



Abiotic vs. Biotic Factors in an Ecosystem

Objective: Students will be able to define and differentiate between Biotic and Abiotic factors in an Ecosystem as well as think about how these factors interact with each other.

Directions:

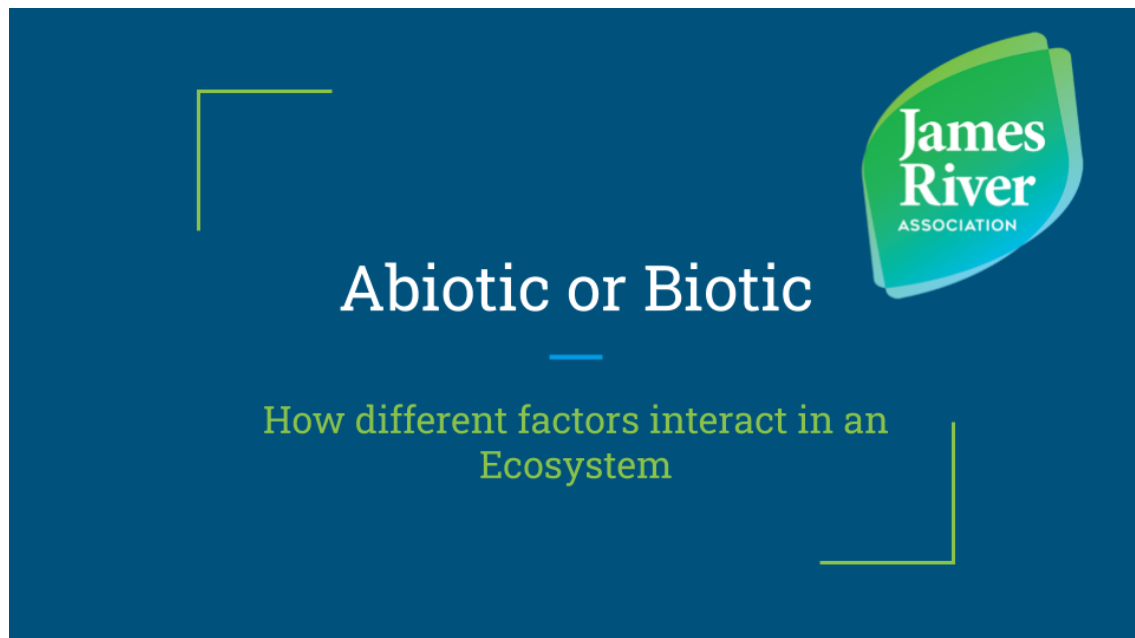
First, the Students will watch a video at this link:

https://www.youtube.com/watch?v=E1pp_7-yTN4

This video will introduce them to what an ecosystem is, as well as the difference between living and nonliving things. It will also start to introduce that idea that these factors interact with each other.

Next, the students will go through the powerpoint slides below, they can also be found at this link:

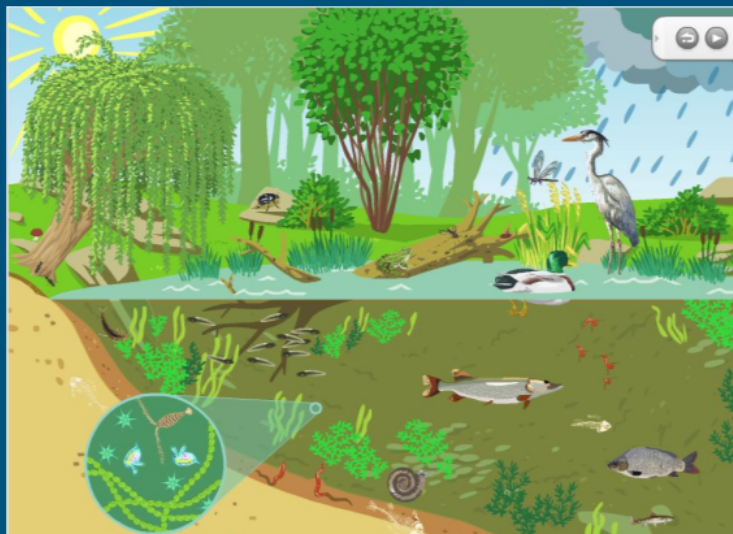
https://docs.google.com/presentation/d/e/2PACX-1vTnEin35L8PlwIXVE-R3yoX-eRmDNz_Dhii8Onxxuu1PJE6fz8k3VnjGJcHcXDnhnKqEWsOFN8BMmYo/pub?start=false&loop=false&delayms=10000



What do these words mean?

- **Ecosystem** - a system of living organisms interacting with the non-living components of their environment
- **Biotic** - (Bio = Life) the LIVING factors in an ecosystem
- **Abiotic** - the NONLIVING factors in an ecosystem

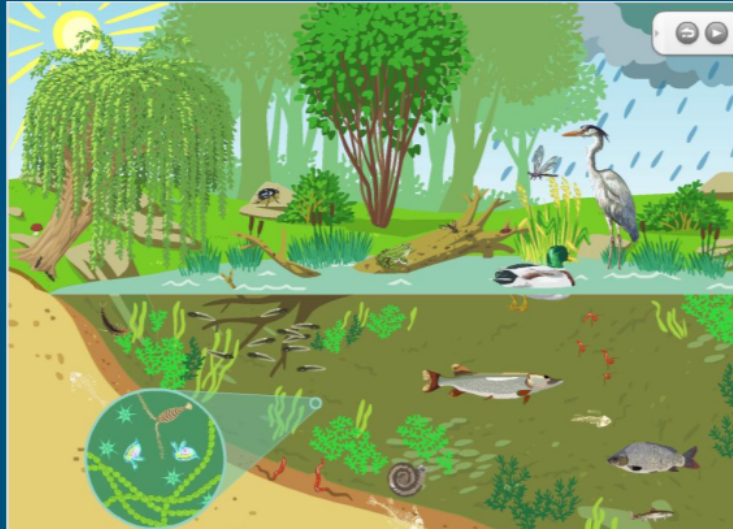
Can you find all of the Biotic (Living) Factors in this Ecosystem?



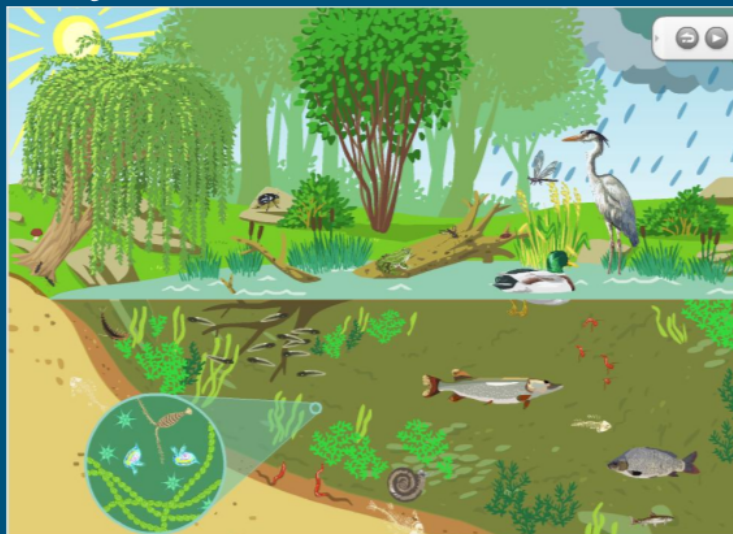
Can you find all of the Biotic (Living) Factors in this Ecosystem?

Biotic Factors -

- Fish
- Birds
- Trees/Plants
- Underwater Grasses
- Bacteria
- Insects
- Zooplankton
- Phytoplankton/Algae



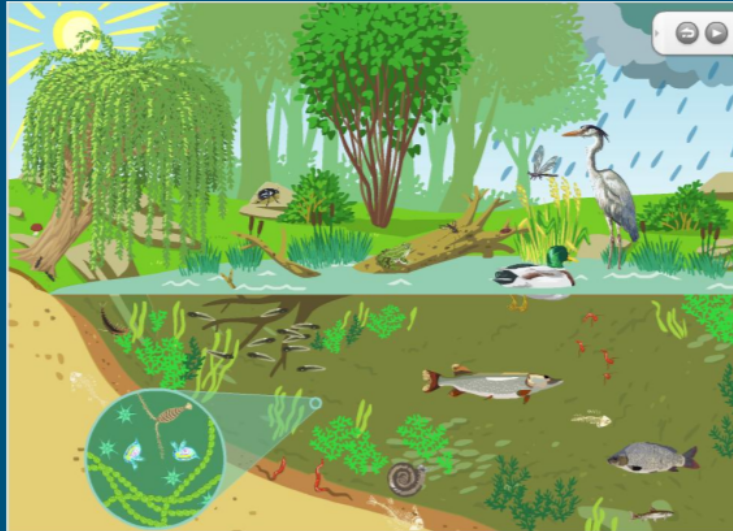
Can you find all of the Abiotic (Nonliving) Factors in this Ecosystem?



Can you find all of the Abiotic (Nonliving) Factors in this Ecosystem?

Abiotic Factors -

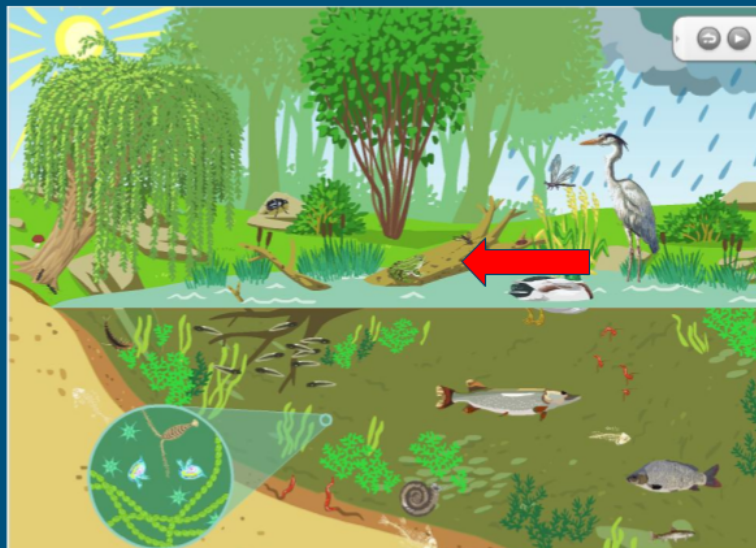
- Sun/Heat
- Rain
- Clouds
- Water
- Rocks
- Sediment/Dirt
- Air/Oxygen



Question

Is this dead tree an abiotic or biotic factor in this ecosystem?

A: Biotic, because it was once a living thing. Things that are abiotic factors were never living.



Activity

- Things you will need
 - Paper
 - Your favorite pen or pencil
 - Your Scientific Observation Skills
- 1. Create a T Chart on your paper. One heading will be "Biotic" and the other "Abiotic."
- 2. Go outside to your backyard and find a good place to sit and observe.
- 3. Spend 10-15 minutes writing down as many biotic and abiotic factors that you can see!

[illegible]

Conclusion:

Final Questions

- Do the abiotic and biotic factors within an ecosystem interact with each other?
- Do biotic or living organisms need abiotic factors in order to survive?

Pick one biotic factor from your activity and name all of the abiotic factors that it needs to survive and why!

Do the abiotic and biotic factors within an ecosystem interact with each other?

- Yes, the living and nonliving components in an ecosystem are interconnected through nutrient cycles and energy flows.

Do biotic or living organisms need abiotic factors in order to survive?

- Yes, all living organisms rely on at least some abiotic factors in order to survive. Think about how every animal and plant needs water in order to survive. Water is an abiotic factor in an ecosystem.

Pick one biotic factor from your activity and name all of the abiotic factors that it needs to survive and why!

- Example: Trees, they need water, sunlight, soil and carbon dioxide in order to survive and undergo photosynthesis to produce food. They also rely on nutrients like nitrogen and phosphorus in order to grow big and strong. Nitrogen, phosphorus, water, sunlight, soil, and carbon dioxide are all nonliving, or abiotic, factors within the ecosystem.

Also check out this quizlet to help you understand the topic!

https://quizlet.com/_89i9t7?x=1jqt&i=2rwhb3