Biology Chapter 3 Vocabulary

Biosphere – The region of our planet where life resides, the combination of all ecosystems on Earth.

Producer – An organism that uses the energy of the Sun to produce usable forms of energy. *Also known as* **Autotroph**.

Photosynthesis – The process by which producers use solar energy to convert carbon dioxide and water into glucose.

Cellular respiration – The process by which cells unlock the energy of chemical compounds.

Aerobic respiration – The process by which cells convert glucose and oxygen into energy, carbon dioxide, and water.

Anaerobic respiration – The process by which cells convert glucose into energy in the absence of oxygen.

Consumer – An organism that is incapable of photosynthesis and must obtain its energy by consuming other organisms. *Also known as* **Heterotroph**.

Herbivore – A consumer that eats producers. *Also known as* **Primary consumer**.

Carnivore – A consumer that eats other consumers.

Secondary consumer – A carnivore that eats primary consumers.

Tertiary consumer – A carnivore that eats secondary consumers.

Trophic levels – The successive levels of organisms consuming one another.

Food chain – The sequence of consumption from producers through tertiary consumers.

Food web – A complex model of how energy and matter move between trophic levels.

Scavenger – An organism that consumes dead animals.

Detritivore – An organism that specializes in breaking down dead tissues and waste products into smaller particles.

Decomposers – Fungi and bacteria that convert organic matter into small elements and molecules that can be recycled back into the ecosystem.

Gross primary productivity (GPP) – The total amount of solar energy that producers in an ecosystem capture via photosynthesis over a given amount of time.

Net primary productivity (NPP) – The energy captured by producers in an ecosystem minus the energy producers respire.

Biomass – The total mass of all living matter in a specific area.

Standing crop – The amount of biomass present in an ecosystem at a particular time.

Ecological efficiency – The proportion of consumed energy that can be passed from one trophic level to another.

Trophic pyramid – A representation of the distribution of biomass, numbers, or energy among trophic levels.

Biogeochemical cycle – The movements of matter within and between ecosystems.

Hydrologic cycle – The movement of water through the biosphere.

Transpiration – The release of water from leaves during photosynthesis.

Evapotranspiration – The combined amount of evaporation and transpiration.

Runoff – Water that moves across the land surface and into streams and rivers.

Carbon cycle – The movement of carbon around the biosphere.

Macronutrient – One of six key elements that organisms need in relatively large amounts: nitrogen, phosphorus, potassium, calcium, magnesium, and sulfur.

Limiting nutrient – A nutrient required for the growth of an organism but available in a lower quantity than other nutrients.

Nitrogen cycle – The movement of nitrogen around the biosphere.

Nitrogen fixation – A process by which some organisms can convert nitrogen gas molecules directly into ammonia.

Nitrification – The conversion of ammonia (NH_4^+) into nitrite (NO_2^-) and then into nitrate (NO_3^-).

Assimilation – The process by which producers incorporate elements into their tissues.

Mineralization – The process by which fungal and bacterial decomposers break down the organic matter found in dead bodies and waste products and convert it into inorganic compounds.

Ammonification – The process by which fungal and bacterial decomposers break down the organic nitrogen found in dead bodies and waste products and convert it into inorganic ammonium (NH_4^+).

Denitrification – The conversion of nitrate (NO_3^+) in a series of steps into the gases nitrous oxide (N_2O) and eventually, nitrogen gas (N_2), which is emitted into the atmosphere.

Leaching – The transportation of dissolved molecules through the soil via groundwater.

Phosphorus cycle – The movement of phosphorus around the biosphere.

Algal bloom – A rapid increase in the algal population of a waterway.

Hypoxic – Low in oxygen.

Sulfur cycle – The movement of sulfur around the biosphere.

Disturbance – An event, caused by physical, chemical, or biological agents, resulting in changes in population size or community composition.

Watershed – All land in a given landscape that drains into a particular stream, river, lake, or wetland.

Resistance – A measure of how much a disturbance can affect flows of energy and matter in an ecosystem.

Resilience – The rate at which an ecosystem returns to its original state after a disturbance.

Restoration ecology – The study and implementation of restoring damaged ecosystems.

Intermediate disturbance hypothesis – The hypothesis that ecosystems experiencing intermediate levels of disturbance are more diverse than those with high or low disturbance levels.