



Knowledge Organiser

Year 9

Advent 1



Name	
Form	



How to use your Knowledge Organiser -

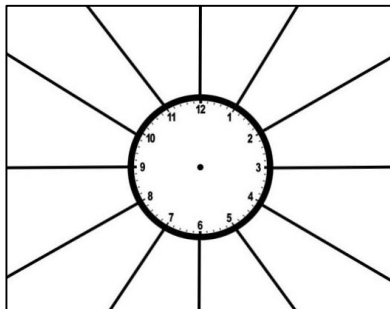
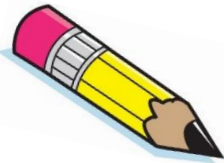


How to use your knowledge organiser... Look, cover, write, check

- Read a line, or a few lines, from a section of your Knowledge Organiser
- Try to memorise what you have read
- Cover the section with your hand
- Try to write what you have memorized
- Remove your hand
- Check to see if what you have written is accurate
- Correct anything you got wrong

How to complete... Diagrams

- Using your Knowledge Organiser for a particular topic in a subject, draw and label diagrams to help you remember content
- This could include copying drawings or diagrams that are on your Knowledge Organiser for example
- This could include creating a diagram to represent an idea or some key knowledge



How to complete... Revision Clocks

- Revision clocks can be used alongside notes to provide summaries
- Allow 5 minutes to write as much as you can about a unit / topic from memory
- You can create headings based on key word / vocabulary lists; this helps retrieval practice

How to complete... A-Z

- Write A, B, C, D etc. through to Z one per line in the margin of your lined paper
- Using your knowledge organiser for a particular topic in a subject and your knowledge of that topic, try to write a key word and a definition for that word beginning with A, B, C, D and so on, through to Z



How to complete... Make a test

- Using your Knowledge Organiser, write some questions to test your knowledge
- Number the questions
- Once you have got to 10 questions, answer the questions on another piece of lined paper
- You can use the following question stems to help you create questions: Who? What? Why? How? When?



Strategy	Tick off the number of times you have used the strategy -
Look, cover, write, check	
A – Z	
Turn it into a diagram	
Make a test	
Complete a revision clock	



Year 9 – Art Textiles – Advent 1

A Formal Processes		
1	Dyeing	Changing the colour of a fabric. You can experiment with tie-dyeing, where the fabric is twisted and bound using string. White areas are left where the fabric was bound.
2	Batik	Hot wax is applied to fabric, which is then dyed. The wax resists the dye, preventing it from reaching those areas.
3	Appliqué	Sewing a small piece of fabric onto a bigger piece of fabric. You could experiment with cutting out the same shape in different fabrics and arranging these into patterns. You could also experiment with using different coloured threads.
4	Embroidery	Using thread to stitch onto a piece of fabric to create a shape or design. You can do this by hand or by using a sewing machine
5	Repeat pattern	The repetition of lines, shapes, tones, colours, textures and forms.
6	Free- hand embroidery	A type of sewing that allows you to draw with your sewing machine through drawing different shapes and profiles.
7	Seam Allowance	The area between the fabric edge and the stitching line on two (or more) pieces of material being sewn together.
8	Paper pattern	paper or cardboard templates from which the parts of a garment are traced onto fabric before cutting out and assembling








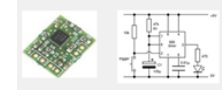
B Materials		
1	Cotton	a type of natural cloth created out of the cotton plant fibres. Coming in a wide range of weaves, it is the most versatile and popular
2	Natural fabric	Natural fibres come from plants or animals. They are easily renewable and biodegradable e.g. cotton, wool, silk
3	Synthetic fabric	Synthetic fibres are made mainly from non-renewable coal and oil refined into polymers and do not degrade easily e.g. polyester, nylon, elastane

C Designers		
1	Holly Levell	A Textile Artist specialising in the everyday through soft sculptures, softening the lines of a usually solid idea. The idea of shopping but from stitched textiles completely softening the solid idea and producing a soft and nostalgic object, and that's when <i>Supermarket Stitch</i> .



Practice your stitching by stitching one of the key terms onto a piece of fabric.

Year 9 – Design and Technology – Advent 1

A		Electronic Components	
1	Battery		Stores energy in a chemical form. It is made up of cells, each 1.5v. All batteries are multiples of 1.5v.
2	Latch Switch & Push Switch		Latch switch turns on or off all power to circuit. Push switch allows power to be on only when switch is pushed.
3	Resistor		Slow down the flow of current in a circuit. They protect more sensitive components.
4	Variable Resistor		A resistor that can be manually increased or decreased.
5	Capacitor		Stores power for short amounts of time.
6	Light Emitting Diode (LED)		Allows current to flow in one direction and lights up without generating heat.
7	Integrated Circuit (I.C or Chip)		Made up of many circuits located in a very small area.
8	Printed Circuit Board		A pre-made circuit with copper tracks and locations for the components to be soldered in.

B		Scales of Production	
1	Bespoke	A single item design for either a specific task or made specifically for a client.	
2	Batch	Small to medium number of products. These could be made in different colours, style, ingredients etc.	
3	Mass	The same as batch but made in much larger numbers. Manufacturing using a production line.	
4	Continuous	No variety or changes in the design. The same thing made in very high numbers, day after day.	

C		Techniques	
1	Line Bending	Line bending is a process used to bend thermoplastics in a straight line. A thermoplastic sheet over a strip heater until it becomes soft and then bending it to any desired angle.	
2	Vacuum Forming	Vacuum forming is a where a sheet of thermoplastic is heated to a high temperature, stretched onto a mould, and forced against the mould by a vacuum.	
3	Injection Moulding	The plastic is melted in the injection moulding machine and then injected into the mould, where it cools and solidifies into the final part.	
4	Blow Moulding	The blow mouldings process is the same as Injection process but also has a tube-like piece of plastic with a hole in one end through which compressed air can pass.	
5	Rotational Moulding	Plastic pellets are put in a mould and spun and heat added. Plastic softens and forms a shape on the internal faces of the mould.	
6	Compression Moulding	A Thermosetting plastic material is placed directly into a heated metal mould then is softened by the heat and therefore forced to conform to the shape.	



Year 9 – English – Advent 1

A Oliver Twist - Characters		
1	Oliver	He is a 'pale, thin' orphan who is treated badly by almost everyone he meets. He tries his best to be a good person and experiences 'horror and alarm' whenever he sees crimes being committed.
2	Mr. Bumble	The man who runs the workhouse and gives Oliver his name. He is 'a fat man' who enjoys power and doesn't care about the people beneath him.
3	Noah Claypole	A 'malicious and ill-conditioned' boy who bullies Oliver at the undertakers. He eventually runs away to London and joins the same gang as Oliver.
4	Fagin	An old man who runs the gang of pickpockets. He seems kind but his 'villainous-looking and repulsive face' reflects his selfish nature as he gets young boys to do his dirty work for him.
5	Jack Dawkins (The Artful Dodger)	A young boy who introduces Oliver to Fagin's gang who has 'all the airs and manners of a man'. He's confident and cunning.
6	Bill Sikes	A 'rough man' who has been a criminal for many years. He beats his dog viciously and brutally kills his girlfriend, Nancy.
7	Nancy	Bill's girlfriend who risks her life to help Oliver escape from the gang. She loves Bill even though he treats her abusively and she feels guilty about the life of crime she has led.
8	Mr. Brownlow	A wealthy older gentleman who takes Oliver in and looks after him. He believes in Oliver's goodness even when it looks like Oliver has stolen from him and eventually finds out the truth about Oliver's parents.

B Key Words		
1	morality	a code of right and wrong. People who try to be good can be called moral and people who do bad things can be called immoral.
2	vulnerable	in a situation in which you could be easily harmed.
3	brutal	very violent or cruel.
4	corrupt	a word used to describe a person who uses their power in a dishonest or illegal way in order to make life better for themselves.
5	villain	a 'baddie' who harms other people or breaks the law to get what they want.
6	malicious	meant to hurt or upset someone.
7	victim	someone who has been harmed, often by other people
8	naïve	If someone is naïve if they don't have experience of how complicated life can be and therefore trust people too much.
9	society	the people who live in a certain area. This could be a country, town or small group.
10	workhouse	a place where people who couldn't support themselves were sent to live and work.

C Key Terminology		
1	Senses	sight, sound, smell, taste, touch
2	Adjective	a word to describe a noun
3	Metaphor	when you say something is something else
4	Onomatopoeia	a word to describe a noise
5	Simile	comparing two things using 'like' or 'as'
6	Alliteration	when two or more words next to each other start with the same letter (on purpose!)
7	Personification	giving something that is not a person human qualities
8	Adverb	describing how a verb (action) is done
9	Imperative	a commanding verb
10	Second person	using "you"
11	Alliteration	e.g. "The towering teacher terrified the pupils"
12	Facts	something that is true
13	Opinion	someone's point of view
14	Rhetorical question	a question that doesn't need answering
15	Repetition	The same word or phrase more than once
16	Emotive language	words used to make the reader feel a certain way
17	Statistics	using numbers
18	Triple	using three words with a similar meaning



Complete a relationship web explaining the links between the different characters.



Year 9 – Food and Nutrition – Advent 1

A	Key Terms	
1	Contaminate	Making a food unsafe to eat by allowing it to come into contact with microorganisms that will grow and multiply in it.
2	Pathogenic	Something that is capable of causing illness.
3	Food poisoning	An illness caused by micro-organisms contaminating food.
4	High-risk foods	Foods that contain a lot of moisture and nutrients, especially protein (e.g. milk, cream, eggs, meat, fish) and easily support the growth of pathogenic microorganisms, particularly bacteria. Also called perishable foods.
5	Enzyme	The name given to natural substances in living things that speed up chemical reactions.
6	Catalyst	A substance that speeds up the rate of a chemical reaction.
	Raising Agent	An ingredient or process that introduces a gas into a mixture so that it rises when cooked.
	Food intolerance	A long-term condition where after several hours or days, certain foods cause a person to feel unwell and have a range of symptoms, but it is usually not life threatening and does not involve the immune system.
	Food allergy	This happens to some people when their immune system has a very sensitive reaction to specific foods, which causes severe and potentially threatening symptoms that happen very quickly after the food is eaten.
	Plasticity	The ability of a fat to soften over a range of temperatures and be shaped and spread with light pressure.
	Shortening	The ability of fats to shorten length of gluten molecules in pastry.
	Aeration	The ability of some fats to trap lots of air bubbles when beaten together with sugar.
	Emulsification	Either keeping drops of oil or fat suspended in a liquid and preventing them from separating out; or keeping drops of water suspended in an oil or fat and preventing them from separating out.

D	Pathogens		
	Pathogen	Food Affected	Symptoms
1	E- coli	Raw meat (found in guts) untreated milk and water	Vomiting, blood in diarrhoea, kidney damage or failure.
2	Listeria	Soft cheeses, pate, unpasteurised milk, under cooked meat.	Mild flu, meningitis and pneumonia.
3	Campylobacter	Meat, shellfish, untreated water, washing raw poultry	Diarrhoea, headache, fever, abdominal pain.
4	Salmonella	Raw meat, eggs, seafood, dairy products	Diarrhoea, vomiting and fever.
5	Norovirus	Shellfish, raw vegetables, salads.	Nausea, vomiting, diarrhoea, abdominal pain, fever.
6	Bacillus cereus	Cooked rice, pasta, and cereal foods.	Nausea, vomiting, diarrhoea.



Complete a poster warning about possible hazards in the kitchen.



Year 9 – French – Advent 1

A	Unité 1	
1	I can describe where I live.	J'habite dans une petite maison.
2	I can say where I would like to live.	Je voudrais habiter au bord de la mer.
3	I can use je voudrais.	Je voudrais habiter dans une ferme.
4	I can pronounce the sounds – ieu and ieil.	Vieux, vielle

B	Unité 2	
1	I can describe my home.	Chez moi, il y a sept pieces. Il y a le salon, la cuisine, ...
2	I can explain where things are.	Le tee-shirt sur la chaise.
3	I can name items of furniture.	Le lit, l'armoire, le canapé
4	I can use prepositions.	Dans le frigo, sous la chaise, derrière le bureau, devant la fenêtre.

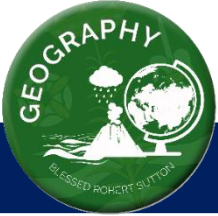
C	Unité 3	
1	I can say what I have for breakfast.	D'habitude, je prends des cereals et du thé.
2	I can describe mealtimes in my family.	Chex moi, on mange à sept heures et demie.
3	I can say what we eat in the evenings.	D'abord, on mange du poulet. Comme dessert, on prend du yaourt.
4	I can use du, de la, des, de l'.	Du pain, de la confiture, des pâtes, de l'eau.

D	Unité 4	
1	I can discuss what food to buy.	Il faut acheter un paquet de farine.
2	I can use il faut + infinitive.	Il faut aller au supermarché. Il faut apporter des CD.
3	I can use de after quantities and containers.	250 grammes de fraises. Une tablette de chocolat.

E	Unité 5	
1	I can talk about a forthcoming event.	La semaine prochaine, je vais aller au carnaval aves mes amis. On va regarder le defile et je vais prendre des photos.
2	I can use the near future tense.	À Hallowe'en, je vais porter un costume de vampire. On va manger de la pizza et après, on va danser. On va s'amuser.



Create a conversation using as many of the phrases from the Knowledge Organiser.



Year 9 – Geography – Advent 1

A	Key Words	
1	Agriculture	Human management of the environment to produce food. The numerous forms of agriculture fall into three groups: commercial agriculture, subsistence agriculture and peasant agriculture.
2	Biodiversity	The existence of a wide variety of plant and animal species in their natural environment.
4	Catchment	In physical geography, an alternative term to river basin. 2. In human geography, an area around a town or city – hence 'labour catchment' means the ar
5	CBD (Central Business District)	This is the central zone of a town or city, and is characterized by high accessibility, high land values and limited space. The visible result of these factors is a concentration of high-rise buildings at the city centre. The CBD is dominated by retail and business functions, both of which require maximum accessibility.
6	Common land	Land which is not in the ownership of an individual or institution, but which is historically available to any member of the local community
7	Commuter Zone	An area on or near to the outskirts of an urban area. Commuters are among the most affluent and mobile members of the urban community and can afford the greatest physical separation of home and work.
8	Conservation	The preservation and management of the natural environment. In its strictest form, conservation may mean total protection of endangered species and habitats, as in nature reserves. In some cases, conservation of the manmade environment, e.g. ancient buildings, is undertaken.
9	Conurbation	A continuous built-up urban area formed by the merging of several formerly separate towns or cities. Twentieth-century urban sprawl has led to the merging of towns
10	Depopulation	A long-term decrease in the population of any given area, frequently caused by economic migration to other areas
12	Employment Structure	The distribution of the workforce between the primary, secondary, tertiary and quaternary sectors. Primary employment is in agriculture, mining, forestry and fishing; secondary in manufacturing; tertiary in the retail, service and administration category; quaternary in information and expertise.
13	ethnic group	A group of people with a common identity such as culture, religion or skin colour
14	infrastructure	The basic structure of an organization or system. The infrastructure of a city includes, for example, its roads and railways, schools, factories, power and water supplies.
15	rural depopulation	The loss of population from the countryside as people move away from rural areas towards cities and conurbations.
16	rural-urban migration	The movement of people from rural to urban areas.
17	urban decay	The process of deterioration in the infrastructure of parts of the city. It is the result of terracing tides Tidal ranges. tombolo Chesil Beach, England. a forest giant in the tropical rainforest long-term shifts in patterns of economic activity, residential location and infrastructure
18	urban sprawl	The growth in extent of an urban area in response to improvements in transport and rising incomes, both of which allow a greater physical separation of home and work.



Design your own sustainable living space considering the issues you have studied in this topic.



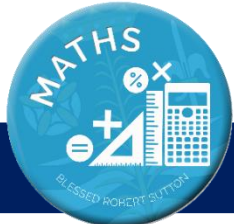
Year 9 – History – Advent 1

A	Timeline	
1	1882	Formation of the Triple Alliance
2	1907	Formation of the Triple Entente
3	1914	28 th June - Archduke Franz Ferdinand assassinated 23 rd July - Austria- Hungary demands Serbia pay for the assassination of Franz Ferdinand and sends an ultimatum. 28 th July - Austrian-Hungary declares War on Serbia. Russia begins mobilizing its troops . 1 st August - Germany declares war on Russia. 3 rd August - Germany declared war on France. 4 th August - Germany invades Belgium, Britain declared war on Germany.
4	1915	February - Gallipoli Campaign begins May - Sinking of the Lusitania
5	1916	February - Battle of Verdun begins July - Battle of the Somme begins
6	1917	February - Russian Revolution begins April - USA enters the war
7	1918	March - Ludendorff's Spring Offensive August - Beginning of the Hundred Days 11 th November – Armistice signed

B	Key Individuals	
1	Otto von Bismarck	Politician who created a united Germany and became its first chancellor
2	Franz Ferdinand	Heir to the throne of Austria-Hungary, whose assassination sparked the First World War
3	Douglas Haig	British general who launched the Battle of the Somme
4	Erich von Ludendorff	German general who commanded Germany's war effort during the end of the war
5	Gavrilo Princip	Black Hand assassin who shot Franz Ferdinand
6	Kaiser Wilhelm II	Emperor of Germany before and during the First World War
7	Woodrow Wilson	American president who brought the USA into the war



Complete a flow chart of the July Crisis and explain the long and short term causes of WW1.



Year 9 – Maths – Advent 1

A Reasoning with Algebra: Straight Line Graphs		
1	Gradient	the steepness of a line Intercept: where two lines cross.
2	The y-intercept	where the line meets the y-axis.
3	Parallel	two lines that never meet with the same gradient.
4	Co-ordinate	a set of values that show an exact position on a graph.
5	Linear	linear graphs (straight line) – linear common difference by addition/ subtraction
6	Asymptote	a straight line that a graph will never meet.
7	Reciprocal	a pair of numbers that multiply together to give 1.
8	Perpendicular	two lines that meet at a right angle.

B Reasoning with Algebra: Forming and Solving Equations		
1	Inequality	an inequality compares two values showing if one is greater than, less than or equal to another
2	Variable	a quantity that may change within the context of the problem
3	Rearrange	Change the order Inverse operation: the operation that reverses the action
4	Substitute	replace a variable with a numerical value
5	Solve	find a numerical value that satisfies an equation

C Reasoning with Algebra: Testing Conjectures		
1	Multiples	found by multiplying any number by positive integers
2	Factor	integers that multiply together to get another number.
3	Prime	an integer with only 2 factors.
4	HCF	highest common factor (biggest factor two or more numbers share)
5	LCM	lowest common multiple (the first time the times table of two or more numbers match)
6	Verify	the process of making sure a solution is correct
7	Proof	logical mathematical arguments used to show the truth of a statement
8	Binomial	a polynomial with two terms
9	Quadratic	a polynomial with four terms (often simplified to three terms)



	A ₁	B ₃	C ₃	D ₂	
E ₁	F ₄	G ₂	H ₄	I ₁	J ₈
K ₅	L ₁	M ₃	N ₁	O ₁	P ₃
Q ₁₀	R ₁	S ₁	T ₁	U ₁	V ₄
	W ₄	X ₈	Y ₄	Z ₁₀	

Calculate which key term would score the most in Scrabble.



Year 9 – PE – Advent 1

A	Key Words	
1	Balance	Stability through an even distribution of weight.
2	Competence	To do something successfully or efficiently.
3	Concentration	Exclusive attention for a period of time.
4	Confidence	A belief in your ability to complete a physical skill or task given.
5	Control	To exercise restraint or direction over; dominate; command.
6	Coordination	Smoothly and successfully performing more than one motor task at the same time e.g. ball, hand and eye coordination.
7	Core stability	The major muscles of the core are those in your stomach and back. 'Core stability' is the ability to support the spine and keep the body stable and balanced. It is essential for 'quality' performance and also for completing manual tasks safely and effectively in everyday life.
8	Cue recognition	Recognising and responding to relevant information whilst filtering out unwanted information.
9	Decision making	Observations inform judgements that lead to the selection of a course of action among alternatives; every decision-making process produces a final choice, even if the choice involves no action.
10	Dodging	To make a sudden movement in a new direction.
11	Eye-foot coordination	eyes and feet working together to perform a task
12	Eye-hand coordination	eyes and hands working together to perform a task
13	Feinting	A movement that is made in order to deceive an opponent.
14	Fine Motor Skills	small physical actions e.g. manipulating the hands or the fingers.
15	Flexibility	The range of movement through which a joint or sequence of joints can move.
16	Fluency	Movement that is smooth, graceful and effortless.
17	Focus	To direct one's attentions or efforts.
18	Force	Strength or energy used in a physical movement. Impulsive responses To act without considering the consequences.

19	Gross Motor Skills	Large physical actions.
20	Kinaesthetic Awareness	A sensation by which bodily position, weight, muscle tension and movement are perceived by an individual.
21	Leadership	Guiding a team/group or individual
22	Manipulate object	Handling/controlling a piece of equipment or apparatus.
23	Moderate physical activity	physical activity (exercise) that generally requires sustained rhythmical movements. A person should feel some exertion but should be able to carry on a conversation comfortably during the activity.
24	Performance	An expression of something, including the everyday performance executed in class, or where appropriate, elite performance. To execute a movement or movement sequence.
25	Prioritising	Dealing with the components of a task according to their importance.
26	Propel an object	Pushing an object away from the body e.g. throw a ball, kick a ball, strike a badminton shuttle with a racquet.
27	Resilience	A capacity to deal constructively with change or challenge, allowing a person to maintain or re-establish their social and emotional well-being in the face of difficult elements. It involves thoughts, feelings and actions.
28	Strength	The ability of a muscle or muscle group to overcome a resistance.
29	Vigorous physical activity	physical activity (exercise) that is intense enough to result in a significant increase in heart and respiration rate.



**Reflect on your last PE lesson.
Write down how you used any
of the skills listed.**



Year 9 – RE – Advent 1

A	Key Words	
1	Vocation	Doing something for the love of it; a feeling that God is calling someone to a special ministry or way of serving others.
2	Laity	Men and women called to live active lay lives supporting their Church in many different ways
3	Holy Orders	Men called to be deacons, priests and bishops
4	Religious Orders	Women and men called to live single lives as members of religious communities
5	Ordination	The process by which individuals are consecrated, meaning that they are set apart and elevated from the laity class to the clergy.
6	Sexism	discriminating against people because of their gender
7	Discrimination	treating people unfairly because of their race, gender, colour, sexuality, age, ethnicity or class
8	Ethnic minority	a member of an ethnic group which is smaller than the majority group
9	Prejudice	believing some people are inferior without even knowing them
10	Racism	the belief that some races are inferior to others

B	Key Concepts	
1	Community cohesion	a common vision and shared sense of belonging for all groups in society
2	Multi-faith society	many different religions living together in one society
3	Racial harmony	different races/colours living together happily
4	Religious freedom	the right to practice your religion and change your religion
5	Religious pluralism	accepting all religions as having an equal right to co-exist
6	Inter-faith marriage	marriage where the husband and wife are from different religions
7	Apostolic religious life	religious communities which combine a life of prayer with a life of working in the modern world
8	Contemplative religious life	those who choose to live out their vocation in structured prayer, meditation and work, usually in enclosed orders.

B	Vows for the Religious Life	
1	Vow of Poverty	† Living simply
		† Sharing talents, money and material goods for the support of the community
		† Links to how the early church members shared their possessions
2	Vow of Chastity	† Also known as celibacy
		† Sharing love and friendship with all God's people
		† Not making a commitment to a single person in marriage
		† Promise to love and serve all as completely as possible
3	Vow of Obedience	† Jesus did not choose a wife, He gave his life for God and his love for all
		† To obey the superior within the order
		† To listen to and obey God's will as understood through prayer and community rules
		† Jesus obeyed God's will by accepting His duty to sacrifice himself.
		† "Father, not my will but yours" were Jesus words in the Garden of Gethsemane





Year 9 – Science – Advent 1

A	Atomic Structure and the Periodic Table	
1	Proton	a stable subatomic particle occurring in all atomic nuclei, with a positive electric charge equal in magnitude to that of an electron.
2	Neutron	a subatomic particle of about the same mass as a proton but without an electric charge, present in all atomic nuclei except those of ordinary hydrogen.
3	Electron	a stable subatomic particle with a charge of negative electricity, found in all atoms and acting as the primary carrier of electricity in solids.
4	Relative Mass	the average mass of its atoms, compared to 1/12th the mass of a carbon-12 atom
5	Atomic Number	the number of protons in the nucleus of an atom, which is characteristic of a chemical element and determines its place in the periodic table.
6	Mass Number	
7	Isotopes	An element with the same number of protons but a different number of neutrons.
8	Compounds	When two or more elements are chemically joined.
9	Chemical Equation	A word equation showing reactants on the left hand side and products on the right hand side.
10	Metals	Strong, malleable, good conductors of electricity and heat. Bond metallicly.
11	Non-metals	Dull, brittle and not always solids at room temperature.
12	Halogens	Not metals: fluorine, chlorine, bromine, iodine. As you go down the group they become less reactive. It is harder to gain an extra electron because its outer shell is further way from the nucleus. The melting and boiling points also become higher.
13	Noble Gases	The noble gases (group 0 elements) include helium, neon and argon. They are un-reactive as they have full outer shells, which makes them very stable. They are all colourless gases at room temperature. The boiling points all increase as they go down the group – they have greater intermolecular forces because of the increase in the number of electrons.
14	Alkali Metals	The alkali metals (group 1 elements) are soft, very reactive metals. They all have one electron in their outer shell, making them very reactive. They are low density. As you go down the group they become more reactive. They get bigger and it is easier to lose an electron that is further away from the nucleus. They form ionic compounds with non-metals. They react with water and produce hydrogen.
15	Periodic Table	Elements are in order of atomic mass/proton number.

C	History of the Atom		
1	John Dalton	Start of 19 th Century	Atoms were first described as solid spheres.
2	JJ Thomson	1897	Plum pudding model – the atom is a ball of charge with electrons scattered.
3	Ernest Rutherford	1909	Alpha scattering experiment – mass concentrated at the centre; the nucleus is charged. Most of the mass is in the nucleus. Most atoms are empty space.
4	Niels Bohr	c. 1911	Electrons are in shells orbiting the nucleus.
	James Chadwick	c. 1940	Discovered that there are neutrons in the nucleus.



Test your chemical equation balancing skills -

<https://education.jlab.org/elementbalancing/question.php?583653>