

Hafta Have a Habitat – 4th Grade Day Session

Purpose:

- To provide a fun and exciting learning experience
- To highlight plant and animal needs and how their habitats provide for their needs
- To encourage children to consider the impact, positive and negative, that humans can have on their environment

Science Standards of Learning Addressed:

1. See specific activity descriptions

Outline:

Opening (~45 mins) – Welcome, Introductions, Policies and Guidelines
Hafta Have a Habitat

Station Rotations + Lunch (~2.25 hours) –

1. Homes for Sale / Wanted: New Home
2. Earthwalk
3. Flower Fun

Large Group (~45 mins) – Run Rabbit Run!

Closing (~30 mins) – Sharing and Review from the Day
Campfire Story

Take Home:

Outdoor School Brochure

Brethren Woods Summer Brochure

Wildflower Seed and Planting Guide (Spring)

Birdseed and Pinecone Birdfeeder Instructions (Fall)

Follow-up Activities:

Activity Sheet

Teacher Evaluation

Hafta Have a Habitat

Science Standards of Learning Addressed –

1. 4.5 – The student will investigate and understand how plants and animals, including humans, in an ecosystem interact with one another and with the nonliving components in the ecosystem. Key concepts include
 - organization of populations, communities, and ecosystems and how they interrelate;
 - flow of energy through food webs;
 - habitats and niches.

Supplies – Ecosystem cards

Activity –

1. Ask students to help define a habitat (the natural environment of an organism).
2. Next, have students help identify the five habitat needs (food, water, air, space, shelter) and some ways that animals meet them. Lead a brief discussion about habitats using the student's answers.
3. Help students get into groups of 6-8 with an adult leader.
4. Give each group an ecosystem card and ask students to come up with the types of animals that may live there. For the different animals, suggest what those animals might use to meet the 5 habitat needs.
5. Ask students to help define a niche (the position or function of an organism in a community of plants and animals).
6. Invite groups to discuss what the niche of each of the animals they have identified.
7. Ask students to work together in their groups to discuss how energy would move through that ecosystem in food webs (sun to producers to primary and secondary consumers to decomposers).
8. If time allows, switch cards so that groups have different ecosystems to talk about in their groups.
9. Allow groups to share some of the answers that they have developed with the large group.
10. Explain that today's activities will focus on different kinds of habitats, the habitat needs, and how different plant and animal species interact within an ecosystem.

Homes for Sale / Wanted: New Home

Science Standards of Learning Addressed –

1. 4.1 – The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which
 - data are communicated with simple graphs, pictures, written statements, and numbers.
2. 4.5 – The student will investigate and understand how plants and animals, including humans, in an ecosystem interact with one another and with the nonliving components in the ecosystem. Key concepts include
 - plant and animals adaptations;
 - organization of populations, communities, and ecosystems and how they interrelate;
 - flow of energy through food webs;
 - habitats and niches;
 - changes in an organism’s niche at various stages in its life cycle; and
 - influences of human activity on ecosystems.
3. 4.9 – The student will investigate and understand important Virginia natural resources. Key concepts include
 - watersheds and water resources;
 - animals and plants;
 - forests, soil, and land.

Supplies – Index cards, writing utensils, “For Sale” signs, client cards

Background –

An animal’s habitat is the place in which it lives. In that place, an animal must be able to find food, water, cover, and a place to raise young (or food, water, air, space, and shelter). In some urban and suburban settings, commercial and residential development may disturb habitats to the point where animals can no longer meet these basic needs.

Habitat loss is the greatest threat to biodiversity, the variety of living things in a given area. Generally, an area that has a great deal of biological diversity will produce more goods (fruits, nuts, vegetables, lumber, etc.) and will be more resilient in the face of a natural disaster (disease, floods, etc.). A decline in biodiversity leaves an ecosystem depleted, unbalanced, and may eventually prevent it from functioning properly.

Activity –

1. Discuss how animals build special homes as a part of their habitats (beaver lodges, bird nests, fox dens, etc.) Point out that some animals don’t build special homes but use the natural features of their habitat.
2. See if anyone in the group has ever moved and sold their home. How did they go about selling it? How did they look for a new home? Explain that

- in this activity the students will be real estate agents and clients trying to sell and find a new home.
3. Have students get into groups of 3 or 4.
 4. Give each of the groups an index card, writing utensil, and “For Sale” sign. Let each group randomly draw the name of an animal from the client cards stack. As a group, the students need to find a habitat for that animal and write a classified ad describing their habitat/home that they are trying to sell. Encourage groups to think about their animal’s adaptations, how they interrelate to other plants, animals, and the natural world, what they eat and what eats them(!), their niche and life cycle stage, and how they might be influenced by humans. They should put their “For Sale” sign near the site.
 5. Here are some examples to give students an idea of what to write. Have them guess what animal they would be for.
 - **Great Grasslands:** Prime grassland available in Africa. Loaded with antelope, springboks, zebras, and other tasty prey. Close to refreshing water holes and shady clumps of acacia trees. Lots of wide-open territory. Great for new pride. Call before this great buy is snatched up. (Lion)
 - **Underground Castle:** Lots of tunnels available in the Smith family’s backyard. Home to juicy earthworms and other tasty creatures. Loose, moist soil for easy tunneling and no pesky cats in the neighborhood. This super backyard buy is available immediately. (Mole)
 6. Define the boundaries for the activity and determine a signal to call students back to the meeting area.
 7. When all of the groups have returned, hand out a client card and index card to each group (be sure that the clients match the homes that were put up for sale!). Have each group write down some of the habitat features that their client would be looking for in a home.
 8. When everyone is finished, take a tour of the “For Sale” homes as a large group. Let each group read their description and see if anyone would be interested in buying that home. Have “clients” match up with the “For sale” homes. Be sure to recollect signs and cards as you tour.
 9. Discuss the following: What would make animals have to find a new home? What do people do that would make animals need to find a new home? What can we do to help animals who have been forced out of their homes?
 10. Remind students of the wonderful diversity and importance of Virginia’s natural resources – including watersheds and water resources, animals and plants, and forests, soil, and land.

Earthwalk

Science Standards of Learning Addressed –

1. 4.1 – The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which
 - objects or events are classified and arranged according to characteristics or properties.
2. 4.4 – The student will investigate and understand basic plant anatomy and life processes. Key concepts include
 - the structures of typical plants and the function of each structure;
 - processes and structures involved with plant reproduction;
 - photosynthesis; and
 - adaptations allow plants to satisfy life needs and respond to the environment.
3. 4.5 – The student will investigate and understand how plants and animals, including humans, in an ecosystem interact with one another and with the nonliving components in the ecosystem. Key concepts include
 - plant and animals adaptations;
 - organization of populations, communities, and ecosystems and how they interrelate;
 - flow of energy through food webs;
 - habitats and niches;
 - changes in an organism's niche at various stages in its life cycle; and
 - influences of human activity on ecosystems.
4. 4.8 – The student will investigate and understand the relationships among Earth, the moon, and the sun. Key concepts include
 - the motions of Earth, the moon, and the sun;
 - the causes of Earth's seasons.
5. 4.9 – The student will investigate and understand important Virginia natural resources. Key concepts include
 - watersheds and water resources;
 - animals and plants;
 - forests, soil, and land.

Supplies – See specific earthwalk options

Background –

Design an earthwalk experience using activities below that are appropriate for the size of the group, time limit, and area of camp being used.

Activity –

1. Explain that the group is going on an earthwalk. An earthwalk is similar to a hike, but along the way we'll stop to look around and do some activities. Remind everyone to keep alert!

2. Set some ground rules including staying on the path (unless otherwise instructed) and staying together as a group. Ask an adult leader to take up the rear. Please do not allow students to play on any of the cooperation course elements.
3. Possible activities and items of interest:
 - a. Terrific Trees –
 - Sassafras Tree (three shapes of leaves, let kids smell a leaf)
 - Red Bud Tree (heart-shaped leaf, bud colors)
 - Tulip Tree/Yellow Poplar (two names, leaf shape)
 - Red Maple Tree (leaf shape, stem color)
 - Evergreens (needles, # of needles in a bundle)
 - b. Habitat Hike – As you hike, encourage students to look for signs of animal, bird, or insect homes. Be careful not to disturb any you find. What makes it a good home? How was it created? If you can't find any homes, look for places you think would make a good home. Review the needs for a good habitat (food, water, air, space, and shelter) and then decide who would live there and why. You can also discuss the niches of different animals, how energy flows through a food web, and how humans can influence ecosystems.
 - c. Wildflower Hunt – Encourage students to hunt for wildflowers and fill out a wildflower hunt sheet.
 - d. Positively Plants – Use trees, wildflowers, or other plants to review the structures of plants, their reproductive processes, photosynthesis, and ways they adapt and respond to their environment.
 - e. Mayapples – Invite students to peak under the umbrella.
 - f. I Feel the Earth Move – Explain that the earth is moving all the time. It is rotating around the sun and spinning around on its axis every 24 hours. How can we measure or notice that the earth is moving from here on earth? Ask students to put a rock on the shadow of the basketball court pole. How far will the earth move during their hike? Ask each student to get a small rock and mark where they think the shadow will be when they return. Explain that the pole is acting in a similar way to a sundial that people use to tell time. Discuss how the position/tilt of the earth in relation to the sun affects seasonal changes.

Flower Fun

Science Standards of Learning Addressed –

1. 4.1 – The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which
 - models are constructed to clarify explanations, demonstrate relationships, and solve needs.
2. 4.4 – The student will investigate and understand basic plant anatomy and life processes. Key concepts include
 - the structures of typical plants and the function of each structure;
 - processes and structures involved with plant reproduction;
 - photosynthesis; and
 - adaptations allow plants to satisfy life needs and respond to the environment.

Supplies – Construction paper flower patterns, tape, green flexible straws, scissors, flower poster/chart

Activity –

1. Before students arrive, place a sheet of petals, a sepal/pistil/leaves sheet, and a stamen sheet at each person's place, along with a pair of scissors.
2. Help students to get into table groups of 6-8 students. Ask students to leave all of the materials on the table until you go over the directions.
3. Explain that plants and flowers are important parts of habitats and ecosystems. Ask students to share ways that flowers and plants contribute to ecosystems. If students have already gone on the hike, invite them to share about the wildflowers they hunted for.
4. Explain that in this activity, they will be constructing a model of a flower. Each of them has 5 petals, 5 sepals, 1 pistil, 6 stamens, and 2 leaves. Explain that they can begin cutting out the flower parts as you review them out loud. (Note: Students do not have to cut out all of the parts if they don't want to or can't within the time frame. Make sure they cut out at least one of each part. Remind them to keep their scraps separate.)
5. Using the flower poster/chart, go over the different parts of the flower and its importance. Be sure to highlight the reproductive processes and structures, photosynthesis, adaptations plants have, and how flowers interact with animals in its ecosystem (attracting insects, pollination, etc.)
6. To assemble their flowers, students should poke the straw, which will be the flower's stem, through the middle of the sepals. Then make a "sandwich" with all of the flower parts (2-3 petals, 3 stamens, 1 pistil, 3 stamens, 2-3 petals) lining up the tabbed ends. Push the whole "sandwich" into the straw at once. It may be easier if you fold the narrow part down the middle first. Secure with tape by catching part of the paper and the straw. Tape the leaves to the lower part of the stem.

Run Rabbit Run

Science Standards of Learning Addressed –

1. 4.1 – The student will demonstrate an understanding of scientific reasoning, logic, and the nature of science by planning and conducting investigations in which
 - predictions and inferences are made, and conclusions are drawn based on data from a variety of sources;
 - hypotheses are developed as cause and effect relationships;
 - data are collected, recorded, analyzed, and displayed using bar and basic line graphs;
 - numerical data that are contradictory or unusual in experimental results are recognized,
 - data are communicated with simple graphs, pictures, written statements, and numbers;
 - current applications are used to reinforce science concepts.
2. 4.5 – The student will investigate and understand how plants and animals, including humans, in an ecosystem interact with one another and with the nonliving components in the ecosystem. Key concepts include
 - plant and animals adaptations;
 - organization of populations, communities, and ecosystems and how they interrelate;
 - flow of energy through food webs;
 - habitats and niches;
 - influences of human activity on ecosystems.
3. 4.9 – The student will investigate and understand important Virginia natural resources. Key concepts include
 - watersheds and water resources;
 - animals and plants;
 - forests, soil, and land.

Supplies – Colored “food” pieces, boundary markers, hula-hoops, poster board graph, wet erase markers

Activity –

1. Before students arrive, use the boundary markers to create a playing area. Sprinkle the food pieces throughout the space. Play several hula-hoops within the playing area.
2. Explain that in a habitat only a limited number of animals of the same species (density) can live together at the same time because of limited resources like food, water, and space.
3. Explain that in this activity we are going to explore how the limiting resources could challenge the survival of a rabbit in a habitat.
4. Ask two participants to be coyotes or foxes. All the other players are rabbits. In order to survive the season, the coyotes need to eat at least two rabbits. The rabbits need to find at least three foods to survive the season. The season is two or three minutes long.

5. To get their food, the rabbits need to leave their home, go into the open (danger zone), and collect at least three colored pieces. They can only collect one piece at a time and then they must return to the safe area before going back out for another piece. They must get back to the safe area with three pieces of food to survive the season.
6. In the danger zone, the two coyotes/foxes are waiting to eat the rabbits by tagging them and taking them to their side. Rabbits who are tagged should be escorted to the coyote/fox side willingly. Coyotes/foxes can only get one rabbit at a time. After they have escorted them to their side, then they can return for another rabbit.
7. Before playing a round, ask the participants: What does the rabbit do to be safe in the wild? In this activity, rabbits may hide themselves by jumping inside one of the hula-hoops. The coyote/fox cannot hang around the hula-hoop waiting for the rabbit to leave but must chase another rabbit.
8. After the round, the season is over. Ask rabbits and coyotes to share whether or not it was easy in their role. Why or why not?
9. Rabbits who were captured become coyotes/foxes (because they were able to do so well and raise lots of young). Any coyotes/foxes that did not get two rabbits will “die,” decompose, and come back as rabbits. Any rabbits that did not get enough food will “die,” decompose, and come back as rabbits. Return any food pieces to the open area.
10. Record the numbers of rabbits and coyotes before and after the season on the chart.
11. Play another round with the new ratios. Discuss what happened that round. Resituate ratios and record the numbers on the chart. Ask students to predict what will happen this round based on the chart’s results from previous rounds.
12. Play another round with the new ratios. Discuss what happened that round. Resituate ratios (except this time, do not return any food what was collected) and record the numbers on the chart. Ask students to predict what will happen this round based on the chart’s results from previous rounds.
13. If time allows, play more rounds trying different ratios of food, rabbits, and coyotes/foxes.
14. Ask students to circle up in groups with a teacher or parent and discuss what would happen if:
 - We had 20 food pieces, seven coyotes/foxes, and three rabbits. (*Neither the coyotes nor the rabbits would survive. Coyotes/foxes would need to fight for food and the rabbits would be eaten in no time.*)
 - We had 20 food pieces, two coyotes/foxes, and eight rabbits, but some of the rabbits are sick. (*The coyotes/foxes would quickly eat the rabbits.*)
 - We had only 10 food pieces, two coyotes/foxes, and eight rabbits. (*The rabbits would die of hunger and then the coyotes/foxes would also die because there would not be enough food for them either.*)
15. As a large group, ask what the students learned from this activity. Discuss some reasons that ecosystems get out of balance. How do humans contribute to this problem? Explain that nature has natural methods of maintaining the balance, but often humans interfere with these natural methods.