



## SWGS KS3 VOCABULARY LIST: SCIENCE

This list consolidates key vocabulary in the subject, making it easier for you to know, understand and use it accurately. This may be provided as a pre-filled glossary or a word list to complete. Your teachers will use this vocabulary frequently, and you will encounter it in reading. You will be expected to learn meanings and spellings.

### Working Scientifically

|                             |                                                                                                                                                                          |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Accuracy</b>             | A measure of the closeness of agreement between an individual test result and the true value.                                                                            |
| <b>Anomaly</b>              | A value in a set of results that is judged not to be part of the inherent variation.                                                                                     |
| <b>Control Variables</b>    | The quantities that are kept the same in an investigation                                                                                                                |
| <b>Dependent Variable</b>   | The quantity that is measured in an investigation                                                                                                                        |
| <b>Fair test</b>            | An experiment in which all relevant control variables are identified and kept the same                                                                                   |
| <b>Independent Variable</b> | The quantity that is changed in an investigation                                                                                                                         |
| <b>Precision</b>            | The closeness of agreement between independent measurements obtained under the same conditions.                                                                          |
| <b>Repeatability</b>        | The precision obtained when measurement results are produced over a short timescale by the same group using the same equipment in the same place.                        |
| <b>Reproducibility</b>      | The precision obtained when measurement results are produced over a wider timescale by different people using equivalent equipment in different (but equivalent) places. |
| <b>Resolution</b>           | The smallest change in the quantity being measured that can be detected by an instrument.                                                                                |
| <b>Trend line</b>           | A straight or curved line drawn on a graph to show the overall pattern of the data                                                                                       |
| <b>Uncertainty</b>          | An estimate attached to a measurement which characterises the range of values within which the true value is asserted to lie.                                            |
| <b>Valid</b>                | The conclusions that can be drawn from an experiment are valid if the method makes sure that the effects observed and measured are due to the cause claimed.             |

## Safety

|                              |                                                                                                         |
|------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Apparatus</b>             | Technical equipment required for a particular activity.                                                 |
| <b>Blue flame</b>            | Produced when the air hole in the Bunsen burner is open.                                                |
| <b>Safety (yellow) flame</b> | Produced when the air hole in the Bunsen burner is closed.                                              |
| <b>Precautions</b>           | Actions to reduce a risk.                                                                               |
| <b>Remedial actions</b>      | Action to follow to correct a problem.                                                                  |
| <b>Hazard Symbols</b>        | A sign that represents risks associated with materials used in the lab.                                 |
| <b>Flammable</b>             | A substance which can easily catch fire.                                                                |
| <b>Toxic</b>                 | Poisonous if swallowed or inhaled.                                                                      |
| <b>Oxidising</b>             | These materials give away oxygen so that other materials can burn.                                      |
| <b>Corrosive</b>             | Could burn the skin and damage the eyes. Avoid inhalation.                                              |
| <b>Inhale</b>                | To breathe in.                                                                                          |
| <b>Acid</b>                  | pH lower than 7. Universal indicator shows it by the colour red.                                        |
| <b>Alkali</b>                | pH higher than 7. Universal indicator shows it by the colour purple.                                    |
| <b>Universal Indicator</b>   | Indicator used to show how acidic or alkaline a solution is by colour (red = acidic, purple = alkaline) |

## Biology Topics

### 1. Cells (Year 7)

|                            |                                                                                                               |
|----------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Cell</b>                | The basic unit of living organisms.                                                                           |
| <b>Cell membrane</b>       | Cell structure which controls substances entering and leaving the cell.                                       |
| <b>Cell Wall</b>           | Cell structure found only in plants which gives the cell its shape and prevents it from bursting.             |
| <b>Chloroplast</b>         | Cell structure found only in plants which carries out photosynthesis.                                         |
| <b>Cytoplasm</b>           | Cell structure which is the site of chemical reactions.                                                       |
| <b>Diffusion</b>           | Particles moving from an area of high concentration to low concentration.                                     |
| <b>Electron Microscope</b> | A type of microscope using electron beams in place of light to produce a magnified image of an object.        |
| <b>Hand Lens</b>           | A magnifying glass used to produce a magnified image of an object.                                            |
| <b>Light Microscope</b>    | A piece of equipment which uses visible light and a series of lens to produce an enlarged image of an object. |
| <b>Magnification</b>       | The number of times larger an image is than the object.                                                       |
| <b>Nucleus</b>             | Cell structure (organelle) which contains DNA and controls cell activities.                                   |
| <b>Partially permeable</b> | Only lets certain substances pass through (some will be too big).                                             |
| <b>Specialised Cells</b>   | Cells which have a specific function and often have features/structures which help them do their job.         |
| <b>Tissue</b>              | A group of similar cells working together to carry out a particular job.                                      |
| <b>Vacuole</b>             | Cell structure found only in plants which contains cell sap.                                                  |

### 2. Reproduction (Year 7)

|                      |                                                                                                           |
|----------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Anther</b>        | The part of a flower that produces pollen.                                                                |
| <b>Carpel</b>        | The female reproductive part of the flower.                                                               |
| <b>Cervix</b>        | The ring of muscle at the entrance to the uterus, keeping the baby in place whilst the woman is pregnant. |
| <b>Ejaculation</b>   | Where semen is released from the penis.                                                                   |
| <b>Embryo</b>        | A ball of cells that forms when the fertilised egg divides.                                               |
| <b>Fertilisation</b> | The process where the nucleus of a sperm cell fuses with the nucleus of an egg cell.                      |
| <b>Foetus</b>        | The name given to an unborn baby from 8 weeks of development during pregnancy.                            |
| <b>Filament</b>      | The part of a flower that holds up the anther.                                                            |
| <b>Amniotic Sac</b>  | A fluid filled sac that acts as a shock absorber to help protect a foetus during pregnancy.               |

|                           |                                                                                                                                                                                   |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Fruit</b>              | Part of a plant that contains seeds.                                                                                                                                              |
| <b>Gametes</b>            | The sex cells. In humans, the male gamete is a sperm cell and the female gamete is an egg cells.                                                                                  |
| <b>Germination</b>        | Where a seed starts to grow and develop into a seedling.                                                                                                                          |
| <b>Menstrual Cycle</b>    | A cycle where the uterus lining thickens, and then breaks down and leaves the body if an egg cell is not fertilised.                                                              |
| <b>Menstruation</b>       | Part of the menstrual cycle, where the uterus lining breaks down.                                                                                                                 |
| <b>Ovary (plant)</b>      | The part of a flower that contains ovules.                                                                                                                                        |
| <b>Oviduct</b>            | A tube that carries the egg to the uterus.                                                                                                                                        |
| <b>Ovulation</b>          | Part of the menstrual cycle, where the egg is released from an ovary.                                                                                                             |
| <b>Ovule</b>              | The female gamete of a plant.                                                                                                                                                     |
| <b>Penis</b>              | The structure that carries sperm and semen out of the body.                                                                                                                       |
| <b>Petal</b>              | Usually brightly coloured (but not always) part of the flower that attracts insects.                                                                                              |
| <b>Placenta</b>           | Organ formed during pregnancy where substances diffuse between maternal and foetal blood, also acting as a barrier to stop infections and harmful substances reaching the foetus. |
| <b>Pollen</b>             | Male gamete of a plant.                                                                                                                                                           |
| <b>Pollination</b>        | The transfer of pollen from the anther to the stigma.                                                                                                                             |
| <b>Puberty</b>            | A period of time where changes take place during adolescence, and the individual reaches sexual maturity.                                                                         |
| <b>Reproduction</b>       | The process by which new individual organisms (offspring) are produced from their parent(s).                                                                                      |
| <b>Scrotum</b>            | The bag of skin that holds the testes.                                                                                                                                            |
| <b>Seed</b>               | The structure that develops into a new plant.                                                                                                                                     |
| <b>Seed Dispersal</b>     | The movement of seeds away from the parent plant, with methods including wind, animal and burial.                                                                                 |
| <b>Semen</b>              | Fluid contains sperm and nutrients.                                                                                                                                               |
| <b>Sepal</b>              | Part of the flower, protecting unopened buds.                                                                                                                                     |
| <b>Sexual Intercourse</b> | The process where the penis releases semen into the vagina.                                                                                                                       |
| <b>Sperm Cell</b>         | A cell containing male genetic material.                                                                                                                                          |
| <b>Sperm Duct</b>         | A tube that carries sperm from the testes to the penis.                                                                                                                           |
| <b>Stamen</b>             | The male reproductive part of the flower.                                                                                                                                         |
| <b>Stigma</b>             | The part of a flower, that is sticky to catch grains of pollen.                                                                                                                   |
| <b>Style</b>              | The part of the flower that holds up the stigma.                                                                                                                                  |
| <b>Testes</b>             | Structure that produces sperm and the male sex hormones.                                                                                                                          |
| <b>Umbilical Cord</b>     | Connects the foetus to the placenta during pregnancy.                                                                                                                             |
| <b>Urethra</b>            | A tube that carries urine (and sperm in males) out of the body.                                                                                                                   |
| <b>Uterus</b>             | Where the baby develops until birth.                                                                                                                                              |
| <b>Vagina</b>             | The passage below the cervix where the baby will come out during a vaginal birth delivery.                                                                                        |

### 3. Beautiful Bodies (Year 8)

|                                  |                                                                                                                                                                        |
|----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Absorption</b>                | Where a substance is taken in by something or moved across a barrier, e.g. a cell membrane.                                                                            |
| <b>Aerobic respiration</b>       | A chemical reaction which releases energy using glucose and oxygen to produce carbon dioxide and water.                                                                |
| <b>Amylase</b>                   | An enzyme which breaks starch molecules into glucose                                                                                                                   |
| <b>Antagonistic muscles</b>      | A pair of muscles acting on one joint. When one muscle contracts, the other muscle relaxes.                                                                            |
| <b>Arteries</b>                  | Carry blood away from the heart. They have thick walls as the blood is under high pressure.                                                                            |
| <b>Biomechanics</b>              | The interaction between skeleton and muscles.                                                                                                                          |
| <b>Cancer</b>                    | Where abnormal cells uncontrollably grow and multiply.                                                                                                                 |
| <b>Capillaries</b>               | Very small blood vessels connecting arteries to veins. Their wall is only one cell thick which allows for oxygen and sugar to leave blood and enter surrounding cells. |
| <b>Carbohydrase</b>              | An enzyme that breaks down starch (carbohydrates) during digestion into sugars such as glucose.                                                                        |
| <b>Cartilage</b>                 | Cushions the end of the bone and helps them to slide over each other.                                                                                                  |
| <b>Catalyst</b>                  | Something that speeds up the rate of a reaction without getting used up.                                                                                               |
| <b>Chemical digestion</b>        | The breaking down of large, insoluble food molecules into small, soluble food molecules by enzymes.                                                                    |
| <b>Combustion</b>                | The reaction between a fuel and oxygen resulting in the produces carbon dioxide and water.                                                                             |
| <b>Deficiency</b>                | Too little or too much of a particular nutrient.                                                                                                                       |
| <b>Digestion</b>                 | The breakdown of food into smaller substances that our bodies can absorb and use.                                                                                      |
| <b>Double circulatory system</b> | Where blood passes through the heart twice in any one cycle.                                                                                                           |
| <b>Enzyme</b>                    | A biological catalyst.                                                                                                                                                 |
| <b>Exhalation</b>                | The process of breathing out.                                                                                                                                          |
| <b>Gas exchange</b>              | Process where oxygen is transferred into the blood and carbon dioxide moves out of the blood.                                                                          |
| <b>Inhalation</b>                | The process of breathing in.                                                                                                                                           |
| <b>Joints</b>                    | Part of the skeleton which allow for movement. The main types are hinge, pivot, fixed, gliding and ball and socket.                                                    |
| <b>Ligament</b>                  | Connects bone to bone.                                                                                                                                                 |
| <b>Lipase</b>                    | An enzyme that breaks down fats and oils (lipids) into fatty acids and glycerol.                                                                                       |
| <b>Muscle</b>                    | A band of tissue in an animal body that has the ability to contract, producing movement in or maintaining the position of parts of the body                            |
| <b>Obesity</b>                   | Abnormal or excessive fat accumulation that presents a risk to health. The person is very overweight.                                                                  |
| <b>Physical digestion</b>        | The breaking down of large pieces of food into smaller pieces, increasing the surface area, ready for the action of enzymes.                                           |

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|--------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Protease</b>    | An enzyme which breaks down proteins into amino acids. These can be used to make other useful proteins.                  |
| <b>Skeleton</b>    | Support structure for an organism. It provides support, allows for movement, gives protection and makes red blood cells. |
| <b>Tendon</b>      | Connects muscle to the bone.                                                                                             |
| <b>Veins</b>       | Carries blood back to the heart. Compared to arteries, they have thinner walls.                                          |
| <b>Ventilation</b> | The movement of air between the environment and the lungs.                                                               |

#### 4. Earth Cycles (Year 8)

|                          |                                                                                                                                                                                                                                                                                                |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Chlorophyll</b>       | green pigment found within chloroplast in plant cells. Chlorophyll absorbs light energy.                                                                                                                                                                                                       |
| <b>Digestion</b>         | chemical and physical process by which large food molecules are broken down into small soluble ones in order to make them capable of being absorbed into the blood                                                                                                                             |
| <b>Egestion</b>          | removal of undigested parts of food from the body                                                                                                                                                                                                                                              |
| <b>Excretion</b>         | removal of waste products from chemical reactions from the body                                                                                                                                                                                                                                |
| <b>Food chain</b>        | show the flow of energy from one organism to another.                                                                                                                                                                                                                                          |
| <b>Food web</b>          | network of interconnected food chains. It shows the energy flow through part of an ecosystem                                                                                                                                                                                                   |
| <b>Fossil</b>            | are the remains of plants and animals that lived long ago.                                                                                                                                                                                                                                     |
| <b>Fossil fuel</b>       | natural resources formed from the remains of plants and animals that died millions of years ago and decomposed in anaerobic conditions (without oxygen).                                                                                                                                       |
| <b>Gas exchange</b>      | process by which gases such as $\text{CO}_2$ and $\text{O}_2$ diffuse in and out of the leaf through the stomata.                                                                                                                                                                              |
| <b>Global dimming</b>    | substantial declines in the amount of the sun's energy reaching the Earth's surface due to air pollution from human activity.                                                                                                                                                                  |
| <b>Global warming</b>    | Global warming is the gradual increase in the average surface temperature of the Earth due to human activity.                                                                                                                                                                                  |
| <b>Greenhouse gases</b>  | gases such as carbon dioxide ( $\text{CO}_2$ ), methane ( $\text{CH}_4$ ), nitrous oxide ( $\text{N}_2\text{O}$ ), and industrial ones that trap escaping thermal energy. This causes some of the thermal energy to return to the surface and warm it up. This is called the greenhouse effect |
| <b>Guard cell</b>        | specialised plant cells that control what comes in and out of the leaves.                                                                                                                                                                                                                      |
| <b>Igneous rocks</b>     | formed from the cooling of molten rock. Molten rock is rock that has been heated to such a high temperature that it melts into a liquid.                                                                                                                                                       |
| <b>Locked-up carbon</b>  | $\text{CO}_2$ that has been taken out from the atmosphere and has been trapped inside oceans, sedimentary rocks etc                                                                                                                                                                            |
| <b>Metamorphic rocks</b> | rocks that have been exposed to tremendous heat and/or pressure, causing them to change into another type of rock.                                                                                                                                                                             |
| <b>Photosynthesis</b>    | is a chemical reaction that takes place inside plants' leaves, producing food for the plant to survive. Carbon dioxide, water, and light are all needed for photosynthesis to take place.                                                                                                      |
| <b>Respiration</b>       | is a chemical reaction which takes place in all living cells and releases energy from glucose.                                                                                                                                                                                                 |
| <b>Sedimentary rocks</b> | sediments that have settled at the bottom of a lake, sea or ocean, and have been compressed over millions of years.                                                                                                                                                                            |
| <b>Stoma</b>             | pores found in the epidermis of leaves and other parts of the plant. Gases get in and out of the leaf through the stomata.                                                                                                                                                                     |

|                   |                                                                                                                                                          |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Weathering</b> | deterioration of rocks, soils and minerals through contact with water, atmospheric gases, and biological organisms. Weathering occurs in situ (on-site). |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|

## Chemistry Topics

### 1. Particles (Year 7)

|                         |                                                                                                               |
|-------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Alloy</b>            | A mixture of two or more elements, at least one of which is a metal.                                          |
| <b>Aqueous solution</b> | A solution in which the solvent is water.                                                                     |
| <b>Boil</b>             | To change state from the liquid state to the gas state.                                                       |
| <b>Boiling point</b>    | The temperature at which a substance changes from the liquid state to the gas state.                          |
| <b>Concentrated</b>     | A solution with a relatively high amount of solute.                                                           |
| <b>Concentration</b>    | A measure of the amount of dissolved solute present in a solution.                                            |
| <b>Condense</b>         | To change from the gas state to the liquid state.                                                             |
| <b>Contraction</b>      | When a substance decreases in size.                                                                           |
| <b>Density</b>          | Mass per unit volume, measured in g/cm <sup>3</sup> or kg/m <sup>3</sup> .                                    |
| <b>Diffusion</b>        | Net movement of particles from a place where they are in a high concentration, to one at a low concentration. |
| <b>Dilute</b>           | A solution with a relatively low amount of solute.                                                            |
| <b>Dissolve</b>         | The process in which a solute and solvent mix completely to form a solution.                                  |
| <b>Evaporate</b>        | When a substance turns from the liquid state to the gas state at a temperature below the boiling point.       |
| <b>Expansion</b>        | When a substance increases in size.                                                                           |
| <b>Filtrate</b>         | Liquid that passes through the filter during filtration.                                                      |
| <b>Filtration</b>       | The process by which insoluble substances are separated from soluble substances using a filter.               |
| <b>Freeze</b>           | To change from the liquid state to the solid state.                                                           |
| <b>Impure substance</b> | Material consisting of two or more different elements and/ or compounds.                                      |
| <b>Insoluble</b>        | Describes a substance that will not dissolve.                                                                 |
| <b>Matter</b>           | Anything that has mass.                                                                                       |
| <b>Melt</b>             | To change from the solid state to the liquid state.                                                           |
| <b>Melting point</b>    | The temperature at which a substance changes from the solid state to the liquid state.                        |
| <b>Mixture</b>          | Material consisting of two or more different substances, not chemically joined together.                      |
| <b>Model</b>            | A description, analogy, or equation that helps you to explain the physical world.                             |
| <b>Particle</b>         | Tiny piece of matter such as an atom, ion, or molecule.                                                       |
| <b>Particle model</b>   | Scientific idea used to explain the properties of solids, liquids and gases.                                  |
| <b>Pressure</b>         | Force per unit area.                                                                                          |

|                       |                                                                                  |
|-----------------------|----------------------------------------------------------------------------------|
| <b>Pure substance</b> | Consisting of just one element or compound.                                      |
| <b>Purity</b>         | A measure of how pure a substance is.                                            |
| <b>Residue</b>        | The insoluble material left behind during filtration.                            |
| <b>Saturated</b>      | A solution containing the maximum mass of solid at a given temperature.          |
| <b>Solubility</b>     | A measure of how much solute can dissolve in a solvent at a certain temperature. |
| <b>Soluble</b>        | A substance that will dissolve in a given solvent.                               |
| <b>Solute</b>         | Substance that dissolves in a solvent                                            |
| <b>Solution</b>       | A mixture formed when one substance dissolves in a liquid.                       |
| <b>Solvent</b>        | A substance that can dissolve a solute to form a solution.                       |
| <b>Sublime</b>        | To change state directly from the solid state to the gas state.                  |
| <b>Vapour</b>         | A substance in its gas state but below its boiling point.                        |

## 2. Atoms (Year 7)

|                               |                                                                                         |
|-------------------------------|-----------------------------------------------------------------------------------------|
| <b>Atom</b>                   | Smallest particle of an element.                                                        |
| <b>Compound</b>               | Two or more different atoms chemically bonded together                                  |
| <b>Covalent bond</b>          | When two atoms share a pair of electrons                                                |
| <b>Electron</b>               | Subatomic particle surrounding the nucleus of an atom with a relative charge of 1-      |
| <b>Electron configuration</b> | The arrangement of electrons in an atom                                                 |
| <b>Element</b>                | Substance whose atoms all have the same atomic number                                   |
| <b>Formula</b>                | The ratio or exact number of each type of atom within a chemical substance              |
| <b>Ion</b>                    | Charge particle                                                                         |
| <b>Ionic bond</b>             | Electrostatic force of attraction between oppositely charged ions                       |
| <b>Metallic bond</b>          | Electrostatic force of attraction between delocalised electrons and positive metal ions |
| <b>Molecule</b>               | Particle consisting of two or more atoms chemically joined together by covalent bonds   |
| <b>Neutron</b>                | Subatomic particle found in the nucleus of an atom with a relative charge of 0          |
| <b>Nucleus</b>                | Positively charged central part of an atom, made up of protons and neutrons             |
| <b>Proton</b>                 | Subatomic particle found in the nucleus of an atom with a relative charge of 1+         |
| <b>Subatomic</b>              | Particle found inside an atom                                                           |

### 3. Chemical Changes (Year 8)

|                            |                                                                                                                                                                               |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Acid</b>                | Turns universal indicator red and has a pH less than 7.                                                                                                                       |
| <b>Alkali</b>              | Turns universal indicator purple and has a pH greater than 7.                                                                                                                 |
| <b>Blue litmus paper</b>   | Used to identify acids and alkalis. An acid would make it go red.                                                                                                             |
| <b>Cobalt chloride</b>     | Used to test for presence of water. A positive result would be the paper changing from blue to pink.                                                                          |
| <b>Compound</b>            | A substance containing two or more different atoms                                                                                                                            |
| <b>Element</b>             | A substance containing only one type of atom                                                                                                                                  |
| <b>Indicator</b>           | A special chemical that changes to a different colour in an acid or an alkali.                                                                                                |
| <b>Lime water</b>          | Used to test for presence of carbon dioxide. Positive result would be lime water going cloudy.                                                                                |
| <b>Metal carbonate</b>     | A compound containing metal, carbon and oxygen atoms                                                                                                                          |
| <b>Metal oxide</b>         | A compound containing metal and oxygen atoms                                                                                                                                  |
| <b>Methyl orange</b>       | An indicator used to identify acids and alkalis where it would go red in presence of acid and be yellow/orange if an alkali was present.                                      |
| <b>Model</b>               | Diagram or three-dimensional object that makes an idea easier to understand                                                                                                   |
| <b>Molecule</b>            | Contains two or more chemically bonded atoms                                                                                                                                  |
| <b>Neutral</b>             | Turns universal indicator green and has a pH of 7                                                                                                                             |
| <b>Neutralisation</b>      | A chemical reaction between an acid and an alkali to produce a neutral solution                                                                                               |
| <b>Phenolphthalein</b>     | Indicator used to identify acids/alkalis. An acid would make it go colourless.                                                                                                |
| <b>Precipitate</b>         | A precipitate is an insoluble product that forms when two solutions are mixed and react together. The reaction that produces a precipitate is called a precipitation reaction |
| <b>Product</b>             | Substance made in a chemical reaction                                                                                                                                         |
| <b>Reactant</b>            | Starting substance in a chemical reaction                                                                                                                                     |
| <b>Red litmus paper</b>    | Used to identify acids and alkalis. An alkali would make it go blue.                                                                                                          |
| <b>Universal Indicator</b> | Used to identify acids and alkalis by the colour produced.<br>(red = strong acid, purple = strong alkali)                                                                     |

### 4. Patterns of Reactivity (Year 8)

|                              |                                                                                     |
|------------------------------|-------------------------------------------------------------------------------------|
| <b>Alloy</b>                 | A mixture of two or more elements, at least one of which is a metal.                |
| <b>Combustion</b>            | The process of burning                                                              |
| <b>Compound</b>              | Substance made up from two or more different types of atom                          |
| <b>Conductor</b>             | A material that can transfer heat / electricity                                     |
| <b>Displacement Reaction</b> | A chemical reaction in which one substance takes the place of another in a compound |

|                          |                                                                                                                                                                               |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ductile</b>           | A material that can be drawn into a wire                                                                                                                                      |
| <b>Element</b>           | Substance made up of only one type of atom                                                                                                                                    |
| <b>Formula</b>           | Chemical symbols and numbers that show which elements, and how many atoms of each, a compound is made up of                                                                   |
| <b>Malleable</b>         | A material that can be hammered into shape                                                                                                                                    |
| <b>Ore</b>               | A naturally occurring solid material from which a metal or valuable mineral can be extracted profitably                                                                       |
| <b>Oxidize</b>           | Combine chemically with oxygen                                                                                                                                                |
| <b>Precipitate</b>       | A precipitate is an insoluble product that forms when two solutions are mixed and react together. The reaction that produces a precipitate is called a precipitation reaction |
| <b>Product</b>           | Substance made in a chemical reaction                                                                                                                                         |
| <b>Rate</b>              | Measure of speed or the number of times something happens in a set amount of time                                                                                             |
| <b>Rate of Reaction</b>  | A measure of the speed of reaction, for example the number of molecules of product produced over a set time                                                                   |
| <b>Reactant</b>          | Starting substance in a chemical reaction                                                                                                                                     |
| <b>Reactivity</b>        | How vigorously an element reacts in a chemical reaction                                                                                                                       |
| <b>Reactivity series</b> | The ordering of metals by reactivity, with the most reactive at the top                                                                                                       |

## Physics Topics

### 1. Electricity and Magnetism (Year 7)

|                      |                                                                                                                |
|----------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Ammeter</b>       | Device used to measure current in a circuit                                                                    |
| <b>Amp</b>           | The unit for measuring current                                                                                 |
| <b>Battery</b>       | Made up of two or more cells                                                                                   |
| <b>Cell</b>          | Power supply for an electrical circuit (commonly referred to as a battery)                                     |
| <b>Coil</b>          | A single wire that has been looped                                                                             |
| <b>Component</b>     | Part of a circuit                                                                                              |
| <b>Conductor</b>     | A material that allows the transfer of electrical current                                                      |
| <b>Current</b>       | A measure of how much electric charge is flowing in a circuit                                                  |
| <b>Electromagnet</b> | A magnet made from wrapping a coil of wire around an iron bar and passing an electric current through the coil |
| <b>Insulator</b>     | A material that prevents the transfer of electrical current                                                    |
| <b>Lead</b>          | A wire that connects components in a circuit                                                                   |

|                       |                                                                                           |
|-----------------------|-------------------------------------------------------------------------------------------|
| <b>Magnetic Field</b> | Area surrounding a magnet that can exert a force on magnetic materials                    |
| <b>Non-renewable</b>  | Energy resources that cannot be replaced                                                  |
| <b>Ohm</b>            | The unit for measuring resistance                                                         |
| <b>Parallel</b>       | A circuit that consists of more than one path for the current to flow                     |
| <b>Renewable</b>      | Energy sources that will not run out or can be made quicker than they are used            |
| <b>Resistance</b>     | The property of materials that opposes the current                                        |
| <b>Resistor</b>       | Reduces the current by increasing the resistance in a circuit                             |
| <b>Series</b>         | A circuit that consists of one loop only                                                  |
| <b>Switch</b>         | Can turn the circuit on or off                                                            |
| <b>Turn</b>           | A single loop on a coil of wire                                                           |
| <b>Volt</b>           | The unit for measuring voltage                                                            |
| <b>Voltage</b>        | A measure of the 'push' the battery supplies and how much energy the electrons are given. |
| <b>Voltmeter</b>      | Device used to measure voltage in a circuit.                                              |

## 2. Space (Year 7)

|                     |                                                                                                                                    |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>Asteroid</b>     | Large rocky, metallic objects that orbit the Sun between Jupiter and Mars.                                                         |
| <b>Black hole</b>   | These are created after a supernova event and there is one at the centre of every galaxy. We don't know much about them.           |
| <b>Comet</b>        | A space object made of ice, dusty rock and gases.                                                                                  |
| <b>Crater</b>       | A large almost circular bowl-shaped depression caused when a meteorite collides with a solid body in the Solar System.             |
| <b>Day</b>          | Time taken for a planet to spin once on its axis, and it is made up of 'day' and 'night'. For Earth this is 24 hours.              |
| <b>Dwarf Planet</b> | An object in orbit around a star that is not large enough to take a spherical shape or has not cleared its orbit of other objects. |
| <b>Galaxy</b>       | Our galaxy is the Milky Way. It is made up of 100 billion stars. There are 100 billion galaxies in the universe.                   |
| <b>Light year</b>   | A light year is the distance that light travels in one year.                                                                       |
| <b>Meteor</b>       | A rock from outer space that travels at high speeds through the Earth's atmosphere. Often mistaken for a shooting star.            |
| <b>Meteorite</b>    | A piece of meteor that has landed on the Earth's surface.                                                                          |
| <b>Milky Way</b>    | The name given to our galaxy.                                                                                                      |
| <b>Moon</b>         | A naturally occurring object that is in orbit around a planet.                                                                     |

|                     |                                                                                                 |
|---------------------|-------------------------------------------------------------------------------------------------|
| <b>Moon Phase</b>   | The changing shape of the moon that we see dependent on its position relative to us and the Sun |
| <b>Nebula</b>       | The beginning of a star made of a cloud of gas and dust.                                        |
| <b>Orbit</b>        | The route that objects take in their path around other larger objects.                          |
| <b>Planet</b>       | A spherical object in orbit around a star that has cleared its path of other objects            |
| <b>Protostar</b>    | Formed when a section of a nebula becomes hot and generates light.                              |
| <b>Satellite</b>    | An object in orbit around a planet.                                                             |
| <b>Season</b>       | A change in the day length, temperatures and weather patterns due to the tilt of the Earth.     |
| <b>Solar System</b> | Everything that is held by gravity to a star – planets, moons and asteroids                     |
| <b>Supernova</b>    | When large stars collapse in on themselves and then explode                                     |
| <b>Universe</b>     | Made up of all the galaxies – over 100 billion                                                  |
| <b>Year</b>         | The time it takes a planet to complete one orbit of its star. For Earth this is 365.25 days.    |

### 3. Energy Stores and Transfer (Year 8)

|                                       |                                                                                                    |
|---------------------------------------|----------------------------------------------------------------------------------------------------|
| <b>Amplitude</b>                      | The distance between the middle and crest or trough of a wave                                      |
| <b>Chemical energy</b>                | Energy which can be released when a chemical change takes place                                    |
| <b>Compression</b>                    | A region of high pressure in a longitudinal wave                                                   |
| <b>Conduction</b>                     | Transfer of thermal energy through a solid through the vibration of particles or flow of electrons |
| <b>Conservation of Energy</b>         | Law which states that energy cannot be created or destroyed                                        |
| <b>Convection</b>                     | Transfer of thermal energy through a fluid due to changes in density                               |
| <b>Decibel</b>                        | A unit for measuring the loudness of a sound                                                       |
| <b>Dissipation</b>                    | Loss of energy to non-useful stores                                                                |
| <b>Elastic potential energy</b>       | Energy stored in an object that has been stretched or squashed                                     |
| <b>Electromagnetic spectrum</b>       | A group of transverse waves which include infra-red and visible light waves                        |
| <b>Electrostatic energy</b>           | The energy stored between charges                                                                  |
| <b>Frequency</b>                      | The number of complete waves passing a point each second                                           |
| <b>Gravitational potential energy</b> | Energy stored in an object raised above the ground                                                 |

|                        |                                                                                     |
|------------------------|-------------------------------------------------------------------------------------|
| <b>Hertz</b>           | The unit for measuring the frequency of a wave (equivalent to one wave per second)  |
| <b>Incident ray</b>    | The ray of light approaching a boundary between two mediums                         |
| <b>Insulation</b>      | Use of materials that are poor thermal conductors to reduce thermal energy transfer |
| <b>Kinetic energy</b>  | Energy stored in a moving object                                                    |
| <b>Longitudinal</b>    | Vibrations which are parallel to the direction of wave travel                       |
| <b>Magnetic energy</b> | The energy stored between magnetic poles                                            |
| <b>Medium</b>          | A substance that carries a wave                                                     |
| <b>Normal</b>          | A line drawn at right angles to a boundary between two mediums                      |
| <b>Nuclear energy</b>  | The energy stored within the nucleus of an atom                                     |
| <b>Radiation</b>       | Transfer of energy the infra-red waves                                              |
| <b>Rarefaction</b>     | A region of low pressure in a longitudinal wave                                     |
| <b>Reflected ray</b>   | The ray of light reflected at a boundary between two mediums                        |
| <b>Refracted ray</b>   | The ray of light transmitted across the boundary between two mediums                |
| <b>Thermal energy</b>  | Energy due to the vibrations of particles within a substance                        |
| <b>Transverse</b>      | Vibrations which are at right-angles to the direction of wave travel                |
| <b>Wave</b>            | Transfer of energy through vibrations without the transfer of matter                |
| <b>Wavelength</b>      | The distance between identical points on a wave                                     |

#### 4. Force and Motion (Year 8)

|                            |                                                                                       |
|----------------------------|---------------------------------------------------------------------------------------|
| <b>Accelerate</b>          | To increase in speed                                                                  |
| <b>Air resistance</b>      | The force created as an object moves through the air and displaces air particles      |
| <b>Contact force</b>       | A force exerted when objects are touching                                             |
| <b>Decelerate</b>          | To decrease in speed                                                                  |
| <b>Density</b>             | The amount of matter in a given volume                                                |
| <i>Displaced</i>           | Moved out of the way                                                                  |
| <b>Drag</b>                | The force created to oppose motion through a fluid                                    |
| <b>Equilibrium</b>         | When there is zero resultant force acting on an object                                |
| <i>Exerted</i>             | Applied or used                                                                       |
| <b>Force</b>               | A push or a pull on an object which occurs due to the interaction with another object |
| <b>Friction</b>            | A force between surfaces which opposes motion                                         |
| <b>Gradient</b>            | The slope of a graph                                                                  |
| <b>Gravitational field</b> | The area around a mass in which a second mass experiences a force                     |
| <b>Mass</b>                | The amount of matter in an object                                                     |

|                          |                                                                        |
|--------------------------|------------------------------------------------------------------------|
| <b>Newton</b>            | The unit of force                                                      |
| <b>Non-contact force</b> | A force <i>exerted</i> from a distance                                 |
| <b>Pascal</b>            | The unit of pressure                                                   |
| <b>Pressure</b>          | The force exerted per unit area                                        |
| <b>Reaction</b>          | The force from a surface which balances the push from a second surface |
| <b>Resultant force</b>   | The overall force acting on object                                     |
| <b>Speed</b>             | The rate at which something moves                                      |
| <b>Upthrust</b>          | The upwards force created when a fluid is <i>displaced</i>             |
| <b>Weight</b>            | The force on a mass placed in a gravitational field                    |