

## **INTRODUCTION**

Wildlife — the word brings many images to mind, a herd of deer, squirrels scolding from a treetop, a pack of wolves, the silent flight of an owl. But the world of wildlife includes many not-so-glamorous creatures as well: spiders, ghost shrimp, segmented worms, bark beetles, and protozoa. Each has basic needs for food, water, shelter, and space that must be met. None live totally on their own. Each lives out its life in a kaleidoscope of relationships with other individuals and species in different plant communities, in various climatic conditions and in all the various elements that affect life on planet Earth.

Just as wildlife individuals and species are interconnected, people too, are part of the living community on Earth. With the same basic needs, we affect and are affected by life around us. As we understand wildlife better, we may also experience a greater understanding of our own place in the mosaic of life on earth. Much is known about some wildlife species while little is known about others. We gain a better understanding of wildlife by observing animals and their habitats and by looking at how they fit into the world as a whole.

The following activities offer a guideline for learning how to observe wildlife and for gaining a better understanding of wildlife needs, habitats, population dynamics, adaptations, and management.

### **THE ACTIVITIES**

### **TIME REQUIRED**

Who Lives Here	60 minutes
Skins and Skulls	45 minutes
Toothpick Predator	20 minutes
Evaluate A Habitat	30 to 45 minutes
Design an Animal	30 to 45 minutes
Oh My Deer	60 minutes



## **COMBINING THE ACTIVITIES**

The activities in this unit are displayed singly. Depending upon the time available and the skill of the participants, you may choose to do only one activity or the entire series. For maximum learning, the activities should be experienced in the order listed in the unit. However, other suggestions are:

### **Suggestion 1:**

**Title:** Wildlife Observation/Who Lives Here/Skins and Skulls

**Introduction:** We will be involved in making observations about wildlife and drawing conclusions from our observations. We'll use observation skills to identify habitat characteristics and how the habitat is used by wildlife; identify similarities and differences between habitats, make inferences about animals' lifestyles by observing their body parts, and draw some conclusions based on observations.

**Transition:** To learn about wildlife and how they live, let's begin by looking at a habitat-(river bottom, forest, etc.) and recording our observations.

**Activity:** Who Lives Here?

**Transition:** We were able to draw many conclusions about these habitats and the wildlife by walking around and observing. We can also learn by observing the animals themselves, and making inferences about their behaviors and interactions.

**Activity:** Skins and Skulls

### **Suggestion 2:**

**Title:** Animal Adaptations/Skins and Skulls/Toothpick Predators/Design an Animal

**Introduction:** Activities focus on animal adaptations. We will identify habitat components animals need to live; look at animal parts and make inferences about where and how they live; identify ways animals are adapted to their environment, and tell how adaptations help animals survive.

**Transition:** Before we get to adaptations, take a look at what different kinds of animals need to live or survive.

**Activity:** Skins and Skulls

**Transition:** Using what we've learned about adaptation, here are two more creatures that live in this area. How are the "toothpick" and the "toothpick predator" adapted to their environment?

**Activity:** Toothpick Predator

**Transition:** We are standing in the middle of a wonderful habitat for some kind of animal. Use your imagination and your knowledge of adaptation to invent an animal adapted to live in this habitat.

**Activity:** Invent An Animal (skip setting the stage in this activity. It's done by combining activities).



**Suggestion 3:**

Title: Wildlife, Habitats and Management/Who Lives Here/Evaluate a Habitat/Oh My Deer

Introduction: What things would a habitat need in order to be suitable for wildlife? In addition to knowing the answer to that question, we will be able to describe similarities and differences between habitats, evaluate suitability among habitats, the suitability of a habitat for certain wildlife species, recognize that wildlife populations constantly fluctuate and make wildlife management decisions that affect the survival of a wildlife population.

Transition: We will begin by examining three different habitats and the wildlife that live in them.

Activity: Who Lives Here

Transition: We have examined and recorded data on three habitats. Now focus on one habitat and evaluate its suitability for wildlife.

Activity: Evaluate A Habitat

Transition: Recall the components of habitat for we will now take a closer look at how they relate to management decisionmaking.

Activity: Oh My Deer

Transition: Wildlife biologists use observation, habitat analysis and population dynamics to make management decisions. Now it is your turn to manage a wildlife population.

Activity: Oh My Deer



## CURRICULUM RELATIONSHIPS

### Social Studies

1. Find out which wild animals have played an important part in the history of your area. What were they used for? What changes did they cause in human history?
2. Find out if changing land uses have affected the wildlife in your area. How has the increase in people affected wildlife?
3. Find out if there are any threatened or endangered species in your area. How did they become listed? What is being done about these animals?
4. Find out what laws have been created to protect wildlife. What is the process for creating a law in your state? How have laws affected wildlife? How have they affected people?
5. Write to wildlife agencies and organizations in your area to find out what they do, and for which kinds of wildlife are they responsible?
6. Map your neighborhood to locate which areas are for people and which are for wildlife. If areas overlay, what effect occurs?
7. Talk with city or county planners to find out what is being done for wildlife habitat preservation in your area. How can citizens influence city and county planning?
8. Help create an area for wildlife around your own neighborhood or schoolyard. What should you put in the area?

### Science

1. Set up transects to inventory the wildlife in your schoolyard or outdoor site.
2. State a hypothesis about wildlife and then experiment to see if it is correct.
3. Look at micro-organisms under a microscope. Discuss their role(s) in the natural world?
4. Measure habitat characteristics to see how one habitat is different from another.
5. Investigate the life cycles of different kinds of animals.
6. Investigate how wildlife is affected by air and water pollution, fertilizers, PCB's, lead shot, etc.

### Mathematics

1. Inventory birds observed in your area by traveling a given route once a week, or develop another survey method. Plot this information on a graph to determine seasonal numbers and species of birds.
2. Find out the birth rates and life span of common animals in your area. Calculate and graph the size of a hypothetical population over a number of years. How could this population be affected by habitat changes? By predators?
3. Measure the size of individuals within a population of ants, grasshoppers, spiders or worms to determine species characteristics and variations. Visually chart data collected.



4. Measure and record changes as an animal or group of animals grows from birth to maturity (i.e. tadpoles, cocoons, eggs). What were the changes in body size and characteristics, weight and number of body parts? How fast did the changes take place? Graph and compare results.

### Language Arts

1. Keep a field journal of wildlife observations you have made in your area. Illustrate the journal as appropriate.
2. Write a poem or song about your favorite wild animal.
3. Write a letter to an influential person or the newspaper expressing your opinion about a local, national, or global wildlife issue.
4. Read poems, stories, or novels that have been written about wildlife. Depending upon age of students, you may read these aloud or have students read them. Suggestions are Indian legends and books by Jack London, Walt Morey, Ernest Thomas Seaton, Farley Mowat, or Byrd Baylor.
5. Visit an area such as a wildlife refuge, National Park or Forest or game preserve, then write a story that takes place in that area.
6. Listen to songs written about wildlife and the environment. Music by Pete Seeger, Paul Winter, and John Denver are possibilities. Students may also find counterparts among current artists. Write a song that expresses your feelings about wildlife and the environment.
7. Learn new wildlife related vocabulary such as habitat, census, population, species, carrying capacity, predator. Use these words to produce a poem, story or letter to the editor. These may also become part of a vocabulary or spelling list.
8. Read newspaper and magazine articles for current events related to wildlife. Write news summaries for the rest of the class.
9. Picture books for non-readers and beginning readers are usually well-illustrated. Read and compare how animals are portrayed in these books. Pay special attention to the illustrations for they communicate the most to this age of reader. Take note of the Caldecott Award winners. Then write and illustrate a picture book for a primary classroom. This can be a group project.

### Creative Arts

1. Make a mural or mosaic showing wildlife in a complete habitat, ecosystem, or biome.
2. Keep a sketchbook of wildlife and habitat features you observe in your neighborhood and travels. This could be combined with a journal.
3. Create a poster or series of posters that express your feelings or opinions about wildlife, habitat, or wildlife issues. You could also create pins or T-shirt designs.
4. Illustrate the evidence of wildlife you have found in your classroom, around the school and in your neighborhood.
5. Create a dance that portrays the life of a wild animal.
6. Create a game, any type, that involves some wildlife concept. Teach or play this game with classmates or teach it to a class of younger students.



7. View art work and sculpture from different times that portray wildlife. What can you tell about the artist's attitude toward wildlife by looking at his/her work? What did the artist want to communicate about the animal? Don't forget to include cave art, Indian symbols, sand paintings, early American painting, sculptures, Renaissance painting, African, Oriental, and East Indian art.
8. Create postcards, bookmarks, or notecards with wildlife themes, using different media.



## **WHOLIVESHERE?**

<b>CONCEPT</b>	Population, System, Organism
<b>PRINCIPLE</b>	This activity gives participants opportunities to make observations about wildlife with whom they share the environment and to explore that shared habitat.
<b>OBJECTIVE</b>	<ul style="list-style-type: none"><li>• The student will be able to observe and record characteristics of habitats and evidence of wildlife.</li><li>• The student will be able to identify similarities and differences among different habitats.</li><li>• The student will be able to draw some conclusions about the ways animals use habitats.</li></ul>
<b>PREPARATION</b>	Locate at least three different habitat types. Habitats should be in close proximity so the entire group can spread out and walk through the first habitat, meet at a designated location on the far side, and then split into two groups to investigate each of the other two habitats.
<b>MATERIALS NEEDED</b>	<ul style="list-style-type: none"><li>• Clipboard and writing instrument for each participant</li><li>• 6 to 8 markers of different colors</li><li>• Activity A: <u>Habitat Data Sheets</u></li><li>• Hard surface for writing on large habitat data sheets</li><li>• 3 flip-chart sized habitat data sheets</li></ul>
<b>PROCESSES USED</b>	<ul style="list-style-type: none"><li>• Communicate</li><li>• Infer</li><li>• Interpret data</li><li>• Use numbers</li></ul>
<b>TIME</b>	60 minutes, field time 45 minutes. Setting the Stage and the summary discussion can take place on different days.



## DOING THE ACTIVITY (outdoors)

### A. Set stage:

1. Gather the group in the first habitat you want them to explore.
2. Explain the objectives.
3. Discuss with the group: What animals can we expect to find living in this area? What do these animals need to live? As we walk through this area, where would be a good place to look for animals? If we don't see animals themselves, what evidence of animals might we see? Are there ways we can minimize our impact on the environment while doing this activity?

### B. Procedure:

1. Instruct group to walk through the habitat they're in (physically define boundaries if you need to) and complete the left-hand column of Activity Sheet A.

**ACTIVITY A: Habitat Data Sheet** 20/15 min  
individual/pairs

HABITAT #1	HABITAT # ____
1. Record the characteristics of this habitat.	1. Record the characteristics of this habitat.
2. Explore as many places as you can in this habitat. Record what animals you see and the numbers of each.	2. Explore as many places as you can in this habitat. Record what animals you see and the numbers of each.
3. Record any evidence of animals you see (webs, nests, feathers, song, etc.)	3. Record any evidence of animals you see (webs, nests, feathers, song, etc.)

Investigating Your Environment  
Wildlife 



2. Give students 20 minutes to complete this. They can work alone or in pairs.
3. Group meets back at designated spot. Discussion follows with responses recorded on large flip-chart for all to see. Contrast and compare, look at similarities and differences, as appropriate.
4. Move to the next part of the activities which is an investigation of another habitat. Tell students: Now that we have collected information about one habitat, I'm going to divide this group into two. I want this half to explore environment A and this half to explore environment B. You are to collect the same kinds of information we collected and recorded before. Use the right-hand column of your activity sheet this time. Be back here in 15 minutes.
5. NOTE: Select three different habitats in close proximity so you can monitor all students, and physically define the habitats to each group.
6. When groups get back, give them 5 to 10 minutes to put their combined data on a piece of flip-chart sized paper for each habitat.

**C. Retrieve Data:**

1. Conduct a compare-and-contrast discussion of the three habitats investigated with the charts displayed side-by-side.
2. Possible discussion questions are:
  - Are there any similarities among these three habitats?
  - What are the differences among these habitats?
  - What could account for the similarities and differences?

**CLOSURE**

After looking at this information and our discussions, are there any general statements we can make about these habitats and the animals that live in them? List statements as spoken.

**TRANSITION**

The transition depends upon the next activity you do. Look at Combining the Activities for a specific transition.



## **SKINS AND SKULLS**

<b>CONCEPT</b>	Systems, Organism, Fundamental Entities
<b>PRINCIPLE</b>	Using different parts of animals, one can make inferences about an animal's habitat, food needs, and occupation in the web of life.
<b>OBJECTIVE</b>	<ul style="list-style-type: none"><li>• Students will observe the different parts of animals and make inferences about where that animal lived and what it ate.</li><li>• Students will construct a food chain or web, based on animal characteristics they have observed.</li><li>• Students will realize they don't need to know an animal's name to learn about that animal.</li></ul>
<b>PREPARATION</b>	Place the animal parts in like piles, so there are four piles; one of skulls, one of pelts, etc. Have five to eight people at each pile.
<b>MATERIALS NEEDED</b>	<ul style="list-style-type: none"><li>• 5 or 6 skulls (carnivores, omnivores and herbivores)</li><li>• 5 or 6 study specimens (i.e. weasel, skunk, mole, chipmunk)</li><li>• 5 or 6 pelts (coyote, bobcat, fox, otter, raccoon)</li><li>• 5 or 6 birds (woodpecker, grosbeak, flicker, bluejay, hummingbird)</li><li>• This activity can be done with the actual animal parts or with pictures cut and copied from encyclopedias, field guides and wildlife magazines.</li></ul>
<b>PROCESSES USED</b>	<ul style="list-style-type: none"><li>• Observe</li><li>• Classify</li><li>• Infer</li><li>• Hypothesize</li><li>• Predict</li><li>• Question</li><li>• Interpret data</li></ul>
<b>TIME</b>	45 minutes or longer, depending upon interest



## **DOING THE ACTIVITY** (indoors)

### A. Set the Stage:

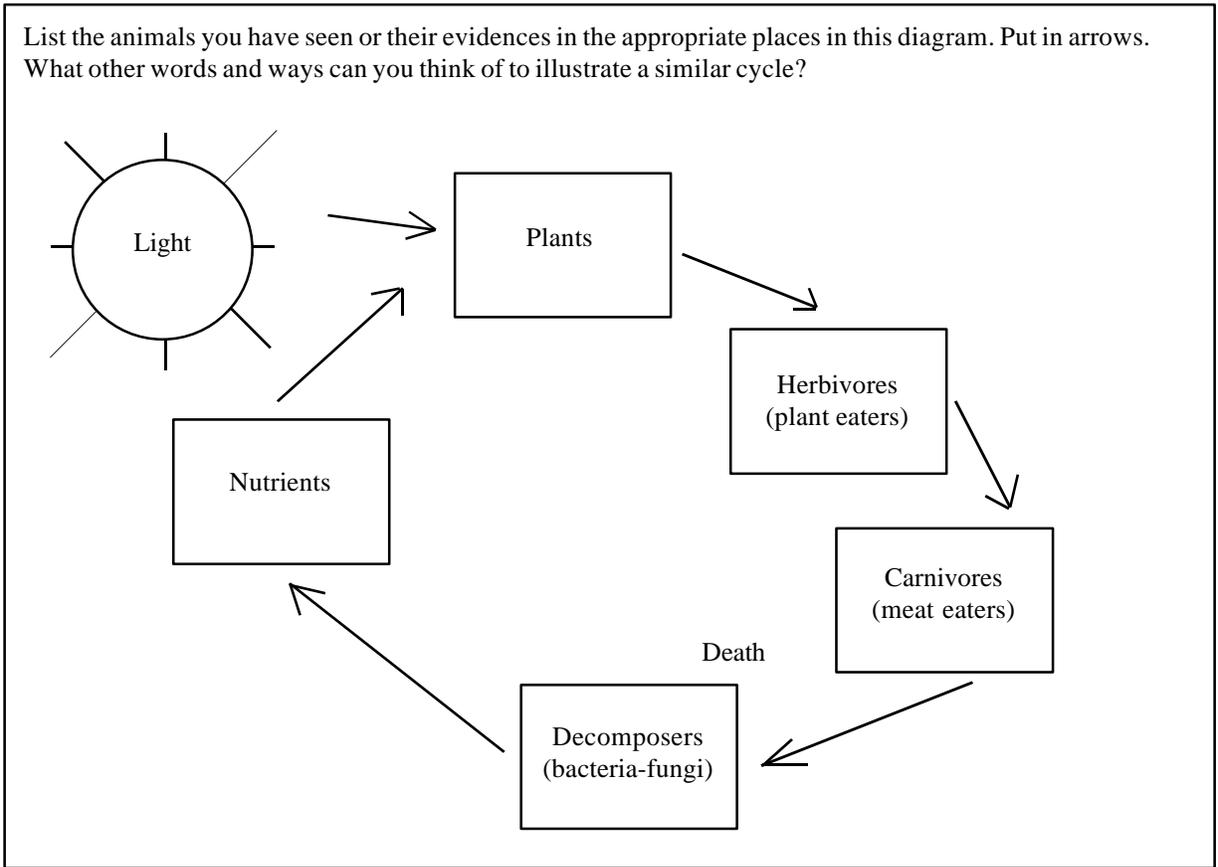
For the next 30 minutes, we will observe animal parts and use them as clues to tell us more about the animals.

### B. Procedure:

1. Each group works with one type of animal part to observe and record adaptations.
2. The group should list the types of adaptations observed, infer the type(s) of habitats the animals lived in, and the animals' positions in the food chain. Names are not important at this stage.
3. After 10 minutes, ask the groups to compile their data and prepare to share their findings with the whole group.
4. After the presentations, conduct a discussion to draw out more information.  
Possible questions are:
  - a. What did you notice about the \_\_\_\_\_ (animal part)?
  - b. Which senses seem to be the most important to your animal? Least important?
  - c. What might be some things that account for these differences?
5. Tell the group: We've made some inferences about the habits of animals based on some adaptations of their body part. Now we will add some parts and see what additional inferences can be made.
6. Place 3 to 4 skulls and matching pelts or study specimens in the center of each group.
7. Ask group to match the parts of each animal and be able to give their rationale for matching. NOTE: Let the group solve the problem without Teacher/Facilitator help. (10 minutes)
8. Add to each group a third component of one of the animals. It should be different, e.g; a cast of a track, a foot, the jaw bone, a component of the habitat. The idea is to give the group an additional piece of information upon which to refine their inference. Give them time to discuss.
9. Ask: By adding the additional information, what, if any, changes did you make in your original decision? What more do we know about the animal?  
Continue the discussion until every group has had a chance to share.
10. Say: Let's look at some relationships between different kinds of animals by making a food chain.
11. Who can tell us what a food chain is? Discuss until there is a working definition such as, what animals eat and what they are eaten by. Use a chart similar to the one on the next page.
12. Put a mole, squirrel, chipmunk, weasel, coyote skull, and bobcat skin in a pile. (Can use other parts or pictures)
13. Ask students to draw a food chain showing the relationship between the animals.
14. NOTE: you may want to add abiotic components such as soil, rocks, N<sub>2</sub> cycle, etc.



List the animals you have seen or their evidences in the appropriate places in this diagram. Put in arrows. What other words and ways can you think of to illustrate a similar cycle?



**C. Retrieve Data:**

1. Have groups or individuals show and discuss their drawings. Discuss the similarities and differences.
2. You may have them construct another chain using different animals, animal parts, or including humans in the chain.

**CLOSURE**

We have learned many things about these animals by observing them and making inferences. We did not need to know the name of a single animal. What are some of the things we learned about animals from this activity? What are some other ways we can use this technique of observing and making inferences to learn about other things in the world around us?

**TRANSITION**

Use the appropriate transition for the next activity you choose.



## **TOOTHPICK PREDATOR**

<b>CONCEPT</b>	Interaction, Quantification
<b>PRINCIPLE</b>	The predator/prey relationship is explored in an activity which simulates some of the conditions animals live with. The activity is extended to consider animal adaptations to a specific habitat.
<b>OBJECTIVE</b>	<ul style="list-style-type: none"><li>• The student will be able to identify ways that animals are adapted to their environment.</li><li>• The student will experience how adaptations can affect competition for food.</li><li>• The student will be able to determine how certain characteristics might affect the growth or survival of a population of animals.</li></ul>
<b>PREPARATION</b>	Find an open area large enough for all participants to stand in a circle. If you are doing the activity more than once, you will need at least three different habitats so comparisons can be made. Habitats can be as small as landscape plantings if the group is small. Prepare the flip chart.
<b>MATERIALS NEEDED</b>	<ul style="list-style-type: none"><li>• Flip chart paper marker pens</li><li>• 20 - 30 toothpicks of each color: red, green, blue, yellow, black, and natural. Toothpicks can be dyed with food color.</li><li>• Marker pens</li><li>• Containers for toothpicks</li></ul>
<b>PROCESSES USED</b>	<ul style="list-style-type: none"><li>• Communicate</li><li>• Observe</li><li>• Formulate models</li><li>• Hypothesize</li><li>• Interpret data, predict</li></ul>
<b>TIME</b>	20 minutes for first game and discussion; 5 minutes for each game thereafter



**DOING THE ACTIVITY** (outdoors)

A. Set Stage:

Take the class to the habitat they will be working in. Tell them: You are a toothpick predator and today you will have one minute/a day, in the life of the predator, to find all the food you can.

B. Procedure:

1. Scatter the toothpicks prior to bringing the group to the site. If you can't, do this while they are listening to you set the stage. Scatter no less than 25, add more as participants increase. Some toothpick caterpillars are better adapted to this environment than others.
2. Ask the students to predict which color of toothpick they will find the most, the next and the least of. Record their predictions on the chart by writing 1 next to the most and 4 next to the least. (see chart)

<b>HABITAT 1</b>		<b>HABITAT 2</b>		<b>HABITAT 3</b>	
<b>Predict</b>	<b>Actual</b>	<b>Predict</b>	<b>Actual</b>	<b>Predict</b>	<b>Actual</b>
red		red		red	
yellow		yellow		yellow	
green		green		green	
blue		blue		blue	
black		black		black	
natural		natural		natural	



3. Participants should be reminded they have one minute from when you say “Go.” When you say “stop”, they are to stop collecting, come back to the gathering site, and start separating their toothpick prey by color.
4. Start the day. As participants search for food, it is helpful to provide a running commentary about the day (i.e.: The sun is coming up and the toothpick predators are hungry...The sun is getting higher in the sky...The sun begins to go down, the predators only have a few minutes left to feed). This is important for getting them into the activity.
5. Stop the predators, send them back to their homes (the circle) and have them count the number of toothpicks they caught.
6. Record the total number of toothpicks found by color. If it’s a small group, have them call out the numbers, record and tally. If it’s a large group, have smaller groups add numbers until there’s a total.
7. Find out who found the most toothpicks by asking: Did anyone find 20 toothpicks? 19? Count down until someone responds. Ask: How were you able to find so many? As a group, discuss characteristics that might help a toothpick predator find more food than others.
8. Who found the least amount of toothpicks? What happened? As a group discuss what hinders the search for food.
9. Compare the activity results with the predictions. Were the numbers the same or different? Why? What role does ground cover play?
10. At this point, play the game again, only choose a different environment in which to scatter the toothpicks. Replace any toothpicks not found the first time so you have 20 to 30 of each color. Repeat the entire procedure, steps 2 through 9, except you do not have to do #4, pacing them through the one minute.
11. Do this again in a third environment if there’s time.

C. Retrieve Data:

Group discussion questions that can be used are:

1. What characteristics or adaptations made the toothpicks easy to find?
2. Were there characteristics that made toothpicks hard to find?
3. Are there ways the toothpicks could be better adapted to escape the predators?

**CLOSURE**

Review the activity, then extend the activity by asking: How does this activity relate to the ways animals live and find food? From our discussion, what conclusions can we make about animal adaptations?

**TRANSITION**

Use the transition statement appropriate to the activity you choose to do next.



## **EVALUATE A HABITAT**

<b>CONCEPT</b>	Interaction, Organism
<b>PRINCIPLE</b>	Using knowledge and experience gained from other unit lessons, participants will look at a specific area and make rudimentary decisions for wildlife.
<b>OBJECTIVE</b>	<ul style="list-style-type: none"><li>• The student will be able to analyze an area for its suitability as habitat for a particular animal.</li></ul>
<b>PREPARATION</b>	Locate an area suitable for evaluation. This may be an undeveloped area suitable for the type of animal listed on the back of the activity sheet or it may be an urban, schoolyard, or indoor environment. Activity is suitable for any environment in <u>Who Lives Here</u> .
<b>MATERIALS NEEDED</b>	<ul style="list-style-type: none"><li>• Pencil and clipboard for two to share</li><li>• Activity sheet B: <u>Evaluate an Area for Animals</u></li><li>• Wildlife guides for local area <u>or</u> make animal data cards for 6-8 or more species common to your area.</li></ul>
<b>PROCESSES USED</b>	<ul style="list-style-type: none"><li>• Communicate</li><li>• Hypothesis</li><li>• Classify</li><li>• Observe</li><li>• Infer</li></ul>
<b>TIME</b>	30 to 45 minutes



**DOING THE ACTIVITY** (outdoors best, can do indoors)

A. Set Stage:

1. Begin by saying: For the next half hour, we will be looking at this area and analyzing whether it is suitable habitat for various animals.

25 min.  
ps/re

**ACTIVITY B: Evaluate an Area for Animals**

Evaluate this area for one animal.

<b>ANIMAL DATA</b>	<b>ANIMAL</b> _____
	Where it lives _____
	Food needs _____
	Predators _____
	Other (adaptability to man, life span, reproduction rate, etc.) _____ _____ _____

1. How would you rate the area for the animal's following needs:
  - a. General habitat:
  - b. Winter and summer food supply:
  - c. Evidence of predators for your animal:
  - d. Other factors:
2. How many of your assigned animals or their evidence did you find in the area?

List some relationships that you think exist among members of the same species already living there?

How might the animals react to others of the same species moving in?
3. Which of the habitat types will these animals use?

Where will they probably locate home, nest, den or burrow? Why?
4. What are some ways that this species of animal affect this environment?
5. Summarize how your animal might react to living in this environment.



**B. Procedure:**

1. Have participants pair up and hand out activity sheet on clipboard to each pair.
2. If you have not done previous activities, discuss: What are some things animals need to live?
3. Instruct participants to select one animal of their choice from the list present, and define the site limits to be studied. To evaluate the site for their animal, answer the questions on the activity sheet. Ask them to take different animals so the area will be evaluated for a variety of animals. Tell them they have 25 minutes to finish and return to the gathering point.

**C. Retrieve Data:**

1. Participants report on the animal whose habitat they evaluated.
2. Possible discussion questions:
  - a. In what ways did this habitat meet the needs of the animals for which it was suitable?
  - b. How did it fail to meet the needs of other animals?
  - c. How might the results change if we evaluated a different habitat?
  - d. How might the results change if we evaluate this habitat for different animals, such as a \_\_\_\_\_?

**CLOSURE**            In a closing discussion, ask participants to generalize what can be said about the suitability of this particular habitat for the animals we selected.

**TRANSITION**        Choose the appropriate transition statement for the next activity.



## **DESIGN AN ANIMAL**

<b>CONCEPTS</b>	Organism, Evolution
<b>PRINCIPLE</b>	This activity reinforces the concept of animal adaptation.
<b>OBJECTIVES</b>	<ul style="list-style-type: none"><li>• The student will be able to create an imaginary animal that is adapted to a specific environment.</li><li>• The student will be able to discern and explain the adaptations that allow their imaginary animal to successfully live in the environment.</li></ul>
<b>PREPARATION</b>	Participants need a basic understanding of adaptations. Locate a space for the activity; unusual environments such as parking lots and playgrounds are perfect. It is also an excellent indoor rainy day activity. Set up flip-chart before activity begins.
<b>MATERIALS NEEDED</b>	<ul style="list-style-type: none"><li>• Large-sized paper and pens for each small group</li><li>• Instruction card for each group</li><li>• Flip-chart easel, pad and pens, or chalkboard and chalk</li></ul>
<b>PROCESSES USED</b>	<ul style="list-style-type: none"><li>• Communicate</li><li>• Observe</li><li>• Classify</li><li>• Interpret data</li><li>• Infer</li></ul>
<b>TIME</b>	30 to 45 minutes depending upon length of discussion



**DOING THE ACTIVITY** (indoors, outdoors)

A. Set stage:

1. We have looked at some different environments and ways animals are adapted to those environments. Now, put some adaptations together and invent a “model” animal to live in one of the habitats found here.

B. Procedure:

1. Group brainstorms a short list of different environments or habitats. Record ideas, using sample of chart below.
2. Have the group think of two or three animals that live in each of the environments. Record next to the environment(s).

<b>Environment</b>	<b>Animal</b>	<b>Adaptation</b>

3. Have group brainstorm examples of how those animals are adapted to their environments.
4. Note: Record these ideas on a flip-chart for all to see.
5. Working in groups of three or four, give each group flip-chart paper and colored markers.



6. They have 20 minutes to design a “model” animal they feel would be best adapted to the habitat. You must consider the adaptations listed in the instructions.

**Instructions • Design an Animal**

Design a “model” animal that you feel would be the best adapted to the habitat you've chosen. When you have finished give your animal a name that seems to sum up its characteristics.

Consider the following needs in your sketch and identify the parts of the animal that you designed for the items listed below or any other items you consider.

- |   |  |
|---|--|
| 1. Adaptations for food gathering.      | 4. Major food required (kind and amount) |
| 2. Adaptations for defense, protection. | 5. Amount of habitat required for needs. |
| 3. Adaptations for seasonal changes.    | 6. Value of animal to environment.       |

C. Retrieve data:

Groups share their sketches and describe the adaptations they have given their animal.

**CLOSURE**            Small group can discuss one new or reinforced wildlife concept each participant learned from this activity.

**TRANSITION**        Choose transition appropriate to your next activity.



## **OH MY DEER**

**CONCEPT** Population, Cycles, Cause/Effect, Cycle, Organism Interaction, Order

**PRINCIPLE** Participants role play as wildlife managers in charge of managing a deer herd. They make decisions that affect population size and fate of individuals in the herd.

**OBJECTIVES**

- The student will be able to recognize factors that affect the survival and size of a deer herd.
- The student will be able to describe how hunting and the absence of hunting affect a deer herd.
- The student will be able to gain skills in making cooperative management decisions.
- The student will be able to appreciate the complexity of making wildlife management decisions.
- The student will be able to understand wildlife management principles.
- The student will be able to make biological and political decisions about managing wildlife resources.

**PREPARATION** Stack the winter cards in each game so all groups are playing with the same environmental conditions. Construct a flip chart that will hold all team's data (see example).

**MATERIALS NEEDED**

- Flip-chart paper and colored marking pens
- One Oh My Deer board game for each 4 to 6 participants (Available from Carolina Biological Supply Co. 2700 York Road, Burlington, NC 27215)

**PROCESSES USED**

- Control variables
- Infer
- Use numbers
- Communicate
- Formulate models
- Hypothesize
- Interpret data
- Question

**TIME** 60 minutes



## **DOING THE ACTIVITY** (indoors, outdoors for a change of pace)

### A. Set Stage:

1. Open the activity saying: Wildlife observation, habitat analysis and population dynamics are all considered when resource agency biologists make management decisions. What other factors are also a part of the decision-making process when managing wildlife?
2. Tell participants: In this simulation exercise you are in charge of managing a deer herd for six years. As a wildlife biologist team, you make all the decisions that affect the size of the population and the fate of individuals in the herd.

### B. Procedure:

1. Divide the participants into groups of four to six players and give each group a game. Assign a group member to read the instructions to the rest of the team. They may ask questions to clarify.
2. Make sure that the players realize that approximately 14 deer can survive an average winter.
3. Once instructions are understood, begin playing the game. Play six rounds.
4. As the game is played, the participants record the herd size at the end of each year and the final total of bucks and does in the harvest and non-harvest boxes.

### C. Retrieve Data:

1. A group member should record that group's data on a chart visible to the whole class. Each group records in a different color.
2. After data is recorded on the group chart, each group reports to the others on what their management strategies were and the results achieved.
3. The data displayed on the table are the focus of a discussion that brings out some fundamental ideas of wildlife management. When several groups play there is usually considerable variation in the data. One group may have been too liberal with their initial seasons and then fought to have their herd recover. Another may have been too conservative and been caught by a hard winter. A third may have been too conservative but lucky enough to miss hard winters. A fourth may have been committed to buck seasons only throughout the game. As each group describes what happened to its herd, the other groups gain experience equivalent to much more than the six years they played.



4. In the follow-up discussion ask:
  - a. Which group was best able to manage their deer herd?
  - b. Was it the group with the largest number of deer?
  - c. The greatest number of harvested deer?
  - d. The herd closest to the carrying capacity? (no right answer).  
Each group must explain the reasons for their answer.
  
5. In the course of discussion, the following important ideas of wildlife management should surface:
  - a. Populations can be managed; that is, people make decisions affecting the number of animals in a population and, within limits, the fate of those that die. (How do wildlife regulations affect wildlife?)
  
  - b. The size of a population is ultimately limited by the number that survive winter. This is called the carrying capacity. Extra animals can survive in some years but, in the long run, the population is kept in check by the winter carrying capacity. (How does winter carrying capacity affect long run population numbers?)
  
  - c. Other (non-winter) causes of death can result in high losses if the herd is large and no losses if the herd is small. This is the principle of density dependence which is important in keeping the herd in balance with its habitat. (How do other non-winter factors influence herd size?)
  
  - d. Managing a herd requires information about its status. How could you the proper seasons if you had no idea how large your herd was? (Why is it important to survey herd size and condition?)
  
  - e. Chance plays an important part in what happens to a herd. Road kills, dogs, weather in deer season, winter conditions, are all unpredictable, yet must be taken into account in managing a herd. (What place does chance play in herd management?)

**CLOSURE**

Have groups summarize in 15 minutes what they have learned about wildlife management. They may also answer questions like: What would happen if all deer management activities ceased? What do we have to do to ensure healthy deer herds in our state?

**TRANSITION**

Choose the appropriate transition to the next activity.



# ACTIVITY A: Habitat Data Sheet

20/15 min  
individual/pairs

HABITAT#1	HABITAT#_____
<ol style="list-style-type: none"><li data-bbox="232 289 727 317">1. Record the characteristics of this habitat.</li><li data-bbox="232 793 769 884">2. Explore as many places as you can in this habitat. Record what animals you see and the numbers of each.</li><li data-bbox="232 1367 716 1430">3. Record any evidence of animals you see (webs, nests, feathers, song, etc.)</li></ol>	<ol style="list-style-type: none"><li data-bbox="867 289 1362 317">1. Record the characteristics of this habitat.</li><li data-bbox="867 793 1404 884">2. Explore as many places as you can in this habitat. Record what animals you see and the numbers of each.</li><li data-bbox="867 1367 1351 1430">3. Record any evidence of animals you see (webs, nests, feathers, song, etc.)</li></ol>



# ACTIVITY B: Evaluate an Area for Animals

25 min.  
pairs

Evaluate this area for one animal.

<b>ANIMAL DATA</b>	<b>ANIMAL</b> _____
	<b>Where it lives</b> _____
	<b>Food needs</b> _____
	<b>Predators</b> _____
	<b>Other (adaptability to man, life span, reproduction rate, etc.)</b> _____ _____ _____

1. How would you rate the area for the animal's following needs:

- a. General habitat:
- b. Winter and summer food supply:
- c. Evidence of predators for your animal:
- d. Other factors:

2. How many of your assigned animals or their evidence did you find in the area?

List some relationships that you think exist among members of the same species already living there?

How might the animals react to others of the same species moving in?

3. Which of the habitat types will these animals use?

Where will they probably locate home, nest, den or burrow? Why?

4. What are some ways that this species of animal affect this environment?

5. Summarize how your animal might react to living in this environment.

