Physics

Area: Area is the amount of surface enclosed within the boundary lines.

Dispersion: This is the splitting up of white light into separate colours. It can be done by passing white light through a prism.

Energy: Energy is the ability to do work.

Equilibrium: An object that is balanced is said to be in equilibrium.

Force, F: A force is that which causes a change in the velocity of an object.
Unit: Newton, N
Formula: Force = Mass x Acceleration ($F = ma$)

Freezing: This is the changing of a liquid to a solid state.

Frequency, f: This is the number of waves that pass a particular point in one second.

Friction: This is a force which opposes motion between two objects in contact.

Fuse: A fuse is a safety device in an electric circuit. If the current gets too high the wire in the fuse melts which breaks the circuit switching off the current.

Galaxy: A large group of stars held together by its own gravity.

Heat: Heat is a form of energy.
Unit: Joules, J

Insulator: This is a substance, which does not allow heat to flow through easily.

Latent heat: This is the heat absorbed or released when a substance changes state without changing temperature.

Law of conservation of energy: Energy cannot be created or destroyed but can be converted from one form to another.

Law of the lever: When a lever is balanced the sum of the clockwise moments is equal to the sum of the anti clockwise moments.

Lever: A lever is a rigid body, which is free to turn about a fixed point called the fulcrum.

Light: Light is a form of energy.

Loudness: The loudness of a sound depends on the amplitude

Lubricant: A lubricant is a substance capable of reducing friction.

Luminous: A luminous object is an object that gives out light.

Lunar eclipse: This happens when the earth passes between the sun and the moon.

Magnetic field: A space around a magnet in which the magnetism can be detected.

Mass, m: The mass of an object is the quantity of matter in it.

Melting: This is the changing of a solid to a liquid state.

Moment: This is a measure of the turning effect of a force.
Formula:
Moment of a force = Force x Perpendicular distance from the fulcrum.

Newton's third law of motion: For every action there is an equal but opposite reaction.

Ohm's law: At constant temperature the voltage across a conductor is proportional to the current flowing through it.
Formula: Voltage = Current x Resistance ($V = IR$)

Pitch: The pitch of a sound is how high or low it is. It depends on the frequency of the wave.

Potential difference: Potential difference is also called voltage. It is the force, which moves the electrons around the circuit.
Unit: Volt (V)

Power: This is the rate at which energy is converted from one form to another.
Unit: Watts (W)
Formula: Power = Voltage x Current ($P = VI$)

Pressure: Pressure is force per unit area.
Formula: $\text{Pressure} = \frac{\text{Force}}{\text{Area}} \left(P = \frac{F}{A} \right)$
Unit: N/m^2 or Pascal (Pa)

Primary colours: The primary colours are red, green and blue. When the three of these colours are combined it results in white.
Red + Green + Blue = White

Radiation: This is the transfer of heat by means of invisible rays, which travel outwards from the hot object, without needing a medium.

Rectifier: This is used to convert alternating current to direct current.

Reflection: The reflection of light is the bouncing back of light from a surface.

Refraction: The refraction of light is the bending of light as it passes from one medium to another.

Resistance, R: The opposition of a conductor to current is called its resistance. A good conductor has a low resistance and a bad conductor has a high resistance.

Secondary colours: A secondary colour is formed when two primary colours are mixed. The three secondary colours are yellow, magenta and cyan.
Red + **Green** = **Yellow**
Red + **Blue** = **Magenta**
Blue + **Green** = **Cyan**

Solar eclipse: This happens when the moon passes between the sun and the earth.

Sound: Sound is a form of energy.

Speed, v: Speed is the distance travelled per unit time.
Formula: $\text{Speed} = \frac{\text{Distance}}{\text{Time}} \quad \left(v = \frac{s}{t}\right)$
Unit: m/s

Stable equilibrium: A body is in stable equilibrium if when slightly moved its centre of gravity rises.

Sublimation: This is the changing of a solid directly to a gas.
(Iodine is an example of a substance that sublimes).

Temperature: This is a measure of how hot an object is.
Unit: degrees Celsius ($^{\circ}C$)

Unstable equilibrium: A body is in unstable equilibrium if when slightly moved its centre of gravity falls.

Velocity: Speed in a given direction.
Units: m/s

Volume: The volume of an object is the amount of space it takes up.

Wave: A wave is a means of transferring energy from one point to another.
Formula: Velocity = Frequency x Wavelength $(v = f \times \lambda)$

Wavelength: The wavelength of a wave is the distance between any two successive crests.

Weight: Weight is the force of gravity on an object.
Formula: Weight = Mass x Acceleration due to gravity

Chemistry

Acid rain: Rainwater with a pH of less than 5.7 is acid rain. It is caused by the gases NO_2 (from car exhaust fumes) and SO_2 (from the burning of fossil fuels) dissolving in rain. Acid rain kills fish, kills trees, and destroys buildings and lakes.

Acid: An acid is a proton donor. It turns litmus red.

Activity Series: The activity series is a list of metals in order of decreasing reactivity.

Alkali metals: These are the elements in group one in the periodic table.

Alkaline earth metals: These are the elements in group two in the periodic table.

Alloy: An alloy is a mixture of metals. Bronze is an example of an alloy it is formed from copper and tin.

Atom: An atom is the smallest part of an element, which can exist.

Atomic number: The atomic number of an atom is the number of protons in the nucleus of the atom.

Base: A base is a proton acceptor. It turns litmus blue.

Capillarity: This is the rising of liquids up a narrow tube.

Chemical change: A chemical change is one in which there is a new substance formed.

Cobalt chloride paper: This paper is used to test for water. If water is present it changes colour from blue to pink.

Combustion: Combustion is also called burning. This is the combining of a substance with oxygen.

Compound: A compound is a substance made up of two or more elements chemically combined.

Corrosion: Corrosion is an undesired process where a metal is converted to one of its compounds, e.g. rusting.

Covalent bond: A covalent bond is a force of attraction between two atoms as a result of their sharing of electrons.

Distillation: The vaporisation of a liquid by heating and then the condensation of the vapour by cooling.

Dry cell: This is a battery in which the electrolyte is in the form of a paste.
Ductile: Metals are ductile. This means they can be pulled out to form wires.

Electrode: An electrode is a conductor, which dips into an electrolyte and allows the electrons to flow to and from the electrolyte.

Electrolysis: This is the production of a chemical change using electricity. Electrolysis can be used to split up water into hydrogen and oxygen.

Electrolyte: An electrolyte is a substance which when dissolved in water conducts electricity.

Electroplating: This is where a metal is covered with a layer of another metal using electricity.

Element: An element is a substance, which cannot be split up into simpler substances by chemical means.

Endothermic reaction: An endothermic reaction is a reaction that takes in heat, e.g. adding water to ammonium chloride.

Exothermic reaction: An exothermic reaction is a reaction that gives out heat, e.g. burning of coal.

Fossil fuels: Fuels that were formed from the remains of plants and animals that lived millions of years ago.

Fuel: A fuel is any substance that burns in oxygen to produce heat.

Halogens: These are the elements in group seven in the periodic table.

Hard water: This is water that finds it difficult to form lather with soap.

Immiscible liquids: These are liquids that do not mix to form a solution, e.g. oil and water.

Indicator: An indicator is a substance, which shows by means of a colour change if a substance is acidic or basic.

Ion Exchange: This is a method of removing hardness from water. It replaces the positive ions that cause the hardness with H+ ions.

Ion: An ion is a charged atom or group of atoms, e.g. Na+.

Ionic bond: An ionic bond is a force of attraction that occurs between oppositely charged ions in a compound. It results from a transfer of electrons.

Joule: This is the unit of energy and work.

Malleable: Metals are malleable. This means they can be hammered into sheets.

Mass number: The mass number of an atom is the number of protons and neutrons in the nucleus of the atom.

Matter: Matter is anything which occupies space and has mass.

Miscible liquids: These are liquids that mix to form a solution, e.g. alcohol and water.

Mixture: A mixture consists of two or more different substances mingled together but not chemically combined.

Molecule: A molecule consists of two or more atoms chemically combined.

Neutralisation: This is the reaction between an acid and a base to give salt and water.

Octet rule: During bonding atoms tend to reach an electron arrangement with eight electrons in the outermost shell.

Oxidation: Oxidation is the addition of oxygen or the losing of electrons.

pH scale: This is a scale from 0 to 14.
If the pH of a solution is 7 it is neutral; if the pH of a solution is less than 7 it is acidic; if the pH of a solution is greater than 7 it is basic.

Permanent hardness: This is hardness in water that cannot be removed by boiling. It is caused by calcium sulphate.

Physical change: A physical change is one in which there is no new substance formed.

Products: These are the chemicals that are produced in a chemical reaction.

Reactants: These are the chemicals that react together in a chemical reaction.

Reduction: Reduction is the removal of oxygen or the gaining of electrons.

Salt: A salt is formed when the hydrogen of an acid is replaced by a metal.

Saturated Solution: A solution, which contains as much solute as it can hold at that temperature.

Solution: A solution is a mixture of a solute (usually a solid) and a solvent (usually a liquid).

Suspension: A suspension is a mixture of a liquid and a finely divided insoluble solid.

Temporary hardness: This is hardness in water that can be removed by boiling. It is caused by calcium hydrogencarbonate.

Titration: This is the process of adding one solution from a burette, to a measured amount of another solution to find out exactly how much of each is required to react.

Valency: The valency of an element is the number of electrons an atom of the element wants to gain, lose or share so as to have a full outer shell.

Biology

Absorption: This is the movement of food into the bloodstream.

Alkaline pyrogallol: This is used to absorb oxygen.

Amylase: This is an enzyme. It is found in saliva. It breaks starch down into maltose.

Antagonistic muscles: A pair of skeletal muscles that work together. When one contracts the other relaxes, e.g. the biceps and triceps.

Asexual reproduction: Reproduction that does not involve gametes.

Assimilation: This is the using of the food by the cells of the body after absorption.

Benedict's solution: This is used to test for a reducing sugar e.g. glucose. If a reducing sugar is present it turns brick red after being heated in a boiling water bath.

Breathing: This is a physical process of taking in oxygen and breathing back out carbon dioxide.

Carnivore: An animal that only eats other animals.

Carpel: The female part of the flowering plant. It is made up of the stigma, style and ovary.

Catalyst: A chemical that speeds up or slows down chemical reactions.

Cell wall: Structure found outside the cell membrane in plant cells. Cell walls are absent in animal cells.

Chlorophyll: The green pigment found in the chloroplasts of plant cells. It is used in photosynthesis.

Competition: This is the struggle between organisms to gain a sufficient supply of a scarce resource e.g. Grasses and dandelions compete for water.

Conservation: This is the wise use of the environment:

Digestion: This is the breaking down of food into small soluble pieces.

Dispersal: The dispersal of seeds is the scattering of seeds. The advantage of dispersal is that it helps reduce competition.

Egestion: The getting rid of unused, undigested and unabsorbed food material

Endocrine glands: A ductless gland that releases hormones directly into the bloodstream, e.g. the pancreas (it releases insulin which controls blood sugar level).

Excretion: This is the getting rid of waste products from chemical reactions in the body.

Food chain: A food chain is a feeding relationship between organisms through which energy is transferred.

Food web: A food web is a number of interconnected food chains.

Gamete: A gamete is a sex cell. The male gamete is the sperm and the female gamete is the egg.

Genetics: This is the study of inheritance.

Geotropism: The growth of a plant in response to gravity.

Germination: Germination is the growth of a seed into a new plant. The requirements are warmth, moisture and oxygen.

Habitat: The place where a plant or animal lives is called its habitat.

Haemoglobin: The red pigment in red blood corpuscles. It is involved in transporting oxygen.

Herbivore: An animal that eats only plants.

Hormone: A chemical substance that is released by an endocrine gland.

Humus: The organic material of soil. It is formed from decomposing plants and animals.

Implantation: This is when the embryo attaches itself to the womb wall.

Ingestion: This is the taking in of food into the mouth.

Iodine solution: This is used to test for starch. If starch is present it turns blue-black.

Iris: The iris controls the amount of light entering the eye.

Joint: This is where two or more bones meet.

Leaching: The washing of minerals out of the soil.

Ligaments: Fibres that connect bone to bone.

Lime water: This is used to test for the presence of carbon dioxide. If carbon dioxide is present the lime water turns milky.

Motor nerve: A nerve that carries messages away from the brain and spinal cord.

Nutrient agar: This is used as a food supply for bacteria and fungi in the lab.

Omnivore: An animal that eats plants and animals.

Organ: A group of tissues working together e.g. heart.

Ovulation: This is the release of an egg from an ovary.

Phloem: This is a plant transport tissue. It transports food from where it is made to other parts of the plant.

Photosynthesis: This is the process in which green plants make food.

Phototropism: The growth of a plant in response to light.

Placenta: The structure that binds the developing baby to the wall of the womb. It allows nutrients and waste to be exchanged.

Pollination: This is the transfer of pollen from the anther of the stamen to the stigma of the carpel.

Pollution: This is where things such as oil, sewage, slurry, sulphur dioxide, nitrogen oxides and litter damage the environment.

Pooter: A piece of equipment used to collect small animals.

Producer: An organism that can make its own food.

Respiration: This is a chemical process where energy is released from food.

Retina: The light sensitive layer at the back of the eye.

Sensory nerve: A nerve that carries messages to the brain and spinal cord.

Soda lime: This is used to absorb carbon dioxide.

Stamen: The male part of the flowering plant. It is made up of the anther and filament.

Stomata: These are pores (openings) in the leaves of a plant, which allows gases to diffuse.

Synovial fluid: A lubricating fluid found at a joint. It helps reduce friction.

System: A group of organs working together e.g. digestive system.

Tendons: Fibres that attach muscle to bone.

Tissue: A group of similar cells e.g. muscle.

Transpiration: This is the loss of water vapour from the surface of a plant. It is highest when there is a gentle breeze, sun and low humidity.

Trophic level: The position an organism occupies in a food chain.

Tropism: A growth response to a stimulus.

Tullgren funnel: A piece of equipment used to extract small animals from leaf litter or soil.

Xylem: This is a plant transport tissue. It transports water and minerals from the roots to other parts of the plant.

Zygote: The cell, which results from the fusion of a male and female gamete.