

# Ecosystems

Ecosystems and the biosphere

## Ecosystems and the Biosphere

How is the environment organized?

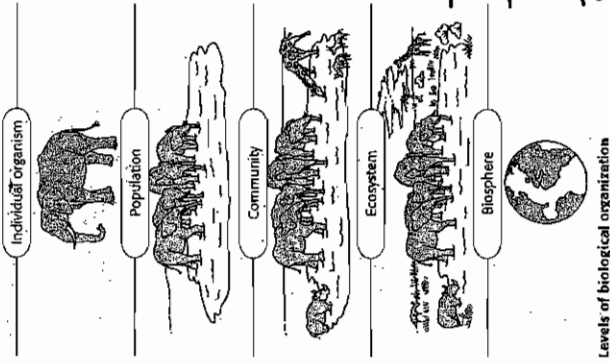
The environment is made up of living and nonliving parts. The living parts of the environment are called **biotic factors**. Biotic factors include living organisms and materials that come from organisms, such as dead leaves or bones. The nonliving parts of the environment are called **abiotic factors**. Abiotic factors include water, soil, light, air, temperature, and other physical conditions that affect living organisms.

The environment can be organized into several levels, as shown in the diagram. The simplest level is an individual organism. The next level is a population. A population consists of individual organisms of the same species living in the same area at the same time. A **species** is a group of similar organisms that can mate to produce offspring like themselves.

A **community** consists of populations of different species that interact with each other. An **ecosystem** consists of communities of living organisms and the abiotic factors that affect those communities. The study of how the living and nonliving parts of ecosystems work together is called **ecology**.

The **biosphere** is the part of Earth in which living organisms are found. The biosphere includes Earth's crust, the

water that covers Earth's surface, and the atmosphere.



Levels of biological organization

What is the following:

niche | community | organism | biosphere

Our goal is to understand ecosystems and biospheres and to understand the parts that make them up, including biotic and abiotic elements.

Standards ny science 5.2a

## Parts of an Ecosystem

What are the levels of organization in an ecosystem?



Organism



Population



Community



Ecosystem

Levels of organization in an ecosystem

Ecosystems are made of both living and nonliving parts. **Biotic** parts of the environment include all the living things, such as turtles, clams, seaweed, and algae.

**Abiotic** parts of the environment include all the nonliving things, such as water, sand, air, and sunlight.

The biotic parts of an ecosystem can be organized into different levels. An **organism** is a single living thing. A **population** is a group of the same kind of organism living in a particular area. A **community** is all the populations of different species living together in an area. An **ecosystem** is a

community of organisms and the abiotic parts of the environment in which the organisms live.

An organism's **habitat** is where it lives in its environment. The habitat of a parrotfish, for example, is a coral reef. All the things an organism does in its habitat—where it spends its time, what it eats, where it lays its eggs—are its **niche**. Each species has its own niche. Parrotfish, for example, swim in groups, eat algae and corals, add sand to the reef in their wastes, and reproduce throughout the year. These behaviors are part of the parrotfish's niche.

list 3 biotic factors in the ecosystem of our school

- 1-
- 2-
- 3-

list 3 abiotic factors in the ecosystem of our school

- 1-
- 2-
- 3-

List the biotic and abiotic feature in these pictures

Biotic

Abiotic