

Biology		Chemistry	Physics
1	All living organisms are made of cells. All plant cells and animal cells have three main structures – the nucleus , the cytoplasm and the cell membrane Plant cells also contain – a cell wall , a vacuole and chloroplasts	The periodic table , also known as the periodic table of elements, is a tabular display of the chemical elements, which are arranged by atomic number, electron configuration, and recurring chemical properties.	Conservation of Energy Law is that Energy cannot be created or destroyed; it may be transformed from one form into another, but the total amount of energy never changes. Chemical energy in food is measured in Calories. (1 calorie = 4.2 Joules)
2	<u>Diffusion</u> - is the movement of particles from an area of high concentration to low concentration . This process is passive (does not need energy). Oxygen, carbon dioxide and urea passes through cell membranes by diffusion.	Democritus[5 th century BC] – Atmos John Dalton [1804] – each element was a different type of atom JJ Thompson – discovered the electron [Plum pudding model] Rutherford [1909] – Gold foil experiment	Energy can dissipate or be transferred into the surroundings/environment. Sankey Diagrams are used to show how energy is transferred from one type of store to another.
3	Single celled organisms have a larger surface area to volume ratio than multicellular organisms, so can rely on simple diffusion to transport all necessary substances. Multicellular organisms require specialised organ systems to exchange sufficient substances.	<u>Electronic configuration</u> , also called electronic structure, the arrangement of electrons in energy levels around an atomic nucleus. At the lowest energy level, the one closest to the atomic centre, there is a single 1s orbital that can hold 2 electrons.	Efficiency = $\frac{\text{Useful Energy}}{\text{Total Energy}}$ Good efficiency means that the device uses most of the energy supplied, only a small portion is wasted.
4	DNA . This is a long chain molecule found in the nucleus of your cells. It is a code that tells your cells what proteins to make. These proteins are what give you your characteristics such as eye colour, blood group and if you have curly or straight hair.	The Group 1 elements in the periodic table are known as the alkali metals. Learn more about these elements including lithium, sodium and potassium	Power is a measurement of either: 1. How much energy is used in a time $P = \frac{\text{Energy}}{\text{time}}$ $P = E/t$ 2. How much work is done in a time $P = \frac{\text{work done}}{\text{time}}$ $P = WD/t$ Power is measured using the unit W, watt.
5	<u>You inherited your DNA from your parents</u> - half from your father and half from your mother, when an egg was fertilised by a sperm. This fertilised egg, which contained your unique DNA, divided to form the millions of cells that make up you. All of the DNA in a human nucleus is called the genome.	The Group 7 elements are known as the halogens. They are reactive non-metals and are always found in compounds with other elements. Chlorine, bromine and iodine are all halogens.	How much power a device uses will determine how much it will cost to use the device. Eg. A refrigerator uses 15 W of power over 24 hours An electric kettle uses 120 W of power for 15 mins.

Quiz Time

Week 1 Quiz

1. State the conservation of energy law.
2. Elements are arranged in table by atomic number called....?
3. Every living organism is made of c-----?
4. The control centre of a cell is called?
5. What 3 parts does a plant cell have that an animal cell does not?

Week 4 Quiz

1. Where is DNA stored?
2. What elements are found in Group 1 of the periodic table?
3. How do you calculate Power?
4. What unit is power measured in?
5. What is the law of conservation of energy?

Week 2 Quiz

1. Who conducted the gold foil experiment?
2. What type of diagram shows energy transfer?
3. Diffusion is when particles move from..... concentration to concentration?
4. Chemical energy is food is measured in?
5. What did JJ Thompson discover?

Week 5 Quiz

1. Where do you inherit your DNA from?
2. What elements are found in Group 7 of the periodic table?
3. Where would you find potassium in the periodic table?
4. Where would you find Chlorine in the periodic table?
5. Name the 5 parts of an animal cell?

Week 3 Quiz

1. How do you calculate energy efficiency?
2. Where is the lowest electron shell?
3. How many electrons does it hold?
4. Why are single cell organised good at diffusion?
5. True or False? A good efficient light bulb wastes a large % of energy as heat?

Week 6 Quiz