

Ecosystems

Organisms interact with and are affected by living and non-living factors in their environment. This system is called an ecosystem.

Organisms interact with and are affected by biotic (living) factors (plants, animals, fungi, bacteria, algae, etc.).

Organisms interact with and are affected by abiotic (non-living) factors (ex: sunlight, temperature, soil type, wind, water currents, etc.).

Ecosystems are dynamic and ever changing.
MS-LS2-4

Organisms, especially humans, can impact and change the ecosystem(ex: deforestation, pollution, etc.).

Natural events (ex: volcanoes erupting, tectonic plate movement, etc.) can change the ecosystem.

When the environment changes, extinction, speciation, migration, or shifts in populations may occur.
3-LS4-4, MS-LS2-1

Ecosystems with more biodiversity are more resilient to these environmental changes.
MS-LS2-5

Communities are groups of many different species living together (ex: tide pool organisms in Goleta).

Populations are groups of the same species that are living together (ex: sea urchins in Goleta).

Communities have complex interactions.

Populations have complex interactions.
MS-LS1-4

Organisms in an ecosystem interact with one another in complex hierarchies of consumer levels (ex: producers, consumers, & decomposers) which can be represented by food chains and webs.

Between species interactions may be predatory (ex: animals hunt for their prey), competitive (ex: different animals search for the same food sources), or mutually beneficial (ex: animals help pollinate plants).
2-LS2-2, MS-LS2-2

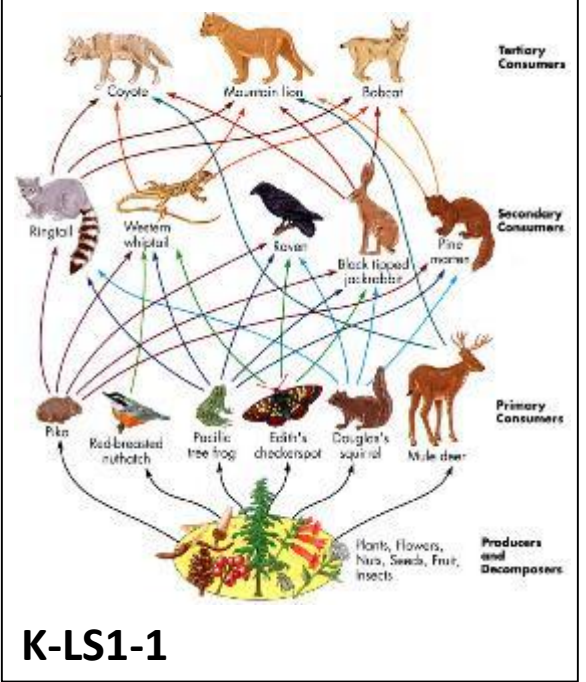
Organisms of the same species compete for resources.
MS-LS2-1 (F)

Some animals form groups which can increase chances of survival for individuals and their relatives.
3-LS2-1

Organisms mate with other organisms of the same species to produce fertile offspring (sexual reproduction).

An organism's growth is controlled by genetic and environmental factors (ex: food intake, space, and interactions with other organisms). However, each species has a typical adult body size.
MS-LS1-5

Organisms are born, grow, reproduce, and die. But these stages are unique for different species.
3-LS1-1



Organisms of different species compete for resources.

Consumers obtain energy and nutrients (matter) from eating other organisms.

Most producers convert the energy from the sun into energy stored in food using air and water (photosynthesis). Some organisms use energy from chemicals instead (ex: chemosynthesis).
5-LS1-1

At each level in the food web, some matter is broken down, some is stored, and much is released to the surrounding environment as heat.
5-LS2-1, MS-LS2-3

Decomposers break down dead organisms to recycle nutrients (matter) back into the environment.