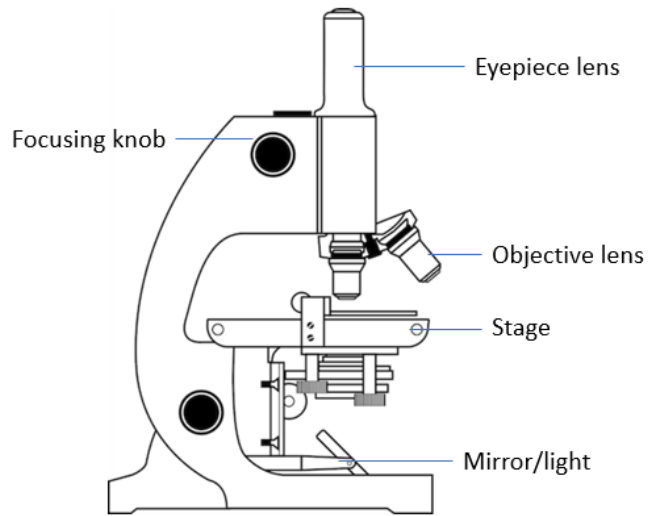


For Science you will complete a recall test in your Biology, Chemistry and Physics lesson. The facts you will be tested on are from your Year 7 learning. Please learn as many of the facts on the attached sheets as possible. This information is also in your Google Classroom.

Year 7 Fact Sheet B1

You need to be able to label the part of a light microscope.
 Know that the eyepiece lens is where the viewer looks through to see the specimen.
 Know that the objective lens is the part that changes the magnification of the image.
 Know that the stage is where the slide is clipped down.
 Know that the focusing knob is used to make the image clearer.
 Know that the mirror/light enables light to pass through the microscope slide.



Know how to find the total magnification
 e.g. If eyepiece magnification was x10 and objective was x40, total magnification would be x400

Know how to prepare a microscope slide of onion cells:
 Take a thin piece of onion cell tissue and place on a microscope slide.
 Add a couple of drops of water/stain to the tissue.
 Place a cover slip along one edge of the tissue and carefully lower it to cover the tissue.
 Put the slide onto the stage.
 Turn the objective to the lowest magnification.
 Look down the eyepiece.
 Use the focusing knob to see the specimen more clearly.
 Increase the magnification by turning the objective lens to a higher magnification.
 Refocus.

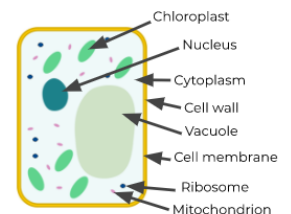
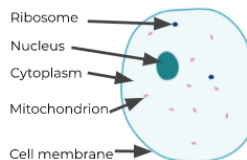
Know that all cells contain:

Cell membrane – which controls what goes in and out of a cell.
 Cytoplasm – jelly like substance where chemical reactions take place.
 Nucleus – Stores genetic information and controls what happens in the cell.

Be able to draw and label a basic plant and animal cell.

Plant cells also contain:

Cell wall – made from cellulose and gives rigid support to cell.
 Vacuole – Contains cell sap and provides support for cell.
 Chloroplast – contains green pigment and is where photosynthesis takes place.



Know that cells are specialised to carry out different functions.

Animal cell example - Sperm cell – needs to swim to egg cell and so has a long tail and lots of mitochondria to carry out this role.

Plant cell example – Root hair cell – collects water from soil for plant and has a large surface area to do this.

Know that: Unicellular organisms have only one cell, these include bacteria.

Multicellular organisms contain many cells.

Cells carrying out the same function are often grouped together into tissues. Different tissues join up to form organs
 Different organs join up to form organ systems Different organ systems make up whole organisms.

C3 Factsheet for revision: Chemical reactions and energetics

1. All substances are made up of atoms.
2. Elements are materials that only contain one **type** of atom.
3. Compounds are materials that contain **more than one type of atom** chemically bonded together.
4. When atoms are bonded together, they form molecules.
5. Some elements form diatomic molecules e.g. oxygen, O_2
6. Mixtures contain more than one type of material that are not chemically bonded and can be easily separated.
7. Elements are represented by a capital letter or a capital and a lower case letter called symbols, for example Fe is iron and N is nitrogen.
8. Compounds are represented by formulae; these show the types and numbers of atoms in each molecule, for example H_2O is water, it contains 2 atoms of hydrogen and 1 atom of oxygen.
9. During a chemical reaction, **reactants** change into **products**.
10. Chemical reactions are irreversible and new materials are made.
11. Physical changes are reversible and no new material is made.
12. Changes of state, e.g. evaporation and melting are examples of physical changes.
13. Reactants are the materials used to start a chemical reaction.
14. Products are the materials made in a chemical reaction.
15. This happens when atoms are rearranged.
16. A chemical reaction can be shown as a word equation or as a symbol equation
Eg. Magnesium + Oxygen Magnesium oxide (WORD EQUATION)
 $2 Mg + O_2$ $2 MgO$ (SYMBOL EQUATION)
17. **Combustion** is a chemical reaction with oxygen as a reactant. It causes a flame.
18. **Thermal decomposition** is a process of splitting compounds by heating.
19. **Oxidation** is a chemical reaction where oxygen is gained.
20. **Products** called **oxides** are formed in oxidation reactions.
21. The mass increases when a metal is oxidised as oxygen atoms attach to the metal.
22. Mass is conserved in a chemical reaction (it stays the same as no atoms are gained or lost- they are just rearranged. This is called Conservation of Mass.
23. Some substances form products that are gases when they burn so their mass appears to decrease.
24. An **acid** is a substance that has a pH of less than 7
25. An **alkali** is a substance with a pH of more than 7.
26. A **neutralisation** reaction occurs when an acid and an alkali make a salt and water.

Facts from C1 and C2 to learn for the test

1. The melting point of a substance is when it changes from a solid state to a liquid state eg pure H₂O changes from ice to water at 0°C.
2. The boiling point of a substance is when it changes from a liquid state to a gas state eg pure H₂O changes from water to water vapour at 100°C.
3. Melting solid to liquid; Boiling liquid to gas; Condensing gas to liquid; Freezing Liquid to solid; (EXTENSION: Sublimation solid to gas; Deposition gas to solid).
4. Mixtures, or impure substances, contain two or more different substances that are not chemically joined together.
5. In mixtures:
 - Solute** - the solid that is being dissolved eg table salt
 - Solvent** - the liquid the solute is being dissolved in eg water
 - Solution** - the liquid that is formed when the solute has dissolved in the solvent eg salt water.
 - Concentration** tells us how much solute is dissolved in the solvent and is measured in g/dm³.
 - Saturation point is reached when no more solute will dissolve in the solvent.**
6. Mixtures can be separated by physical methods:
 - Filtration** - to separate an insoluble solid from a liquid eg sand from sand and water.
 - Evaporation** - to separate a solute from a solvent eg salt from salt water.
 - Distillation** - to separate and collect a solvent from the solute eg water from salt water
 - Fractional distillation** - to separate two miscible liquids which have different boiling points eg ethanol and water.
 - Chromatography** - to separate two or more compounds which can dissolve in the same solvent. Eg separating 2 colours in ink.

P3 Physics Electricity

Conductors	Charges (electrons) can move from atom to atom in an electrical conductor (e.g. copper).
Insulators	Materials that don't have this ability are described as electrical insulators.
Current	When all the free moving charges are made to move in the same direction an electric current is formed.
	A complete circuit including a power supply or battery/cell is required for current to flow.
Components	Electrical components found in circuits can be identified in diagrams from their coded symbols.
Series circuit	Circuits where current (flowing charges) can only follow one path are described as series circuits.
Parallel Circuit	Circuits which branch and allow more than one path to be followed by current are described as parallel circuits.
Potential difference	Potential difference provides the energy required for current to flow and is measured in volts (v).
Resistance	Resistance is a measure of how difficult it is for current to flow and is measured in ohms (Ω).
	The relationship between current, potential difference (voltage) and resistance is described as: <i>potential difference = current \times resistance</i> mathematically.
	For a fixed resistor the current flowing is proportional to the potential difference.
Static electricity	Objects can become charged with static electricity through the action of friction.
Transferring charge	Friction can transfer charges (electrons) from or to objects.
Charged	If an object loses electrons it becomes positively charged. If it gains electrons it becomes negatively charged.
Repulsion and Attraction	Objects with the same charge repel each other, whereas objects with opposite charge are attracted to each other.

Learn these common circuit symbols.

