germany. In November 1989, the Central Committee of East Germany opened up free movement across the wall. In In doing so, one of the major symbols of the Cold War itself was abolished.	9th November 1989	On October 3, 1990 Germany was officially reunified into a single country.

Timeline of Major Events

1945 – Potsdam Conference leads to distrust between the USSR and USA

1945 – The Iron Curtain divides east from west.

1946 – Policy of containment leads to the Domino Theory.

1947 – The Truman Doctrine pledges to resist Communism.

1948 – Stalin mounts the Berlin blockade in East Germany.

1949 – USSR tests its first nuclear bomb and the arms race begins.

1950-53 – The Korean War.

1955 – The Vietnam War begins.

1957 – The Space Race begins (ends around 1975).

1960 – The U-2 plane incident – US pilot Gary Powers captured.

1961 – Berlin Wall erected.

1961 – The Bay of Pigs: botched invasion of Cuba.

1961 – Cuban Missile crisis brings the world close to nuclear war.

1969 – Strategic Arms Limitation Talks.

1979 – Soviets invade Afghanistan.

1989 – Fall of the Berlin Wall.

1991 – Collapse of USSR. Cold War ends.

History Knowledge Organiser HT1 – The Holocaust

What is the Holocaust? Key definitions.

- The mass murder of Jews under the German Nazi regime during the period 1941–5. More than 6 million European Jews, as well as members of other persecuted groups, were murdered at concentration camps such as Auschwitz.
- Holocaust comes from Hebrew and means destruction or completely burnt. Many Jews use the term Shoah which comes from the Hebrew and means catastrophe.

Three Historical Reasons for Anti-Semitism:

1. Jews were blamed for the crucifixion of Christ.
2. Jews were blamed for the Black Death although many Jews were killed by the disease.
3. Jews were driven out of many Western European countries in the Middle Ages. They were expelled from England in 1290, from France in 1306 and 1394.

All of these actions made the Jews outliers from the rest of their community and therefore different and victims of prejudice and discriminations

Hitler's Persecution of the Jews

Hitler's dislike of the Jews was based on the economy. He blamed them for making Germany weak.

- **1st April 1933:** Hitler's first action directly against the Jews was a Boycott of all Jewish businesses
- **April 11, 1933 -** Nazis issue a decree defining a non-Aryan as "anyone descended from non-Aryan, especially Jewish, parents or grandparents."
- **May 10, 1933 -** Burning of books in Berlin and throughout Germany.
- **In Sept -** Nazis establish Reich Chamber of Culture, then exclude Jews from the Arts.
- **Summer 1935** Placards saying Jews not wanted displayed in resorts, public buildings, restaurants and cafes .(these were removed during the 1936 Olympic Games).
- A massive, coordinated attack on Jews throughout the German Reich on the night of **November 9, 1938** into the next day, has come to be known as **Kristallnacht** or The Night of Broken Glass.

The Rise of Hitler and the Nazis:

Nazis is an abbreviation for the National Socialist German Workers Party that existed from 1919-1945. Their leader was Adolf Hitler

Reasons for the Nazi's gaining support.

- Nazi's had support from big business
- The rise in unemployment
- Hitler promised a stronger Germany and Hitler's use of propaganda
- The Nazis promised different things to different people: jobs to the unemployed, ideas to the young, pensions to the old
- Hitler blamed the Jews for the economic collapse and struggles of Germany

Hitler takes power in Germany:

July 1932 the Nazis were the largest party in the Reichstag.
Hitler is made Chancellor on the 30th January 1933.
Hitler starts his persecution of the Jews.

The Road to the Holocaust World War Two.

The Nazis invaded Eastern Europe and used The Einsatzgruppen who were special mobile killing squads created in 1939. In 1941 the Einsatzgruppen would move through Nazi controlled areas and round up Jews, gypsies, undesirables and disabled people. They rounded them up and shot them.

The Final Solution

The **Wannsee Conference** was a meeting of senior government held in the Berlin suburb of Wannsee on 20 January 1942. It was decided whereby most of the Jews of German-occupied Europe would be deported to occupied Poland and murdered.

The Death Camps: Auschwitz Birkeneau, Chelmno, Treblinka, Belzec, Sobibor, Majdanek in the far east of Poland.

The death camps used gas chambers to murder Jews and others on an industrial scale. Jews were brought from all over Europe. Selection happened when you arrived. Women with children, the Elderly and the unfit went straight to the gas chambers. The Jews were told they were being taken to showers but the showers were in fact gas chambers. To the camps usually 14 years of age upwards and if they were fit and healthy as well as children taken from parents (if they were lucky) were taken to showers to clean them up. The showers were either really hot or extremely cold. They would then be tattooed with a number their hair shaven and given a uniform.

The Holocaust is significant as it is a point in human history where religious discrimination and overt racism led to the deliberate attempt to wipe a single group of human beings from the face of the planet by mass murder. This genocide can never be forgotten as it stands as an example of what can go wrong when hate and prejudice go unchallenged.

Year 9 Knowledge Organiser (KO) – Changing Climate?

What is climate change?

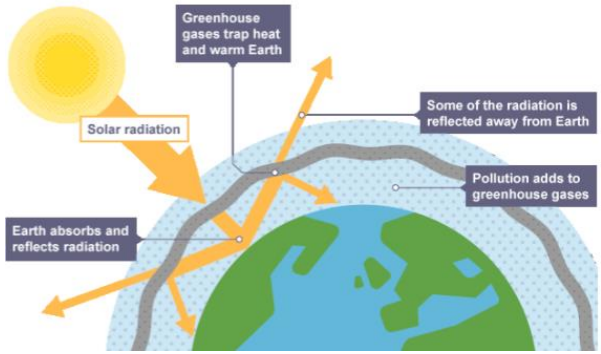
Climate change is a large-scale, long-term shift in the planet's weather patterns or average temperatures. Earth has had tropical climates and ice ages many times in its 4.5 billion years.

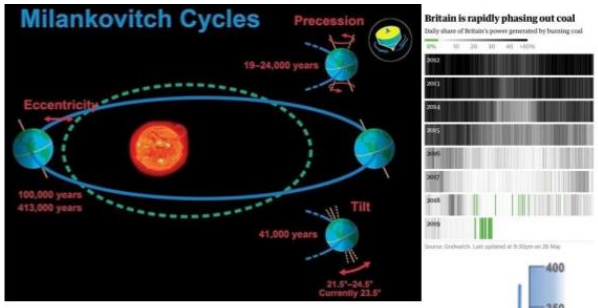
What recent evidence supports climate change?

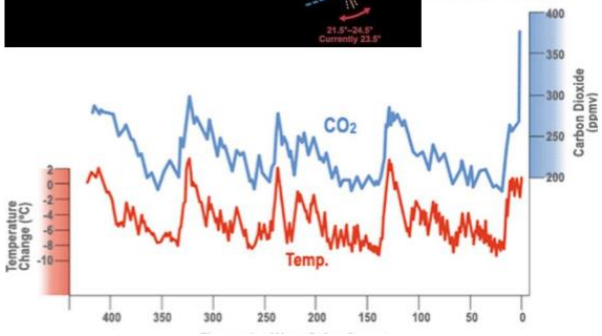
Global temperature	Average global temperatures have increased by more than **0.6°C since 1950**.
Ice sheets & glaciers	Many of the world's glaciers and ice sheets are melting. E.g. the Arctic sea ice has declined by **10% in 30 years**.
Sea Level Change	Average global **sea level has risen by 10-20cms** in the past 100 years. This is due to the additional water from ice and thermal expansion.

What should I already know?

Difference between climate and weather

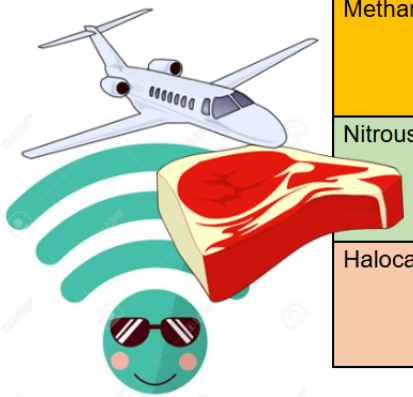






Human causes of climate change

Challenge: Explain why some of these human behaviors are increasing.



Greenhouse gas	% of greenhouse gas produced	Sources	Warming power compared to carbon dioxide	% increase since 1850
Carbon dioxide	89%	Burning fossil fuels (coal, oil, gas), deforestation which produces carbon dioxide	1	+ 30%
Methane	7%	Gas pipeline leaks, rice in paddy fields, cattle (cow) farming.	21 times more powerful	+ 250%
Nitrous oxide	3%	Jet aircraft engines, cars and lorries, fertilisers and sewage farms.	250 times more powerful	+ 16%
Halocarbons	1%	Used in industry, solvents and cooling equipment (air conditioners).	3000 times more powerful	Not natural

Key Words

Key Word	Definition
Climate Change	How the average climatic conditions of the planet vary over time.
The Greenhouse Effect	The retention of heat in the atmosphere caused by the build-up of greenhouse gases.
Quaternary Period	The period of timeline that spans from 2.6 million years ago to the present day.
Glacial	A period of time with lower average temperatures.
Interglacial	A period of time with higher average temperatures.
Milankovitch Cycles	Variations in the eccentricity (orbit), axial tilt and precession (wobble) of the Earth. These have resulted in natural warming and cooling.
Fossil Fuels	Natural, finite fuel formed from the remains of living organisms, eg oil, coal and natural gas.
Greenhouse Gases	Any gas that absorbs infrared radiation, (after the sun rays reflect of the Earth) trap heat in the atmosphere and contribute to the greenhouse effect.
Agriculture	Farming (either animals or crops /plants).
Deforestation	Cutting down trees.
Carbon Footprint	The amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organisation or community.

Describing a typical day in the present, past & near future

<table>
<tr><td colspan="4">PRESENT</td></tr>
<tr><td rowspan="3">En général
[In general]</td><td rowspan="3">pendant la semaine
[during the week]</td><td colspan="2">je range ma chambre [I tidy my room]
j’aide mes parents [I help my parents]
je mange au restaurant italien [I eat in the Italian restaurant]
je fais mes devoirs [I do my homework]
je joue à la PlayStation [I play on the PlayStation]
je joue avec ma soeur [I play with my sister]
je fais du vélo [I ride my bike]
je sors avec mon/ma petit(e) ami(e) [I go out with my boyfriend/girlfriend]
je vais au centre commercial [I go to the shopping centre]</td></tr>
<tr><td rowspan="2">je dois
[I have to]
je peux
[I can]</td><td>aider mon frère [help my brother]
faire mes devoirs [do my homework]</td></tr>
<tr><td>jouer avec mes amis [play with my friends]
aller au parc [go to the park]
sortir avec mes amis [go out with my friends]</td></tr>
</table>

<table>
<tr><td colspan="3">PAST (PERFECT TENSE)</td></tr>
<tr><td rowspan="2">Hier
[Yesterday]

Vendredi dernier
[Last Friday]

La semaine dernière
[Last week]</td><td colspan="2">j’ai rangé le salon [I tidied the living room]
j’ai aidé mon frère [I helped my brother]
j’ai mangé au restaurant chinois [I ate in the Chinese restaurant]
j’ai fait du footing dans le parc [I went jogging in the park]
j’ai joué de la guitare [I played guitar]
je suis sorti(e) avec ma meilleure amie [I went out with my best friend -f-]
je suis allé(e) au stade [I went to the stadium]</td></tr>
<tr><td>J’ai dû [I had to]
J’ai pu [I was able to]
Je n’ai pas pu [I wasn’t able to]</td><td>faire du sport [do sport]
faire les magasins [go shopping]
jouer aux jeux vidéo [play videogames]
promener le chien [take the dog for a walk]</td></tr>
</table>

<table>
<tr><td colspan="3">FUTURE</td></tr>
<tr><td>Le week-end prochain
[Next weekend]
La semaine prochaine
[Next week]
demain
[Tomorrow]</td><td>je (ne) veux (pas)
[I -don’t- want to]
je (ne) dois (pas)
[I -don’t- have to]
je (ne) vais (pas)
[I’m - not- going to]</td><td>ranger ma chambre [tidy my room]
aider à la maison [help at home]
faire mes devoirs [do my homework]
aller au cinéma [go to the cinema]
rencontrer mes amis
[meet up with my friends]
jouer du ukulélé [play the ukulele]</td></tr>
</table>

Quels sont tes projets d'avenir? – What are your future plans?

Plus tard (later)
Un jour (one day)
Après mes examens (after my exams)
Si je réussis mes examens (if I pass my exams)
Si je peux (if I can)
Si mes rêves se réalisent (if my dreams come true)
Quand j'aurai vingt-cinq ans (when I'm 25 years old)

je vais (I'm going to)
je voudrais (I'd like to)
j'aimerais (I'd like to)
j'espère (I hope to)
j'ai l'intention de (I intend to)
j'ai envie de (I want to)
je rêve de (I dream of)
mon but est de (my goal is to)

me marier (get married)
me pacser (have a civil partnership)
avoir des enfants (have children)
habiter avec mon copain / ma copine (live with my partner)
habiter à l'étranger (live abroad)
être célèbre (be famous)

faire un apprentissage (do an apprenticeship)
trouver un emploi bien payé (find a well paid job)
faire du bénévolat (do voluntary work)

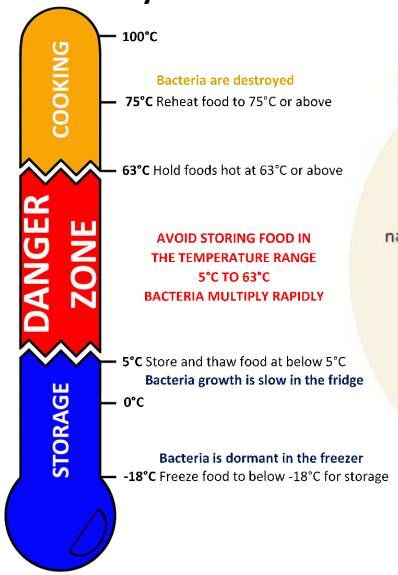
prendre une année sabbatique (take a gap year)
voyager autour du monde (travel round the world)
faire mon permis de conduire (get my driving licence)

passer mon bac (take my A Levels)
continuer mes études (continue my studies)
aller au lycée (go to 6th form)
aller à l'université(go to uni)
faire une licence(do a degree)
réussir ma carrière (have a successful career)
devenir (job) (become a…)

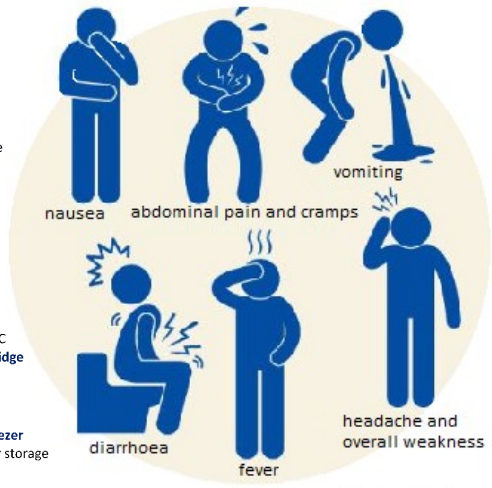
Year 9 - Lifestyle & Choice

COOKING AND NUTRITION

Food safety



Food poisoning symptoms



https://www.youtube.com/watch?v=flxmB8NKMzE
https://www.nhs.uk/live-well/eat-well/10-ways-to-prevent-food-poisoning/
https://www.food.gov.uk/safety-hygiene/avoiding-cross-contamination

Food labelling: lots of information is required by law. Storage instructions are particularly important for food safety.

Keep refrigerated — Store in a cool, dry place

https://www.youtube.com/watch?v=OZOIEYQ0axo&list=PLcvEcrsF_9zIxoGGU59CjuZHciPl9uvGm&index=9&t=2s

Key vocabulary

safety / hygiene / cross-contamination
pathogenic / food poisoning / symptoms
nutrition / hydration / shelf life
perishable / ambient / dormant
ethical / moral / cultural / preferences
allergies / intolerances / life stages

Nutritional needs and health: some people have special dietary needs based on their age, lifestyle or allergies.

https://www.youtube.com/watch?v=k5YSJq4iQtI

Senses: influence our enjoyment of food.

https://www.youtube.com/watch?v=zNchJla7G0E

The Eatwell Guide shows the types and proportions of foods people need for a healthy and well-balanced diet.

https://www.youtube.com/watch?v=7MlE4G8ntss
https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/
https://www.youtube.com/watch?v=8aWqZd9RScQ

Food choices: a variety of factors influence what we choose to eat.

https://www.youtube.com/watch?v=D6eor1wkNFY
https://www.youtube.com/watch?v=bowUbkANVVY

Dehydration: the main symptoms.

https://www.youtube.com/watch?v=b7s2Aqj72Q8

Year 9 - Cooking skills

Equipment

 Fish slice	 Food thermometer	 Food processor	 Potato masher
 Wok	 Tongs	 Electric whisk	 Pastry brush

Skills and Processes

Blind baking

Used in: tomato and basil tarts

Dividing and shaping


Used in: burgers, fish cakes, croquettes, Swedish meatballs

Whisking


Used in: tomato and basil tarts, Swiss roll

Folding and wrapping


Used in: samosas, spring rolls

Key word	Meaning
Denaturation	When protein foods are heated causing them to change size, colour and texture eg. burgers, meatballs, chicken.
Stir-frying	A cooking technique in which ingredients are fried in a small amount of very hot oil while being stirred in a wok
Aeration	The process of incorporating air into a mixture to help provide structure and volume eg. whisking eggs for Swiss roll.
Reduction	Simmering a liquid over heat until it thickens due to evaporation.

Independent skills I need to learn in Year 9

Select the correct colour coded chopping boards to prevent cross contamination.

Use a wide range of preparation and cooking techniques eg. finely dicing, blind baking, whisking, sautéing, shaping, mashing, enrobing, stir-frying etc.

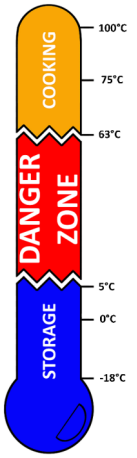
Organise my workspace, remove food waste promptly, clean as I go.

Manage temperature control know when to turn heat up and down accordingly.

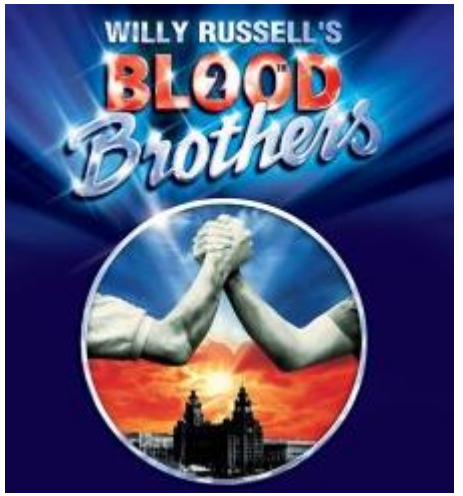
Check for readiness using a food thermometer to check the internal temperature.

Food safety

Know the **critical temperature** for cooking foods, the effect on **bacteria** and how to **check the core temperature** of meat.



BLOOD BROTHERS by Willy Russell



Plot summary:

Act One

The Narrator introduces the twins and gives an overview of the story. We see a preview of the play's final moments- Mickey and Edward both die. Mrs Johnstone sings about how her husband left her with seven children and she can't afford to feed them. Mrs Johnstone goes to clean at Mrs Lyons' house. Mrs Lyons reveals that she and her husband can't have children. Mrs Johnstone finds out she is pregnant with twins. Mrs Lyons persuades her to give her one of the babies. The babies are born. Debt collectors repossess Mrs Johnstone's belongings. Mrs Lyons takes one of the babies. Mrs Lyons fires Mrs Johnstone and tells her that both boys will die if they ever find out they are twins. When the twins are seven, Mickey and Edward meet near Mickey's house. They bind immediately. Mrs Johnstone is horrified when she realises who Mickey's new friend is. She tells Edward to leave and not to come back. Mickey goes to see Edward but Mrs Lyons sends him away. Edward is angry and uses swear words he learnt from Mickey. Mrs Lyons hits him. Edward sneaks out to play with Mickey and Linda. Mrs Lyons tells her husband that they need to move away, but he's unconvinced. Soon afterwards, a policeman catches Edward, Mickey and Linda misbehaving, which persuades Mr Lyons to move his family. Edward goes to Mrs Johnstone's house upset about moving. She gives him a locket with a picture of her and Mickey in it. The Johnstones find out that they're being moved to Skelmersdale.

Act Two

The Johnstones are happier in Skelmersdale. When Edward is fourteen, he is suspended from his boarding school. Mickey and Linda are also suspended from their comprehensive school. Back home, Mickey and Edward meet and recognise each other. They renew their friendship. Mrs Lyons sees the boys together. She tries to bribe Mrs Johnstone to move away. When she refuses, Mrs Lyons tries to attack her with a knife. Mickey, Edward and Linda meet p and the play moves through scenes in which they age from fourteen and eighteen. Edward reveals his love for Linda but then encourages Mickey to ask her out. Edward leaves for university. Mickey and Linda get married because Linda is pregnant. Mickey loses his job and has to go on the dole. Edward comes home from university. Mickey resents him and they fall out. Edward asks Linda to marry him. Linda admits she has feelings for him but tells him she's married to Mickey. Sammy persuades Mickey to act as a lookout for a robbery but it goes wrong and Sammy shoots the petrol station attendant. Mickey's sentenced to seven years in prison. He becomes depressed and is put on pills. Mickey is released early but he is still depressed. Linda begs him to stop taking the pills. Linda gets them a new house and a job for Mickey. Mickey knows that Edward, who is now a local councillor, is responsible for both. Linda and Edward kiss. Meanwhile, Mickey stops taking his pills. Mrs Lyons shows Mickey that Edward and Linda are together. Mickey takes Sammy's gun and goes to confront Edward at the Town Hall. Mrs Johnstone tells the boys they are brothers. Mickey loses control and accidently shoots Edward. The police shoot Mickey in response.

Key terms/vocabulary:

Pathos
Monetary
Contrast
Juxtaposition
Dramatic Irony
Motifs
Dole

Prejudice
Manipulates
Consequences
Vulnerable
Foreboding
Foreshadow
Judgemental
Sympathy

Monologue
Prologue
Dialogue
Transitions
Cyclical
Cautionary
Repetition
Ominous

Hyperbole
Poetic
Atmospheric
Stigmatised

Big questions:

- What are the key ideas that Russell is communicating through this text?
- How does Russell use explicit and implicit techniques that create meaning for the audience?
- Why does Willy Russell use techniques such as foreshadowing and non standard English?
- How does Russell uses language to develop/create point of view and tone and atmosphere?
- What are the differences for people living in the working class and upper classes?
- Does money make you happier?
- Can money buy love?
- Why is the cyclical structure important to the text?

NARRATIVE WRITING - YEAR 9

CREATIVE WRITING DEVICES

Subversion	Going against the natural order of things. In the context of literature, this means to create something which goes against the readers' expectation e.g. plot twist.
Didactic	Intended to teach an audience and deliver entertainment. In the context of literature, a didactic story would usually provide the character with a moral dilemma.
Symbolism	The use of symbols (names, people, locations, animals, weather) to represent something beyond the literal meaning. The symbol should not be taken literally but be used as a representative of something with a deeper meaning e.g. flying birds = freedom.
Foreshadowing	Occurs when an author drops different hints to the reader about what is to come e.g. "Marley was dead: to begin with".
Show, not tell	When language and structure are used to give clues to the reader about what is happening. This skill is a way of demonstrating creative techniques while avoiding making obvious statements.

HIGH LEVEL PUNCTUATION

Ellipsis ...	Allows a reader to contemplate what you have written and create a sense of anticipation. For example: *You could probably imagine what I felt after that... complete embarrassment!*
Semi-Colon ;	Used to link two clauses instead of a comma. The sentence after the semi-colon usually does not make sense without the previous sentence. For example: *Joan likes eggs; Jennifer does not.*
Colon :	Consists of two equally sized dots placed one above the other on the same vertical line. A colon often comes before: an explanation, a list, a quotation, or a block quotation.
Parenthesis ( )	Allows a writer to include additional information to a sentence. Whatever is inside the parenthesis must not be integral to the original sentence. For example: *He finally answered (after five minutes of thinking) that he did not understand the question.*

NARRATIVE WRITING HOOKS

Direct Speech	Opening a story with somebody talking, perhaps saying something that helps the reader to imagine what might happen in the story.
Action	Describing an action or something that has just happened, perhaps to the main character.
Scene Setting	Describing the setting of the story; perhaps where they are or when. It also might use imagery to describe the weather.
Direct Address	Opening a story where the narrator talks directly to the reader, often asking a question.

STORY MOUNTAIN

Exposition	The start of the plot which introduces the characters, setting and outlines any relevant events that have taken place before the time of the story.
Rising Action	A series of relevant events/moments in the story that lead to the climax of the story. It will usually create interest, suspense and tension for the reader.
Climax	The most intense, important or exciting moment of a story.
Falling Tension	Events which happen immediately happen after the climax of the story. Usually address the consequences/after-effects of the climax.
Resolution	Where the story is finalised, and the main problem is usually resolved. Loose ends are often tied up and it is typically when the story ends.

Knowledge Organiser (LO1): Graphic files & formats

Thomas Estley Community College

You must know file formats used for audio, video and images and to describe their features

Common bitmap (raster) image file types

File Type	Advantages	Disadvantages
.JPG (bitmap)	Compresses well, so creates smaller files sizes. Reproduces millions of colours Good for web and printing	Lossy file format; Variable picture quality Cannot be used for animation
.TIFF (bitmap)	Lossless file format Reproduces millions of colours Standard format for print publishing industry	Large files Limited compression Doesn't support transparent background
.GIF (bitmap)	Lossless file format Enables animations (very popular use) Sharp edges to images	Larger file size Only 256 colours can be reproduced
.PNG (bitmap)	Lossless file format Reproduces millions of colours Excellent transparency in images	Compresses well Not suitable for digital photos No animation
.BMP (bitmap)	Works in many devices Millions of colours Lossless file format	Uncompressed Large file formats No compression

Common vector image file types

File Type	Advantages	Disadvantages
.EPS (vector)	Most common vector type Standard for sharing in print publishing industry	Not widely supported in editing software Generally Adobe only software
.SVG (vector)	Scalable without image quality reduction International standard for vector graphics High quality printing possible Good web browser support	Not widely supported in software Files sizes can be large wit many elements
.PDF (vector)	Widely supported by many devices Free to view PDF files Small file size	Not free to edit PDF files Text difficult to edit, text is treated as images
.AI (vector)	Scalable without image quality reduction Industry standard for professional vector graphics	Requires Adobe software to edit Cannot be viewed on websites
.DXF (vector)	Standard format used for Computer Aided Design (CAD) Well supported in many software applications	Large file sizes Data can be lost when shared across different software.

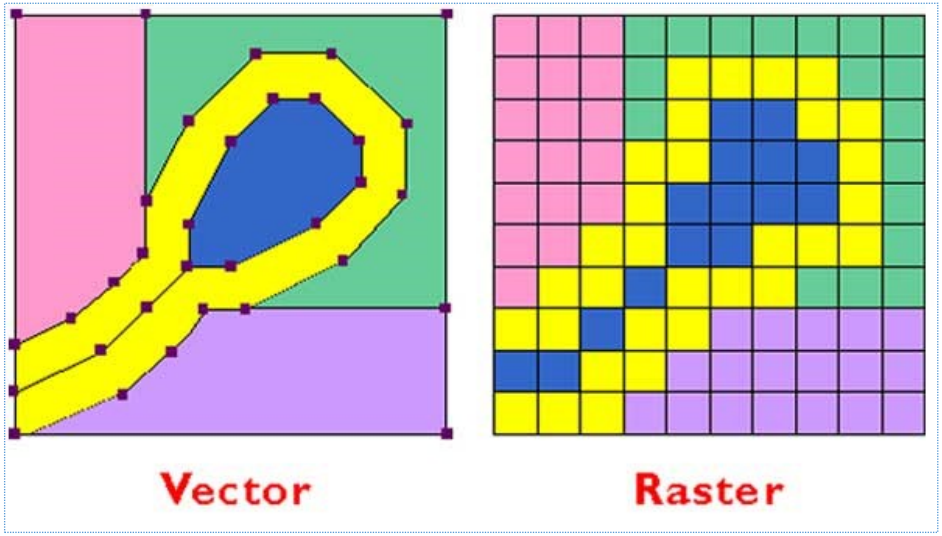
File size compression

Lossy compression

- Data is removed from the file to reduce the size of the file.
- The process cannot be reversed, data loss is permanent
- Increased compression introduces a greater reduction of image quality
- Ideal for communication over the internet and viewing on small screens

Lossless compression

- All original image quality is retained, hence no loss
- Slight decrease in file size
- Ideal for archiving images to retain original quality
- Used for large images, such as posters and billboards



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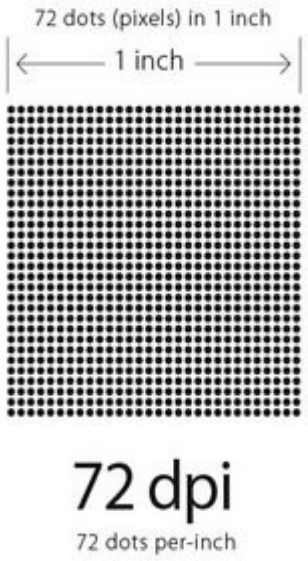


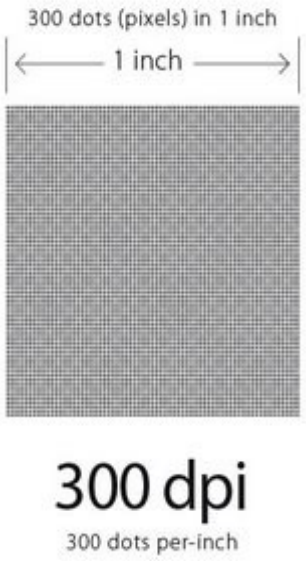


Image Resolution

Pixel dimensions	The density of pixels in an image. Normally stated as the number pixels on the horizontal and vertical axis of an image, for example HD TV is 1280 pixels wide and 720 high (1280 x 720 = 921,600 pixels = 0.92 megapixels).
DPI resolution	Dots Per Inch. How many pixels occur across one inch (2.54 cm) DPI usually refers to printed media.
PPI resolution	Pixels Per Inch. How many pixels occur across one inch (2.54 cm) DPI usually refers to screen media.
Typical resolutions	Print media typically uses 300 dpi Web media is typically 72 ppi

Question:

A monitor is 20 inches wide and it has a resolution of 1024 x 720. What is the monitors dpi?

Answer:

DPI = dots per inch = dots/inch

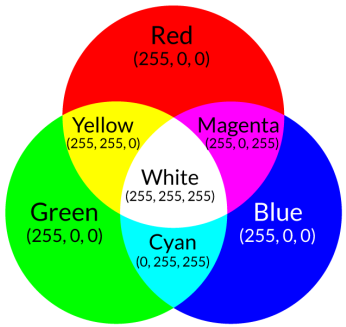
DPI = resolution / width

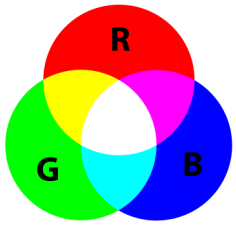
DPI = 1024/20 = **51.2 dpi**

Each pixel for a computer to TV screen is made from three values for Red, Green and Blue to determine how bright each colour is.

- R = 0 to 255 (255 is the maximum intensity)
- G = 0 to 255 (255 is the maximum intensity)
- B = 0 to 255 (255 is the maximum intensity)

These three **colour channels** are 8-bit values to determine **colour depth**.





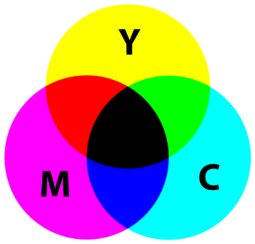
Images are represented **pixel**s (**Pi**cture **El**ements).

TVs and monitors produce pixel colours using Red, Green and Blue light (**RGB**)

All screen colours can be produced just from RGB

Printed media pixel colours are produced from Cyan, Magenta and Yellow ink (**CMY**).

It is very difficult to colour match between CMY and RGB



Flowol Knowledge Organiser

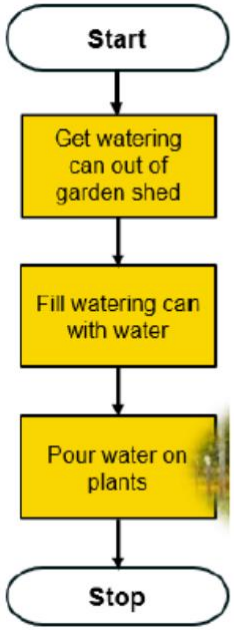
Control System	A control system is a system where we want to control the output of devices. We can do this in a variety of different ways including the use of sensors. Your fridge is an example of a control system. The thermostat (sensor) in the fridge ensures that it stays cold according to the desired temperature.
Flowol	Flowol is a software app that allows students to learn how to control devices by creating flowcharts.
Sequence	A sequence is a set of instructions or tasks provided in the correct order. This can be very important, especially for instructions telling someone how to cross the road!
Process	A process is another name for a set of tasks or steps to be carried out in the correct sequence. A process will normally have some impact or effect on something else, like switching off a device or switching it on again.
Decision	When you ask a question and the answer is either YES or NO, then you are making a decision about which path to follow in a flowchart.
Input and Output	Control systems may require information to come into the system (a reading from a sensor for example) or to go out (to start a machine for example).
Subroutine	A subroutine is a smaller process used by a larger process. When the smaller process has finished, the larger process that used it continues from where it left off.
Sensor	A sensor is a device that records changes in data. For example, a thermometer detects changes in temperature. A light diode detects changes in how bright the light is outdoors. Data from sensors is used elsewhere in the systems
Actuator	An actuator is a part of a machine that controls another device. An actuator and a sensor may be part of the same machine. For example, a sensor that detects changes in temperature might trigger an actuator to open a window if the temperature becomes too hot, and to close the window if the sensor detects that the temperature is too cold.
Variable	A variable is a name given to data in your flowchart that you may want to change. You can use maths operators on variables: add (+), subtract ((--), multiply (x), divide (/) to change data.

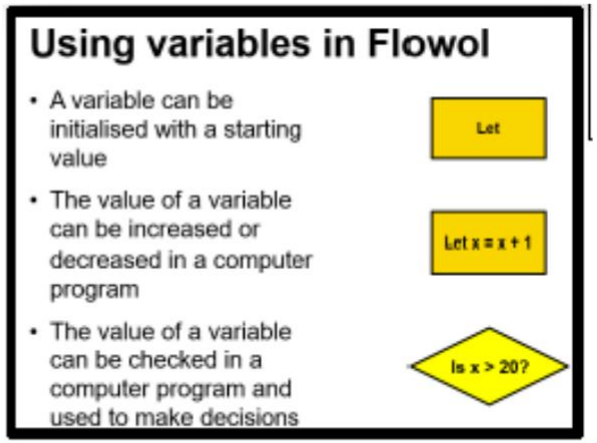
Useful Links:

http://www.flowol.com/flowol4/Flowol4Tutorial.pdf
https://www.youtube.com/channel/UC_S7OSFhPSYKWV7hOMB

Key Learning to take place:

- To understand and be able to use flowchart symbols, and to use them to describe control systems.
- To be able to create flowchart solutions for simple control systems.
- To understand and apply sequence (instructions in the correct order).
- To understand and be able to use flowchart symbols: start, stop, process, input/output and decision.
- To understand how a control system might fail & the impact on safety.
- To be able create flowcharts that operate in sequence.
- To understand the role of a sensor and an actuator in control systems, and to create flowcharts that use these.
- To be able to create flowcharts with more than one sensor.
- To understand and be able to use subroutines (subprograms) in control system flowcharts.
- To understand the use of variables in control systems.
- To combine your learning to automate an imaginary house with control systems and flowcharts.





A variable is a name given to data that you can change while your flow chart is processing. They allow us to change data.

E,g, To count or make numbers smaller or larger

Y9 Art Weird and Wonderful

The four main areas in this project are:

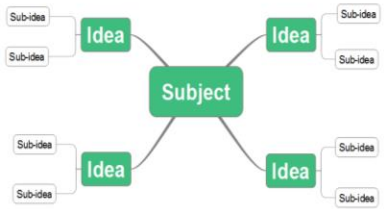
- **Developing Ideas**
- **Refining Materials**
- **Recording Ideas**
- **Presenting Responses**

You will develop skills in:

- Artist Research and Response
- Developing original ideas
- Observational drawing skills
- Visual Elements and Composition

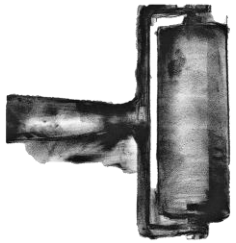
Mind Mapping

Artists and Designers often start with a mind map of ideas when they begin a project as this helps them to plan for where the creative journey will take them.



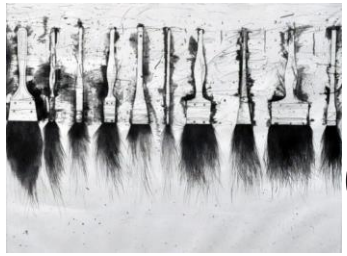
STEAMPUNK

"A retro-futuristic subgenre of science fiction or science fantasy that incorporates technology and aesthetic designs inspired by 19th-century industrial steam-powered machinery."



JIM DINE

An artist who focuses on making objects look interesting.

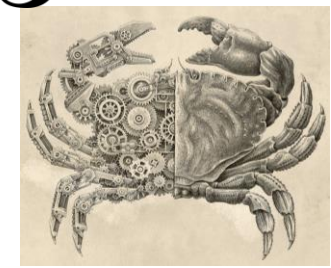


Artist Research

https://www.steeven-salvat.com/

Steeven Salvat

An artist who combines animals and mechanical forms.



https://wornandwound.com/mechanical-biological-steeven-salvat/

Primary Sources
Photos that you take yourself to inspire your art work.

Secondary Sources
Photos that you use to inspire your artwork but they are taken by someone else. E.g. internet / magazines / newspapers

Media and Materials

Pencil	Watercolour	Collage	Fineliner
Pen	Oil Pastel	Monoprint	Polyprint
Mixed media	Coloured Pencil	Graphite	Digital

Observational Drawing Tips:

- ✓ Draw from life where you can.
- ✓ Draw what you see, not what you think you see!
- ✓ Begin drawing the form lightly in pencil
- ✓ Use a soft sketchy line to get accurate shapes

Visual Elements

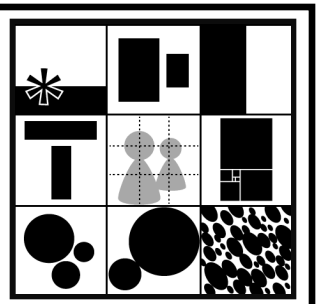
The components that make up a piece of art.

LINE SHAPE TONE

FORM TEXTURE PATTERN COLOUR

Composition:

The arrangement of the visual elements in a piece of art.



KEYWORDS

Idea
Develop
Refine
Research
Create
Background
Foreground
Light
Dark
Detail
Proportion
Outline
Material
Original
Analysis
Evaluate
Express
Response
Inspire
Composition
Technique
Meaning
Style
Abstract
Realistic
Record