



A Teacher's Guide to Everybody Needs a Home Outreach & Animal Habitats Discovery Lesson Grades 3-6

Description Food, water, shelter, and space- all creatures need a habitat that provides these things. Meet several animals from the different habitats and discover how these needs are met. Also explore how animals depend upon and relate to one another within a habitat.

Outcomes Students will understand that all animals need food, a source of water, a safe shelter, and space in which to live in their habitats. Students will examine several different habitats and will recognize that animals need the same things humans do to live in their habitats.

Suggested Activities Before Your Outreach/Discovery Lesson:

Vocabulary

adaptation	habitat
food web	populations
biodiversity	

- Have the students brainstorm a list of habitats from around the world. Compare and contrast the habitats. Discuss the animals that live in the habitats. How are the animals alike and different?
- Compare the students' habitats with those of animals. Create a Venn diagram that compares and contrasts the needs of the students and the needs of animals. Then, as a class look at how those needs are met. For example, how do the students fulfill their need for food, and how is it different than how animals find food.
- Research different types of human habitats. Examine homes from all around the world. How are the homes alike, and how are they different? How does the environment or the culture affect the type of home?

Suggested Activities After Your Outreach/Discovery Lesson:

Classroom Activities:

- Discuss the lesson with your students. What new ideas or information did they learn? Was anything confusing? What did they like best?
- See the attached activity Everybody Needs a Home Activities: Oh, Deer! for a game that illustrates an animal's basic needs for survival and how populations of animals in a habitat change based on how those needs are met.
- Explore your backyard habitats. As a class, decide on a habitat to observe. Choose a habitat that would be easy to visit on several different occasions (the school yard, a local park, a backyard pond, etc.) Keep a nature journal on the animal life in that habitat- don't forget

insects and spiders when you observe your habitat! Where do the animals find food and water? How are their shelter and space needs being met? How do the animals depend on each other and on the plant life in the habitat? Try to observe the habitat during different seasons. For a great resource on helping students to create nature journals, check out Claire Walker Leslie and Charles E. Roth's Keeping a Nature Journal: Discovering a Whole New Way of Seeing the World Around You.

- Observe (but do not disturb!) nests in your area. Discuss with your students the purpose of nest building among birds. Why do birds build nests? At what point in a bird's life is the nest actually considered a shelter? Do birds always sleep in nests? Talk about how different types of birds construct different types of nests. Compare the types of materials birds use as well as how some birds use nests constructed by other birds and others build no nest at all. Challenge the students to build a nest from "found" materials in their environments. For a complete resource on nests, use Peterson's Field Guides: Eastern Bird's Nests.

Homework Assignments:

- See Everybody Needs a Home Activities: Disappearing Habitats for a math graphing activity examining the shrinking rainforests of the world.

Interdisciplinary Activities:

- Discuss the impact of non-native species on various habitats. See Everybody Needs a Home Activities: Invasive Species for discussion points and activities.

Writing/Drawing Prompts:

- Create an animal that is well adapted to a particular habitat. Discuss as a class how different animals survive in different environments. For example, what features or behaviors allow a duck to live in a watery habitat while a hawk may be better suited for surviving in the desert? Choose a habitat and create an animal with adaptations that allow it to successfully meet all its needs in that habitat. Write a description of the animal highlighting its adaptations and draw an illustration. Write a story about a typical day in the life of your animal. For an extra challenge, choose an urban habitat. Discuss as a class the possible difficulties for an animal that needs to find food, water, shelter or space in a city.

Class Project Ideas:

- Build a classroom aquarium. As a class, decide what you would need to build and maintain a watery habitat. Research appropriate practices. A great resource for building a successful aquarium habitat is You & Your Aquarium: A Complete Guide to Collecting and Keeping Aquarium Fishes from Dorling Kindersly Limited. After the construction of the aquarium, take turns monitoring the animals and plants that make up the habitat. This is a valuable activity not only for determining how animals find food, water, shelter, and space in a habitat but also wonderful for showing students the hard work and general satisfaction with maintaining a living space.
- Get involved! As a class, take action and help save some of the amazing habitats all around the world. Talk about how sometimes "space" is the hardest thing for animals to find in their habitats. As a class, choose an endangered habitat. Then, agree on a way to raise money to donate to an environmental foundation. Some suggested foundations are The World Wildlife Fund (<http://www.worldwildlife.org>) and The Rainforest Alliance (<http://www.rainforest->

[alliance.org](#)) for habitats around the world. Also, check out the New Jersey Conservation Foundation (<http://www.njconservation.org/html/mission.htm>), the Pennsylvania Land Trust Association (<http://conserveland.org>) or the Delaware Department of Natural Resources & Environmental Control (<http://www.dnrec.delaware.gov>) for habitat conservation closer to home.

Resources for Students

- Eyewitness: Ocean by Miranda, MacQuitty, Frank Greenaway
- Eyewitness: Desert by Miranda MacQuitty
- Eyewitness: Pond & River by Steve Parker
- Visit the Monterey Bay Aquarium's website to play neat games and learn about a tide pool habitat and see how different fish find food in their habitats (and see some very cool video of the fish actually doing just that in the ocean!)- <http://www.mbayaq.org> search under "Activities, Games, and Music"
- Jungle (Eyewitness Books) by Theresa Greenaway
- Eyewitness: Seashore by Steve Parker

Additional Resources for Educators

- Visit <http://www.wildlifehc.org/home.cfm> for helpful info on creating your own backyard habitat
- For great information on different habitats around the world- complete with wonderful pictures and examples of some common questions about each habitat- go to <http://www.mbgnet.net/>
- Janice Van Cleave's Animals: Mind-Boggling Experiments You Can Turn into Science Fair Projects- by Janice VanCleave (general animal resource)
- How Nature Works (How It Works) by David Burnie (general animal resource)
- A Dictionary of Nature: 2,000 Key Words Arranged Thematically by David Burnie (general animal resource)

AAAS's Project 2061 Benchmarks

- 5. *The Living Environment: Interdependence of Life*
- 5. *The Living Environment: The Evolution of Life*

Pennsylvania Academic Standards in Environment and Ecology

- 4.6.4
- 4.7.4

New Jersey Standards

- 5.10. A.1

Everybody Needs a Home Activities: Oh Deer!

How do deer populations change as their habitats change? Play a game to determine how an animal find food, water and shelter in its habitat.



- First, discuss with the class the needs of any animal. Discuss how animals need to find food, water, shelter, and space in order for the animal to survive. Talk about the concept of populations of animals- all of the individuals of one species living in one specific area. Tell them that they are going to be playing a game that simulates how a population of deer finds food, water, and shelter in a habitat. Ask them to assume for this activity that the deer have enough space.
- Take the class to a large, safe space- i.e. gym, lunch room, field. Divide the class into two groups. One group will represent the habitat and the other will represent the deer. If one group is smaller than the other, the smaller group should be the deer.
- Put the deer group at one end of the room or space and the habitat group at the other. Each group should turn with the backs to each other. Each student in both groups should put their hands into a position that stands for something that a deer needs from its habitat: food (hands over stomach), water (hands over mouth), or shelter (hands over the head like a roof).
- At a signal from the instructor, groups should turn to face each other and the "deer" should walk to the "habitats." They need to find a "habitat" player that is making the same hand signal as they are. The next round, both players will be "deer." When they have found a match, they bring that player back to the "deer" side of the space. Each "habitat" may only have one "deer." Students may not change the sign during the round.
- If a deer cannot find what it needs (food, water, or shelter) the player becomes a "habitat" player for the next round. Play 3-4 rounds.

Follow-up discussion:

1. Ask the "deer" if at any point during the game it was hard to find what they needed. Why was it hard? What happened if they didn't find what they needed? (The "deer" died and became part of the habitat. When a deer dies in the wild, decomposers go to work, and the deer is now part of the resources for the rest of the population.)
2. Ask the "habitat" players to describe what happened when they were taken by the "deer." (They helped the "deer" to survive and became a "deer" themselves. If a deer successfully finds food, water, shelter, and space in the wild they survive to reproduce. If all the needs of the individuals of a population are met the population grows as the healthy deer reproduce.)
3. Discuss as a class how the population changed throughout the course of the game.

(Adapted from "Oh, Deer!" found in Project Wild: K-12 Curriculum and Activity Guide)

Everybody Needs a Home Activities: Invasive Species



When we introduce new species to a habitat, what happens to the species that already call that habitat home?

- First, hand out the attached "exit slips" to students and collect them without discussion of their answers. Tell the students to answer the question thoroughly and honestly. Collect the slips and save them for the conclusion of the lesson.
- Then, as a class examine cases of invasive species that have had incredible impacts on their various habitats. Look closely at the iguana population throughout Florida, the worldwide red-eared slider explosion, and the Burmese python problems in the Everglades. Talk about the impact these non-native species have had on the habitats into which they have been introduced. Discuss with the students some possible reasons why these former pets were released into various parts of Florida and other countries and habitats. Have these animals affected other species (plant and animal...including human animals!) abilities to survive? Discuss the economic problems that the iguanas have caused, the aggressive nature that has caused the red-eared sliders to eat other freshwater turtles out of house and home, and the species clashes as a result of Burmese pythons being introduced into a new habitat. Have any other species in their habitat been unable to find food, water, shelter, or space because of these invaders? Who is ultimately responsible for this habitat disturbance? In small groups, brainstorm possible preventive/treatment actions that could have or could still address this problem.
- Lead a discussion about any pets the students may have or have had. Is/was having that pet exactly what they expected? What sort of problems have they run into with their pets? Have the students brainstorm ways to make sure that pets do not end up reintroduced into the wild. Make sure that the idea that not all released pets become invasive species is discussed. Stress that most pets that are released die in the habitats into which they are released. Why would that be? Ask the students to think about what a pet's habitat consists of. What is its source of food, water, shelter, and space? Does that source exist outside in the "wild"? Discuss how knowledge about these pets prior to purchase can prevent pets being released into habitats. As a service to their school, create owner's guides for popular pets. Research appropriate care for each pet. Include information about adult size, space needs, life span, special requirements, and social and emotional needs for each pet. Make these guides available to all students in the school in an effort to avoid human impacted invasive species.
- At the conclusion of the activity, allow the students to revisit the "exit slips" from the beginning of the lesson. After having examined human-introduced invasive species, would any of the students change their previous answers? For an extension activity, allow students to look into how non-animal invasive species become introduced and the subsequent problems they cause.

(continued on back)

Resources for invasive species and pet care:

www.invasivespecies.gov

<http://www.issg.org>

Invasive Species series of books by Suellen May

The ASPCA Complete Guide to Pet Care by David L. Carroll and Stephen Zawistowski

The ASPCA also publishes individual books for various pets by Mark Evans

Ultimate Encyclopedia of Small Pets & Pet Care by David Alderton

Exit Slip:

You have just brought home a baby turtle. You have a tank set up, and everything seems to be going well. For the first few weeks, you make sure your turtle has all the things it needs. Soon, you realize your turtle is hiding all day. You stop playing with your turtle because he simply will not learn any tricks. You still continue to feed your turtle and clean its tank, but you now notice that the tank looks too small for the turtle. You didn't realize that the turtle would get so big because he was so small and cute when you got him. You're no longer happy with your pet that hides all day and stays perfectly still when you take him out to play. You're also pretty sure he's not too happy either in his too-small tank.

What do you do now?

Exit Slip:

You have just brought home a baby turtle. You have a tank set up, and everything seems to be going well. For the first few weeks, you make sure your turtle has all the things it needs. Soon, you realize your turtle is hiding all day. You stop playing with your turtle because he simply will not learn any tricks. You still continue to feed your turtle and clean its tank, but you now notice that the tank looks too small for the turtle. You didn't realize that the turtle would get so big because he was so small and cute when you got him. You're no longer happy with your pet that hides all day and stays perfectly still when you take him out to play. You're also pretty sure he's not too happy either in his too-small tank.

What do you do now?

Everybody Needs a Home Activities: Disappearing Habitats

Explore the effects of deforestation on the size and species of the world's rainforests.



The following worksheet is designed to introduce students to the idea of deforestation and its effect on the world's oldest habitats- the rainforest. It is also intended as a review of plotting line graphs. Be sure to copy the pages front-to-back for each student.

Answer Key:

1. Hint: Remind students to read the directions carefully. The directions say that 55 million acres are lost *per year*. The chart that follows asks for the size of the rainforest every two years.

Year	Millions of Acres	Year	Millions of Acres
2006	2,500	2018	1,840
2008	2,390	2020	1,730
2010	2,280	2022	1,620
2012	2,170	2024	1,510
2014	2,060	2026	1,400
2016	1,950	Total Loss	1,100

2. Answers may vary.

Bonus question: If deforestation continues at this rate, by the year 2050 all of the rainforests of the world will be gone.

Many of the figures used for this worksheet can be found at <http://www.rainforest-alliance.org>.

*The activity can be extended to include a map skills and geography lesson. Using a blank map (like those found at <http://www.eduplace.com>), have students outline the areas which used to be rainforest. Then, allow them to map out the areas that are currently covered by rainforests. Some wonderful resources for this project can be found at the following websites:

<http://www.rainforest-alliance.org>

<http://www.worldwildlife.org>

<http://www.rain-tree.com>

Name: _____

Date: _____

Disappearing Habitats

Food, water, shelter and space. By now you know that all animals need these four things in their habitat to survive. What happens when "space" is suddenly hard for an animal to find in its habitat? Investigate this question by studying the world's most amazing and most endangered habitats.

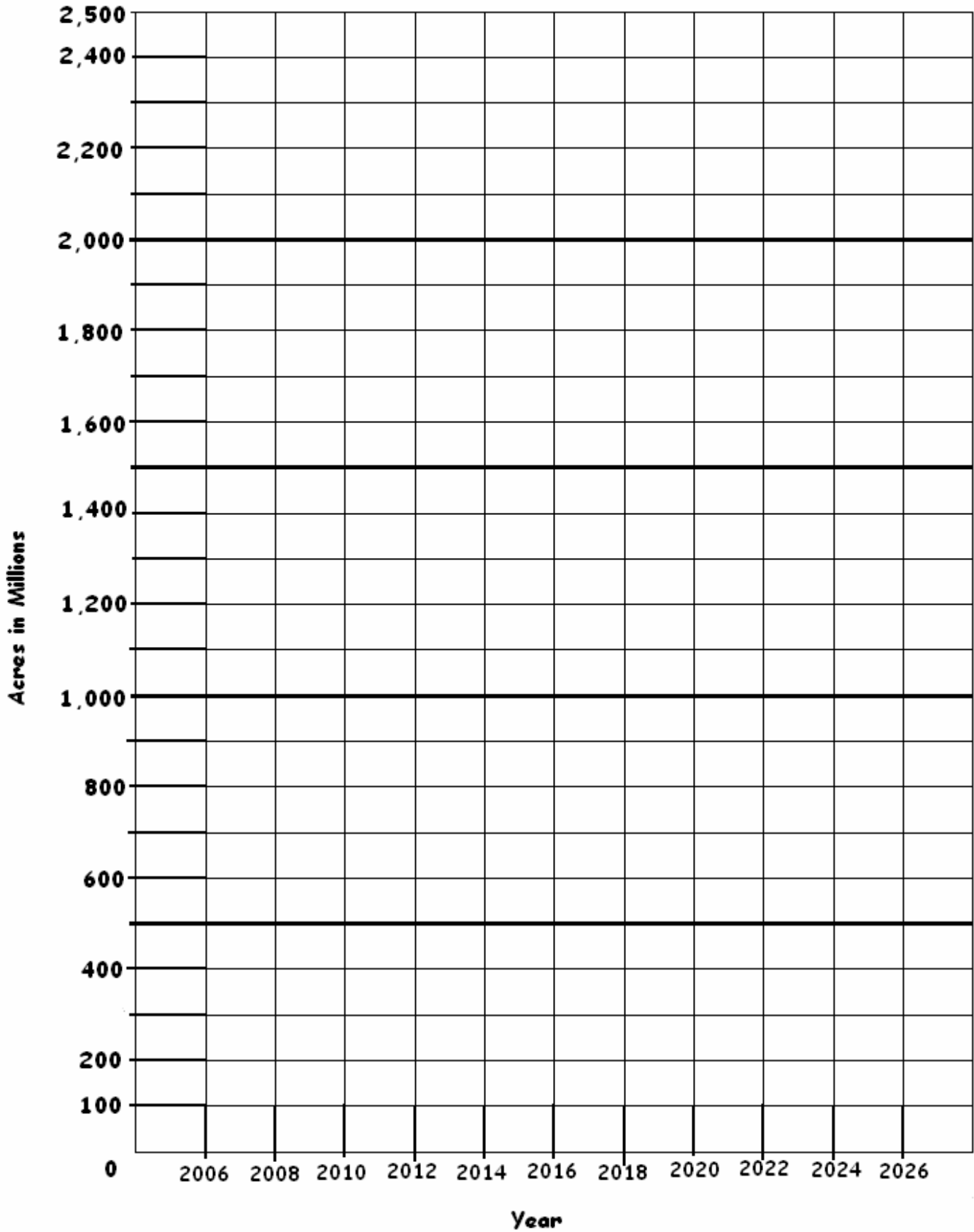
1. At one time, there were 6 billion acres of rainforest on the earth. In 2006, that number was somewhere around 2.5 billion. That may still seem like a very large amount of land, but every single year, we are losing about 55 million acres of land to deforestation. That is more than the area covered by Pennsylvania, New Jersey, and Delaware combined! What does the future hold for the rainforests if we continue to cut them down at this rate? Find out. Fill in the following chart that projects how big the rainforest will be in the future if we continue to lose 55 million acres of rainforest *every year*.

Year	Millions of Acres	Year	Millions of Acres
2006	2,500	2018	
2008		2020	
2010		2022	
2012		2024	
2014		2026	
2016		Total Loss	

Record this information on the graph on the back of this page.

2. Some scientists believe that in addition to the shrinking space in the rainforest that on average 4 species of living things (plants and animals) go extinct every hour in the rainforest. How many species could go extinct during your math class? _____
How many species could go extinct during a school day? _____
How many species could go extinct while you sleep? _____

Projected Estimated Rainforest Loss



For a bonus challenge, if we continue deforestation at the rate of 55 million acres a year, what year will the rainforests completely disappear? _____ How old will you be then?

_____ All the rainforests of the world could disappear in your lifetime...what will you do?