

Definitions and Concepts for WJEC (Wales) Biology GCSE

Topic 1.6: Ecosystems, Nutrient Cycles and Human Impact on the Environment

Definitions in **bold** are for higher tier only

Definitions marked by '*' are for separate sciences only

Algae - A photosynthetic organism which doesn't contain the normal organs that are found in a plant except for chloroplasts. They are mostly aquatic.

Biodiversity - The variety of different species and numbers of individuals within those species in an area. †

Biomass - The mass of all the living material present in a particular area or particular organism.

Carbon cycle - The cycle through which carbon (in the form of carbon dioxide) moves between the environment and living organisms. It involves respiration, photosynthesis, combustion and decomposition.

Carnivore - An organism that feeds on other organisms.

Combustion - The process by which organic matter is burnt to release energy as well as carbon dioxide and water. It is part of the carbon cycle.

Decomposer - An organism that feeds on dead and decaying matter.

Decomposition - The process of breaking down dead material into simple organic matter. The decomposition rate is influenced by water availability, oxygen availability and temperature.

Ecosystem - The community of organisms (biotic) and non-living (abiotic) components of an area and their interactions.

Efficiency of biomass - **The efficiency of biomass transfer between trophic levels is calculated using:**

$$= (\text{Biomass available after transfer} / \text{Biomass available before transfer}) \times 100$$

Egestion - The removal of undigested food from the body as faeces.

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Eutrophication - When an aquatic ecosystem (e.g. river) becomes enriched with nutrients stimulating the excessive algae growth.

Excretion - The removal of metabolic waste from the body.

Fertiliser - Natural or artificial materials that are added to soils to provide essential nutrients and improve plant growth.

Food chain - Shows the feeding relationships between organisms and the resultant biomass transfer. It follows the structure of:

producer → *primary consumer* → *secondary consumer* → *tertiary consumer*

Food web - Shows the relationships between different food chains and how they interact with each other.

Herbivore - An organism that only eats plants.

Indicator species - Species that are used as a reflection of the ecosystem condition.

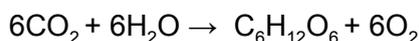
Lichens - A type of indicator species which are used as a measure of air pollution.

Microorganisms - Very small organisms that are involved in the recycling of materials in an ecosystem. They are able to convert carbon into carbon dioxide which is then released into the atmosphere. They also return mineral ions to the soil.

Nitrogen cycle - **The cycle through which nitrogen (in many different forms) moves between the environment and living organisms. It involves nitrogen fixation, nitrification, decomposition and denitrification.**

Pesticide - A chemical used to control pests around crops.

Photosynthesis - An endothermic reaction that takes place in the chloroplasts, converting carbon dioxide and water into glucose and oxygen using light energy. It is a two stage process.



Sunlight energy

Photosynthetic organisms - Organisms that are the main producers of food and therefore biomass for life on earth.

Pollution - Contamination or destruction of the natural environment due to human intervention.

Primary consumer - An organism that cannot produce its own food, so must obtain energy by feeding on the producer. They are herbivores which consume at trophic level two of the food chain.



