

GLOSSARY

Activation energy	The energy required to start a reaction.
Adsorption	A process where something bonds to a solid.
Alkali	Soluble base. Has a pH greater than 7. Tastes bitter and feels soapy.
Alkane	A hydrocarbon which has only single bonds.
Alkene	A hydrocarbon with one double bond between two of its carbon atoms.
Anode	An electrode at which oxidation occurs.
Apparatus	Equipment.
Battery	A group of voltaic cells.
Bleach	Colour-remover.
Boiling point	Temperature at which a substance boils. Equals its condensation point.
Brine	Salt water. Dissociated sodium ions and chloride ions surrounded by water.
Catalyst	A chemical which speeds up a reaction by lowering the reaction's activation energy. It is not used up by the reaction.
Cathode	An electrode at which reduction occurs.
Chlorine	A dense green gas which is useful as bleach and disinfectant.
Chloralkali industry	The industry which manufactures chlorine and sodium hydroxide from the electrolysis of sodium chloride.
Closed	(Chemical system) Chemicals do not either enter or leave the system.
Conclusion	The answer to an investigation's question, as shown by the investigation's data. Might be written as: [dependent variable] [increases/decreases] with increased [independent variable].
Condensation	Changing from the gaseous to the liquid phase.
Contact Process	The industrial process by which sulfuric acid (H_2SO_4) is formed from sulfur, oxygen and water.
Controlled variable	Variable which is kept the same between treatments for the whole investigation. Cannot be the independent or dependent variables.
Crude oil	A mixture of hydrocarbons of various lengths. Crude oil is mined. Later it is separated into its components, e.g. by distillation.
Data	Measurements.
Dependent variable	Effect. Variable which becomes different between the treatments because they had been treated differently from the start.
Desorption	A process where something separates from a solid.
Detergent	An inorganic chemical which is able to make fat dissolve in water.
Diaphragm	A dividing membrane. Made of asbestos in the diaphragm cell.
Diesel	A mixture of hydrocarbons having 12-18 carbon atoms per molecule. Fuel.
Direct Proportion	As the independent variable is increased, the dependent variable increases by the same factor.
Discussion	A written discussion of the trends in the data, and a suggested explanation, in terms of the background theory.
Disinfectant	Germ killer.
Dissociation	Breaking apart.
Distillation	The process of separating a mixture due to components different boiling points.
Distillation column	A large container which is hottest at the bottom, and gets cooler and cooler with height. Used for distillation.
Dynamic equilibrium	A state which can be reached when a reversible reaction occurs in a closed system. Both the forward and reverse reactions occur at the same rate as one another. The amounts of reactants and products remain constant.
Electrode	A site at which the redox reactions of an electrochemical cell occur. Often a rod.

Electrolysis	A non-spontaneous chemical reaction in which a compound is broken down into simpler component substances as an electric current passes through it.
Electrolyte	An ionic solution. Such a solution is able to conduct electricity.
Electrolytic cell	Consists of an external power source (e.g. battery), connected to two electrodes placed in an electrolyte. Electrical energy is converted to chemical energy.
Endothermic	A reaction which absorbs more energy than it releases.
Exothermic	A reaction which releases more energy than it absorbs.
Experimental investigation	A way of finding an answer to a cause-effect question. Two or more treatments are used. These differ only in the independent variable at the start. Because of this they might get to differ in the dependent variable, which is measured.
Fischer-Tropsch reaction	The second step in making hydrocarbons, e.g. petrol, from coal. Carbon monoxide and hydrogen react to form water and hydrocarbons.
Focus question	A question which guides everything done in an experimental investigation. Might be written as: How does [independent variable] affect [dependent variable]?
Gasification	The first step in making hydrocarbons, e.g. petrol, from coal. Carbon dioxide and water vapour react to form carbon monoxide and hydrogen gas.
Haber Process	The industrial process by which ammonia (NH ₃) is formed from N ₂ and H ₂ .
Halogen	Very reactive non-metals found next to the noble gases on the periodic table.
Hydrocarbon	An organic compound consisting only of bonded hydrogen and carbon atoms.
Hydrocracking	Hydrogen reacts with long-chained hydrocarbons, in the presence of a catalyst, to split the hydrocarbon into shorter chains.
Hydrophilic	'Water loving'. Attracted to water.
Hydrophobic	'Water fearing'. Repelled by water.
Hypothesis	A guessed answer to the focus question. It must be informed by background theory. It is then tested by doing an experimental investigation.
Independent variable	Cause. Variable the investigator makes different between the treatments from the start.
Indicator	A specific way of varying, measuring or showing up a general variable.
Inert	Unreactive.
Inverse proportion	As the independent variable is increased, the dependent variable decreases by the same factor.
Ionic bridge	An ionic solution connecting the two half cells in a voltaic cell. Necessary for a complete electric circuit and to prevent the build-up of ions in either half cell.
Kerosene	A mixture of hydrocarbons with 9-14 C atoms per molecule. Aeroplane (jet) fuel.
Le Chatelier's Principle	When a system which is in equilibrium is disturbed, it will respond in such a way as to counteract the disturbance.
Lead acid battery	A car battery. A secondary cell with lead and lead dioxide electrodes in a sulfuric acid electrolyte.
Liquid petroleum gas	(LPG) A mixture of hydrocarbons having 3-4 carbon atoms per molecule. Sold as bottled gas for heating and cooking.
Membrane	A thin sheet or film which lets only certain ions through.
Mercury	A poisonous silver metal which is a liquid at room temperature.
Mercury cell	A chlor-alkali cell which has a mercury cathode.
Method	Steps followed to find an answer to a focus question in an investigation.
Mixture	Consists of two or more pure substances not chemically bonded to one another.
Monomer	A building block which is repeated multiple times within a polymer.
Nitrate	A compound containing the compound ion NO ₃ ⁻ . Can be absorbed by plants.
Nitrite	A compound containing the compound ion NO ₂ ⁻ . Can be absorbed by plants.
Nitrogen	An element which is found in all proteins. Exists in the elemental form as N ₂ , which forms 78% of air. Plants cannot absorb N ₂ .
Non-polar	Having no distortion in electron distribution.

GLOSSARY

Non-spontaneous	Does not happen on its own.
Ostwald Process	The industrial process by which nitric acid (HNO_3) is formed from ammonia (NH_3) and oxygen (O_2).
Oxidation	A half reaction in which one chemical loses electrons to another chemical.
Oxidising agent	A chemical which causes another to get oxidised while it is itself reduced.
Petrol	A mixture of hydrocarbons having 5-10 carbon atoms per molecule. Fuel.
Polar	Having a distortion in electron distribution. Having + and - ends.
Polymer	A long-chained organic compound made of many monomers bonded together.
Polymerisation	The process of forming a polymer from many reacting monomers.
Pressure	Force per area. In gases, pressure is related to the rate at which particles hit against the sides of their container. Measured in bars, atmospheres (atm), kiloPascals (kPa) and millimetres of mercury (mm Hg).
Primary cell	A voltaic cell which cannot be recharged.
Pure substance	A substance which has its own chemical and physical properties. May be an element or a compound.
Redox	A kind of reaction in which electrons are transferred.
Reducing agent	A chemical which causes another to get reduced while it is itself oxidised.
Reduction	A half reaction in which one chemical gains electrons from another chemical.
Reversible	A reaction which can occur in both the forward and reverse directions.
Secondary cell	A rechargeable cell. Voltaic during discharging. Electrolytic during charging.
Semi-permeable	Allows some substances through but blocks others.
Soap	An organic chemical able to make fat dissolve in water. Made from animal fat and sodium hydroxide. Molecules have hydrophilic heads and hydrophobic tails.
Sodium hydroxide	A strong alkali (soluble base). Can be used to make soap. Also called caustic soda.
Spontaneous	Happens on its own: without needing to be heated, for example.
STP	Standard temperature and pressure: 273 K and 101,3 kPa. A reference state.
Temperature	A measure of particles' average kinetic energy. Measured in degrees Celsius ($^{\circ}\text{C}$) or Kelvin (K).
Treatments	Groups which are treated differently in one way (the independent variable) at the start of an investigation. There must always be at least two treatments in an experiment.
Uniform scale	A scale with equally spaced increases, e.g. 5 kg increase every centimetre.
Unit	Measurement scale, e.g. seconds (s).
Variables	Properties which may vary (change) in quantity (how much) and / or quality (what like).
Viscosity	Resistance to flow
Voltaic cell	An electrochemical cell which converts chemical to electrical energy. A spontaneous chemical reaction creates a potential difference.
x-axis	Horizontal axis.
y-axis	Vertical axis.