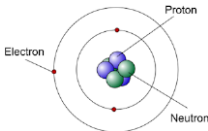


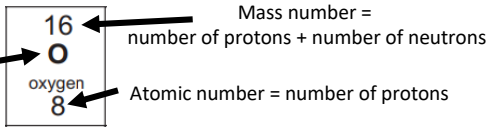
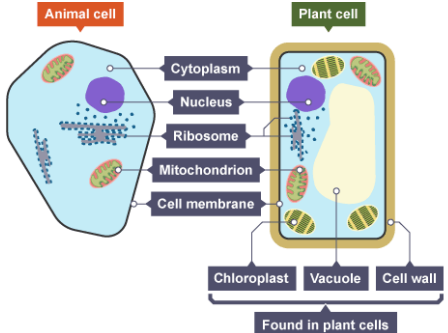







# KNOWLEDGE ORGANISER

*Excellence.  
No Excuses.*

Science			Year 10	AC1	
Foundational Knowledge			Core Knowledge		
1.	Simple Model of the atom	<p>a tiny, dense, positively charged core called a nucleus surrounded by lighter, negatively charged electrons.</p> 	14.	Plum pudding model <ul style="list-style-type: none"> <li>mass is evenly distributed</li> <li>positive charge spread throughout the atom</li> <li>electrons embedded in the (mass) of positive (charge)</li> <li>is a 'solid' mass</li> </ul> 	
2.	Element	A substance made of one type of atom only.	15.	Nuclear model <ul style="list-style-type: none"> <li>mass is concentrated at the centre / nucleus</li> <li>positive charge occupies only a small part of the atom</li> <li>electrons orbit some distance from the centre / nucleus</li> <li>the atom is mainly empty space</li> </ul> 	
3.	Compound	Two or more atoms chemically joined.	16.	Isotope	Atoms of the same element with same number of protons but different number of neutrons.
4.	Chemical Symbols	<p>Chemical Symbol Identifies the element.</p> 	17.	Radioactive decay <p>An unstable nucleus can decay by emitting an alpha particle, a beta particle, a gamma ray or in some cases a single neutron. It is a random process we have no idea which nucleus will decay and when.</p>	
5.	Animal and Plant cells diagram		18.	Alpha <p>Most ionising form of radiation, consists of 2 protons and 2 neutrons. Range in air of 5-10cm. Blocked by skin, paper or a few cm of air.</p> 	
6.	Cytoplasm	Where most of the chemical reactions take place	19.	Beta <p>Moderately ionising, consists of an electron emitted from a nucleus. Range in air of 1 m. Blocked by a few mm of aluminium.</p> 	
7.	Nucleus	Contains genetic material, including DNA, which controls the cell's activities.	20.	Gamma <p>Weakly ionising, consists of an electromagnetic wave. Range in air of more than 1 km. Blocked by lead or concrete</p> 	
8.	Cell membrane	Controls what moves in and out of the cell	21.	Half-life <p>Half-life is the time it takes for half of the unstable nuclei in a sample to decay or for the activity of the sample to halve or for the count rate to halve.</p>	
9.	Mitochondria	Where most respiration takes place	22.	Chromosomes <p>Chromosomes carry genetic information in a molecule called DNA. Each section of a chromosome that contains the code for the production of a particular protein is called a gene. Humans have 23 pairs of chromosomes.</p>	
10.	Ribosomes	Tiny structures where protein synthesis occurs.	23.	Mitosis <p>Form of cell division that makes new cells for grow or repair. Cells divide once to produce two daughter cells that are genetically identical (same number of chromosomes) to the parent cell.</p>	
11.	Chloroplast	Where photosynthesis takes place	24.	Diffusion <p>Movement of particles from (an area of) high concentration to (an area of) low concentration. (oxygen in lungs, urea in the liver, gases in leaves)</p>	
12.	Cell wall	Made from cellulose fibres and strengthens the cell and supports the plant.	25.	Osmosis <p>Movement of water from a dilute solution to a more concentrated solution across a partially-permeable membrane.</p>	
13.	Permanent vacuole	Filled with cell sap to help keep the cell turgid.	26.	Active transport <p>Movement of ions from an are of low concentration to an area of high concentration. This is movement against the gradient so which requires energy supplied by respiration. Cells where this takes place have more mitochondria to help meet the increased demand for respiration. (Nitrates into root hair cells, glucose into the blood stream from the intestines).</p>	



# VOCABULARY

**Excellence.  
No Excuses.**

## Science Year 10 AC1

	Word	Definition	Synonyms	Antonyms	Etymology
27	Atom	The smallest particle of a chemical element that can exist. The word is derived from the An atom consists of a nucleus containing protons and neutrons, surrounded by electrons.	granule	aggregate	Greek word "atomos", meaning indivisible.
28	Compound	Two or more elements chemically joined together. Compounds have different properties to the elements that make them up.	Combination	Mixture	To put together, to mix, to combine; to join, couple together, from Old French compondre.
29	Electron	Subatomic particle, with a charge of -1, a mass of almost 0. Electricity is the movement of electrical charge through a circuit (usually, flowing electrons.)	Negatron	Positron	The Greek word for "amber" is "electron". Amber became charged with static electricity when rubbed.
30	Element	A substance made of one type of atom only. There are about 100 different elements.	Component, constituent	Whole	Middle English (denoting fundamental constituents of the world or celestial objects): via Old French from Latin elementum 'principle, rudiment', translating Greek stoikheion 'step, component part'.
31	Isotope	Atoms of an element with the same number of protons and electrons but different numbers of neutrons They have the same chemical properties as they have the same number of electrons.	NA	NA	1913: coined by F. Soddy, from iso- 'equal' + Greek topos 'place' because the isotopes occupy the same place in the periodic table of elements.
32	Neutron	Uncharged subatomic particle, with a mass of 1 relative to a proton. The relative charge of a neutron is 0.	NA	NA	Electrically neutral particle of the atom," 1921, coined by U.S. chemist William D.
33	Eukaryotic	Cell with a nucleus, characterized by well-defined cells (with nuclei and cell walls)	Plant, animal or fungal cell	Prokaryotic	1957, from French eucaryote (1925), from Greek eu "well, good" (see eu-) + karyon "nut, kernel"
34	Prokaryotic	Cell without a nucleus.	Bacteria cell	Eukaryotic	The word prokaryote comes from the Greek πρό (pro, 'before') and κόρυον (karyon, 'nut' or 'kernel'). Prokaryotes are divided into two domains, Archaea and Bacteria
35	Sub-cellular structures	Small structures inside a cell e.g. nucleus	Organelle	Tissue	Sub- under, beneath, cellular – to do with cells.
36	Magnification	A measure of the size of an image compared to the size of the object. Lenses and curved mirrors can produce magnified images.	Zoom	Shrink	Early 15c., magnificacioun, "act or state of making larger," from Old French magnificacion and directly from Late Latin magnificationem.
37	Resolution	The ability to see greater detail in an image depends on the resolution or resolving power. This is the ability to see two points as two points, rather than merged into one.	Detail	Blurring	late Middle English: from Latin resolutio(n- ), from resolvere 'loosen, release' (see resolve).