

# *What to do at Brookfield Zoo*



**ACTIVITY BOOK**

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To the Teacher:

We are offering you this guide to use on your field trip to Brookfield Zoo. Each activity focuses on grade appropriate objectives that correlate to the Illinois Learning Standards and National Science Education Standards. On one page, you'll find simple teacher preparation instructions. On the next page, you'll find a reproducible worksheet for your students to use at the zoo.

We hope you find these activities helpful to your classroom studies and your field trip. We look forward to seeing you and your students at Brookfield Zoo.



**Grades:** PreK-1

**Materials:** A World of Color student activity sheet, pencils, animal coloring book or magazine pictures

**Vocabulary:** observe, solid, stripes, spots, camouflage

### What's it all about?

Animals are many different colors and patterns. This activity encourages students to distinguish among solid colors, stripes, and spots on many different animals. Identifying animals by colors and patterns helps us to understand how animals can hide and avoid danger.

### Objective

To observe colors and patterns of animals.

### What to do at school.

Prior to your visit, tell the students that they will be looking for animals that are different colors. Display pictures of animals and ask the children to describe them. What color are they? Is there more than one color? Are there stripes or spots? How does the color or pattern help an animal?

Start with animals that are one color—polar bears, dolphins, and elephants. Then, show the students pictures of animals that have many colors—mallard ducks, and some snakes and frogs. Next, present the students with pictures of animals that have stripes—tigers, some snakes, and zebras. Finally, show the students pictures of animals that have spots—giraffes, leopards, cheetahs, and some butterflies. As the children describe the animal in each picture, tape it to the wall and label the category—one color, many colors, stripes, etc.

### What to do at the zoo.

Make enough copies of the student activity sheet for each adult supervisor to take to the zoo. At each exhibit, we recommend that supervisors write down the names of animals for each color as the students observe them.

### Want to do more at school?

Find out what animals the students saw and the different colors they observed. Make a list of them and have students draw an animal in each box on the activity sheet.

### Sample Answers

Black: gorilla, spectacled bear, otter, some bats

Brown: camel, baboon, brown bears, ibex, okapi, kangaroo, meerkat

White: polar bear, addax, snow leopard, moon jelly

Green: alligator, some snakes, turtles

Yellow/Gold: tiger, giraffe, lion, golden-lion tamarin

Gray: dolphin, elephant, rhinoceros, aardvark

Matching: giraffe to spots; elephant to solid gray; zebra to stripes

# A World of Color



Which animals are mostly:

Black

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Brown

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White

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Green

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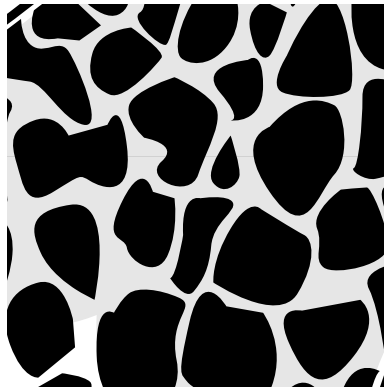
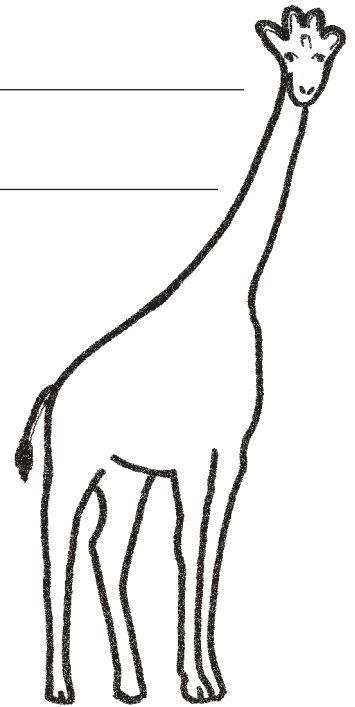
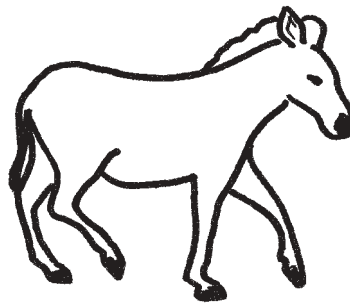
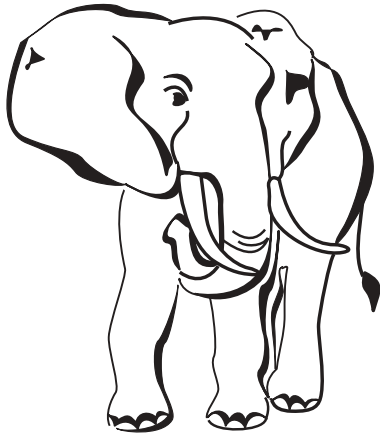
Yellow/Gold

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Gray

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Match these animals to their patterns.



# Various Vertebrates



**Grades:** 1-3

**Materials:** Various Vertebrates student activity sheet, pencils, animal coloring book or magazine pictures

**Vocabulary:** backbone, vertebrate, mammal, bird, reptile, amphibian, fish, nurse, scales, gills

## What's it all about?

Animals that have backbones are called “vertebrates.” These animals can be identified and grouped into five categories—mammals, birds, reptiles, amphibians, and fish—by observing their body coverings and other physical characteristics.

Most mammals have fur or hair, give live birth, and nurse their young with milk. Birds have feathers and lay hard-shelled eggs. Most reptiles have dry, scaly skin, and lay soft, leathery eggs. Most amphibians have wet, smooth skin, and lay jelly-like eggs in water. Most fish have scales, fins, and breathe in water with gills. (There are a few exceptions to all of these rules.)

## Objective

To observe body coverings of animals in order to classify them.

## What to do at school.

Prior to your visit, explain to the students that at the zoo they will be looking for animals, called “vertebrates”, that have backbones. Have the students lean forward and feel their own backbone. All of the animals they will study have backbones just like people have. To assist the students, hang up animal pictures around the room and label them with the name of their vertebrate group as described above. You can also set up a learning corner with books, pictures to color, music, etc.

## What to do at the zoo.

At the zoo the students will look for animals that fit into each of the five vertebrate groups. Bring pencils, and make enough copies of the activity sheet for each student to take to the zoo.

## Want to do more?

Back at school, have the students draw their favorite zoo animal and tell what animal group it belongs to and why. Students can then hang up their pictures around the classroom by categories. For example, all the bird pictures can be flying around the chalkboard, while all the reptile pictures can be hung low on the wall.

## Sample Answers

Matching:

alligator to dry scales

fish to scales and fins

otter to fur

bird to feathers

frog to wet, slimy skin

Mammal: rat, bat, shrew, weasel, mouse, opossum, river otter

Bird: various species of egrets, herons, storks, ibis, cormorants, ducks,

owls, woodpeckers, songbirds

Reptile: snake, alligator, turtle

Amphibian: tree frog, siren

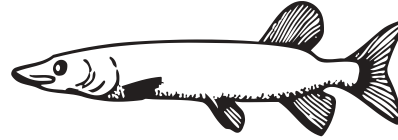
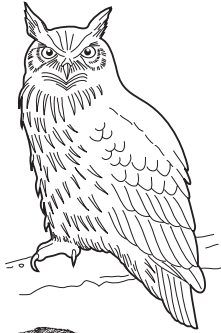
Fish: various species of fish

# Various Vertebrates



## STUDENT ACTIVITY SHEET

Look for these animals in The Swamp.  
Match each animal to its body covering.



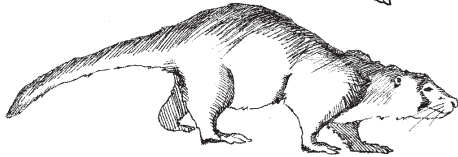
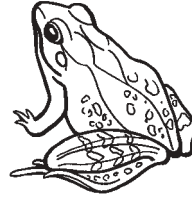
Fur

Feathers

Dry Scales

Wet, Slimy Skin

Scales and Fins



Mammal

Bird

Draw one animal you saw for each group.

<p>Animal Name</p>	<p>Animal Name</p>
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Reptile

Amphibian

Fish

<p>Animal Name</p>	<p>Animal Name</p>	<p>Animal Name</p>
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# Home Is Where the Habitat Is



**Grades:** 4-6

**Materials:** Home Is Where the Habitat Is student activity sheet, pencils, folders/clipboards, world map, map of Africa (depicting deserts, rain forests, and mountains)

**Vocabulary:** ecosystem, savannah, kopje (pronounced "copy"), adaptation, habitat

## What's it all about?

Animals are specially adapted to live in particular habitats. By observing their physical features (adaptations), we can try to figure out how these features might help the animal to survive.

## Objective

To analyze the ways in which animals are physically adapted for their particular environments.

## What to do at school.

The continent of Africa is made up of many different ecosystems. (An ecosystem includes all the living things, like plants and animals, and nonliving things, like rain, soil, and air, that interact in a particular environment.) Animals have physical features that help them to survive in the savannah (a grassland with trees) or on the kopje (an outcrop of rocks in the savannah). For example, the giraffe can see predators from a distance because of its long neck. Have the students think of other features that help the giraffe do something. You may choose to prepare the students in the classroom by letting them find Africa on a map and locating several different ecosystems (mountains, deserts, rain forests).

## What to do at the zoo.

At the zoo, the students will visit *Habitat Africa! The Savannah* and look for ways animals are adapted to live in grasslands. Make enough copies of the student activity sheet for each student to take to the zoo. You may wish to have the students work in teams of two to three. Have students bring pencils and a clipboard or folder to write on.

## Sample Answers

- 1) Pancake tortoises hide in the crevices of rocks. Once they squeeze into narrow crevices, they inflate their bodies slightly, making it difficult for predators to get at them.
- 2) Klipspringers have peg-like hooves with rubbery centers to help them cling to rocks. Their small size and fur color enable them to hide and blend into the rocks to escape predators.
- 3) Rock hyrax behaviors can include: moving/walking, jumping, standing/resting, eating, interacting with one another, etc. Animals stay motionless to avoid detection by predators, and to rest and conserve energy.
- 4) Animals use their senses of hearing, smell, sight, and touch to detect predators near the waterhole.

## Conservation Link

Scientists study animals to find out how they interact with the natural environment and what kinds of survival features they have. What kinds of food do they eat? Where do they build nests or lay eggs? What kinds of shelter do they need? The more scientists know about how animals interact with their habitats, the more they can help conserve endangered animals in the wild and in zoos.

# Home Is Where the Habitat Is



## Habitat Africa! The Savannah

### *In the Kopje:*

#### **Pancake Tortoise**

1. *Fun Fact:* Unlike most land turtles, the pancake tortoise has a flexible, flat shell.

*Your Observations:* Where do you think the tortoise hides to escape danger?

#### **Klipspringer**

2. *Fun Fact:* Klipspringers have thick fur coats to protect them from injury on rocks. The coat acts as a cushion against bumps and cuts.

*Your Observations:* Name some other features that allow them to live on rocks.



#### **Rock Hyrax**

3. *Fun Fact:* The soles of rock hyraxes feet are hairless. They have many sweat glands to keep their feet moist and sticky. Their foot forms a suction cup and helps give the animals good traction on rock surfaces.

*Your Observations:* Spend two to three minutes observing the rock hyraxes. Write down the types of movements you see them make. If they don't move, list some reasons they may stay still.

#### **Thirsty Animal Trail**

Exit the Kopje and go to the Thirsty Animal Trail (located across from the giraffe waterhole).

4. *Fun Fact:* Water is essential for life, but visiting a waterhole can be risky for some animals because predators may be lurking nearby.

*Your Observations:* Walk the trail, and list features that help animals survive at the waterhole.

# Feature Finding Mission

**Grades:** 6-8

**Materials:** Feature Finding Mission student activity sheet, pencils, folders/clipboards, magazine pictures of animals

**Vocabulary:** habitat, adaptation

## What's it all about?

All animals have amazing features (or adaptations) that help them to survive in their own habitats. This activity encourages students to observe animals' features and determine how they help them to survive.

## Objective

To compare and assess animals' features for their adaptive, competitive, and survival potential.

## What to do at school.

Prior to your visit, ask the students to think about a familiar local animal, like a squirrel. What does a squirrel have to do to survive? For instance, what parts of its body help it to eat? (nose to smell, teeth to chew, claws to dig up and hold onto food) How does a squirrel escape danger? (hide, camouflage into background, run, jump, climb)

Using magazines or old books, cut out enough animal pictures so each student can get one. Put all of the pictures in a box and let each student pull one out. Give the students a few moments to look at their animals carefully. Have each one talk about (or write about) three of his/her animal's features that help it survive in its habitat.

## What to do at the zoo.

At the zoo, students will observe many different species of animals in various habitats and identify their special adaptations. You may choose to have the students work in teams of two to three. Make enough copies of the following sheet so that each team will have one to take to the zoo. Have the students bring pencils and a clipboard or folder to write on.

## Sample Answers

1. hot, cold, water
2. possible answers: aardwolf, porcupine, Mexican fruit bat, burrowing owl, fennec fox, sand cat, echidna, wombat
3. possible answers: aardwolf, burrowing owl, fennec fox, meerkat, naked mole-rat, wombat, rock hyrax, sand cat, echidna
4. avoid the hottest part of the day, less competition for hunting food at night, prey animals may be sleeping at night
5. prey
- 6a. snakes, alligator, otter, some birds, big brown bat, snapping turtle, clouded leopard
- 6b. answers will vary depending on animal chosen in 6a
- 7a. frogs, fish, golden mouse, weasel, some birds
- 7b-c. answers will vary depending on animal chosen in 7a

## Conservation Link

Animals have special features, called adaptations, which help them survive in their habitats. These features and their survival value are sometimes easy to identify. It's easy to see how a tiger's claws are an adaptation. But what about the featherless head of an Andean condor—how is that adaptive? (Featherless heads are less likely to grow bacteria, a risk when condors feed off of carcasses.) By understanding both physical and behavioral adaptations, scientists can help care for endangered animals both in zoos and in the wild.

# Feature Finding Mission



## STUDENT ACTIVITY SHEET

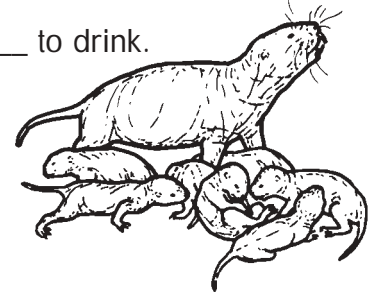


### Desert Living

Visit The Fragile Desert, Australia House, or Be A Bird and answer the following questions:

1. Deserts are a challenging habitat to live in because the temperature is \_\_\_\_\_ during the day, but can be \_\_\_\_\_ at night. There is also very little \_\_\_\_\_ to drink.

2. Many desert animals sleep during the day and find food at night. Name two animals that are nocturnal (awake at night).



\_\_\_\_\_

3. Name two animals that use burrows. \_\_\_\_\_

4. List some advantages to staying in a burrow during the day. \_\_\_\_\_

\_\_\_\_\_

### Camouflage

Visit Reptile House, The Swamp, or The Fragile Rain Forest and answer the following questions:

5. Some animals are camouflaged to blend in with their background, to escape being seen and eaten. These animals are called predators/prey. (circle one)

6a. Find and name at least one animal that is a predator. \_\_\_\_\_

6b. Which parts of its body does it use to catch its food? \_\_\_\_\_

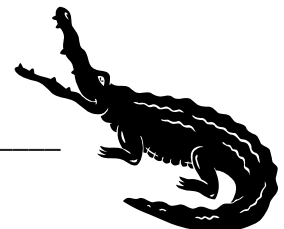
\_\_\_\_\_

7a. Find and name at least one animal that is prey. \_\_\_\_\_

7b. What animals might try to hunt it? \_\_\_\_\_

7c. What features does the animal have to help it avoid predators?

\_\_\_\_\_



# BROOKFIELD ZOO

# Living Connections



## TEACHER ACTIVITY PAGE

**Grades:** 9-12

**Materials:** Living Connections student activity sheet, pencils, folders/clipboards

**Vocabulary:** ecosystem, interrelationship

### What's it all about?

In any ecosystem, animals depend on each other for survival. An ecosystem is a place where the living elements (plants and animals) and nonliving elements (rain, soil, air, light, etc.) are interrelated. Each element plays a role in the system, and the functioning of the system as a whole depends on the relationships among its many parts.

### Objective

To summarize the interrelationships of three species in an ecosystem and describe how they interact with each other, with their environment, and with humans.

### What to do at the zoo.

At the zoo, students will look at three elements in different ecosystem exhibits and determine how they are interrelated. That is, how they depend upon one another for survival. You may wish to have the students work in teams of two to three. Make enough copies of the student activity sheet so that each team will have one to take to the zoo. Have the students bring pencils and a clipboard or folder to write on. If time does not permit students to visit all exhibits, designate teams to go to specific exhibits.

### Want to do more?

When students return to the classroom, they can share and compare the information they found. Many species rely on several different animals/plants for survival, so there can be more than one correct answer.

### Sample Answers

1. penguins, birds, fish: penguins eat fish; birds eat fish; penguins lay eggs in bird guano (droppings) on shore
2. if people overfish the waters, then penguins and birds have fewer fish to eat; people harvest bird guano to use as fertilizer on farmland
3. birds, alligators, fish: birds rest on the backs of floating alligators; birds eat fish; fish depend on the water in "alligator holes" during dry seasons
4. wetlands clean water, support food chains, attract wildlife, and provide flood control
5. meerkats, sand, naked mole-rats
6. naked mole-rats live almost completely in underground tunnels

### Conservation Link

Through careful observation and research, scientists can understand the interrelationships among plants, animals, and non-living components (air, soil, water, etc.) in an ecosystem. When a key element in an ecosystem is missing, the ecosystem as a whole may suffer. For example, if sea lions disappeared from the oceans, there could be an overabundance of fish—the ecosystem would be out of balance. By understanding these interrelationships, scientists can better protect important elements in endangered ecosystems.

# Living Connections



## STUDENT ACTIVITY SHEET



### The Living Coast

Name three living or nonliving elements in this ecosystem:

1. \_\_\_\_\_

Using the back of your worksheet, explain or diagram how each one depends on the other:

2. How are any of these elements connected to people? \_\_\_\_\_



### The Swamp

Name three living or nonliving elements in this ecosystem:

3. \_\_\_\_\_

Using the back of your worksheet, explain or diagram how each one depends on the other:

4. Name two ways wetlands benefit people:

\_\_\_\_\_  
\_\_\_\_\_

### The Fragile Desert

Name two living elements and one nonliving element in this desert ecosystem.



5. \_\_\_\_\_ (living)      \_\_\_\_\_ (living)      \_\_\_\_\_ (nonliving)

6. Using the space below, explain or diagram how a desert animal uses the nonliving element.