

4th grade Fall or Spring - Habitats

Lesson 1 Habitats and interactions

Lesson 2: Habitat and the nutrient cycle (producers, consumers, decomposers)

Lesson 3: Habitats and adaptations

Date: Fall September / October or Spring March - May

Lesson 1 Objective: Students will understand what a habitat provides for creatures to meet their needs for survival and consider the interactions of living and not living things in an environment.

Background: An ecosystem is as broad term for a collection of parts that interact with each other to function as a whole. Other types of systems that students might relate to include: Digestive System (when we eat, what system helps us get energy from our food?); Computer/Internet system (when we are researching something on electronic devices, what system are we using?) When part of a system is missing or not functioning, the system as a whole is affected.

A habitat is the same concept on a smaller scale. A habitat provides what is needed for particular living plants and animals to survive. There are thousands of different habitats in the world and they differ depending on the diverse combinations of light, temperature, terrain, moisture, elevation and soils. These elements affect the type and amount of water, food, shelter and space available. These living and nonliving elements within the habitat make up a habitat system. Multiple habitats can exist within an ecosystem.

Our garden provides the food, water, shelter and space for many plants and animals. These organisms depend on interactions with other living and non living elements in our garden for survival. When conditions are very good (plenty of food, water and shelter) for an organism, its population will grow affecting other populations. Alternatively, if one population is eliminated, it affects the other organisms within the habitat.

Preparation:

- Designate 3 observation station areas in the garden and flag or mark particular interaction areas if you wish to draw attention to them
- Set up whiteboard, eraser and dry erase marker
- Gather: clip boards, habitat observation sheet, pencils, magnifier glasses
- Gather: yarn/twine, habitat cards living and non living

Action:

Class discussion (8 min):

- Meet first with the class as a whole gathered to see the whiteboard and review the terms: habitat (and what it provides) and interactions.
- We all need a place to live and grow. What do you need for survival? What do animals need to survive? (Food, Water, Shelter and Space). What does the garden habitat provide to the creatures that live there? What do plants need to survive? (sun, water, air, nutrients). Write these on the board. Can our school be a habitat? Can the garden be a habitat? Are they different?

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- What resources do the plants provide the animals? (food, shelter). What resources do the animals provide the plants? (Pollination, beneficial predation, seed dispersal, nutrient cycling.) These are all considered interactions between living things in the garden.
- Can there be interactions with non-living elements in our garden? What are the non-living elements in the garden? (Sun, Soil, air, rocks, trowels, fence etc.) What might a rock or the stump provide an animal? - shelter. What about the sun? The sun provides energy for plants to grow.
- Explain that you will divide into two groups. One group will work together to complete an activity about interactions among living and non-living elements in the garden. The other group will identify certain habitats in the garden and look for interactions within the habitat. Then students will switch so everyone can do both stations.

Group 1(12 min): Web of garden interactions

This activity aims to get students thinking about the interdependence of plants and animals and non-living elements within the garden habitat.

1. Have the students help you make two piles for the habitat cards, one for living and one for non-living elements within the habitat.
2. Hand out the habitat cards (including living and nonliving) and have students hold their cards so that everyone can see what they have. Students will be trying to make as many connections between the cards as they can.
3. Begin with the student holding the sun card – remind students that the sun is the source of energy for all living things. The sun will hold on to one end of the yarn.
4. The sun picks one other person (based on the card they hold) to pass the ball of yarn to and explain why. (example: passed to a plant which produces mass with energy from the sun).
5. The game continues in this way with each student choosing a student with a card that their card interacts with. (plant provides food for an aphid). Continue until everyone in the circle is holding the yarn.
6. Students notice that everything in the garden habitat is interconnected. Now consider what might happen if one of the elements is changed. Tug on the yarn and the student affected tugs on the yard and so forth until everyone has felt the ripple effect in the habitat.
7. If time allows, students can pick a different card and play again.

Group 2 (12 min): Habitat Investigation

This activity will help students think about the critical elements of a habitat (food, water, shelter, space), to consider how our garden serves as a habitat, and how living and non living things interact.

1. Divide this small group into 3 groups and provide the lab sheet/clipboard and a pencil to each group. The group will agree on choosing a plant or animal in their habitat to complete the lab sheet. One person will record results.
2. Explain that in the garden they should practice quiet observation of the creatures within the habitat and remind them of the garden rules including respecting all creatures. We are here to observe

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behavior, so be as invisible as possible to make the best observations, but students should feel free to gently move elements around to make close observations.

3. Travel into the garden in a line separating out the smaller groups at the 3 stations. They should have 8-10 minutes to complete the lab sheet. Give a 5 minute warning to complete their observations.

Wrap Up:

What did all the yarn links remind you of? Could one thing exist in the garden without interacting with other things? If we passed the yarn around again, could you have found a different link for your object?

What do plants and animals need to survive in their habitat? Can someone describe the habitat they observed and recorded information about? What plants and animals live in the habitat? How did the habitat provide shelter, food, water for the inhabitants?

Think of all the different ways a plant provides food for animals – (they provide sugar water for aphids, they provide fruits and vegetables for humans, they provide grass for cows, when dead, they are food for decomposers). Think of all the ways plants provide shelter for animals in the garden (provide stems for spider to build a web, roots provide soil pockets for sow bugs, leaves provide shelter from wind/rain for aphids)

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Habitat Investigation Lab Sheet:

What 3 words can you use to describe your habitat? (examples: wet/dry, shady/sunny, hot/cold, light/dark, soft/scratchy, moist/scorched, underground/ground level/above ground, teeming with life/lacking life):

Choose one plant or Animal that lives in your habitat -

How does the habitat provide food for your plant or animal?

How does the habitat provide water for your plant or animal?

How does the habitat provide shelter for your plant or animal?

What is one question that you have about your habitat?