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Chapter 5

section 1: Interactions between Living Things

Chapter 5	Objectives
	Explain the difference between abiotic factors and biotic factors.
Section 1	Differentiate between an organism's habitat and its niche.



Ecology – Biosphere – biotic factor – abiotic factor – population – biological community – ecosystem – biome – habitat – niche – predation – symbiosis – mutualism – commensalism

First: Ecology

Ecology is the study of the relationships between the organisms and their interaction with their environment.

Activity 2 – use the picture and answer the questions below:

Scientists who study ecology called **Ecologists**.

Ecologists Observe, ask question, analyze data, conclude then build models.

► What is the importance of building models for scientists?
Represent or simulate a process or system.

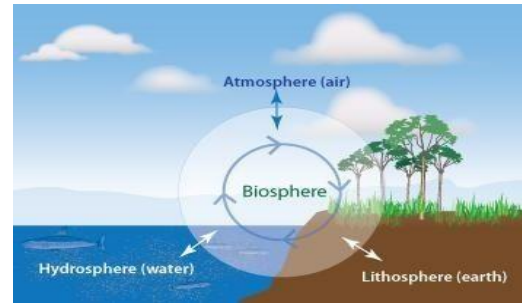
Ecologists



Second: The biosphere

By analyzing picture define the **Biosphere**.
Biosphere is thin layer of Earth and its atmosphere that supports life.

The biotic and abiotic factors of biosphere



Activity 3 – use the picture to complete the table

	Biotic	Abiotic
Definition	The living factors in an organism's environment	The nonliving factors in an organism's environment
Examples (4 at least)	Plants (grass) Frog Deer Fish insects	Sun Water Air Soil Wood





1

How do the abiotic factors affect biotic factors? Give an example?

Plants (biotic) can't grow without sun (abiotic). Or

If lush green plant that normally grows in a swampy area translate to dry desert will die because it will not adjust the new abiotic factors.

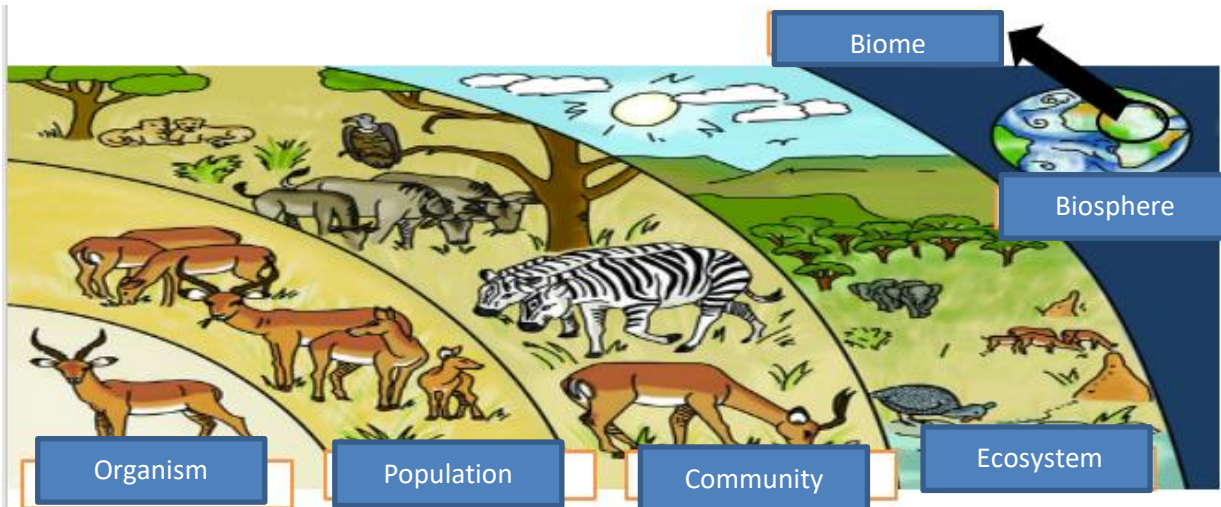


Third: Levels Of organization

The biosphere is too large and complex for most ecological studies. To study relationship within biosphere ecologist look at smaller pieces of biosphere.

1 Organism	An individual living thing. The lowest levels.
2-Population	A group of organisms of the same species live in the same place and time.
3- Biological Community	a group of interacting populations that occupy the same geographic area at the same time
4 Ecosystem	a biological community (biotic)and all of the abiotic factors that affect it
5 Biomes	A large group of ecosystems that share the same climate and have similar types of communities.
6 Biosphere	Thin layer of Earth and its atmosphere that supports life. The highest level.

Activity 5 - Use the 6 words in the table and complete the labels



Organisms and their relationships

Ecosystem Interaction

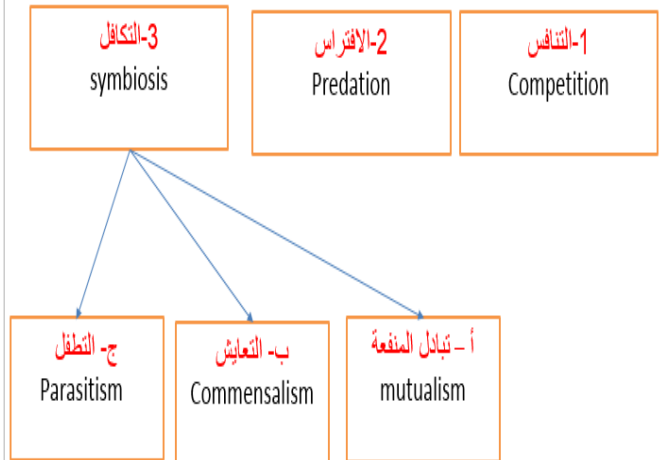





Compare between a habitat and a niche. Give one example.

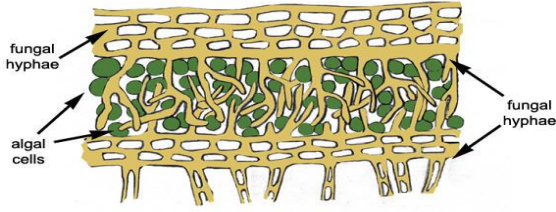






- A habitat is an area where an organism lives.
-example: birds on tree, bats in caves, camels in desert,,, etc
- A niche is the role or position that an organism has in its environment
- example: Hunting, mates , make a nest,,, etc

First: Community interaction (page 106-108)

Organisms that live together in a biological community constantly interact. These interactions, along with the abiotic factors, shape an ecosystem. Interactions include:



Examples	Definition	Community interaction
When Tigers compete to hunt deer. 	Occurs when more than one organism uses a resource at the same time. (resources like food, water, mate s and shelters)	التنافس Competition
1- A cat eats a bird. 2- Some insects like Ladybugs mantises are predators. 	The act of one organism consuming another organism for food . - Predator مفترس - Prey فريسة	الافتراس Predation
3- Some plants (Venues flytrap) eat insects (by secreting sweet and sticky substance) 		

<p>_____</p>	<p>Close mutualistic, parasitic, or commensal association between two or more species that live together.</p>	<p>التكافل symbiosis</p>
<p>Lichens (Relationship between fungi and algae) <u>algae</u>: Provide food for fungi <u>fungi</u> : habitat for algae</p> 	<p>Symbiotic relationship in which both organisms benefit.</p> 	<p>تبادل المنفعة mutualism</p>
<p>Relationship between Lichens and trees. Lichens gaining more exposure to sunlight. Trees not harmed and not get any benefit</p>  <p>Clownfish & sea anemones (Clownfish swim among the sting tentacles of sea anemones without harm)</p> 	<p>symbiotic relationship in which one organism benefits and the other organism is neither helped nor harmed</p>	<p>التعايش Commensalism</p>
<p>-External parasitism : Ticks and fleas on dogs</p>  <p>-Internal parasitism. like bacteria in blood. And like like heartworms</p> <p>-brood parasitism: cowbirds put their eggs in in another bird's nest.</p> 	<p>Symbiotic relationship in which one organism benefits at the expense of another organism.</p>  <p>Figure 2.10 This heart from a dog is infected with internal parasites called heartworms. Internal parasites depend on a host to supply their nutrients and habitat.</p>	<p>التطفل Parasitism</p>

