2024/25

# Cycle 2 Knowledge Navigator

## Year 9

Name:

Form:

### Morning Meeting Homework

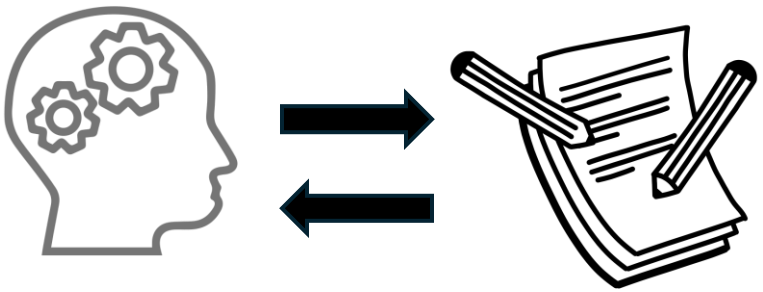
Purpose: to memorise and recall key facts from previous learning

### 100% Sheets

Purpose: to memorise and recall key facts for current learning

### RCWC repeat!

**Read** the information and try to memorise it.
**Cover** up the information so you can't see it.
**Write** down as much as you can remember.
**Check** what you've written down against the information, and green pen what you've missed.
**Repeat** this to fill a minimum of 2 A4 sides. The more you repeat this process, the more facts you will remember for your exams!



# Contents

| 1 | | Homework Schedule | CYCLE 2 | Year 9 |
|---|---|---|---|---|

| | Week 1 | | Week 2 | | Week 3 | | Week 4 | | Week 5 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Monday | **9/12/24** | French | **16/12/24** | French | **06/01/25** | French | **13/01/25** | French | **20/01/25** | French |
| Tuesday | **10/12/24** | Science B1 Box 1 | **17/12/24** | Science B1 Box 2 & 4 | **07/01/25** | Science B1 Box 3 | **14/01/25** | Science C1 Box 1 & 2 | **21/01/25** | Science C1 Box 3 & 4 |
| Wednesday | **11/12/24** | History Section A | **18/12/24** | Geography | **08/01/25** | History Section B | **15/01/25** | Geography | **22/01/25** | History Section C |
| Thursday | **12/12/24** | English Box A *Sparx Maths* | **19/12/24** | English Box B *Sparx Maths* | **09/01/25** | English Box C *Sparx Maths* | **16/01/25** | English Box D *Sparx Maths* | **23/01/25** | English Box E *Sparx Maths* |
| Friday | **13/12/24** | | **20/12/24** | Spellings Week 2 | **10/01/25** | Spellings Week 3 | **17/01/25** | Spellings Week 4 | **24/01/25** | Spellings Week 5 |

| | Week 6 | | Week 7 | | Week 8 | | Week 9 | | Week 10 | |
|---|---|---|---|---|---|---|---|---|---|---|
| Monday | **27/01/25** | French | **03/02/25** | French | **10/02/25** | French | **24/02/25** | French | **03/03/25** | French |
| Tuesday | **28/01/25** | Science C1 Box 5 | **04/02/25** | Science B1 Box 1 | **11/02/25** | Science B1 Box 2 & 4 | **25/02/25** | Science B1 Box 3 | **04/03/25** | Science C1 Box 1 & 2 |
| Wednesday | **29/01/25** | Geography | **05/02/25** | History Section D | **12/02/25** | Geography | **26/02/25** | History Section E | **05/03/25** | Geography |
| Thursday | **30/01/25** | English Box A *Sparx Maths* | **06/02/25** | English Box B *Sparx Maths* | **13/02/25** | English Box C *Sparx Maths* | **27/02/25** | English Box D *Sparx Maths* | **06/03/25** | |
| Friday | **31/01/25** | Spellings Week 6 | **07/02/25** | Spellings Week 7 | **14/02/25** | | **28/02/25** | Spellings Week 9 | **07/03/25** | |

| | Week 11 | | Week 12 | | Week 13 | |
|---|---|---|---|---|---|---|
| Monday | **10/03/25** | French | **17/03/25** | French | **24/03/25** | French |
| Tuesday | **11/03/25** | Science C1 Box 3 & 4 | **18/03/25** | Science C1 Box 5 | **25/03/25** | Science B1 Box 2 & 4 |
| Wednesday | **12/03/25** | History Section F | **19/03/25** | Geography | **26/03/25** | History Section G and H |
| Thursday | **13/03/25** | English Box E *Sparx Maths* | **20/03/25** | English Box A *Sparx Maths* | **27/03/25** | English Box B *Sparx Maths* |
| Friday | **14/03/25** | Spellings Week 11 | **21/03/25** | Spellings Week 12 | **28/03/25** | Spellings Week 13 |

DIXONS COTTINGLEY ACADEMY

| 2 | French | Media/Celebrity Culture | CYCLE 2 | Year 9 |
|---|---|---|---|---|

| Week 1 | | | | Week 2 | | Week 3 | |
|---|---|---|---|---|---|---|---|
| Technology Verbs | | | | Technology nouns | | Technology adjectives | |
| jouer | to play | créer | to create | des recherches | some research | inquiétant | worrying |
| recevoir | to receive | surfer | to surf | des films | some films | cher | expensive |
| communiquer | to communicate | passer | to spend time | des réseaux sociaux | some social networks | dangereux | dangerous |
| produire | to produce | regarder | to watch | des achats en ligne | some purchases online | facile | easy |
| utiliser | to use | voler | to steal | la musique | music | disponible | abailable |
| télécharger | to download | allumer | to turn on | un écran tactile | a touch screen | moderne | modern |
| envoyer | to send | partager | to share | des jeux vidéos | some video games | rapide | quick |
| découvrir | to discover | parler | to speak | un portable | a mobile | sûr | safe |
| enregistrer | to save | harceler | to bully | une tablette | a tablet | numerique | digital |
| discuter | to discuss | toucher | to touch | un ordinateur | a computer | technique | technical |

| Week 4 | | | | Week 5 | | | |
|---|---|---|---|---|---|---|---|
| Celebrity Culture Verbs | | | | Celebrity Culture Nouns | | | |
| chanter | to sing | reconnaître | to recognise | un acteur | an actor | une célébrité | a celebrity |
| porter | to wear | célébrer | to celebrate | l'argent | money | la mode | fashion |
| exprimer | to express | coûter | to cost | un chanteur | a singer | une équipe | a team |
| raconter | to tell | diriger | to guide | un écrivain | a writer | un chanson | a song |
| suivre | to follow | respecter | to respect | un entretien | an interview | les paroles | lyrics |
| je suis* (suivre) | I follow | présenter | to present | un influenceur | an influencer | un spectacle | a show |
| annoncer | to announce | persuader de | to persuade | le prix | the price | une étoile | a star |
| inspirer | to inspire | entrer | to enter | une selfie | a selfie | la richesse | wealth |
| se rappeler | to remember | regarder | to watch | un auteur | an author | la voix | voice |

| 3 | French | Education | CYCLE 2 | Year 9 |
|---|---|---|---|---|

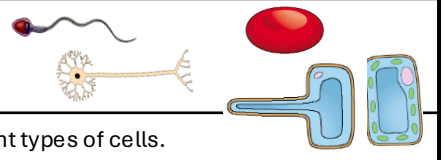
| Week 6 | | Week 7 | | Week 8 | | Week 9 | |
|---|---|---|---|---|---|---|---|
| **Verbs - Education** | | **Irregular verbs - Education** | | **Subjects** | | **School life** | |
| réviser | to revise | apprendre | to learn | l'anglais (m) | English | le collège | secondary school |
| comprendre | to understand | ecrire | to write | l'allemand (m) | German | l'école primaire | primary school |
| etudier | to study | lire | to read | l'espagnol (m) | Dpanish | la bibliothèque | library |
| rentrer | to come in/ back to school | partir | to leave | le français (m) | French | le déjeuner | lunch |
| encourager | to encourage | faire | to do | la géographie (f) | Geography | leçon | lesson |
| corriger | to mark | aller | to go | l'histoire (f) | History | bâtiment | building |
| commencer | to start | être | to be | l'informatique (f) | ICT | les toilettes | toilets |
| regarder | to watch/look at | avoir | to have | les maths (m) | Maths | devoirs | homework |
| expliquer | to explain | traduire | to translate | les sciences (f) | Sciences | contrôle/examen | test/exam |
| jouer | to play | finir | to finish | la technologie (f) | DT | récréation | break(time) |

| Week 10 | | Week 11 | | Week 12 | | Week 13 | |
|---|---|---|---|---|---|---|---|
| **Teachers** | | **Time and Day** | | **Education – Modal Verbs** | | **Uniform - Equipment** | |
| professeur | teacher | journée | day | On doit | You must | Un pantalon (m) | Trousers |
| amusant/ennuyeux | fun/boring | temps | time | On peut | You can | Une veste (f) | A jacket |
| gentil/strict | kind/strict | le matin/le soir | morning/evening | On ne peut pas | You cannot | Une cravate (f) | A tie |
| intéressant/nul | interesting/rubbish | à midi/à minuit | at midday/at midnight | Je veux | I want | Une trousse | A pencil case |
| sympa/méchant | nice/mean | hier | yesterday | Il faut | You must | Des chaussures (f,pl) | Shoes |
| drôle/travailleur | funny/hard-working | d'habitude | usually | Il ne faut pas | You must not | Un sac (m) | A bag |
| compréhensif | understanding | tous les jours | everyday | Interdit | Forbidden | Un cahier/ Un stylo | A workbook/Pen |

## 1. Cell structure

| Organelle | Function |
|---|---|
| Nucleus | Contains genetic material (DNA) which controls the cell's activities. |
| Cell membrane | Surrounds the cell and controls movement of substances in and out. |
| Cytoplasm | Jelly-like substance where most chemical processes happen. |
| Mitochondria | Site of respiration, where energy is released from food molecules. |
| Ribosomes | Site of protein synthesis. |
| Cell wall | Supports & strengthens the cell, in plant cells it is made of cellulose. |
| Chloroplast | Absorbs light energy so the plant can make food. |
| Vacuole | Contains liquid, and used to keep the cell rigid and store substances. |

Cells may be specialised to carry out a particular function:
- sperm cells, nerve cells and muscle cells in animals
- root hair cells, xylem and phloem cells in plants.



As an organism develops, cells differentiate to form different types of cells.
- Most types of animal cell differentiate at an early stage.
- Many types of plant cells retain the ability to differentiate throughout life.

In mature animals, cell division is mainly restricted to repair and replacement. As a cell differentiates it acquires different sub-cellular structures to enable it to carry out a certain function. It has become a specialised cell.

An electron microscope has much higher magnification and resolving power than a light microscope. This means that it can be used to study cells in much finer detail.
This has enabled biologists to see and understand many more sub-cellular structures.
Magnification (M) = size of image (I) / size of actual object (A)


## 2. Cell division

The nucleus of a cell contains chromosomes made of DNA molecules. Each chromosome carries a large number of genes. In body cells the chromosomes are normally found in pairs.

During the cell cycle the genetic material is doubled and then divided into two identical cells.
Before a cell can divide it needs to grow and increase the number of sub-cellular structures such as ribosomes and mitochondria. The DNA replicates to form two copies of each chromosome.
In mitosis one set of chromosomes is pulled to each end of the cell and the nucleus divides.
Finally the cytoplasm and cell membranes divide to form two identical cells.
Cell division by mitosis is important in the growth and development of multicellular organisms.

## 3. Transport in cells

Diffusion is the spreading out of the particles of any substance in solution, or particles of a gas, resulting in a net movement from an area of higher concentration to an area of lower concentration.
Some of the substances transported in and out of cells by diffusion are oxygen and carbon dioxide in gas exchange, and of the waste product urea from cells into the blood plasma for excretion in the kidney.
Factors which affect the rate of diffusion are:
- the difference in concentrations (concentration gradient)
- the temperature
- the surface area of the membrane.

A single-celled organism has a relatively large surface area to volume ratio. This allows sufficient transport of molecules into and out of the cell to meet the needs of the organism.

In multicellular organisms, surfaces and organ systems are specialised for exchanging materials. This is to allow sufficient molecules to be transported into and out of cells for the organism's needs. The effectiveness of an exchange surface is increased by:
- having a large surface area
- a membrane that is thin, to provide a short diffusion path
- (in animals) having an efficient blood supply
- (in animals, for gaseous exchange) being ventilated.

Water may move across cell membranes via osmosis. Osmosis is the diffusion of water from a dilute solution to a concentrated solution through a partially permeable membrane.

Active transport moves substances from a more dilute solution to a more concentrated solution (against a concentration gradient). This requires energy from respiration.
Active transport allows mineral ions to be absorbed into plant root hairs from very dilute solutions in the soil. Plants require ions for healthy growth.
It also allows sugar molecules to be absorbed from lower concentrations in the gut into the blood which has a higher sugar concentration. Sugar molecules are used for cell respiration.

## 4. Stem cells

A stem cell is an undifferentiated cell of an organism which is capable of becoming other types of cells.
Stem cells from human embryos can be cloned & made to differentiate into most different types of human cells.
Stem cells from adult bone marrow can form many types of cells including blood cells.
Meristem tissue in plants can differentiate into any type of plant cell, throughout the life of the plant.
Treatment with stem cells may be able to help conditions such as diabetes and paralysis.
Stem cells from meristems in plants can be used to produce clones of plants quickly and economically.

## 1. Atoms, mixtures and compounds

All substances are made of atoms. An atom is the smallest part of an element that can exist.
Atoms of each element are represented by a chemical symbol, e.g. O for oxygen or Na for sodium.
There are about 100 different elements. Elements are shown in the periodic table.
Compounds are formed from elements by chemical reactions. Chemical reactions always involve the formation of one or more new substances. Compounds contain two or more elements chemically combined. Compounds can only be separated into elements by chemical reactions.

A mixture consists of two or more elements or compounds not chemically combined together. The chemical properties of each substance in the mixture are unchanged. Mixtures can be separated by physical processes such as filtration, crystallisation, simple distillation, fractional distillation and chromatography.

## 2. History of the atom

| | |
|---|---|
| Early model | Tiny spheres that could not be divided |
| Electron discovered | Plum pudding model – atom was ball of positive charge with negative electrons spread around inside it |
| Rutherford and Marsden scattering experiment | Plum pudding model is replaced with nuclear model – small central positive nucleus with negative electrons orbiting |
| Niels Bohr | Electrons orbit at specific distances |
| Later experiments | Positive charge in nucleus can be subdivided – protons |
| James Chadwick | Discovers neutron |

## 3. Sub-atomic particles

The relative electrical charges and relative masses of the particles in atoms are:

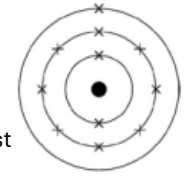
| Name of particle | Proton | Neutron | Electron |
|---|---|---|---|
| Relative charge | +1 | 0 | -1 |
| Relative mass | 1 | 1 | Very small |

In an atom, the number of electrons is equal to the number of protons in the nucleus.
Atoms have no overall electrical charge.
The number of protons in an atom of an element is its atomic number.
Almost all of the mass of an atom is in the nucleus.
The sum of the protons and neutrons in an atom is its mass number.
Atoms of the same element can have different numbers of neutrons; these atoms are called isotopes.
Atoms are very small, having a radius of about 0.1 nm ($1 \times 10^{-10}$ m).
The radius of a nucleus is less than 1/10 000 of that of the atom (about $1 \times 10^{-14}$ m).

## 4. Representing atoms

Atoms can be represented as shown in this example: (Mass number) 23, (Atomic number) 11 Na

The relative atomic mass ($A_r$) of an element is an average value that takes account of the abundance of the isotopes of the element.



The electrons in an atom occupy the lowest available energy levels. The electronic structure of an atom can be represented by numbers or by a diagram.
e.g. The electronic structure of sodium is 2,8,1 or showing two electrons in the lowest energy level, eight in the second energy level and one in the third energy level.

## 5. The periodic table

The elements in the periodic table are arranged in order of atomic (proton) number and so that elements with similar properties are in columns, known as groups. The table is called a periodic table because similar properties occur at regular intervals.
Elements in the same group in the periodic table have the same number of electrons in their outer shell (outer electrons) and this gives them similar chemical properties.

The early periodic tables were incomplete, and some elements were placed in inappropriate groups if the strict order of atomic weights was followed.
Mendeleev overcame some of the problems by leaving gaps (that were later filled) for elements that he thought had not been discovered and, in some places, changed the order based on atomic weights.

Elements that react to form positive ions are metals and those that do not are non-metals.
The majority of elements are metals. Metals are found to the left and towards the bottom of the periodic table. Non-metals are found towards the right and top of the periodic table.

The elements in Group 0 are called the noble gases. They are unreactive and do not easily form molecules because their atoms have stable arrangements of electrons. The noble gases have eight electrons in their outer shell, except for helium, which has only two electrons. The boiling points going down the group.

The elements in Group 1 are known as the alkali metals and have characteristic properties because of the single electron in their outer shell. They react rapidly with water and the reactivity increases going down the group.

The elements in Group 7 are known as the halogens and all have seven electrons in their outer shell. The further down the group the more the reactivity of the elements decreases.
A more reactive halogen can displace a less reactive halogen from an aqueous solution of its salt.

The transition elements are metals with similar properties which are different from those in Group 1. Many transition elements have ions with different charges, form coloured compounds and are useful as catalysts.

| 6 | History | World War One | CYCLE 2 | Year 9 |
|---|---|---|---|---|

| Section A Key Terms | Section B – Causes of World War One | Section C – Women at War | Section D – Nazi Germany Chronology |
|---|---|---|---|
| • **Central Powers** Germany and Austria-Hungary. They were helped later by the Ottoman Empire (Turkey). Enemies of the Triple Entente.<br>• **Triple Entente** Britain, France and Russia. They were helped later by the USA. Enemies of the Central Powers.<br>• **Trenches** Where the ground is dug up in order to provide protection from the enemy. The trenches stretched from the North Sea to the Alps<br>• **Propaganda** Information used to promote a particular view or cause. Propaganda posters were put up in Britain to persuade men to fight<br>• **Colonialism –** the policy or practice of gaining political, economic and military control over other countries.<br>• **Patriotism** Demonstrating love or devotion to one's country. | **Imperialism**<br>European nations had been competing to have the biggest Empires for 100s of years. This is **imperialism**.<br>**Alliances**<br>Imperialism had made the Europeans suspicious of one another, and create **alliances** for their own protection.<br>The Central Powers promised to protect each other if attacked. The Triple Entente did the same. These countries were now rivals.<br>**Race for Biggest Army (Arms Race)**<br>Rivalry led Germany and Britain to compete to have bigger **armies and navies**.<br>They tried to build more warships than one another.<br>**Nationalism**<br>The arms race, alliances and imperialism all promoted **nationalism** – the feeling that your country and its people are better than other countries.<br>Serb nationalism led to the creation of the Black Hand terrorist group.<br>**Assassination of Archduke Franz Ferdinand**<br>A Serb nationalist from the Black Hand terrorist group **assassinated Franz Ferdinand**, son of the Austro-Hungarian emperor.<br>Austria-Hungary attacked Serbia, who was defended by Russia. This dragged Germany, France and Britain into the war because of their alliances. | 1) Women did work before world war one, mainly in the textile industries, or more traditional roles such as nurses, teachers<br>2) 950,000 worked in ammunitions. Some worked in Women's Army Auxiliary Corps (WAAC), Women's RAF or Air Force<br>3) 80,0000 volunteered to train as nurses, some on the frontline<br>4) The first women police officers employed<br>5) Women still took care of family whilst men at war, although day nurseries did begin to open<br><br>**After the War**<br>• More women did experience freedom and confidence from role played in war<br>• Women lost new jobs as men came home<br>• Those that still worked, still had unequal pay<br>• Many women struggled to look after family if they had lost husbands in war<br>• Women struggled to find husbands due to high number of male deaths<br>Women won the right to vote in 1918, if over 30 | **Jan 33 -** Hitler made Chancellor<br>**27th Feb 33** - Reichstag Fire<br>Hitler granted 'emergency powers' to arrest without trial<br>**5th Mar 33** - New elections. Nazi best ever result (44%)<br>**24th Mar 33** - Enabling Act – Hitler can now pass laws without Reichstag<br>**May 33** - Trade Unions taken over<br>June 33 - Concordat' signed with Catholic Church<br>**Jul 33** - All other political parties banned<br>**May 34** - 'People's Courts' set up to try 'political crimes'<br>**29th & 30th June 34** - Night of the Long Knives – attack on SA<br>**August 34** - Death of Hindenburg, army oath of loyalty. Hitler now '**Fuhrer'** |

| Section E – Key Terms | Section F – Steps to Power | Section G - Propaganda | Section H – Key People |
|---|---|---|---|
| Aryan - German 'master race'; non-Jews of 'pure' German origin<br><br>Anti Semitism - Hatred of Jews<br><br>Fuhrerprincip - The idea that Hitler has ultimate authority in Germany; everyone should be obedient to him<br><br>**Gleichschaltung -** Co-ordination or 'bringing into line'. The Nazi policy of controlling everything in society<br><br>**Lebensraum**<br>'Living Space'. The Nazis believed this should come from invading eastern Europe. Later it justified exterminating the non-Aryans there<br><br>• **The SS** - Hitler's personal bodyguards, led by Himmler<br>• **Gestapo** – secret police<br>• **SA** – Storm troopers led by Rohm<br>• **SD** – Intelligence Gathering<br>• **Police and Courts** – loyal to Nazis<br>• **Concentration camps** –anyone who criticised the Nazis<br>• **Local Wardens** – reported to Gestapo | People likely to vote for Hitler were farmers, wealthy businessmen, Nationalists and Middle Class,<br><br>2) SA are used to intimidate opponents and persuade people to vote for Hitler at ballot box<br><br>3) German people were angry about the Versailles Treaty, the Economic depression of 1929, German businesses were bankrupt and unemployment was high<br><br>4) Hoping Hitler could unite the government, Von Papen and Hindenburg used Emergency Powers to offer him the role of Chancellor in January 1933<br><br>7) The Reichstag Fire, 27 February gave Hitler an opportunity to blame the Communists, Hindenburg was persuaded to pass the Reichstag Emergency Decrees<br><br>8) The Enabling Act in March 1933, allowing Hitler to pass laws without having to appeal to the Reichstag, destroying the democratic process<br><br>9) Hitler uses powers to ban political parties and Trade Unions | 13 March 1933, Ministry of Public Enlightenment and Propaganda created. Propaganda includes Newspapers, Radio, Rallies, Posters, Sports events, Film<br>By 1939 the Nazi's owned 2/3rds of all German newspapers<br><br>All Journalists forced to join the Reich Association of Press<br><br>By 1934 all radio stations became part of Reich Radio Company<br><br>Radios played traditional folk music, or Classics such as Wagner<br><br>By 1939 70% of Germans had a radio in their home called Peoples Receivers<br><br>Posters would use symbolism to emphasis important messages to the key groups of people such was women, workers, young<br><br>Sporting events such as the 1936 Olympics would be used to demonstrate the strength and superiority of the Aryan Race | **Joseph Goebbels** – Head of Propaganda, would also be involved in economic policies<br><br>**Wilhelm Frick** – Minister for the Interior, overall responsibility for most aspects of life in German Society<br><br>**Ernst Rohm** – Leader of the SA, Hitler's private army<br>Hermann Goring – Leader of the Gestapo<br><br>**Rudolph Hess** – Deputy Leader of the Nazi Party<br><br>**Heinrich Himmler** – Leader of the SS, Hitler's elite guard<br><br>**Non Nazi's**<br><br>**President Von Hindenburg** – President of the Weimar Republic, had special emergency powers, under Article 48, to pass laws to protect the German nation, but could also dismiss or appoint Chancellors<br><br>**Von Papen** – Member of the Social Democrat Party and previous Chancellor of Germany. |

| 8 | Geography | The Future | CYCLE 2 | Year 9 |
|---|---|---|---|---|

| Week | Key Knowledge to learn | |
|---|---|---|
| **2 – Future Misconceptions and The Future of the EU** | **Future Misconceptions**<br>• In all LICs across the world today, 60% of girls finish primary school<br>• Majority of the world live in NEEs<br>• In the last 20 years, the proportion of the world population in extreme poverty has almost halved<br>• The average life expectancy is the world is 70 years<br>• 80% of the worlds 1-year old children today have been vaccinated against some disease<br>• 80% of people in the world have some access to electricity | • European Union - a **group** of **27 countries** following **similar laws** à the **UK left** the **EU** on the 31st January **2020** (BREXIT)<br>• **1957 -** The European Economic Community (EEC) is created. The member countries are Belgium, France, Italy, Luxembourg, the Netherlands, and West Germany. The group aims to remove trade barriers and form a common market.<br>• The objectives of the European Union are to establish European citizenship, ensure freedom, justice and security, promote economic and social progress, and assert Europe's role in the world. The capital of the European Union is Brussels, Belgium. |
| **4 – Brexit and Problem with Energy** | **Reasons for Leaving the EU**<br>• We get control over all laws created<br>• We get control over immigration **within** the EU<br>• Don't pay £50 million a week membership fee<br>• We may have to pay to enter EU countries<br>• Goods imported to the UK may become more expensive<br>• We would set our own taxes<br>• More low paid jobs available<br>• We can decide who we trade with<br>• We won't have limits set on us like how much fish we can take from the sea. | **Problem with Energy**<br>In the past, the UK was heavily reliant on fossil fuels such as coal, oil and gas.<br>It is projected that in the future we will use more renewable energy.<br>Energy supply and demand has increased overtime due to increase use of transport and industry.<br>**Carbon Footprint =** The amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organization, or community. |
| **6 – Solving the energy problem and the problem with food** | **Solving the energy problem**<br>**Energy Consumption - The amount of energy or power used**<br>**Renewable Energy** - is naturally replenished on a human timescale, such as sunlight, wind, rain, tides, waves, and geothermal heat<br>Examples of Renewable energy include: Solar, Hydroelectric power and wind power | **The Problem with Food**<br>• **Malnutrition -** lack of proper nutrition, caused by not having enough to eat, not eating enough of the right things.<br>• 1 billion in 2012 are hungry in the world which means 1 person out of 7.<br>• Our planet has enough food so hunger shouldn't exist.<br>• Bolivia, Democratic Republic of Congo and Ethiopia are struggling with hunger though they have lots of food and mostly work in agriculture. These countries have the highest rate of malnutrition. 41% of Ethiopians are undernourished.<br>• 60% of people globally that are hungry tend to work in farming.<br>• USA has lower rates of hunger and they struggle with obesity. |

| Week | Key Knowledge to learn | |
|---|---|---|
| **8 – Solving the problem of Food and the Plastic Crisis** | **Solving the problem of Food**<br>**Lab Grown Food**<br>more and more companies are beginning to produce meat in labs as a way to combat such issues as greenhouse gases emissions, overfishing and animal welfare concerns. They use stem cells to produce this meat<br>**Insects as a food source**<br>Some countries have been eating insects for centuries and it isn't a new thing for example, countries in central America and Asia. 2 billion eat insects as part of their diet. Insects are very nutritious, have valuable fatty acids and are high in calcium. However, some insects may cause an allergic reaction. | **Plastic Crisis**<br>• In 1950 the world produced only 2 million tonnes per year. Since then, annual production has increased nearly 200-fold, reaching 381 million tonnes in 2015. For context, this is roughly equivalent to the mass of two-thirds of the world population.<br>• With the largest population, China produced the largest quantity of plastic, at nearly 60 million tonnes. This was followed by the United States at 38 million, Germany at 14.5 million and Brazil at 12 million tonnes. |
| **10 – Causes and Impacts of Plastic** | **Causes of Plastic Pollution**<br>**Fishing Nets** - Commercial fishing is an economic necessity for many parts of the world. However, the nets used for certain large-scale trolling operations are usually made of plastic. These leaking toxins at will, but they also often get broken up or lost.<br>**It is Overused** - As plastic is less expensive, it is one of the most widely available and overused item in the world today. When disposed of, it does not decompose easily and pollutes the land or air.<br>**Disposing of Plastic and Garbage** - Because plastic is meant to last, it is nearly impossible to break down. Burning plastic is incredibly toxic and can lead to harmful atmospheric conditions and deadly illness. Therefore, if it is in a landfill, it will never stop releasing toxins in that area. | **Impacts of Plastic Pollution**<br>✓ **It Upsets the Food Chain**<br>✓ **Groundwater Pollution**<br>✓ **Land Pollution**<br>✓ **Air Pollution**<br>✓ **It Kills Animals**<br>✓ **It is Poisonous**<br>✓ **It is Expensive to clean up** |
| **12 – HS2** | **Advantages and disadvantages of HS2**<br>Journey times from London to Birmingham will be less than one hour.<br>The £2-£3bn annual capital investment will help create jobs<br>The environmental impact will be mitigated by 'green tunnels' and planting of trees<br>The costs of HS2 continue to rise. Initially, in 2015, the project was forecast to cost £56bn but could now the total cost could soar to over £100bn<br>Forecasts for passenger numbers are uncertain<br>Noise pollution is a concern also . | **Bradford Regeneration**<br>**Urban decline - i**s the deterioration of the inner **city** often caused by lack of investment and maintenance.<br>**Regeneration** - means improving an area that has been experiencing a period of decline.<br>Examples of how Bradford has been regenerated are as follows: The Broadway Shopping Centre; Lister Mills renovation into flats; Plans for a new Bradford Food Market; and Sunbridge wells bars and pubs. |

| 10 | English | Reading and Writing Fiction & Shakespeare | CYCLE 2 | Year 9 |
|---|---|---|---|---|

| Box A: Shakespeare | | Box B: Stagecraft/Plays | | | |
|---|---|---|---|---|---|
| **Stage directions** | this is an instruction in the text of a play indicating the movement, position, or tone of an actor, or the sound effects and lighting | **The Plot** | The plot is the overarching story that links the events together to tell the audience what, when and how things are happening. There can sometimes be more than one plot entwined in the story. | **Flashforwards /Flashbacks** | Playwrights sometimes use flashbacks to give an insight to a particular moment or character to provide context or highlight something specific. Flashforwards are used to increase tension and make the audience question how the characters end up there. |
| **Aside** | remarks made by characters which only the audience can hear | **Drama** | Plays need to have drama to be successful. They need to include dramatic moments/events or characters to be effective. | **Props** | Props are physical items used within a play to visually convey an event, emotion, topic or to show the audience the effect of these. E.g. The Gun in Blood Brothers) |
| **Soliloquy** | where a character speaks their thoughts aloud to the audience | **Rhetoric** | The use of rhetoric is important as it helps us understand character's personalities and what they are trying to inform or persuade us about/to do or think. | **Context** | Crucial information around what is happening when the playwright is writing the play. This information shapes the play as often the events and characters of the play are vehicles for the playwrights' thoughts, opinions and ideologies. |
| **Patriarchy** | a society or organisation where men are more powerful. In Jacobean society, fathers or later husbands saw women as a possession. | | | | |
| **Hierarchy** | The uneven distribution of power where a small number of people hold the majority of the power | **Character Analysis** | Analysis of- why, when and how the character does something, what they represent and how they interact with their environment or other characters. | **The Playwright** | Analysing the playwright is as crucial as analysing the play. Once we learn why they have written the play we gain an important understanding of the characters and events and why they have been included (links to context). |
| **Great Chain of Being** | The Great Chain of Being is like a ladder that shows the importance of everything in the world. The hierarchy of the Great Chain of Being starts with God at the top, followed by angels, humans, animals, plants, and non-living things. | **Dialogue** | Speech between the characters or potentially to themselves (see Box A). usually, this dialogue helps us understand the relationship between the characters and also with the tone and even class of the characters speaking. | **Tone and Pace** | Tone is the 'feeling' of the work, this is built through a characters actions, stage directions and events. Tone is how the play feels as we read it and helps us understand the emotions at the time. Pace is the 'speed' of the writing and is built through sentence lengths, types and punctuation. It helps us with things like tension and atmosphere. |
| **Jacobean Era** | The literary and artistic period marked by the rule of King James I (1603-1625) | **Setting** | Setting is the physical setting of the play. This includes time period, dates, what building/room and also weather. | **Themes** | The themes within the plays are vital as this helps us understand the big ideas and core messages of the text. This can include topics such as violence, gender, class and conflict. |

| 11 | English | Narrative Writing. Key Themes and Essay Vocabulary | CYCLE 2 | Year 9 |
|---|---|---|---|---|

| Box C: Narrative Writing | |
|---|---|
| **Symbolism** | Symbolism is when something in a story (like an object, character, or event) stands for a bigger idea or meaning. |
| **Dialogue** | Speech to support understanding and mood. |
| **Setting** | Creating a setting that reflects the characters mood and decision making. |
| **Character/s** | Building complex and vivid characters to carry the story forward. |
| **Point of View** | Using a perspective to that best conveys the mood of the characters or setting. |
| **Stream of Consciousness** | Using the thoughts and feelings of the character to drive the narrative forward. |
| **Sensory Imagery** | Using the 5 senses to create imagery for the reader. |
| **Foreshadowing** | Creating a feeling that something is going to happen. |
| **Chronology** | Either linear (in time order) or non-linear (using flashbacks, forwards, changes in time) |
| **Tone/ Atmosphere** | Creating a 'feeling' of the text. Specifically, the setting/ characters. |
| **Motifs** | A motif is something you notice being repeated in a story which links to a bigger idea. E.g. Light and dark could be motifs for good and evil. |
| **Framed Narrative** | A narrative within a narrative. |

| Box D: Ky Gothic Themes | |
|---|---|
| **Atmosphere** | A mood of mystery, suspense, and foreboding that envelops the narrative. |
| **Monsters** | These are the use of creatures such as Vampires, Werewolves etc. to create an antagonist or danger within the story. |
| **Isolation** | A feeling of being alone or cut off, enhancing themes of despair and madness. |
| **Supernatural** | Elements beyond the natural world, including ghosts, monsters, or otherworldly beings. |
| **Melancholy** | A deep, persistent sadness, often reflected in characters and settings. |
| **Gothic Architecture** | Characterized by pointed arches, ribbed vaults, and flying buttresses, creating a sense of grandeur. |

| Box E: Essay Vocabulary | |
|---|---|
| **First and foremost…** | The first thing you want to convey within your argument-usually your most important point or idea. |
| **Suggests…** | Using the text/evidence this tells you something about the writer/methods/intentions. This is used when analysing evidence and expressing what this could mean. |
| **Implies…** | Suggests or indicates something without directly stating it. In an essay, this term is used when discussing how a text or argument hints at deeper meanings or ideas. |
| **Furthermore … Moreover…** | Used to introduce an additional point or argument that supports or builds upon the previous one. It signals that more evidence or reasoning is being added to strengthen the case. |
| **In contrast…** | In contrast is helpful when you want to provide an alternative thought or opinion or introduce a new text or source. This would be used to compare the differences between those texts or sources. |
| **Similarly…** | This is when you are comparing the similarities between two texts or sources and bringing in the second text or source to compare it to the first. |

| Week 1 | Week 2 | Week 3 | Week 4 | Week 5 |
|---|---|---|---|---|
| 1. squalor | 1. usurp | 1. serenity | 1. stoop | 1. symbol |
| 2. inane | 2. prophetic | 2. summit | 2. confound | 2. interested |
| 3. self-effacing | 3. scarcity | 3. picturesque | 3. desperately | 3. pretence |
| 4. reproach | 4. charismatic | 4. distinguished | 4. tormenting | 4. euphoria |
| 5. contemporary | 5. tyrant | 5. peripheral | 5. pedantic | 5. thrilled |
| 6. pillage | 6. transient | 6. erratic | 6. coherent | 6. glib |
| 7. noteworthy | 7. predilection | 7. duplicity | 7. eccentric | 7. flimsy |
| 8. languish | 8. interrupt | 8. linger | 8. expedite | 8. habitat |
| 9. blissful | 9. subterranean | 9. predominantly | 9. initiate | 9. medley |
| 10. divulge | 10. depraved | 10. compel | 10. adjacent | 10. formidable |

| Week 6 | Week 7 | Week 8 | Week 9 | Week 10 |
|---|---|---|---|---|
| 1. atrocious | 1. impromptu | 1. furtively | 1. litigation | 1. phalanx |
| 2. forge | 2. equipment | 2. instructive | 2. substantiate | 2. latter |
| 3. pitfall | 3. adulation | 3. because | 3. adopt | 3. buttress |
| 4. bray | 4. seldom | 4. sarcastic | 4. munificence | 4. erroneous |
| 5. discredit | 5. detain | 5. inference | 5. paradox | 5. conclusion |
| 6. misspent | 6. amusing | 6. culpable | 6. mitigating | 6. tranquility |
| 7. uncaring | 7. sundry | 7. despised | 7. assented | 7. contagious |
| 8. sanctimonious | 8. quiver | 8. divine | 8. plagiarise | 8. category |
| 9. artful | 9. indifferent | 9. sociable | 9. betray | 9. effigy |
| 10. protagonist | 10. slope | 10. slacken | 10. antiquity | 10. conceivable |

| Week 11 | Week 12 | Week 13 |
|---|---|---|
| 1. vilify | 1. homophone | 1. imperious |
| 2. trite | 2. spontaneity | 2. detached |
| 3. oath | 3. punitive | 3. introvert |
| 4. reticent | 4. concentrated | 4. deterrent |
| 5. estimate | 5. whinging | 5. disdain |
| 6. complaisant | 6. helix | 6. disturbing |
| 7. turmoil | 7. embarrass | 7. absolution |
| 8. inopportune | 8. fertile | 8. diligence |
| 9. vacillate | 9. reverence | 9. unite |
| 10. public | 10. anarchist | 10. remnants |

# BOX 1: Non-calculator Methods and Percentages

## SURDS

| | |
|---|---|
| Surd | An **irrational** number that is a **root** of a positive integer, whose value cannot be determined exactly.<br>Surds have infinite non-recurring decimals.<br>*e.g.* $\sqrt{2}$ |
| Rational Number | An **integer**, **terminating decimal** or **recurring decimal** (can be negative).<br>They can be represented as fraction in the form $\frac{p}{q}$.<br>where p and q are integers and $q \neq 0$. |
| Irrational Number | Any number that is **not rational**. It has an **infinite** number of decimal places, that **don't repeat.**<br>*E.g.* $\pi, \sqrt{3}$ |

## SURDS: LAWS

| | |
|---|---|
| Multiplying Surds | $\sqrt{ab} = \sqrt{\boldsymbol{a}} \times \sqrt{\boldsymbol{b}}$<br>*Special case:* $\sqrt{a} \times \sqrt{a} = \boldsymbol{a}$ |
| Dividing Surds | $\sqrt{\frac{a}{b}} = \frac{\sqrt{\boldsymbol{a}}}{\sqrt{\boldsymbol{b}}}$ |
| Simplifying surds | Using **square number** factors to get the smallest number possible in the surd |
| Rationalising the denominator | When you **remove a surd** in the **denominator** by writing an equivalent fraction (usually with a surd in the numerator) |

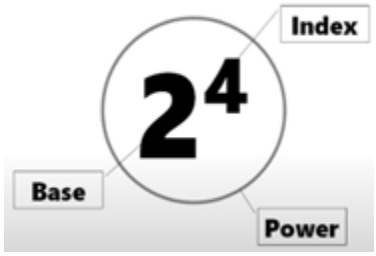
## STANDARD FORM: NOTATION

Allows us to write very large or very small numbers without lots of zeros.
Numbers written in the form **A x 10$^n$**.
A is between **1 and 10.**
N is any **integer**

| | |
|---|---|
| 'n' is positive | **Large** number (≥ 1) |
| 'n' is negative | **Small** number (< 1) |

## INDEX NOTATION

$\mathbf{a} = \boldsymbol{b^n}$
*a is the Power.*
*b is the Base.*
*n is the Index.*




## INDEX LAWS: MULTIPLICATION AND DIVISION

When the base is the **same**, we use the following laws when multiplying and dividing.

| | |
|---|---|
| Multiplying | **Add** the powers<br>*E.g.* $a^m \times a^n = \boldsymbol{a^{m+n}}$ |
| Dividing | **Subtract** the powers<br>*E.g.* $a^m \div a^n = \boldsymbol{a^{m-n}}$ |
| Raising a power by | **Multiply** the powers<br>$(a^m)^n = \boldsymbol{a^{mn}}$ |

## SPECIAL POWERS

| | |
|---|---|
| $p^0$ | Anything to the power of 0 is **1** |
| $p^1$ | Anything to the power of 1 is **itself** |
| Negative indices | **Reciprocal** *E.g.* $a^{-m} = \frac{\mathbf{1}}{\boldsymbol{a^m}}$ |
| Fractional indices | **Root.** *E.g.* $a^{\frac{1}{n}} = \sqrt[n]{\boldsymbol{a}}$<br>The power $\frac{1}{2}$ = **square root.**<br>The power $\frac{1}{3}$ = **cube root** |

## PERCENTAGE CALCULATIONS

| | | |
|---|---|---|
| Multiplier | A percentage written as a **decimal.** You can then use multiplication to find the percentage. | |
| Percentage increase | **Adding** a percentage to the original amount. | |
| Percentage decrease | **Subtracting** a percentage from the original amount. | |
| Percentage Change | The change between the **old value** and the **new value** as a percentage | $\frac{Difference}{Original} \times 100$ |
| Reverse Percentage | Working **backwards** to find **100%** | |
| Simple Interestc | Interest calculated as a percentage of the original amount, so the **same amount** is added each year. | |
| Exponential Growth | When we multiply a number **repeatedly** by the same number (**more than** 1), so it **increases** by the same proportion each time. | |
| Compound Interest | An example of exponential growth.<br>Interest paid on the original amount and the accumulated interest, so each year a **larger amount** of interest is paid.<br>**R = A x M$^n$**<br>R is the **end value**. A is the **starting value**. M is the **multiplier**. n is the **number of years.** | |

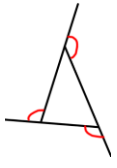
# BOX 4: Deduction

| TYPES OF ANGLE | |
|---|---|
| Angle | A measure of **turn** |
| Acute Angle | An angle **less than 90°** |
| Right angle | **90°** |
| Obtuse Angle | An angle between **90° and 180°** |
| Straight line | **180°** |
| Reflex Angle | An angle between **180° and 360°** |
| A full turn | **360°** |

| Links to: PARALLEL LINES | |
|---|---|
| Parallel Lines | Lines with the **same gradient**<br>They **never meet.**<br>They are always the **same distance** apart. |

| ANGLE RULES | |
|---|---|
| Angles around a point | Add to **360°** (as they make a full turn) |
| Angles on a straight line | Add to **180°** |
| Vertically opposite angles | Are **equal** |
| Angles in a triangle | Add to **180°** |
| Angles in a quadrilateral | Add to **360°** |

| ANGLES IN PARALLEL LINES | |
|---|---|
| Alternate angles | Are **equal** |
| Corresponding angles | Are **equal** |
| Co-interior angles | Add to **180°** |

| ANGLES IN POLYGONS: FACTS | | |
|---|---|---|
| Polygon | A **2D shape** with 3 or more **straight** sides only. | |
| Regular polygon | A polygon with **sides** that are all **equal** and **angles** that are all **equal.** | |
| Interior angle | An angle **inside** a polygon | |
| Sum of interior angles | **(n – 2) x 180°**<br>Where n is the number of sides | |
| Exterior angle | The angle formed **outside** a polygon when **one side is extended.**<br>Interior angle + exterior angle = **180°**, because they made a **straight line.** |  |
| Sum of exterior angles | **360°** | |

| ANGLES IN POLYGONS | | | |
|---|---|---|---|
| **Triangle** | 3 sides | Interior angles add to **180°** | Exterior angles add to **360°** |
| **Quadrilateral** | 4 sides | Interior angles add to **360°** | Exterior angles add to **360°** |
| **Pentagon** | 5 sides | Interior angles add to **540°** | Exterior angles add to **360°** |
| **Hexagon** | 6 sides | Interior angles add to **720°** | Exterior angles add to **360°** |
| **Heptagon (or Septagon)** | 7 sides | Interior angles add to **900°** | Exterior angles add to **360°** |
| **Octagon** | 8 sides | Interior angles add to **1080°** | Exterior angles add to **360°** |
| **Nonagon** | 9 sides | Interior angles add to **1260°** | Exterior angles add to **360°** |
| **Decagon** | 10 sides | Interior angles add to **1440°** | Exterior angles add to **360°** |

| TRANSFORMATIONS | |
|---|---|
| Congruent | When two shapes are **exactly the same** shape and size, but can be in different orientations |
| Rotation  | To turn a shape.<br>The shape does not change size (**congruent**)<br>.<br>To rotate a shape you need a **centre of rotation**, the **number of degrees** to turn, and a **direction of turn** (clockwise or anticlockwise) |
| Invariant points | Points on a line or shape which **do not move** when a specific transformation is applied |
| Translation  | Translate means to **move** a shape.<br>The shape does not change size (**congruent**).<br>To translate a shape you need a **vector** in the form $\begin{pmatrix} x \\ y \end{pmatrix}$ |

| Links to: VECTORS | | |
|---|---|---|
| Vector  | A quantity which has **magnitude** and **direction**.<br>It defines a **movement** from one point to another. | |
| Column Vector (in 2D) | The top number (**x**) moves **left** (-) or **right** (+).<br>The bottom number (**y**) moves **up** (+) or **down** (-). | |
| | *e.g.* $\begin{pmatrix} 3 \\ 2 \end{pmatrix}$ *means a* ***movement*** *of 3 right and 2 up* | $\begin{pmatrix} 3 \\ 2 \end{pmatrix}$ |

| 15 | RE | Muslim Beliefs | CYCLE 2 | Year 9 |
|---|---|---|---|---|

| | Key Knowledge to learn |
|---|---|
| **1. – Islamic beliefs:** Sunni and Shia history | • Sunni Muslims follow the example of the Prophet Muhammad<br>• Shi'as Muslims follow the example of the Prophet Muhammad and his son-in-law Ali<br>• About 80% of the worlds Muslims are Sunni<br>• The larger group of Muslims chose Abu Bakr, a close Companion of the Prophet, as the Caliph<br>• The term Caliph means the social and political leader who was chosen to lead the Muslim community<br>• Sunnis believe that there were only four Caliphs after the Prophet Muhammad<br>• Sunni Muslims call these the "Rightly Guided Caliphs"<br>• Many Shi'a Muslims believe there are twelve Imams who are the successors to the Prophet Muhammad<br>• Sunni Muslims make up the majority of British Muslims |
| **2. Islamic Beliefs: Six beliefs of Islam** | • The first belief is Tawhid, this means a belief that God is one. Another word for this is monotheistic.<br>• The second belief is Malaikah, this means a belief in the existence of angels<br>• The third belief is in the authority of Holy Books. The Qur'an is believed to be the final perfect message received form Allah by the Prophet Muhammad. Islam also recognise the importance of other holy books of Judaism and Christianity. These include the scrolls of Abraham and Moses, the Torah and Psalms and the Gospels.<br>• The fourth belief is Nubuwwah and Risalah which means belief in prophets<br>• The 5th belief is the belief in the Day of Judgement. The whole world will end and every human will be judged by Allah on their actions. Allah will decide who will be awarded a place in al-Jannah (Paradise) or Jahannam (Hell)<br>• The 6th belief is Al-Qadr. This is the belief in predestination. Which means that although humans have free will, Allah knows what will happen<br>• The Six beliefs are found in the "Kita al-inam" (book of faith)<br>• The Six beliefs unite all Sunni Muslims in one community which they call the ummah |
| **3.Islamic beliefs: The Five Roots** | • The Five Roots are foundations of a Shi'a Muslims faith<br>• The first root is Tawhid, this means a belief that God is one.<br>• The second is 'Adl which means that God commands them to do good and avoid bad<br>• The third is Nubuwwah which means belief in prophet hood<br>• The fourth is Imamah which means there 12 imams appointed by Allah as successors to the Prophet<br>• The 5th is Mi'ad which means a belief in the Day of Judgement and the resurrection of the body.<br>• The five roots unite al Shi'a as a community as they all believe in them.<br>• Sunni and Shi'a agree in ideas such as Tawhid, prophethood and the Day of Judgement<br>• The Twelvers are those Shi'a who specifically believe in the 12 Imams |

| | Key Knowledge to learn |
|---|---|
| **4. FESTIVAL: Ashura** | • This is celebrated by Sunni and Shia Muslims on the tenth of the month of Muharram, but for different reasons. Ashura means "tenth".<br>• **Sunni**: remembers Prophet Musa fasting on this day to remember the saving of the Israelites from the Pharaoh in Egypt.<br>• **Shia**: Remembers the death of Hussein, the grandson of the Prophet, who was killed at the battle of Karbala on this date in 680CE. Yazid was unjust and kept slaves so Hussein had refused to be led by him, and was imprisoned in Karbala and killed.<br>• **Sunni**: Many see it as a Day of Atonement, when sins are forgiven and repented of. Many fast on the 8th-10th of Muharram.<br>• **Shia**: this is a festival of sincere sorrow and sadness. Many wear black as a sign of grief. Mosques are covered in black cloth. After prayers in the afternoon, poems about the tragedy of Hussein are read. |
| **5 Key Belief: Tawhid and Surah 112** | • Surah 112 of the Qur'an says "He is Allah, the One and Only; Allah, the Eternal, Absolute; None is born of Him, nor is He born; And there is none like Him."<br>• Muslims believe Allah is eternal and unique, with no parents, partners or children<br>• They will only worship Allah, and no image or saint or other item is worthy of worship, so they will not make images of Allah or the Prophet Muhammad because they might worship them instead of Allah (this is the sin of shirk which is the worst sin in Islam)<br>• Muslims believe Allah is not split into different persons in the way Christians see God as a Trinity; instead Allah is completely one and cannot be divided up in any way |
| **6. Key Belief: The nature of Allah** | • Allah has many qualities such as immanence, transcendence, omnipotence, benevolence, mercy, fairness/justice, omniscience, listed in his 99 glorious names<br>• Some believe He is both immanent and transcendent in a way that we cannot understand, because the Qur'an says he is both<br>• Others say He is transcendent but **knows** everything that we do, which means he is "closer to you than your jugular vein" without being physically close/immanent<br>• Since the Qur'an teaches that Allah is "closer to you than your jugular vein", Muslims will know Allah understands everything they do and why they do it so he will judge fairly on the Day of Judgement and send them to heaven or hell accordingly. Therefore they will try to live how Allah wishes because they know they will be held accountable for every action and none escapes his notice.<br>• Believing that God is fair, loving and omnipotent means Muslims see everything that happens as part of a test and trust that he has a bigger plan for them; this may involve suffering but must be the right thing for them, otherwise Allah would not plan it this way |