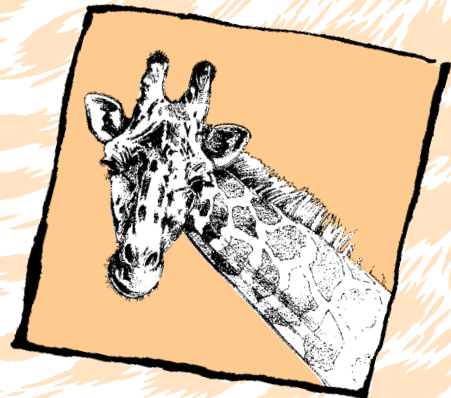


Field Notebook for grades 9-12

SHUTTERBUGS ON

SAFARI



Take a picture of
your group.

(Paste photo here.)

Shutterbug Chaperones

Welcome!

Please remember that the teens with you are your responsibility and must remain with you at all times - no exceptions.

Please supervise their behavior so they treat our grounds and other guests with respect.

The photos you take today will be added to this field guide later.

Choose as a group where to take your pictures. Photos need to be taken in bright sunlight, if the cameras do not have a flash.

You will be shooting pictures of animals and looking at how they have adapted to living in their biomes.

An **adaptation** is a characteristic of an animal or plant that allows it to survive in its environment.

A **biome** is a place where the climate, plants, and topography are consistent, relative to an animal species' needs. Environmental conditions will vary within a biome with the seasons. A biome offers animals four essential elements for life: food, shelter, water, and adequate space.

There are six major biomes present on earth:

Desert - less than 10 inches of yearly rainfall; more water evaporates than falls; violent storms; harsh extremes.

Tundra (arctic or alpine) - no trees, miniature plants; very cold most of the year; ground never thaws completely.

Savannah (grassland) - 10-60 inches of yearly rainfall; not enough rainfall to grow large trees.

Forest - wide temperature range; enough yearly rainfall to grow large stands of trees.

Rain forest - near-constant temperature; no winter; 60-200 inches of rain per year; home to half the earth's species.

Ocean - largest; most stable; most diverse; key climate regulator for earth.

Animals have adapted over many generations to survive well in the biome where they live.

Orders

Biologists classify animals in groups according to characteristics they share. Below are seven groups called orders by scientists. You will find examples of several species belonging to each order listed.

Note: Every species listed will not be found in our collection at this zoo or animal park.

Orders

- 1) Primates (apes, monkeys, humans): species include loris, lemur, marmoset, tamarin, monkey, ape
- 2) Ciconiiformes (wading birds): species include heron, bittern, stork, ibis, spoonbill, flamingo
- 3) Falconiformes (birds of prey): species include New World vulture, secretary bird, hawk, eagle, osprey, falcon
- 4) Carnivora (meat-eaters): species include dog (wolf, coyote, jackal, fox), bear, raccoon, weasel (badger, skunk, otter), mongoose, hyena, cat
- 5) Marsupialia (marsupials): species include opossum, koala, wombat, possum, cuscus, wallaby, kangaroo
- 6) Perissodactyla (odd-toed hoofstock): species include horse, zebra, ass, tapir, rhinoceros
- 7) Artiodactyla (even-toed hoofstock): species include pig, hog, peccary, hippopotamus, camel, guanaco, llama, mouse deer, okapi, giraffe, pronghorn, antelope, bison, buffalo, goat, sheep

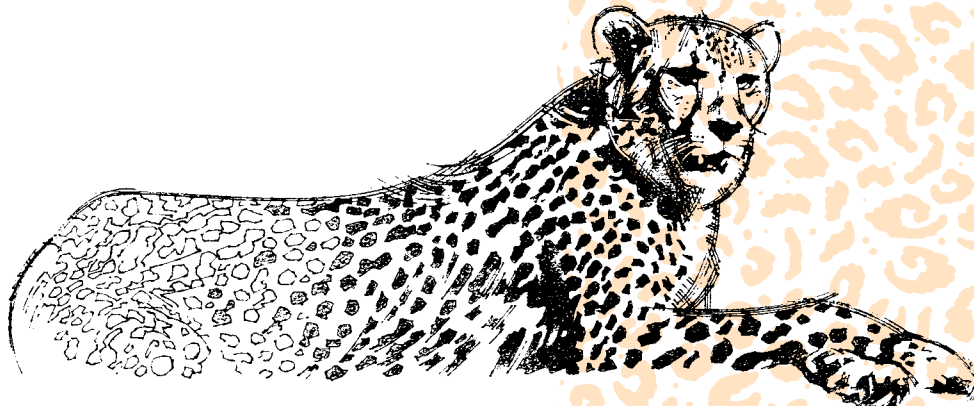


Photo Checklist

Since photos may be taken in any sequence, number them as you take them. This will help you identify the photos after you get them developed.

1. Take a group photo for your cover.

2. Choose 3 orders: _____

3. Select 3 animals from each order, take at least one picture of each and identify their biome.

4. Include more than one biome when choosing your animals.

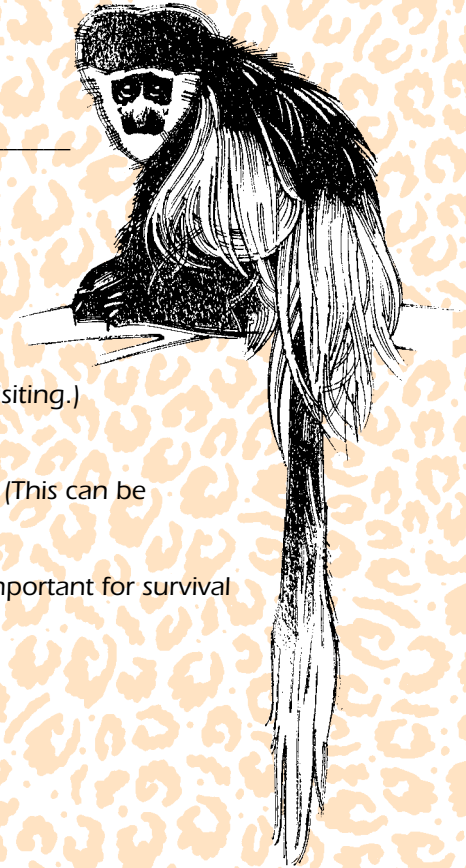
For example, don't pick four animals that all live in the rainforest.

(Note: you may not be able to find animals from more than one biome - it depends on what is available at the zoo or animal park you are visiting.)

5. List the adaptations.

Describe how the adaptation allows it to survive in its native environment. (This can be completed later.)

6. Finish the roll by taking pictures of the human adaptations most important for survival in the environment you live in.



# of Photo	Species/Common Name	Biome
_____	Group Photo	
	Order 1:	
_____	A) _____	_____
_____	B) _____	_____
_____	C) _____	_____
	Order 2:	
_____	A) _____	_____
_____	B) _____	_____
_____	C) _____	_____
	Order 3:	
_____	A) _____	_____
_____	B) _____	_____
_____	C) _____	_____

Field Assignment:

Order #1: _____ (Latin name, common name)

Species A: _____ (Latin name, common name)

Choose one biome that this animal lives in. List at least three adaptations that help the animal survive well in that biome. _____

Describe how each adaptation allows this animal to survive in its native environment.



Photo taken by:

Draw conclusions and interpret your data back at school.

Look at the three animals you chose from Order #1.

List at least three ways that their adaptations are alike.

Country (ies) of origin: _____

List biome(s) where this species is found: _____

Field Assignment:

Order #1: _____ (Latin name, common name)

Species B: _____ (Latin name, common name)

Choose one biome that this animal lives in. List at least three adaptations that help the animal survive well in that biome. _____

Describe how the adaptations allow this animal to survive in its native environment.

Country(ies) of origin: _____

List biome(s) where this species is found: _____



Photo taken by: _____

Draw conclusions and interpret your data back at school.

Look at some other animals living in the same biome that come from different orders.

What adaptations do they share?

Field Assignment:

Order #1: _____ (Latin name, common name)

Species C: _____ (Latin name, common name)

Choose one biome that this animal lives in. List at least three adaptations that help the animal survive well in that biome. _____

Describe how each adaptation allows this animal to survive in its native environment.

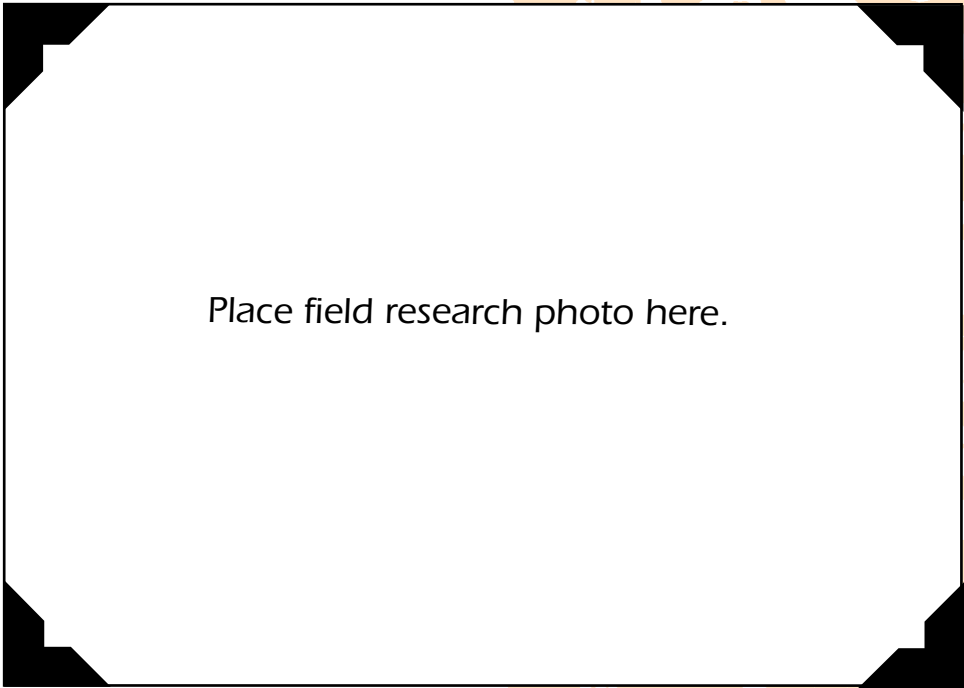


Photo taken by:

Draw conclusions and interpret your data - Final Analysis I (at school).

Look at the animals you chose from Order #1. If you were not able to find animals in this order that came from more than one biome, make three "educated guesses" as to why they might be limited to this one biome.

Country(ies) of origin: _____

List biome(s) where this species is found: _____

Field Assignment:

Order #2: _____ (Latin name, common name)

Species A: _____ (Latin name, common name)

Choose one biome that this animal lives in. List at least three adaptations that help the animal survive well in that biome. _____

Describe how each adaptation allows this animal to survive in its native environment.



Photo taken by:

Draw conclusions and interpret your data back at school.

Look at the three animals you chose from Order #2.

What obvious differences do they have? If they come from different biomes, describe how their differences might relate to their environment.

Country(ies) of origin: _____

List biome(s) where this species is found: _____

Field Assignment:

Order #2: _____ (Latin name, common name)

Species B: _____ (Latin name, common name)

Choose one biome that this animal lives in. List at least three adaptations that help the animal survive well in that biome. _____

Describe how each adaptation allows this animal to survive in its native environment.

Photo taken by:



Draw conclusions and interpret your data back at school.

Look any animals living in the same biome that come from different orders.

How do the climate, plants, and rainfall in the biome affect each of these animals?

Country(ies) of origin: _____

List biome(s) where this species is found: _____

Field Assignment:

Order #2: _____ (Latin name, common name)

Species C: _____ (Latin name, common name)

Choose one biome that this animal lives in. List at least three adaptations that help the animal survive well in that biome. _____

Describe how each adaptation allows this animal to survive in its native environment.



Photo taken by:

Place field research photo here.

Draw conclusions and interpret your data - Final Analysis II (back a school!).

Look at three animals you chose from Order #1.

If it is true that animals in this order only live in one biome, do research on your best "educated guess" to see if you are correct. List three facts that support your theory.

Country(ies) of origin: _____

List biome(s) where this species is found: _____

Field Assignment:

Order #3: _____ (Latin name, common name)

Species A: _____ (Latin name, common name)

Choose one biome that this animal lives in. List at least three adaptations that help the animal survive well in that biome. _____

Describe how each adaptation allows this animal to survive in its native environment.

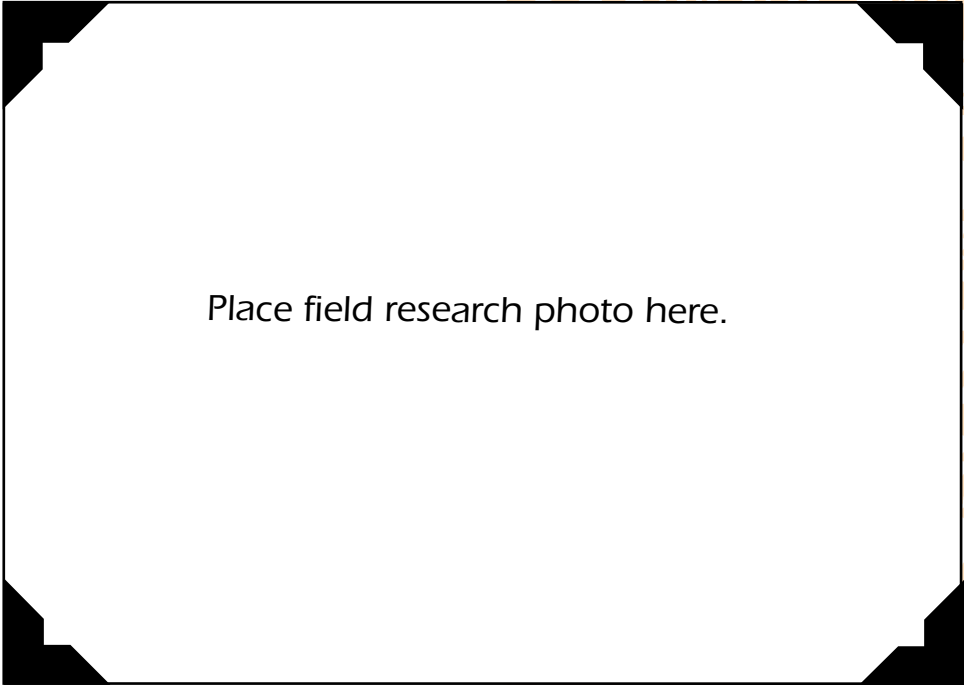


Photo taken by:

Place field research photo here.

Draw conclusions and interpret your data back at school.

Look at the three animals you chose from Order #3.

What subtle differences do they have? If they come from different biomes, describe how their differences might relate to their environment.

Country(ies) of origin: _____

List biome(s) where this species is found: _____

Field Assignment:

Order #3: _____ (Latin name, common name)

Species B: _____ (Latin name, common name)

Choose one biome that this animal lives in. List at least three adaptations that help the animal survive well in that biome. _____

Describe how each adaptation allows this animal to survive in its native environment.

Country(ies) of origin: _____

List biome(s) where this species is found: _____



Photo taken by:

Draw conclusions and interpret your data back a school.

Look at the animals living in the same biome that come from different orders.

Do these animals interact or depend on one another in their environment? How?

Field Assignment:

Order #3: _____ (Latin name, common name)

Species C: _____ (Latin name, common name)

Choose one biome that this animal lives in. List at least three adaptations that help the animal survive well in that biome. _____

Describe how each adaptation allows this animal to survive in its native environment.



Photo taken by:

Draw conclusions and interpret your data - Final Analysis III (at school).
Look at the animals you chose from Order #1.

If you were not able to find animals in this order that came from more than one biome, rewrite your "educated guess" into a scientific explanation supported by your three research facts.

Country(ies) of origin: _____

List biome(s) where this species is found: _____

Field Assignment:

Order: Primates

Family: Hominidae

Genus/species: Homo sapiens (human beings)

Choose one biome that this animal lives in. List at least three adaptations that help the animal survive well in that biome. _____

Describe how each adaptation allows this animal to survive in its native environment.



Photo taken by: _____

Draw conclusions and interpret your data back at school.

How do the adaptations you chose to photograph help humans survive in our biome? Which biome(s) do humans live in? Do they share characteristics with any of the animals from that biome?

Country(ies) of origin: _____

List biome(s) where this species is found: _____

Finishing Your Field Guide

Have your film developed into 3-1/2" x 5" prints. Ordering double prints provides extra photos to share or to use for the extended activities listed below. Use double-stick tape or photo-safe glue to paste the photos on each page.

Draw conclusions and interpret your data

Look at the animals you chose from one order.

List what characteristics these species share that define them as an order. Do research on other members of this order.

Write a thorough description of the animals in this order including the characteristics they share and the biomes they inhabit.

Look at the animals that come from the same biome across the orders.

How do these animals interact with or depend on one another in their biome?

Choose one biome to research further.

Use your extra photos to develop a report on this biome, with research on each animal and its adaptations.

Illustrate the food chains that include each animal you chose in this biome.

Find an example of the same species that is found in two different biomes.

What adaptations are present that help them survive in each biome?

Human adaptations and biome.

Predict how human's adaptations may change over time due to:

heating and air conditioning

computers

cars

televisions

telephones

