



**Chills & Thrills:
Fun at the Zoo in Wet or Wintry Weather!**



Dear Group Leaders,

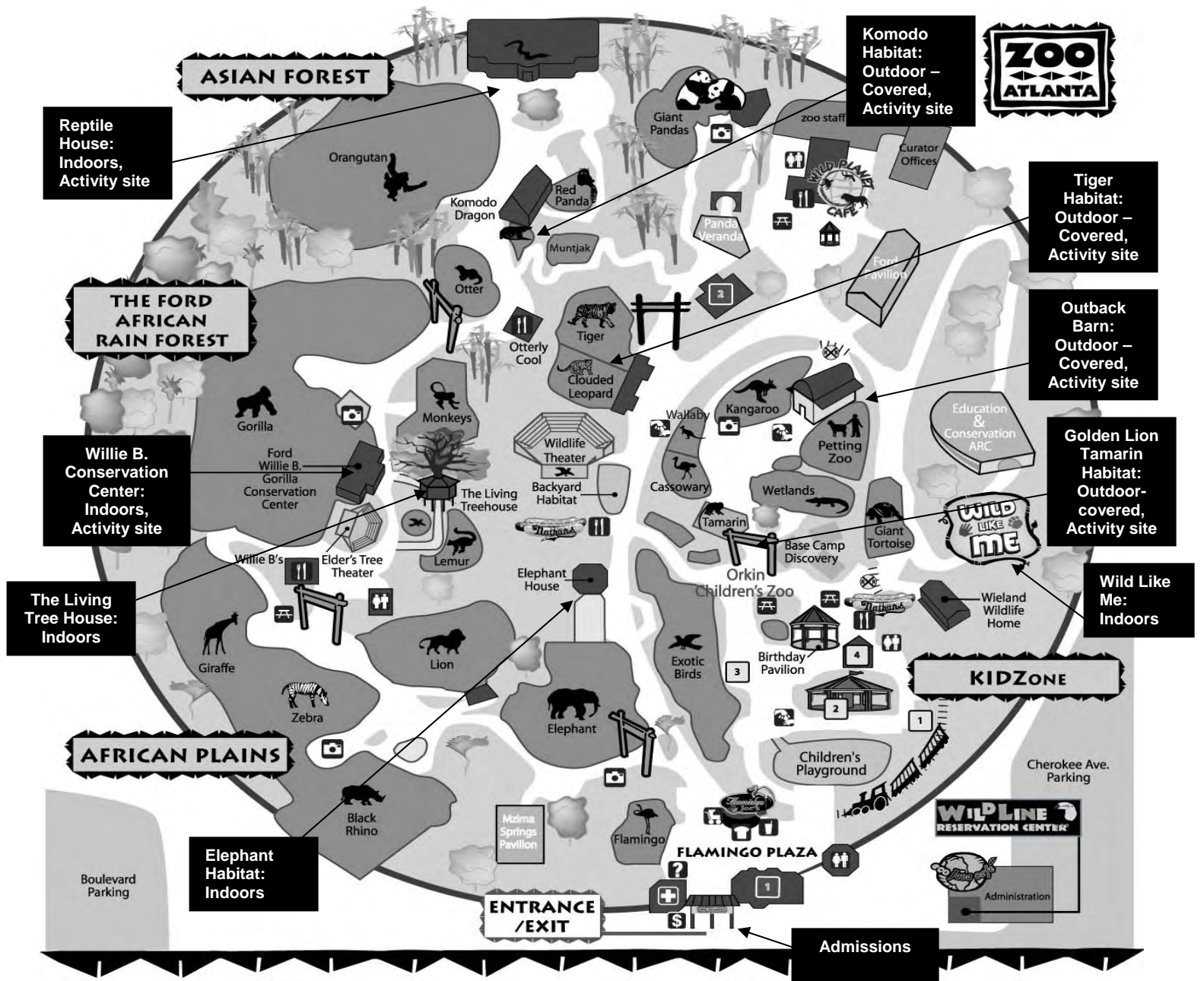
Thank you for booking a trip to Zoo Atlanta for your group. If the forecast is for rain or cool weather on the day of your visit, don't let that get you down. Those are some of the best days to visit the zoo!

There are few crowds on chilly or wet days and many zoo animals will still be on exhibit – wild animals are used to the weather! Several exhibits at the zoo are even indoors or have covered viewing area - see the zoo map on the following page for details. Also, you can engage your group in the attached activities at these exhibits to teach them more about the animals. At lunchtime, there are covered areas available inside the zoo and in Grant Park on a first-come, first-served basis, but many groups choose to maximize their zoo time & just eat on the bus on the way home. Or, you may eat at the Zoo's Wild Planet Café in inclement weather as space permits.

We encourage you to remind your group ahead of time to dress for the weather. Then, we hope you have a great time exploring Zoo Atlanta – rain or shine!

Sincerely,

Zoo Atlanta's Education Department
Where Education Comes Naturally



- Restrooms
- ATM
- Visitor Information
- Outdoor Seating
- Strollers

- Emergency and Security
- Drinks/Snacks
- Northside Hospital Handwash Hut
- Fujifilm Photo Spot

- RIDES**
- 1 Norfolk Southern Zoo Express Train Station
 - 2 Nabisco Endangered Species Carousel
 - 3 Rock Climber Wall
 - 4 Ticket Booth

- CAFES**
- Wild Planet Cafe
 - Otterly Cool
 - Nathan's
 - Willie B's
 - Eco Java Cafe
 - Flamingo Joe's

- SHOPS**
- 1 Trading Company
 - 2 Panda Gift Shop

Smoking is prohibited in the children's zoo, all indoor locations and wherever crowds gather in accordance with Fulton County ordinance 30-2-14.

For information about Zoo School Programs and other Education opportunities, visit zooatlanta.org, the Education Reservations at the zoo, or call (404) 624-WILD



◀▶ **Willie B. Conservation Center: Act like a Gorilla** ▶◀

<p>◀▶ Grades: PreK-5</p> <p>◀▶ Duration: 20 minutes</p> <p>◀▶ Subjects: Life Science, Physical Education</p>

Stage 1- Desired Results

<p>Understandings: Students will understand that...</p> <ul style="list-style-type: none"> • There are advantages and disadvantages to living in groups. • Some animals live in complex groups that have social hierarchies. • Animals display different behaviors for different reasons. 	<p>Essential Questions:</p> <ul style="list-style-type: none"> • Why do animals live in groups? • How are gorilla groups organized? • Why do gorillas display different behaviors?
<p>Students will know...</p> <ul style="list-style-type: none"> • Living in groups helps gorillas learn, grow, find food, and reproduce. • Gorillas live in complex groups that have a distinct social hierarchy. • Gorillas display many behaviors for different reasons. 	<p>Students will be able to...</p> <ul style="list-style-type: none"> • List advantages and disadvantages of living in groups • Act out gorilla behaviors • Explain why gorillas display different behaviors

Stage 2 - Assessment Evidence

Performance Tasks:
Students will list advantages and disadvantages of living in groups. Students will learn about the makeup and social hierarchy of a gorilla group. Students will act out gorilla behaviors and learn reasons why gorillas display each of the behaviors.

Stage 3 - Learning Plan

Materials:

List of gorilla behaviors and explanations (see below)

Vocabulary:

social hierarchy – a series of groupings of animals based on their rank in the social group.

dominant – animal with the highest position in the social hierarchy who makes decisions for the group and controls all the group's resources. The dominant one is often the only one in the group that breeds.

silverback – adult male gorilla, usually over 12 years of age, named for the patch of silver hair on his back. Troop leaders are always silverbacks but not all silverbacks are troop leaders.

blackback – juvenile male gorilla that does not have the patch of silver hair on his back. Blackback gorillas may or may not be sexually mature.

sexual maturity – the stage in an animal's life when it can reproduce. This is brought about by the maturing of the animal's reproductive organs and is normally associated with adulthood.

foraging – the act of searching for food.

Learning Activity:

- 1) Explain to students that one of the most important things about gorillas is that they live in social groups.
 - **For younger students:** Explain that living in groups helps gorillas find food and have babies. (skip to step 3)
 - **For older students:** Explain to students that people live and work in groups. Ask them reasons why. People live and work in groups for many reasons – it is easier to accomplish things with more than one person, young people learn from older family members, groups can pull resources such as money and food, and group members support each other. Ask why gorillas live in groups. Good answers include: to help young to learn and grow, to make it easier to find a mate, and make it easier to find food.
- 2) **For older students:** Explain to students that gorilla groups have a distinct social hierarchy. This means that animals in the group have ranks. Gorilla groups are called troops. Troops are led by one dominant silverback male. The silverback is the leader of the group who makes the decisions, mediates conflicts, determines the movements of the group, leads the others to feeding sites, and takes responsibility for the safety and well-being of the troop. Some troops may have other silverbacks in them, but those silverbacks are not the dominant troop leaders. Troops also have 3 or 4 unrelated females that bond with the dominant silverback. There are also 1 or 2 blackback males who have not reached sexual maturity. As they mature, blackbacks either challenge the silverback for dominance or leave the troop. The rest of the troop is made up of offspring of the silverback that are not old enough to be on their own. Group size can vary from 2 to 25 individuals but the average group size is 5 to 10 individuals.
- 3) Explain to students that, when animals live in groups, there are many interactions we can observe. If the gorillas are visible at the exhibit, ask students to look at the gorillas and see

what they are doing. Are they eating, playing, or sleeping? Or something else?

- 4) Explain to students that they are going to act like gorillas. You can divide students up into gorilla troops if desired. Students will act out different gorilla behaviors. Young students should act out the behaviors together as you call them out. Older students can act out the behaviors in small groups while the rest of the class guesses what they are doing. After the students act out the behaviors, explain to students why gorillas do each behavior.

Behaviors and explanations are as follows:

- **Eating** – Everybody needs to eat. Gorillas are mostly vegetarians but will sometimes eat bugs. To maintain their size, gorillas spend about half a day eating.
 - **Foraging** – Gorillas need to find food to eat especially if half their day is spent eating. Gorillas in the wild can cover over a mile everyday foraging, or looking for food.
 - **Sleeping** – Gorillas sleep at night but can sometimes be seen napping after eating all morning.
 - **Grooming** – Gorillas spend a lot of time grooming. They use their fingers to keep each other clean. Grooming also helps build and strengthen relationships in the troop.
 - **Climbing** – Gorillas have long arms and long fingers to help them climb. They climb trees to look for food and to sleep in at night.
 - **Knuckle-Walking** – When gorillas are on the ground, they walk on all fours with their fingers curled and their knuckles on the ground to help support their upper bodies.
 - **Playing** – Young gorillas like to play just like you. They chase each other and wrestle. Sometimes they even bother their parents. Playing is how young gorillas build strength and establish their rank in the group.
 - **Nesting** – Gorillas nest in trees or on the ground. Nests are built out of leaves, grass & twigs. It takes a gorilla about 5 minutes to build a nest. A new nest is built every night.
 - **Threatening** – Gorillas will curl back their lips and open their mouths to show off their big teeth. This is their way of telling another gorilla or another animal to stay away.
 - **Staring** – Staring is rude and gorillas don't like it. Staring can also be considered threatening by gorillas. If a gorilla stares at you, he is angry and wants you to go away.
 - **Chest-Beating** – Both males and females will beat their chests to scare off an intruder or a rival. This is seen more in males than in females.
 - **Baby Care** – Gorilla mothers are very protective and will spend a lot of time holding, grooming, and caring for their babies. Baby gorillas weigh about 5 pounds at birth and almost immediately know how to hold onto their mother while she walks in the forest.
- 5) If the gorillas are visible, instruct students to observe the gorillas again. Are they displaying some of the behaviors they acted out? Which ones? Why are they doing those behaviors?
- 6) As an extension, you can discuss with students how gorillas also have different vocalizations. Below are examples of vocalizations associated with gorillas:
- **Hooting** – can carry for a mile through the forest and is usually accompanied by display behavior such as chest beating, strutting, and vegetation slapping
 - **Screams** – sounds of alarm or warning
 - **Belches** – deep rumblings of contentment, comfort, or well-being
 - **Sharp Grunts** – used when discipline is required
 - **Whoop Barks** – high-pitched barks denote curiosity
 - **Roars** – aggression
 - **Chuckles** – playfulness



◀ World of Reptiles Scavenger Hunt ▶

- ◀ **Grades:** PreK-5
- ◀ **Duration:** 20 minutes +
- ◀ **Subjects:** Life Science, English/Language Arts
- ◀ **Zoo Location:** World of Reptiles

Stage 1- Desired Results

Understandings:

Students will understand that...

- The Zoo houses reptiles and amphibians from around the world.
- Reptiles and amphibians eat different foods depending on the species.

Essential Questions:

- How do I find information about the animals in Zoo Atlanta's World of Reptiles?

Students will know...

- How to use exhibit signs to answer a variety of questions about reptiles and amphibians.

Students will be able to...

- Find different reptiles and amphibians from all over the globe including Georgia in our World of Reptiles

Stage 2 - Assessment Evidence

Performance Tasks:

Students will work together or individually to complete a scavenger hunt in Zoo Atlanta's World of Reptiles. Students will learn about our many species of reptiles and amphibians as well as their characteristics, adaptations, and different habitats.

Stage 3 - Learning Plan

Materials:

Copies of the scavenger hunt for each student or team
Pencils or pens

Vocabulary:

amphibians- Amphibians are vertebrates characterized by a dependency on their surrounding environment to regulate their body temperature; they are ectothermic, glandular skin, and have a reproductive tie to water (e.g. frogs, salamanders)

frog- Frogs typically have smoother and moist skin with longer legs, which are used for leaping long distances.

toad- Toads are squat and plump and have dry, bumpy skin. Their legs are shorter than frogs and are used for hopping short distances.

reptiles- Reptiles are vertebrate animals that are covered with scales and are ectothermic or "cold-blooded."

tortoise- Tortoises are terrestrial with dome shaped shells. They have elephant-like back legs, their front legs are covered with thick hard scales, and both front and back feet lack webbing between their toes. All tortoises are herbivorous.

turtle- Turtles or terrapins normally live in or near water and are primarily carnivorous. Some have webbed or flipper-like limbs to aid in swimming. Turtles also have a lower profile shell than tortoises.

ectothermic- An animal whose body temperature is determined by the temperature of the environment, "cold-blooded".

endothermic- An animal that produces heat internally, "warm-blooded".

poisonous- Poisonous animals are those that have poison producing glands or anoint themselves with poisons. The poison used is a toxin and is harmful if eaten or absorbed through the skin. Many frogs and toads are poisonous.

venomous- Venomous animals are those that have venom producing glands and actively deliver or inject it through stingers, fangs, or "stinging" hairs. Although animals may use venom in self-defense, venom is primarily used to subdue prey. Snakes that use a venom delivery system are considered venomous, not poisonous.

Learning Activity

- 1) Divide your class into smaller groups using the recommendations below:
 - Pre-K-1st grade: pair or triple up students with an adult chaperone
 - 2nd-5th grades: Pair up students or allow students to hunt by themselves
- 2) Give each student a copy of the scavenger hunt

3) Discuss "World of Reptiles" rules:

- Do not knock or tap on any of the exhibits
- Do not run in the building
- Please be courteous of other customers in the "World of Reptiles"

4) If students are having trouble finding some of the scavenger hunt items, please let them know most answers can be found on the signage in front of each exhibit.

5) Please note that animals may be off exhibit at any given time.

6) After the scavenger hunt, go over the answers with all the students using the key below.



Answer Key

1. 2.5 feet long
2. reticulated python
3. Chinese giant salamander
4. flowers, leaves, and grasses
5. Madagascar hognose snake & Dumeril's ground boa
6. red spitting cobra
7. pancake tortoise
8. black mamba
9. Amazon tree boa and the emerald tree boa
10. Up to 12 feet long
11. various rodents and other small mammals
12. Mexican box turtle
13. alligator snapping turtle
14. *Possible answers:* copperhead, water moccasin/cottonmouth, timber rattlesnake, Eastern diamondback rattlesnake, Carolina pygmy rattlesnake, and coral snake
15. *Possible answers:* black, grey, and yellow rat snakes, corn snakes, pine snakes, scarlet king snakes, etc.
16. *Possible answers:* ornate horned frog, green tree frog, American toad, bullfrog, etc.
17. king cobra, king snakes, and the black-tailed cribo
18. These exhibits all house animals that are all from Georgia.
19. The most ferocious animals are humans. Humans pollute and change the environment in other ways to accommodate their increasing need for resources, causing other species to decline in health or numbers.

Take home challenge: Please see definitions in the vocabulary section for the answer.

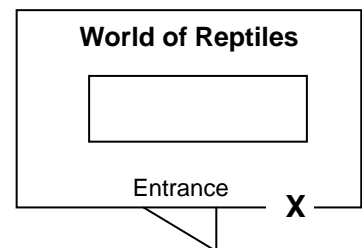
Zoo Atlanta World of Reptiles Scavenger Hunt

Name _____ Date _____

1. How long does the tentacled snake get?
2. Which snake is the longest in the World of Reptiles?
3. What type of Asian salamander do we have?
4. What does the Malagasy spider tortoise eat?
5. Find at least one snake from Madagascar.
6. Which of our cobras can be found in Africa?
7. Find the animal that is named after a favorite breakfast item.
8. Which snake is the longest venomous African snake?
9. What two types of tree boas can be found in South America?
10. What lengths does the yellow anaconda reach?
11. What does the black headed bushmaster eat?
12. Name one turtle that can be found in Mexico.
13. What is the largest turtle in the World of Reptiles?
14. Find two venomous snakes that can be found in Georgia.
15. Find two non-venomous snakes found in Georgia.
16. Find two frogs or toads.

Challenge Hunt: 4th & up

17. Find two snakes that eat other snakes.
18. What is the common thread of all the animals on the wall marked **X**?
19. What is the most ferocious animal in the world and why?



Take home challenge: Are snakes venomous or poisonous and what is the difference?



◀▶ Komodo Dragon Habitat: Ambush Tag ▶◀

- ◀▶ **Grades:** PreK-5
- ◀▶ **Duration:** 15-20 minutes
- ◀▶ **Subjects:** Life Science

Stage 1- Desired Results

Understandings:
Students will understand that...

Examples:

- Some predators catch their prey by ambushing.
- There are various relationships between predators and prey.
- Komodo dragons are ambush predators on the island of Komodo and surrounding islands.

Essential Questions:

Examples:

- How do ambush predators catch their prey?
- What is a predator?
- What is prey?
- How do Komodo dragons use deer trails to efficiently capture their prey?

Students will know... (List 1-2)

Examples:

- Ambush predators utilize Camouflage and patience to subdue their prey.
- Predators are animals that eat other animals.
- Prey are those animals eaten by other animals.
- Habitat is the natural environment of a plant or animal; an animal finds food, water, shelter, and space in its habitat.

Students will be able to... (List 1-2)

Examples:

- Discover how Komodo dragons capture their prey by playing an activity.
- Explain the strategies used by ambush predators.
- Explain what happens when Komodo dragons are unable to successfully ambush their prey.

Stage 2 - Assessment Evidence

Performance Tasks:

Students will visit the Komodo dragon exhibit and participate in “Ambush Tag.” Students will learn about this unique species and its ability to use ambush as its primary source of predation.

Stage 3 - Learning Plan

Materials:

No materials are needed for this activity.

Vocabulary:

reptiles - vertebrate animals that are covered with scales and are ectothermic (cold-blooded)

habitat - the natural environment of a plant or animal; an animal finds food, water, shelter, and space in its habitat.

predator – an animal that eats other animals

prey - animals that are eaten by other animals

ambush - capturing an animal by surprise usually from a camouflaged or covered location

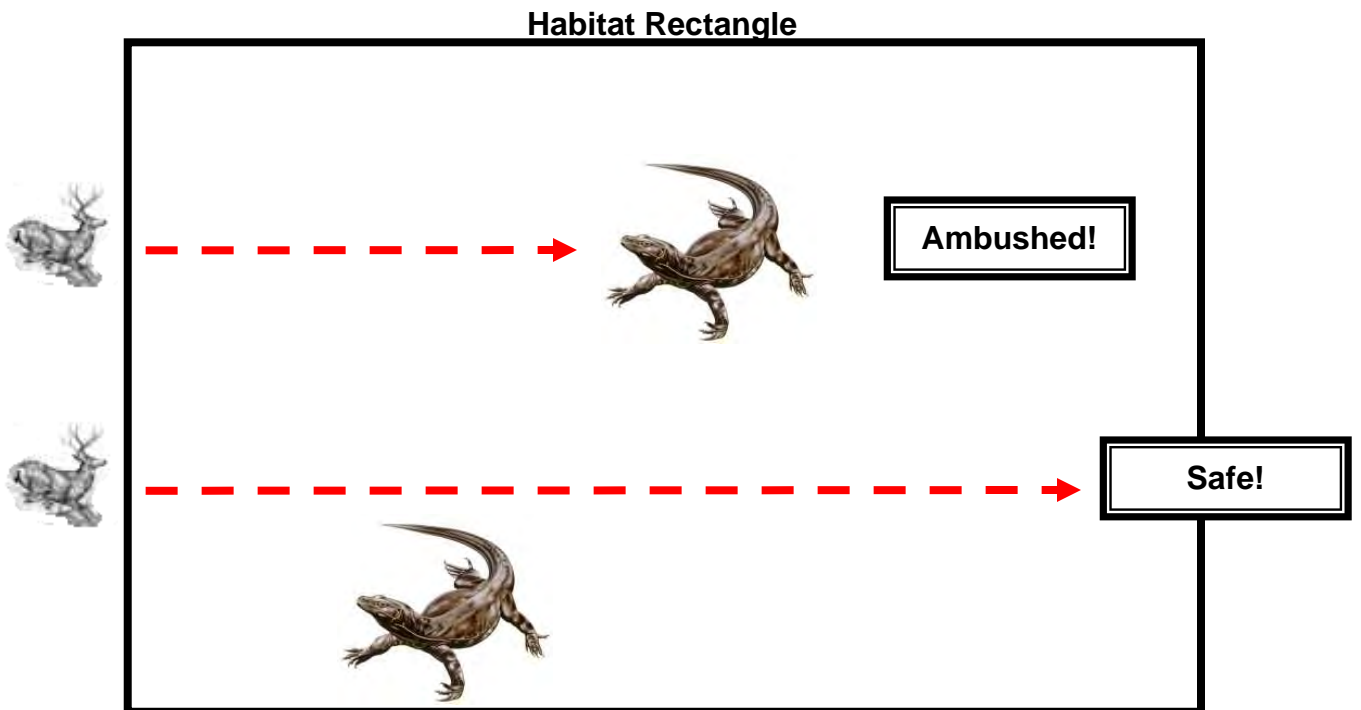
camouflage - protective coloration or physical features that helps an animal to blend into its surroundings

deer trail - distinct path created by deer repeatedly moving through a habitat.

Learning Activity:

- 1) Discuss how many reptiles including Komodo dragons are ambush predators, meaning they wait patiently for feeding opportunities. Many ambush predators camouflage so well into their background that they can simply wait for prey to walk by. The Komodo dragon is an ambush predator on the island of Komodo and will patiently wait at the intersection of two deer trails for a meal.
- 2) At the Komodo dragon exhibit, set up an activity rectangle roughly 15 feet wide and 20 feet long. Explain that the rectangle represents the natural habitat of Komodo dragons.
- 3) Let kids know from the beginning no running is allowed in this activity.
- 4) Start by choosing one person to be the Komodo dragon.
- 5) The rest of the class are the native deer of Komodo, the natural prey of Komodo dragons. Pick one deer from your herd and have that person turn their back to the dragon who will be in the middle of the habitat rectangle.
- 6) Next have the Komodo dragon establish an ambush location inside the rectangle, where they will try to catch one of the herd. Instruct student that they may reach for passing deer, but not move their feet from the position they choose.
- 7) With their back still turned to the dragon, have the deer pick a spot to cross the habitat.
- 8) After the person picks the place where they would like to cross, they will turn around and begin to cross the habitat rectangle. The deer must walk straight across without veering, as this path represents a “deer trail” on the island. Explain to the students that Komodo dragons ambush prey at the intersections of these deer trails.

- 9) If the deer walks into the reach of the Komodo dragon, the dragon successfully ambushes his prey. This success results in two Komodo dragons in the middle for the next round. In this case choose two students to be deer crossing in the next round.
- 10) If the deer walks a path where the Komodo dragon cannot touch them, the deer successfully makes it across the habitat rectangle to safety. In this case repeat the process and allow the dragon to reset his position while the deer's back is turned.
- 11) For each round the number of deer crossing should always match the number of Komodo dragons in the habitat rectangle.
- 12) When there are multiple dragons in the habitat, any dragons that are unsuccessful results in that dragon leaving the habitat and that participant will return to the deer herd. You cannot go below one dragon, so if two dragons are unsuccessful one will get to stay in the habitat.
- 13) Continue until all students have gotten a turn to cross the habitat.
- 14) Ask children if they can think of other animals that might also use ambush predation.
- 15) **For older students:** discuss how populations of animals naturally fluctuate depending on if all the needs of an animal are met. The dragon leaving the habitat represents an animal that did not meet all his needs and subsequently will die. After he dies he becomes part of the environment again.
- 16) Ask students: what would happen if we put a neighborhood in the middle of the habitat rectangle? Would the deer want to cross the habitat any longer? Would the Komodo dragon stick around?





◀▶ Tiger Habitat: Tiger Survival Game ▶◀

- ◀▶ **Grades:** PreK-5
- ◀▶ **Duration:** 20 minutes
- ◀▶ **Subjects:** Life Science, Physical Education

Stage 1- Desired Results

Understandings: Students will understand that...

- Animals have basic needs that must be met in their habitats in order to survive.
- Populations of animals are continuously affected by their environment.

Essential Questions:

- What do animals need to survive?
- What happens to wildlife when the environment changes?

Students will know...

- Good habitat is the key to wildlife survival.
- A population will continue to grow in size until it reaches its carrying capacity.

Students will be able to...

- List the essential components of a habitat (food, water, shelter, and space)
- Explain carrying capacity

Stage 2 - Assessment Evidence

Performance Tasks:

Students will become “tigers” or “basic needs” in a physical activity that enables them to understand the need for suitable habitat for survival, as well as the concept of carrying capacity.

Stage 3 - Learning Plan

Materials:

No materials are needed for this activity.

Vocabulary:

habitat – the natural environment of an animal (i.e. grassland, rainforest)

carrying capacity – the maximum number of organisms of a particular species that can be supported in a given environment

predator – An animal that eats other animals

prey – An animal that is hunted and eaten by other animals

population – The number of individuals of a species found in a given area

Background Information:

All tiger species live in Asia. The Sumatran tiger is found on the island of Sumatra in habitat that ranges from lowland forest to mountain forest with some peat-moss forest. Tigers are solitary animals, maintaining and defending their individual territories. A male's territory is much larger and overlaps the territories of four to five females. Some tigers will migrate from one area to another.

All animals require food, water, shelter and space in a suitable arrangement to survive. Tigers are predators that hunt smaller prey. An adult male tiger requires nearly 3 tons of food per year to survive. A tiger will eat whatever it can catch when it is hungry, but larger hoofed animals such as wild deer and pigs form the bulk of their diet.

Learning Activity:

- 1) Have the students count off in fours. Have all of the ones go to one side of your activity area; all twos, threes, and fours go together to the opposite side. Have the students on each side line up and face the other side so that you have two parallel lines of students.
- 2) The ones become the "tigers". Ask the students what the basic needs of all animals are. (For this activity, we will assume that the tigers have air to breathe). The "tigers" need to find food, water, and shelter in order to survive.
Signs: When a "tiger" is looking for **food**, it should clamp its hands over its stomach. When it is looking for **water**, it puts its hands over its mouth. When it is looking for **shelter**, it holds its hands together over its head. A tiger can choose to look for any one of its needs for each round of the activity, but **the tiger cannot change what it is looking for after the round begins**. It can only change what it is looking for in the next round, if it survives.
- 3) The twos, threes, and fours are the basic needs - food, water, and shelter. Each child gets to choose at the beginning of each round which basic need he or she will be during that round. They use the same signs the tigers use to identify the basic needs.
- 4) The activity starts with all players lined up on their respective sides - "tigers" facing the "basic needs". You will ask the students on both sides to turn around, with their backs to the players on the other side.

- 5) Begin the first round by asking all of the students to make their signs—each “tiger” deciding which basic need it is looking for, each “basic need” student deciding if they want to be food, water, or shelter.
- 6) When you can see that everyone is ready, count to three and have everyone on both sides face each other.
- 7) Instruct the students in the basic needs line to stand still.
- 8) Tell the tigers they must find the basic need they are looking for by finding someone in the other line that is making the same sign they are making. *Be sure no one is changing his or her sign at this time.* Each tiger that finds the “basic need” he or she is looking for, must then take that student back to the “tiger” side—this represents the tiger successfully meeting its needs, and successfully reproducing as a result. Any tiger that fails to find the component it is looking for dies and becomes part of the basic need side.

NOTE: When more than one tiger reaches the same basic need, the student who gets there first survives. If the other tiger is unable to find its basic need it will die and become a basic need for the next round. The children who are the basic needs stay in place on their line until a tiger needs them. If no tiger needs them during a round, they stay there until the next round.

- 9) Play several rounds so the children can see how things change when the tiger population increases and the basic needs decrease. At a certain point, the habitat will reach its carrying capacity, meaning any additional increase in the tiger population will negatively affect the population as a whole because there will not be enough resources (food, water, and shelter) to support the population and some tigers will die. Once the tiger population decreases, there are more basic needs to go around and the population size will slowly increase again. This type of cycle occurs naturally in the wild.
- 10) Once you have played several rounds discuss this natural cycle (basic needs vs. population size) with the students. Ask the students if they can think of scenarios when the basic needs would decrease (drought, fire, flood, disease). How does this affect the tiger population? With older students you can discuss the consequences of humans on the environment (habitat destruction and poaching) and how that affects the animal populations.



◀▶ Outback Barn: Animal Training Role-Play ▶◀

- ◀▶ **Grades:** PreK-5
- ◀▶ **Duration:** 15 + minutes
- ◀▶ **Subjects:** English/Language Arts, Life Science, Physical Education

Stage 1- Desired Results

Understandings:

Students will understand that...

- Domesticated animals are different from wild animals and depend on humans for their survival.
- Humans rely on domesticated animals for many things including companionship and livelihood.
- Animal training benefits both the animals and the humans involved.

Essential Questions:

- What are the differences between domestic and wild animals?
- What is positive reinforcement?
- Why is it beneficial to train animals?

Students will know...

- There are differences between domesticated and wild animals.
- Animal training is beneficial to both the animals and humans.
- There is a proper technique for training with positive reinforcement.

Students will be able to...

- Compare and contrast the differences between domesticated and wild animals.
- Explain the benefits of training an animal.
- Demonstrate the proper technique of training with positive reinforcement.

Stage 2 - Assessment Evidence

Performance Tasks:

Students will understand the difference between domesticated and wild animals. They will learn the benefits of training animals. They will learn the technique of positive reinforcement first-hand by participating in an interactive activity as first the animal and then the trainer.

Stage 3 - Learning Plan

Materials:

No materials are needed for this activity.

Vocabulary:

domestic – animals bred by humans over long periods of time, usually for food, products, transportation or companionship. Domesticated animals have lost their natural wild survival skills.
wild – animals that are not domesticated. Wild animals can survive on their own (without human assistance) in their natural habitat.

positive reinforcement – offering a positive reward for a specific behavior with the intention of increasing the likelihood of that behavior being repeated in the future.

husbandry – the management or care and maintenance of animals.

Background Information:

The Outback Station Petting Zoo represents an Australian farm yard. The animals in the petting zoo are domesticated. Domesticated animals are dependant on humans. Through generations (in most cases 1000's of years) of selective breeding, they have by definition lost their natural abilities to survive in the wild. Therefore, they rely on people for food, shelter, water, and an appropriate place to live. This relationship is not one sided. People rely on domesticated animals for things ranging from companionship to livelihood. For example, domesticated animals provide us with sources of food (meat, eggs, milk); clothing (wool, leather); transportation (horses, sled dogs); labor (plough horses, oxen), and companionship (cats, dogs).

The other animals on exhibit in the zoo - although they live in captivity - are not domesticated but are wild animals.

Zoo Atlanta keepers use positive reinforcement on almost every animal in the zoo. This enables us to train the animals to perform specific behaviors that help with the daily husbandry and veterinary care of the animal. For example, animals are trained to shift between their outside exhibit space and their indoor holding area. Some animals are trained to present specific body parts for veterinary inspection, voluntary blood draws, and injections. Several animals are trained to voluntarily walk into small transport cages.

Most animals are intelligent and trainable with patience. Training an animal is beneficial to both the animal and the person that lives or works with that animal. It keeps the animal mentally stimulated and establishes an understanding of what is expected of that animal. Training also

serves several purposes for humans. Training allows the owner to care for the animals with greater ease. The trainer, using positive reinforcement, works with the animal to exhibit a specific behavior on command. These behaviors can be anything from fun tricks (rolling over, catching a Frisbee); to work-related behaviors (herding livestock) to allowing the owner/vet to better care for an animal (brush hair, trim nails, clean teeth). Training – that is, building a working relationship with an animal - is a great way to enrich an animal's life and create a strong bond between the animal and the human who cares for it.

Learning Activity:

- 1) Using the background information, first discuss with the students the differences between domesticated and wild animals.
- 2) Discuss the benefits of animal training. Ask the students if they have pets at home that are already trained. What trained behaviors do their pets know? How did they train these behaviors? The kids may have used “good boy” and “dog treats” to train their pet dog to sit on command and didn't realize they were using positive reinforcement. How is training their pets at home beneficial? Examples: animal comes when called, obeys basic obedience commands (sit, lie down, and stay) or does fun tricks. Remind them the importance of building a loving and trusting bond with their pet.
- 3) Explain there are three steps to training an animal; 1) cue, 2) behavior, and 3) reward. Simply stated, you tell the animal what you want it to do with a visual and/or verbal command, you give the animal a chance to perform the proper behavior, and then you reward the animal for that behavior. This is called positive reinforcement training.
- 4) Ask for 3 - 4 children to volunteer to be the “animals”. Explain to the class that you will be training these animals with positive reinforcement.
- 5) Ask your volunteers what is rewarding to them (answers usually include money or a type of food). Decide on one reward for all the volunteers.
- 6) Explain to the volunteers that when they perform the desired behavior, they will first hear a hand clap, and then they will get their reward. Example: “this sound (clap your hands together one time) means you get a slice of pizza”. You may need to remind them that we are pretending to get the reward if they are young and really expect to see the reward they identified.
- 7) Use the rest of the class to provide the reward. Example: anytime you clap your hands the rest of the class calls out “pizza” or whatever the reward is. Once everyone understands their roles, you may begin your training session.
- 8) As the trainer, you can decide what behavior they want to see the “animals” perform (jumping in place, touching their toes, or walking to a specific spot are good first time behaviors).
- 9) Explain to the volunteers that you are going to begin training. Since we cannot tell the animals what behavior we want them to do, the volunteers, just like the animals, will have to figure out what behavior we want by our visual cues. Once they perform the correct behavior they will be rewarded. Remind the rest of the class that they cannot shout hints, they only say the word which is the reward (in this case pizza) after you clap your hands.
- 10) Be sure to clap and then reward (class shouts pizza) each individual animal as they work on figuring out the final behavior. If there is a delay or frustration with the volunteer, remind everyone that practice makes perfect, and animals will not repeat behaviors which are not rewarded.

- 11) Keep watching quietly and always give reassuring clap/rewards for partial behaviors.
Example: If the behavior is to jump in place, you would hold your hand over the child's head. When they look up at your hand, you can clap/reward. Then wait for them to touch your hand. Once they touch your hand, again provide a clap/reward. Once they understand they are to touch your hand, raise it higher so that they must jump to reach it. Don't forget the clap/reward when they jump. This is a completed behavior. Once the behavior is completed, give several claps to indicate that the training session is over.
- 12) Discuss with your volunteers what it was like, most kids like the feeling of success and are smiling when finished. Remind them that animals after being rewarded will be happy too. Training needs to be positive and fun for the animals to want to participate.
- 13) If time allows, you can divide the students up into pairs. They can each take turns training a new behavior to their partner.
- 14) Discuss the activity as a group:
 - Review with them the three steps they saw. The cue was given (holding hand over head). The behavior asked for was touching the teacher's hand (eventually jumping to reach it). The reward was a clap and in this case shouting the word pizza.
 - Have the students identify ways they are trained (getting allowance for chores, praise for good grades, earning points for scoring in a sport).
 - Ask the students if they want to go home and use the clap/reward system to train their pets. What new behaviors will they train? Why? What reward will they use?
 - Remind the students that the training session must be short, fun and positive for the animal to participate. Also, remind them the importance of patience. Depending on the complexity of the behavior it may take several training sessions for an animal to master a specific behavior. Animals are smart and will figure it out eventually if they have a good trainer.



◀▶ Golden Lion Tamarin Habitat: Be a Field Biologist ▶◀

- ◀▶ **Grades:** PreK-5
- ◀▶ **Duration:** 15-20 minutes
- ◀▶ **Subjects:** Life Science

Stage 1- Desired Results

- Understandings:**
Students will understand that...
- Field biologists study animals to learn more about their behavior.
 - Learning about an animal's behavior can help biologists protect that animal from being endangered.

- Essential Questions:**
- Why is it important for field biologists to study animals?
 - What different behaviors do field biologists study about animals?
 - How did field research allow zoos to help golden lion tamarins?

- Students will know...**
- Field biologists study animal behavior by collecting and analyzing data about what animals do throughout the day.
 - Golden lion tamarin populations have increased because research from field biologists has allowed zoos to successfully reintroduce these animals into the wild.

- Students will be able to...**
- Observe and record golden lion tamarin behavior.
 - Interpret the tamarin data collection results.
 - Explain why it is important for field biologists to study animals.

Stage 2 - Assessment Evidence

Performance Tasks:
Students will become field biologists that study golden lion tamarin behavior. Students will observe and record tamarin behavior and discuss the results.

Stage 3 - Learning Plan

Materials:

Golden Lion Tamarin Data Collection Sheets
Pencils

Vocabulary:

field biologist – scientist that studies plants or animals in the wild

endangered – refers to a species at risk of becoming extinct

extinct – refers to a species that no longer exists on earth

animal behavior – what an animal does in its environment

habitat – the place where an animal lives

Learning Activity:

- 1) Explain to students that scientists study animals in the wild to learn about them. There are many things that scientists can study about animals including where they find food, how they interact with other animals, and what else they do throughout the day. It is important for scientists to study animals to learn more about them and how to protect them. Scientists that study animals in the wild are called field biologists. Field biologists devote hours to tracking, observing, and recording animal behavior. From this data, field biologists can learn how much space the animals need, what and how often they eat, and how they interact with other animals.
- 2) Explain to students that golden lion tamarins are one animal that field biologists study because they are endangered. Explain that endangered means that this type of animal is at risk of being extinct. Extinct means that this type of animal no longer lives on earth. Explain to students that it is important for field biologists to study golden lion tamarins to determine how to protect them in the wild so that they don't become extinct.
- 3) Explain to students that they are going to be field biologists that study golden lion tamarins. Since they cannot go to the areas where these animals live in the wild, they are going to observe the tamarins at Zoo Atlanta.
- 4) Explain to students that they will choose one tamarin to observe and record what this tamarin is doing for 10 minutes.
- 5) For younger students, do the activity below as a group with the instructor recording the observations on the Golden Lion Tamarin Data Collection Sheet. Ask students to pick one tamarin to watch as a group. Students should tell the instructor what the tamarins are doing for the teacher to record. (Instructors can shorten the observation time depending on the attention span of the students.)
- 6) For older students, give each student a Golden Lion Tamarin Data Collection Sheet and instruct them to record their observations on their own.
 - a) Instruct students to write the time in 1-minute increments in the time column. The first time should be the time you start observing. The next time will be one minute later.
 - b) Continue this for 10 minutes.
- 7) Instruct students that they will observe their specific animal. They (or you) will need to put a check in the box of each activity your animal does during each minute. Explain that the possible activities are as follows:

- **Object Manipulation** – animal is handling an object
 - **Foraging/Eating** – animal is eating or looking for food
 - **Locomotion** – animal is moving
 - **Stationary/Sleeping** – animal is standing still, resting, or sleeping
 - **Social Interaction** – animal is interacting with other animals in the exhibit
 - **Not Visible** – you cannot see the animal
- 8) Allow students time to observe the tamarins. Tell students each time it is a new minute and for older students, remind them to move to the next row.
- 9) When 10 minutes is over, the students (or you) will need to total the number of boxes checked for each column and write the total at the bottom of the sheet.
- 10) Review the results with the entire group. Some suggested discussion questions are as follows. (Answers are in parentheses):
- What does the data tell you about what golden lion tamarins do during the day? (This depends on the data but golden lion tamarins spend their days eating, moving around in trees, and interacting in their family group.)
 - How many students observed their golden lion tamarins interacting with other animals? What does this tell you about tamarins in the wild? (Golden lion tamarins live in social groups of anywhere from 2 to 9 animals per group. They are very social animals.)
 - Do these animals move around a lot or mostly stay in one place? (These animals are very good at climbing and moving around in the trees. When they are awake, tamarins move around a lot.)
 - How could this data help field biologists determine ways to protect golden lion tamarins in the wild? (Learning what things tamarins do throughout the day helps biologists know what things tamarins need to survive and how they interact with other animals. This will help biologists know what type of habitat to protect for golden lion tamarins and how to reintroduce animals into those habitats.)
 - What other things should field biologists study to determine how to protect golden lion tamarins in the wild? (What foods they eat, how big their territory is, where they sleep, which animals are their predators, what other things tamarins need to survive in the wild, and the population numbers of tamarins in the wild.)
- 11) Explain to students that research done by field biologists has helped zoos learn about golden lion tamarins. This research has allowed zoos to participate in a reintroduction program where animals born in zoos have been successfully released into the wild. Through this reintroduction program, zoos have been able to help the population of golden lion tamarins in the wild. In the 1970s, there were only 200 golden lion tamarins in the wild. There are now 1,500 golden lion tamarins in the wild. Of these, 650 were reintroduced or offspring of reintroduced animals. None of this would be possible without the research conducted by field biologists.

Golden Lion Tamarin Data Collection Sheet

Data Collection Instructions:

1. Select one golden lion tamarin to observe for 10 minutes.
2. Write the time in 1-minute increments in the time column. The first time should be the time you start observing. The next time will be one minute later. Continue this for 10 minutes.
3. Observe your specific animal. Put a check in the box of each activity your animal does during each minute. Activities are as follows:
 - a. **Object Manipulation** – animal is handling or playing with an object
 - b. **Foraging/Eating** – animal is eating or looking for food
 - c. **Locomotion** – animal is moving
 - d. **Stationary/Sleeping** – animal is standing still, resting, or sleeping
 - e. **Social Interaction** – animal is interacting with other animals in the exhibit
 - f. **Not Visible** – you cannot see the animal
4. When you have finished observing, add the number of boxes checked in each column and place the total in the total column.

Observer's Name: _____

Time	Object Manipulation	Foraging/Eating	Locomotion	Stationary/Sleeping	Social Interaction	Not Visible
Totals						



Sample Golden Lion Tamarin Data Collection Sheet

This is a sample data sheet for a golden lion tamarin observation. When the observation started, this animal was chasing another animal in the exhibit. The animal then got distracted by an object in the exhibit that contained food. He played with the object to get food out. He then went around the exhibit finding and eating the food. Then he laid down and rested. Below is how the observer recorded the data for this animal.

Observer's Name: Jane Johnson

Time	Object Manipulation	Foraging/ Eating	Locomotion	Stationary/ Sleeping	Social Interaction	Not Visible
1:16 pm			√		√	
1:17			√		√	
1:18	√	√	√			
1:19	√	√	√			
1:20	√	√	√			
1:21		√	√			
1:22		√	√			
1:23		√	√			
1:24			√			
1:25				√		
Totals	3	6	9	1	2	0

