

Ecology Study Guide

Vocabulary:

Ecology – Study of how living things interact with each other and with their environment.

Biotic factors – all the living things that affect an ecosystem

Abiotic factors – non-living things that affect an ecosystem

Population – group of same species that breed and live in the same area

Community – all the different living populations in the same area

Ecosystem – all the living (biotic) and non-living (abiotic) factors in an area

Biome – environment defined by its climate and the biological communities

Biosphere – the regions of the Earth occupied by living organisms.

Producers – organisms that make their own energy (autotrophic)

Consumers – organisms that consume other living things for energy (heterotrophic)

Herbivore – consumer that eats plants

Carnivore – consumer that eats animals

Omnivore – consumer that eats both plants and animals

Decomposer – consumer that breaks down living/dead organic matter

Symbiosis – two organisms living together in a close relationship

Mutualism – symbiosis in which both organisms benefit

Commensalism – symbiosis in which one organism benefits and the other gets no benefit and is not harmed either

Parasitism – symbiosis in which one organism benefits (parasite) and one is harmed (host). The parasite usually lives in or on the host

Predation – when one organism kills and eats another

Competition – occurs two individuals try to use the same resource at the same time and place

Niche – an organisms way of life and role in an ecosystem. Includes all the biotic and abiotic factors that a specific organism needs to live.

Carrying capacity – highest number of individuals that an ecosystem can support

Limiting factor – anything causing a population to stop growing/decrease in size

MAJOR CONCEPTS

The ecological *levels of organization* from smallest to largest are:

Individual < Population < Community < Ecosystem < Biome < Biosphere

Energy Flow

Energy in an ecosystem flows in only one direction from the lowest trophic level to the highest trophic level.

– Nutrients (such as carbon, water and nitrogen – not energy) flow through an ecosystem in a circular cycle

Producers make up the lowest trophic level in a food chain or web. Consumers make up the trophic levels above that. Each step in the food chain is a different trophic level.

– Every consumer depends on lower trophic levels for energy.

– Producers get their energy from the sun

Community Interactions

Symbiotic relationships occur when two species live together in a close relationship. There are three types. You should also know the following chart:

	<u>Organism A</u>	<u>Organism B</u>
<u>Mutualism</u>	+	+
<u>Commensalism</u>	+	O
<u>Parasitism</u>	+	-
Draw a '+' if the organism benefits. Draw a '-' if the organism is harmed Draw a 'O' if the organism does not benefit AND is not harmed		

Competition occurs when two organisms try to use the same resource at the same time and place.

Predation occurs when one organism kills and eats another.

Predators kill and eat other organisms.

Prey get eaten.

Ecological Niche

A niche is an organism's role/job and way of life in an ecosystem.

It includes everything the organism does or needs to live.

Examples: what it eats, predators, when/how it reproduces, what biome it lives in, what habitat it lives in, what climate it lives in

Population Growth

Four (4) factors affect population growth:

Birth rate, Death rate, Immigration, and Emigration

Carrying Capacity and Limiting Factors

Carrying Capacity describes the maximum number of individuals that an ecosystem can support.

Carrying capacity is limited (made smaller) by limiting factors

Limiting factors are things that cause a population to stop growing or get smaller.

Usually are biotic factors (e.g. competition, predation, disease)

Predator-Prey populations

Predators cause the population of prey to decrease.

1. When population of prey falls, predator population decreases after.
2. Decrease in predators causes the population of prey to increase.
3. When population of prey rises, predator population increases after.