N5 Biology  **LE1 Ecosystems**  GLOSSARY

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| --- | --- |
| word / term | meaning |
| **species** | a group of organisms able to reproduce making fertile offspring |
| **biodiversity** | the total variation that exists amongst all living things on Earth |
| **population** | all the organisms of one type of species in the ecosystem |
| **producer** | a green plant able to make food by photosynthesis |
| **consumer** | organism that feeds on other organisms in a food chain |
| **herbivore** | an organism that only consumes plant material |
| **carnivore** | an organism that only consumes animal material |
| **omnivore** | an organism that consumes plant and animal material |
| **predator** | an animal that hunts, kills, and eats other animals |
| **prey** | an animal that is hunted and killed by another animal for food |
| **food chain** | a relationship where one organism feeds on the previous one in the series and in turn provides food for the next one  |
| **food web** | a system of interlocking and interdependent food chains |
| **ecosystem** | consists of all the organisms (the community) living in a particular habitat and the non-living components with which the organisms interact |
| **niche** | the role that an organism plays within a community |
| **Predation** | The effect of a predator on prey species |
| **Competition** | occurs when resources are in short supply |
| **Interspecific** | competition occurs amongst individuals of different species for one or a few of the resources they require |
| **Intraspecific** | competition occurs amongst individuals of the same species and is for all resources required |

N5 Biology **LE2 Distribution of Organisms**

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| word / term | meaning |
| biotic factors (definition) | Living organisms that can affect other populations in an ecosystem |
| biotic factors (examples) | disease, food availability, grazing and predation are biotic factors |
| abiotic factors (definition) | non-living factor that can affect populations in an ecosystem |
| abiotic factors (examples) | light intensity, moisture, pH and temperature |
| Biodiversity | the variety and variability of life on Earth |
| Indicator Species | organisms that by their presence or absence indicate environmental quality/levels of pollution |
| Sampling technique | methods of counting some of the organisms in an area and using the data to estimate the whole population  |
| pitfall trap | sampling technique used to estimate the population of ground crawling insects |
| Quadrat | sampling technique used to estimate the population of plants |
| Transect line | path along which you count and record the species of study and measures biotic factors  |

N5 Biology **LE3 Photosynthesis**

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| word / term | meaning |
| Carbon dioxide and water | two raw materials of photosynthesis |
| Light energy & chlorophyll | two essential requirements of photosynthesis |
| Glucose and oxygen | two products of photosynthesis |
| Light | form of energy required to synthesise ATP in photosynthesis |
| Chlorophyll | green pigment that raps light energy from the sun |
| Chloroplast | leaf organelle which is the site of photosynthesis |
| Enzymes | controls the series of photosynthesis reactions |
| Chemical | type of energy stored in ATP |
| Light reactions | first stage of photosynthesis during which water is split |
| ATP | energy rich molecule synthesised during the light reaction |
| Oxygen |  by-product of water splitting, diffuses out of the leaf |
| Hydrogen | produced by water splitting in the light reactions passed onto carbon fixation stage |
| Carbon fixation | second stage of photosynthesis where glucose is synthesised |
| Hydrogen & ATP | Two chemicals made in light reactions, needed in carbon fixation |
| Glucose | product of photosynthesis that can be used in respiration or converted to other molecules |
| Chemical | type of energy in glucose |
| starch | storage carbohydrate made from glucose |
| Cellulose | structural carbohydrate made from glucose and used to make plant cell walls |
| Limiting factor | the shortage of an essential input that reduces the rate of photosynthesis |
| Light intensity | limiting factor on a cloudy day |
| Temperature | limiting factor on a sunny day in winter |
| Carbon dioxide concentration | raw material limiting factor  |

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| word / term | meaning |
| Chemical | The form of energy which is contained in food |
| Growth | The increase in biomass of living things, which can provide food for other organisms. |
| Movement |  Muscular and other activities that require chemical energy which is then converted to heat energy |
| Heat | All the energy in living things is eventually converted into this form, and is lost (but not destroyed) from the ecosystem - and the planet |
| growth | How energy is used and able to be passed on to the next level in a food chain |
| Movement, heat, undigested material | Uses of energy that result in energy being lost from the food chain |
| Pyramid of Numbers | A diagram with the width of each bar representing the number of organisms at that feeding level |
| Pyramid of energy  | A diagram with the width of each bar representing the total energy of organisms at that feeding level |

N5 Biology  **LE4 Energy in Ecosystems**

N5 Biology **LE5 Food Production**

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| word / term | meaning |
| Crop yield | a description of the quantity of food crops grown for human consumption |
| Increased food yield | required by the increasing human population |
| fertilisers | chemicals such as nitrates which increase crop yield |
| pests | plants and animals which reduce crop yield |
| pesticides | chemicals which can kill pests |
| bioaccumulation |  the buildup of toxic substances in organisms |
| top organism | organism in the food chain most affected by bioaccumulation |
| biological control | introducing a natural predator (or consumer) to control a pest population, used as an alternative to pesticides |
| Nitrates | these nutrients needed for plant growth, are used to produce amino acids which are synthesised into plant proteins |
| leaching | when fertilisers drain away from the soil into water ways |
| algae | Single celled, aquatic, organisms containing chlorophyll |
| algal bloom | the result of fertilisers leaching into fresh water, adding extra, unwanted nitrates which increase algal populations |
| Bacteria | organisms which use up large quantities of oxygen, reducing the oxygen availability for other organisms in aquatic environments |
| dead plants + dead algae | two examples of food for bacteria in aquatic environments which makes them increase greatly in number |
| genetically modified crops | crops which could be used to reduce the need for fertiisers |

N5 Biology **LE6 Evolution of Species**

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| word / term | meaning |
| Mutation | a spontaneous, random change in genetic material |
| Types of mutation | Neutral, advantageous, disadvantageous |
| Radiation + some chemicals | Environmental factors which can increase the rate of mutation |
| Allele | The different forms which a gene may have. These are all the results of mutation from an original gene. |
| Variation | Differences between individuals in a population. The result of different alleles and different environment |
| Over-population | Each generation produces far more offspring than can possibly survive to become adults. |
| Natural selection | The process by which nature makes sure that the survivors in each generation are the best adapted to their way of life and so pass on better characteristics. Also called "survival of the fittest." |
| Selective pressures | Factors in the environment which make the survival of certain variations more likely than others |
| Well adapted | Having good ecological fitness, and therefore likely to survive |
| Evolution | slow, gradual change in the genetic make-up of species as a result of natural selection over many generations. |
| isolation barrier | Factor that causes genetic isolation of part of a population form the rest of the species |
| geographical | isolation barrier involving a physical structure e.g. river, mountain range |
| ecological | isolation barrier involving an environmental difference e.g. pH, salinity, different habitats |
| behavioural | isolation barrier involving an animal’s behaviour e.g. courtship |
| speciation | process which occurs after part of a population becomes separated by an isolation barrier, different mutations in the two populations and different selection pressures eventually gives rise to a new species |
| species | group of organisms with similar characteristics and can produce fertile offspring |