Physical Factors

Physical Factor	How it affects living Organisms
Water	• Crucial for any organisms' survival • More organisms are usually present in locations where water is readily available
Air	• Plants need carbon dioxide from the air to photosynthesise
Light	• Green plants use light to make food via photosynthesis • Most animals use light to see and aid movement for finding food and escaping danger
Temperature	• Affects the activities and functioning of organisms
Minerals	• Minerals are compounds containing elements essential for healthy growth e.g. nitrogen, phosphorus and potassium • Used to make key substances e.g. chlorophyll, proteins and vitamins
Acidity/Alkalinity (pH)	• Most organisms cannot survive in environments that are too acidic or too alkaline

Types of Adaptations

Type of Adaptation	Definition
Structural	Physical features of organisms to help it survive
Behavioural	Ways organism act in order to survive

Levels of Organisation

Level (simplest to most complex)	Definition
Organism	Individual living thing
Population	A group of organisms of the same species living together in a particular habitat
Community	A group of populations that live and interact with one another in a particular habitat
Ecosystem	A community of organisms interacting with one another and the abiotic environment
Biosphere	The part of Earth that contains all ecosystems. It interacts with the atmosphere, hydrosphere and lithosphere.

Relationships between Organisms

Relationship (most to least harmful)	Definition
Predator-prey	An organism (predator) feeds on another organism (prey)
Parasite-host	An organism (parasite) depends on another organism (host) for food, harming it and possibly killing it
Commensalism	Relationship between 2 organisms in which one organism benefits without harming the other
Mutualism	Relationship between 2 organisms in which both organisms benefit

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Energy flow

Property	Definition
Direction	Energy flows in one direction in a food chain
Energy transfer	(10%) Energy is transferred to the next trophic level
Energy lost	(90%) Energy is utilised by the organism for cellular processes/lost as heat (from respiration), waste products (excretion and egestion) and uneaten parts

Obtaining Energy (Nutrient Cycles)

Method	Definition
Respiration	Refers to living organisms breaking down food consumed to release energy
Respiration Word Equation	Glucose + Oxygen → Carbon dioxide + Water + energy

Releasing Energy (Nutrient Cycles)

Method	Definition
Photosynt-hesis	○ Plants containing chlorophyll will absorb carbon dioxide to manufacture food in the presence of light ○ Word equation: Carbon dioxide + Water + Light energy → Glucose + Oxygen
Decomp-osers	Organism that feed on and break down dead matter into simpler substances that is returned to the enviro-nment
Scavengers	Animals that feed on and break up dead organisms into smaller piecesAnimals that feed on and break up dead organisms into smaller pieces