

# Glossary

**Abiotic:** non-living components of the environment that may affect living things

**Acidic volcano:** a volcano that is made up of just lava, it is steeped sided as the lava does not flow easily, and it builds up into a convex cone-shape

**Adit:** the entrance to a horizontal (drift) mine

**Aerosols:** sprays containing fine particles and/or droplets that become suspended in the atmosphere

**Age pyramid:** a diagram that shows the proportion of the population that is male and/or female in different age groups (usually 5 year intervals)

**Algae:** plant-like, photosynthetic organisms that lack true stems, roots and leaves

**Algal bloom:** the rapid growth of algae in water, caused particularly by a surge of nutrients

**Antecedent soil moisture:** the amount of moisture present in the soil before a rainfall event

**Antinatalist policy:** a national or regional policy that aims to discourage couples from having children

**Aquifer:** water stored in porous rocks under the ground

**Arable farming:** the production of crops from land

**Artesian aquifer:** an aquifer in which the water is under pressure

**Asthenosphere:** the layer of the Earth below the lithosphere, it is hotter and weaker than the lithosphere above and is capable of plastic flow (deformation of material that remains rigid)

**Basalt:** A fine-grained extrusive igneous rock formed by the cooling of lava at constructive plate margins

**Basic volcano:** a broad volcano built up from the repeated eruption of basalt

**Benioff zone:** a zone of earthquake foci in the upper part of a subducting oceanic plate at a destructive plate boundary

**Bioaccumulation:** the build-up of a substance in the body of a living thing

**Bioethanol:** the creation of ethanol from fermentation

**Biogas:** the creation of methane from the breakdown of organic materials in an anaerobic digester

**Biomagnification:** the process in which the concentration of a substance in living things becomes higher at progressively higher levels in a food chain or web

**Bioremediation:** a process in which living things are used to remove toxic chemicals from a natural site

**Biotic:** living components of the environment that may affect other living things

**Birth rate:** the total number of live births over time

**Boiler:** a vessel used to heat water to convert it into steam

**Brackish water:** water that is salty but not as salty as seawater

**Bund:** an embankment constructed around the edge of an area to reduce the loss of a liquid (such as water)

**Burner:** a receptacle used to hold fuel as it is burned

**Bycatch:** animals caught by fishers that are not the intended target of their fishing effort

**Carbon sink:** a vegetated area where the intake of carbon dioxide from the atmosphere in photosynthesis exceeds its output from respiration, so the net flow of carbon is from the atmosphere into plants

**Carbon store:** a mature vegetated area where the intake of carbon dioxide from the atmosphere by photosynthesis equals its output from respiration, so the mature plants store carbon

**Carnivore:** another name for secondary and tertiary consumers

**Carrying capacity:** the maximum size of a population that an environment can support in terms of food, water and other resources

**Chlorination:** adding chlorine-based substances to water

**Chlorophyll:** the green pigment in plants that traps light energy

**Cistern:** a vessel in which water, usually potable, is stored, forming a type of covered reservoir

**Climax community:** the stable community characteristics of an area that persist as long as the climate does not change



**Cod end:** the closed end of a fishing net

**Collision zone:** a destructive plate boundary between two continental plates, resulting in fold mountains

**Community:** a group of populations of different species that live together in an area and interact with each other

**Composite volcano:** a volcano built up by alternating layers of lava and ash, conical in shape

**Condensation:** the process in which water vapour turns in to liquid water, the opposite of evaporation

**Conservation:** the protection and management of natural areas

**Contour ploughing:** a technique where the furrows caused by ploughing follow the contours of the land

**Contraception:** a range of methods used to prevent pregnancy

**Convection currents:** transfer heat from place to place, denser colder fluid sinks into warmer areas, heat from the Earth's core causes convection currents in the mantle

**Critically endangered:** a species that is at extremely high risk of becoming extinct in the wild

**Death rate:** the total number of deaths over time

**Decomposers:** organisms within an ecosystem that derive their food from the bodies of dead organisms

**Deep mining:** a type of sub-surface mining

**Density:** the number of people living in a population in a defined area

**Dependent variable:** the variable that is measured in an experiment

**Dependent:** those people in the population who are not economically active (working) and so rely on the those who are working for their needs

**Depletion:** a reduction or loss

**Desalination:** the removal of salt from water

**Desertification:** the process by which fertile land becomes desert

**Dieback:** the death of a tree or shrub that starts at the tip of its leaves or roots and spreads towards the centre of the plant, caused by unfavourable environmental conditions or disease

**Discharge:** the volume of water passing a measuring point or gauging station in a given time, measured in cubic metres per second (cumecs)

**Disease:** a pathogen (fungus, bacterium or virus) that attacks a plant

**Distillation:** the purification of a liquid by boiling a solution so that the liquid evaporates and can be collected when it condenses at a lower temperature

**Distribution:** where populations of people either do or do not live

**Double-hulled:** a ship design that uses a second layer, allowing the cargo to remain safe if the external layer is damaged

**Drift mine:** is a mine in which the entry is more or less horizontal

**Economic exclusion zone:** the zone around a country's coastline that is under the control of that country

**Economic water scarcity:** a situation in which there is enough water available but the money does not exist to extract and/or treat enough of it for human needs

**Ecosystem:** all the living things (biotic components) together with all the non-living things (abiotic components) in an area

**Ecotourism:** tourism in which the participants travel to see the natural world, ideally in a sustainable way

**Effluent:** a discharge of liquid waste

**El Niño Southern Oscillation (ENSO):** the change in the prevailing winds that leads to a change in the pattern of currents in the oceans of the south Pacific

**Electromagnetic induction:** a process used for generating electricity that uses the movement of a metal coil and a magnet

**Endangered:** a species that is at high risk of extinction in the wild

**Endemic:** a species found in only one area, often a country

**Environmental impact assessment:** a process by which the probable effects on the environment of a development are assessed and measured

**Epicentre:** the point on the Earth's surface directly above the focus of an earthquake

**Erosion:** the movement of rock and soil fragments to different locations



**Euphotic zone:** the top 200 m or so of seawater through which light can penetrate and in which photosynthesis can happen

**Eutrophication:** a sequence of events starting with enrichment of water by mineral nutrients or organic matter that leads to a reduction in oxygen levels in the water and the death of fish and other animals

**Evaporation:** the process in which liquid water turns into vapour, the opposite of condensation

**Exponential growth:** when the growth rate of a population increases rapidly over time

**Extensive production:** farming that is spread over a wide area and uses fewer resources per metre of land

**Extinction:** the process by which a species or other named group ceases to exist on the Earth or in a named area

**Family planning:** methods used by a couple to decide when and how many children to have, may be practised by couples and encouraged by governments

**Famine:** a lack of access to food, often over a large area

**Focus:** the location under the Earth's surface where an earthquake originates

**Fold mountains:** mountains created where two or more tectonic plates are pushed together, compressing the rocks and folding them upwards

**Food chain:** a diagram showing the relationship between a single producer and primary, secondary and tertiary consumers

**Food web:** a diagram showing the relationship between all (or most) of the producers, primary, secondary and tertiary consumers in an ecosystem

**Fossil fuel:** a carbon-based fuel, formed over many millions of years from the decay of living matter

**Fracking:** the common term for hydraulic fracking, the process of obtaining oil or gas from shale rock by the breaking open of rocks using water, sand and chemicals

**Fungicide:** a chemical used to control fungal diseases

**Gene:** a sequence of DNA that is responsible for a characteristic of a living organism

**Generator:** a machine that converts mechanical energy (such as movement) into electrical energy

**Genetically modified organism (GMO):** An organism whose genetic material has been altered by genetic engineering

**Geochemical:** the chemical properties of rocks

**Geophysical:** the physical properties of rocks

**Granite:** A coarse-grained intrusive igneous rock comprising the minerals quartz, feldspar and mica, it is formed at destructive plate margins

**Greenhouse gas:** a gas that stops energy in the form of heat from being lost from the atmosphere

**Greenhouse:** a building made of glass or similar transparent material that is used to manage the environment for plant growth

**Groundwater:** water in the soil, and in rocks under the surface of the ground

**Groundwater flow:** the process by which infiltrated water flows through rocks

**Growing blueprint:** the growing requirements of a crop throughout its life, which a grower can use to maximise the yield

**Habitat:** the place within an ecosystem where an organism lives

**Herbicide:** a chemical used to control weeds

**Herbivore:** another name for primary consumer

**Hydroponics:** growing plants without soil, with the nutrients the plant needs dissolved in water, this technique is often used in conjunction with a growing blueprint

**Igneous rock:** rock made during a volcanic process

**Impermeable:** does not allow water to pass through

**Independent:** those people in the population who are economically active (working)

**Independent variable:** the variable that is deliberately changed in an experiment

**Inert gas:** a gas that rarely reacts with other elements because it is stable, now referred to as noble gases

**Infiltration capacity:** the maximum rate that water enters soil

**Infiltration:** the process by which water seeps into the ground

**Insecticide:** a chemical that kills insects

**Intensive production:** farming that aims to maximise the yield from an area using a large amount of resources

**Inter tropical convergence zone (ITCZ):** a low pressure belt that lies around the equator, where the north-east and south-east trade winds meet, it receives high precipitation because of intense heating from the Sun



**Interception:** the process by which precipitation is stopped from reaching the ground surface by the presence of trees and other plants

**Interception:** the process by which vegetation prevents rainfall from reaching the surface directly, the intercepted rainfall is temporarily held as interception storage and then either falls directly to the ground or is evaporated back to the atmosphere

**Intercropping:** the technique of growing other crops between the rows of a main crop, maximising the use of nutrients and water

**Island arc:** a chain of volcanoes, generally with an arc shape, that run parallel to an oceanic trench at a destructive (oceanic-oceanic) plate boundary

**Lag phase:** the period of time in population growth when an organism is adapting to its new environment and growth is slow

**Lag time:** the time difference between peak rainfall and peak discharge

**Lahars:** mudflows of volcanic material, caused when ash mixes with heavy rain or water from melting snow

**Leaching:** the movement of a soluble chemical or mineral away from soil, usually caused by the action rainwater

**Least concern:** a species that is widespread and abundant

**Legumes:** plants that contain nitrogen-fixing bacteria in their roots to produce a source of nitrates

**Limiting factor:** of all the factors that might affect a process, the one that is in shortest supply

**Liquefaction:** the process where loose sediments with a high water content behave like a liquid when shaken by an earthquake

**Lithosphere:** The outer and rigid layer of the Earth, comprising the crust and the upper part of the mantle

**Loam:** a soil that is mixture of sand, silt and clay, combining the best properties of each

**Log growth:** when the growth rate of a population increases rapidly over time

**Long-wave radiation:** outgoing or terrestrial radiation, as the Earth produces very little visible light or ultraviolet radiation, all radiation from the Earth is infrared

**Magma:** molten rock below the surface of the Earth

**Malnutrition:** not having enough of the correct nutrients to eat, causing ill health

**Mesopause:** the upper limit of the mesosphere, temperatures remain constant in this boundary layer

**Metamorphic rock:** a rock formed from existing rocks by a combination of heat and pressure

**Migration:** the movement of people into (immigration) or out of (emigration) a region, country or other area

**Mineral:** a naturally occurring inorganic substance with a specific chemical composition

**Mixed farming:** farming that practises both rearing livestock and growing crops

**Mulch:** a natural or artificial layer on the soil surface used to reduce water evaporation and weed growth

**Natural disaster:** When a natural hazard causes damage and the people affected are unable to cope

**Natural hazard:** a naturally occurring event that will have a negative impact on people

**Near threatened:** a species that is likely to become endangered in the near future

**Niche:** the role of a species within the ecosystem

**Noble gas:** a gas that rarely reacts with other elements because it is stable, previously referred to as inert gases

**Non-renewable:** an item or resource that exists in a finite amount that cannot be replaced

**Ocean trench:** a depression of the ocean floor that runs parallel to a destructive plate boundary

**Open-cast mining:** a type of surface mining

**Open-cut mining:** a type of surface mining

**Open-pit mining:** a type of surface mining

**Ore:** a rock with enough of an important element to make it worth mining

**Organic:** derived from living organisms

**Osmosis:** the process by which water molecules pass through a semi-permeable membrane from a weaker solution to a more concentrated solution to reduce the difference, it is an essential process in plants for water uptake from the roots

**Overburden:** the rock and or soil overlying an economically viable mineral deposit

**Overfishing:** when the number of fish that is caught is greater than the rate at which the fish reproduce, leading to a fall in fish numbers in an area



**Parasite:** an organism that lives in or on another organism, it gains nutrition from that organism but gives the other organism no benefits

**Particulate matter (PM):** a mixture of very small particles and liquid droplets suspended in the air

**Pastoral farming:** farming that focuses on breeding and rearing livestock

**Pathogen:** a collective name to describe disease-causing organisms (bacteria, fungi and viruses)

**Percolation:** the vertical movement of water from the soil into the underlying rock

**Pest:** an animal that attacks or feeds on a plant

**Pesticide:** a chemical used to control pests, but also, less accurately, used as a collective term to describe pest- and disease-killing chemicals

**Photochemical smog:** air pollution in the atmosphere accompanied by high levels of ozone and nitrogen oxides from vehicles and caused by the action of sunlight on the pollutants

**Photosynthesis:** the process by which plants or plant-like organisms make food in the form of carbohydrate from carbon dioxide and water using energy from sunlight

**Physical water scarcity:** a situation in which there is simply not enough water for human needs

**Phytoplankton:** small organisms in the sea that can make their own food and upon which almost all other sea creatures depend for their food

**Plate boundary:** Where two or more plates meet, the three main types of plate boundary are constructive, destructive and conservative

**Plate tectonics:** A theory developed in the 1960s that helps explain the formation of some of the important features on the Earth's surface and how the continents move

**Polar vortex:** a circulation of strong upper level winds that surround Antarctica and keep cold air locked in above the continent

**Pollen grain:** the structure in plants that contains the male sex cell, it is carried to the female organ by pollination

**Pooter:** a device for retrieving small animal from nets, pitfall traps, etc.

**Population pyramid:** a diagram that shows the proportion of the population that is male and female in different age groups (usually 5 year intervals)

**Population:** all the organisms of one species living in a defined area

**Potable water:** water that is safe to drink

**Precipitation:** the process in which liquid water (as rain) or ice particles (as snow or hail) fall to Earth due to gravity

**Prevailing wind:** the direction from which the wind nearly always blows in a particular area

**Primary consumers:** organisms within an ecosystem that derive their food from producers

**Primary pollutant:** a pollutant that is emitted directly from the source

**Producers:** organisms within an ecosystem that can carry out photosynthesis

**Pronatalist policy:** a national or regional policy that aims to encourage couples to have children

**Proppant:** a material, such as sand, used to keep cracks in the shale rocks open to allow gas or oil extraction

**Prospecting:** a process of searching for minerals

**Pull factors:** factors that encourage people to move into an area

**Push factors:** factors that encourage people to move away from an area

**Pyramid of numbers:** a diagram that represents the numbers of organisms at each feeding (trophic) level in an ecosystem by a horizontal bar whose length is proportional to the numbers at that level

**Pyroclastic material:** very hot gases, ash and volcanic bombs, pyroclastic flows can reach speeds of over  $100 \text{ km h}^{-1}$  at temperatures of 200 to 700 °C

**Quadrat:** a frame of known area used to sample organisms that do not move, such as plants

**Quota:** the legal limit on the amount of fish that can be caught

**Rainwater harvesting:** the collection of rainwater, for example from the roofs of buildings, and storage in a tank or reservoir for later use

**Random sampling:** a sampling method in which the sampling device is placed using random number tables or the roll of dice

**Rate of natural increase:** the birth rate minus the death rate

**Remote sensing:** a process in which information is gathered about the Earth's surface from above

**Renewable:** an item or resource that will not be used up or can be replaced



**Reservoir:** an artificial lake where water can be stored

**Resistance:** the ability of a living organism to survive when exposed to a toxic chemical (such as a pesticide or herbicide)

**Respiration:** the process by which living things release energy from food to carry out the processes of life, such as movement

**Reverse osmosis:** the purification of water by pumping it at high pressure through a fine membrane

**Richter scale:** a measure of the magnitude of an earthquake, taken with a seismograph and with a scale of one to ten, ten being the most powerful, it is a logarithmic scale which means that if an earthquake measures two on the scale it is ten times more powerful than an earthquake that measures one

**Ridge push:** a gravitational force that causes an oceanic plate to move away from the crest of a mid-ocean ridge and into a subduction zone, it works together with slab pull

**Rift valley:** an area where a continent is being stretched and the central block moves downwards

**Risk:** The probability of a natural hazard occurring and the losses or damage that might result from that natural hazard

**Rock cycle:** a representation of the changes between the three rock types and the processes causing them

**Rock:** a combination of one or more minerals

**Run-off:** the process by which water runs over the ground into rivers

**Sanitation:** the conditions necessary for health, such as providing clean drinking water and the safe disposal of sewage

**Sea-floor spreading:** the process by which oceans are formed at constructive plate boundaries, new oceanic crust is formed as two oceanic plates move apart

**Secondary consumers:** organisms within an ecosystem that derive their food from primary consumers

**Secondary pollutant:** a pollutant that forms through chemical reactions with primary pollutants

**Sedimentary rock:** a rock formed from material derived from the weathering of other rocks or the accumulation of dead plants and animals

**Service reservoir:** a reservoir in which potable water is stored

**Sewage:** waste matter that is carried away in sewers or drains from domestic (or industrial) establishments

**Shaft mining:** a type of sub-surface mining

**Shield volcano:** a broad volcano built up from the repeated eruption of basalt

**Short-wave radiation:** incoming or short-wave solar radiation, visible light and ultraviolet radiation are commonly called shortwave radiation

**Sial:** Another name for the continental crust, which is rich in silicate and aluminium minerals

**Sima:** Another name for the oceanic crust, which is rich in silicate and magnesium minerals

**Slab pull:** the force at a destructive plate boundary, where the oceanic plate sinks beneath the adjacent plate, as a result of its own weight, the descending plate is pulled by gravity through the asthenosphere

**Solar power:** harnessing energy from sunlight

**Stationary phase:** when the growth of a population has slowed to zero

**Strato volcano:** a volcano built up by alternating layers of lava and ash, conical in shape

**Stratopause:** the upper limit of the stratosphere, temperatures remain constant in this boundary layer

**Strike rate:** the frequency with which attempts to find a desired mineral are successful

**Strip mining:** A type of surface mining

**Subduction zone:** a zone where the oceanic plate is deflected (subducted) down into the mantle, at the surface the subduction zone coincides with ocean trenches

**Sub-surface mining:** a type of mining used when the deposit is covered by a deep layer(s) of unwanted rock

**Supervolcano:** a volcano that erupts at least 1000 km<sup>3</sup> of material

**Supply and demand:** the relationship between how much of a commodity is available and how much is needed or wanted by consumers of the product

**Surface currents:** movement of the surface water of the sea in a constant direction

**Surface mining:** a type of mining used when the mineral is either exposed on the surface or overlain by only small amounts of overburden

**Surface run-off ground into rivers:** the process by which water runs over the ground into rivers

**Surface water:** water in lakes, rivers and swamps



**Systematic sampling:** a sampling method in which the sampling device is placed along a line or some other pre-determined pattern, the most common pattern being the line of a transect

**Tectonic plate:** A piece of lithosphere that moves slowly on the asthenosphere, seven major, eight minor and numerous micro plates have been identified

**Temperature inversion:** when temperatures increase with altitude

**Terracing:** the artificial development of flat areas (for growing crops) in a sloping terrain

**Tertiary consumers:** organisms within an ecosystem that derive their food from secondary consumers

**Thermopause:** the upper limit of the thermosphere, temperatures remain constant in this boundary layer

**Through flow:** the process by which infiltrated water flows through the soil

**Transect:** a sampling method in which sampling devices are laid out along a line already placed across an area

**Transpiration:** the movement of water up plants and its subsequent loss as water vapour from their leaves

**Trophic level:** a feeding level within a food chain or web

**Tropopause:** the upper limit of the troposphere

**Tsunami:** a large wave created by ocean floor displacement or landslides

**Turbine:** a machine, often containing fins, that is made to revolve by the use of gas, steam or air

**Upwelling:** areas where minerals at the ocean floor are brought to the surface by currents

**Vector:** an organism that carries a disease-producing organism, such as the mosquito which carries the malarial parasite

**Volatile organic compounds (VOCs):** chemicals that easily enter the atmosphere as gases, mainly from evaporation

**Vulnerability:** The characteristics and circumstances of people in a community that make them susceptible to the impacts of a natural hazard

**Vulnerable:** a species that is at high risk of becoming endangered in the wild.

**Water tower:** a type of reservoir where potable water is stored for immediate use

**Weathering:** the processes that cause rock to be broken down into smaller particles

**Weed:** a plant growing in an inappropriate place

**Well:** a hole bored or dug into rock to reach the water stored there

**Windbreak:** a permeable barrier, made of either living vegetation or artificial material, used to reduce the impact of the wind on an area