

LESSON

What is ecology?

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Our planet is huge. It has an area of more than 500 million square kilometers (200 million square miles). Yet life exists only on its surface, and slightly above and below. We call this narrow zone of life the biosphere [BY-uh-sfir]. You may know that the term "bio" means life.

The biosphere is full with all kinds of life. These organisms live in all kinds of environments. Everything that surrounds an organism makes up its environment. Living things are affected by their environment. They can also have an effect on their environments.

The study of the relationship between living things and their environment is called ecology [ee-KAHL-uh-jee]. Scientists who study ecology are called ecologists. The living and nonliving parts of a specific environment make up an ecosystem [EE-koh-sis-tum]. Some of the nonliving parts of an ecosystem are air, water, sunlight, and soil. Living things need these things to survive.

An ecosystem can be large, like an ocean or jungle. Or it can be small, like a pond or a patch of grass in an empty lot. Even a home aquarium is an ecosystem!

Each ecosystem is made up of one or more **communities**. A community is all the organisms living in a certain area. For example, a pond community may include frogs, fishes, and water lilies.

Members of a community depend upon each other. They also depend upon nonliving things like air, light, and water. The living and nonliving parts of the environment are always interacting. And a change in one part can cause a change in all the parts.

Each community is made up of **populations**. A population is all of the living things of the same species living in the same area. How many students make up the population of your class?

STUDYING ECOSYSTEMS

Figure A shows a lake ecosystem. The parts of this ecosystem are listed below. Next to each part, write ~~living~~ **Biotic**, if it is living. Write ~~nonliving~~ **Abiotic**, if the part is not living.

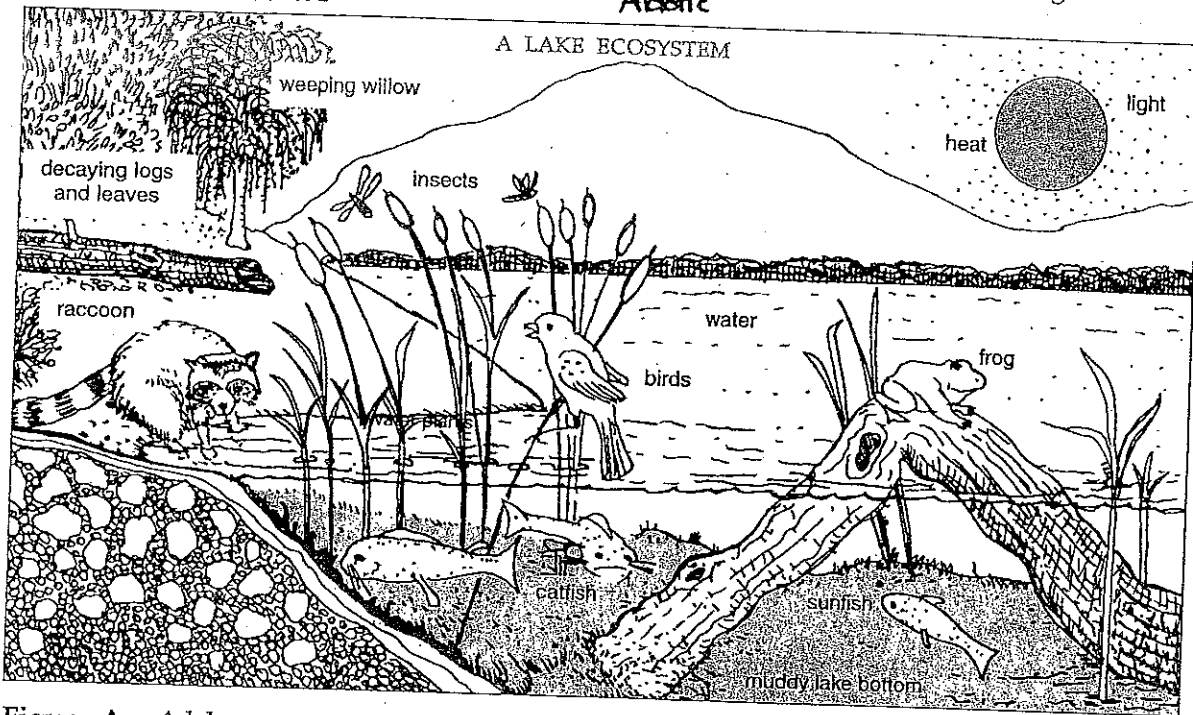


Figure A A lake ecosystem

- | | |
|---|--|
| 1. sunlight _____ | 9. frog _____ |
| 2. catfish _____ | 10. muddy lake bottom
_____ |
| 3. weeping willow tree
_____ | 11. air _____ |
| 4. raccoon _____ | 12. insects _____ |
| 5. heat _____ | 13. bird _____ |
| 6. water _____ | 14. bacteria, algae, and other one-celled organisms (not shown, but always present in a lake ecosystem)
_____ |
| 7. sunfish _____ | |
| 8. water plants
_____ | |
| 15. Why are the one-celled organisms not shown? _____ | |

COMPLETING SENTENCES

Complete the following sentences.

1. An ecosystem is made up of _____ things.
2. All the living members of an ecosystem make up _____.
3. The region of Earth where life exists is called the _____.
4. All of the living and nonliving parts of an organism's surroundings are called its _____.
5. Do living things affect nonliving things? _____
yes, no
6. Do nonliving things affect living things? _____
yes, no
7. A change in one part of an environment _____ cause a change in another part of the environment.
can, cannot
8. The study of the relationship between organisms and their environment is called _____.

REACHING OUT

An aquarium is an ecosystem you may have in your home. A balanced aquarium is a healthy ecosystem. It is one in which all the organisms receive all the things they need to live.

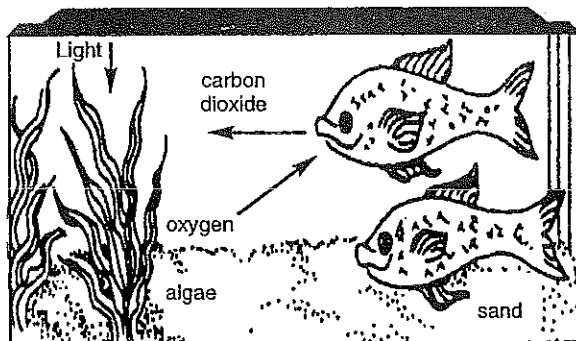


Figure B

What are the living and nonliving parts of an aquarium ecosystem?

biotic _____

abiotic _____

