



adaptations Tour

Self Guided 3rd – 4th Grade

John Ball Zoo



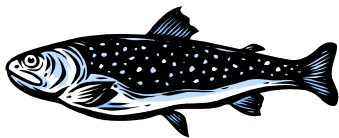
1. **Waterfowl:** In most cases, these birds are prey (hunted by other animals). They are primarily herbivores, eating plants from the water and along the shoreline. Notice the beaks and feet of these birds. Many have broad, flat beaks that are well suited for nibbling greens. Feet with webbed toes are good for swimming. Look at the ducks and geese coloration. Generally the brighter colored ducks are males and the females are dull colored. This allows the females to hide (camouflage) while sitting on the nest,

preventing predators from finding her and the eggs. Most of these birds have eyes on the side of their heads so they may see predators from all directions at once.

2. **Bald Eagle:** Eagle beaks are larger and hooked – great for tearing off pieces of meat from their prey. Their talons (feet) have curved toes with sharp claws great for catching and killing prey. On the underside of their feet are many tiny spicules (bumps) that help these birds of prey grab their favorite food – fish. The dark feathers covering the body help eagles camouflage in the nests. The eyes face forward, giving the eagles good depth perception so they are better able to grab their prey.



3. **Living Shores:** There are about 100 different animals (~1300 individuals) that live in this building. Only a few will be noted here.



A. **Michigan Stream:** Trout – color helps them hide from predators and fisher people. They will school together for safety in numbers. They are also fast swimmers with their stream-lined, torpedo shaped body.

B. **Patagonia:** *Penguins* – torpedo shaped body, close and compact feather arrangement allows them to be fast swimmers. Black backs and light fronts (counter shading) makes them hard to see from both above and below while they are in the water. *Deep water tank* – these fish school together in large groups to confuse predators and thus decrease their chances of being eaten.



C. **Pacific Northwest:** *Kelp Forest* – Can you find a fish that hides on the ocean floor? Soles and flounders have flattened bodies and hide by covering themselves with stones and debris. They can even change from a light pattern to a dark pattern to camouflage with varying rock colors. The color and pattern of some of the rockfish helps them hide in the cracks and fissures of the rocks. Other fish are able to hide in the kelp strands by holding their bodies very still and tilted. *Tide Pool* – The animals living in here need to be adapted to varying water levels and being thrashed about by waves and current. Watch the wave come in and see how these animals adapt.



4. **Adventure World/Children's Zoo:** As you walk through here, you will find many birds adapted to different places – Snowy Owls that can live in the far north, Barn Owls that hunt rodents in open fields, Magpies that perch in trees, and Chickens that forage for anything they can eat!

5. **Golden Eagle:** These are very much like the Bald Eagles except they eat more rodents and rabbits than fish. They do not have the tiny spicules on their feet that the bald eagles do.



6. **Otter:** Dense fur protects them from the wet and cold. Short legs and a narrow body shape helps them swim with great speed and agility in pursuit of fish. The long tail acts as a rudder to steer. They are often found “playing” in the water.

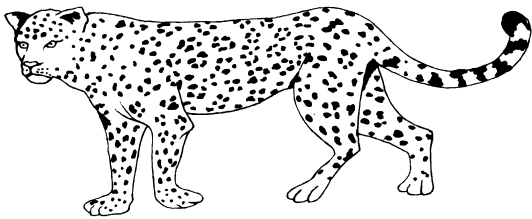
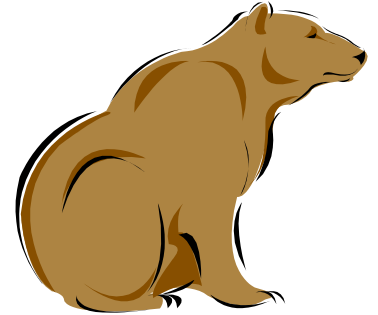


7. **Turtles:** Turtles have shells connected to their back bone for protection. It protects their internal organs from predators, as well as serving as a place to hide from predators. The shell of a turtle is a great adaptation, because they barely have any natural predators and is why many can live such long lives.

8. **Wolverine:** Wolverines are known to be extremely ferocious. They have also scared away many large predators, such as bears and large cats. They have extremely large claws and sharp teeth. They will eat a variety of meat, including fish! Wolverines have large, furry feet that work like snow shoes, keeping it on top of deep snow as it moves and tracks prey.

9. **Dall Sheep:** The hooves on these sheep make them agile and steady jumpers as they roam around the rocky areas of the Alaskan and Canadian mountains.

10. **Bear:** Their great size alone will scare away predators. To make themselves look even larger, they will stand on their hind legs, which gives them great height. They are extremely adapted to catch fish out of rivers and to hunt for other prey. However, they are mainly omnivores, eating berries, fruits, and other plants for survival. Their long claws help with digging, fishing, and hunting.



11. **Puma/Snow Leopard:** Both of these cats have fur which helps them hide in their respective habitats. Their long tails help them to balance when leaping up and down cliffs or mountains. Retractable claws stay sharp and ready to aid in capturing prey, and are not worn down by moving about the rocks.

12. **South American Exhibit:** Depending on when you visit the zoo, you may or may not see the following animals:

Guanacos – prey animals that avoid predators by running and biting. Their long legs allow them to see and maneuver through the tall pampas grasslands.

Crested Screamers – have spurs on their wings that they use for protection.

Maned Wolves – predators with eyes that face front, sharp teeth, and long legs to see over the tall grasses in their native habitat.

Tapir: The Tapir has a snout that can move in many directions allowing it to grab leaves off of trees that otherwise may be out of reach. There are four toes on its front legs, and three on the back legs to help walk through muddy terrains.

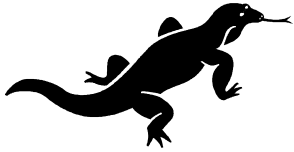
13. **African Veldt:** Several of these animals co-exist in the wild like they do here. *Warthogs* – are herbivores. However, their tusks are extremely sharp and they can successfully protect themselves, even when up against a lion. *Bongos* – are also herbivores. Their large eyes and ears can detect any predators that may be near, and their striped coat helps to hide them in their native forests. *African Crowned Cranes* – are prey, but they can also fly away from predators if danger should come. *White-backed Vultures* – are scavengers; able to eat rotting meat and able to smell carrion from great distances. Their nearly featherless heads help them stay clean even when reaching deep into an animal carcass to feed. *Yellow-backed duiker:* Very territorial, and mark their land with scent. When scared, will make loud noises and its yellow hair will stand up on its back. *Helmeted Guinea Fowl:* Extremely good runners. When alarmed, Helmeted Guinea Fowl typically run rather than fly.





14. **Chimpanzee:** Chimps are mainly herbivores, however they are known to eat a little bit of meat. They are very intelligent and are able to make and use tools to gain food and water. Some observed tool use includes: *rocks* – they use rocks to crack open nuts that are very hard, *twigs* – are used to extract termites from large mounds (you might see them using the same process here, however, a different food that takes the place of termites here!), *leaves* – in the wild they will chew up a leaf and then dip that in water to use as a sponge and get more water than normal.

15. Treasures of the Tropics building:



As you go through this building, there are many animals that do not actively seek their prey. They lie in wait for the unsuspecting animal to come within range. Many of them are well camouflaged and will be hard to spot in the exhibits. Look for the brightly colored Poison Frogs. They rely on warning colors to scare away predators. Some snakes are constrictors that wrap around their prey to suffocate it. Others use venom to waylay unsuspecting prey. Watch many of the lizards and snakes as they flick their tongues in and out. They are not giving you the raspberries, but are picking up molecules and particles in the air to help sense what is in the area. Many do not have good eyesight, so they depend on this information to help sense food or danger.

17. **Frogs:** The many types of frogs here all have their own type of adaptation. The most commonly known adaptation belongs to the Poison Dart Frogs. They secrete a mucous that is poisonous if digested. Their bright colors warn predators they are poisonous and to stay away. The Red-Eyed Tree Frog is a nocturnal frog. Since it is nocturnal, it has red eyes. The red eyes help them see during the night and startle predators if they are awoken during the day. Other frogs in the exhibit have special body coloration as an adaptation. They may look like a leaf, moss, or just the dirt and rocks around them.



SCAVENGER HUNT

John Ball Zoo

There are animals at the zoo
that have horns.
Which ones can you find?

What is the preferred food of the Bald Eagle?

What 2 features help the Bald Eagle capture
and eat this slippery prey?

Find one example of each of the
following kinds of animals in the zoo:

Herbivore (plant eater)

Omnivore (both meat and plant eater)

Frugivore (fruit eater)

Carnivore (meat eater)

Insectivore (insect eater)

Piscivore (fish eater)

What zoo animal spends much of its time
basking in the sun?

How would basking in the sun help them
survive?

Find a mammal that is adapted to life in
the water. What is it?

List 4 adaptations it has for aquatic life...

1. 2.

3. 4.

A Tidal Pool is a harsh environment. Find examples of animals in this exhibit that display the following adaptations for survival.

sharp spikes or spines _____

a hard shell _____

many arms/tube feet for clinging _____

poisonous tentacles _____

able to fit/hide in rock crevices _____

In the Treasures of the Tropics building... find animals that use...

Warning Colors:

Camouflage:

Find an animal from South America that has long legs to enable it to see its prey in tall grass.

Find an animal from S. America that has long legs to enable it to see predators in tall grass.

Find an animal from S. America that has webbed feet for swimming.

Which African animal at the zoo is known for its ability to use tools?

List 5 adaptations snow leopards, tigers, and mountain lions use to help hunt and capture prey.

1.

2.

3.

4.

5.

SCAVENGER HUNT

John Ball Zoo

There are animals at the zoo
that have horns.
Which ones can you find?

Dall Sheep
Bongo
Goats

What is the preferred food of the Bald Eagle?

fish

What 2 features help the Bald Eagle capture
and eat this slippery prey?

Sharp and strong talons (with bumpy spicules
under the toes)

Sharp, hooked beak

Find one example of each of the
following kinds of animals in the zoo:

Herbivore (plant eater)

could include bongo, guanaco, sheep, sloth, ducks,
finches, some turtles and lizards

Omnivore (both meat and plant eater)

Could include bears, kinkajou, warthog, most
primates, caracara, most turtles, some lizards

Frugivore (fruit eater)

Carnivore (meat eater)

Could include cats, wolverines, otters, raptors, komodo
dragon, merganser, some lizards, snakes, fish, spiders, frogs

Insectivore (insect eater)

Poison arrow frogs, emperor scorpion

Piscivore (fish eater)

Penguins, merganser, bald eagle, etc.

What zoo animal spends much of its time
basking in the sun?

Turtles

How would basking in the sun help them
to survive?

See predators

Keep warm to move faster (they are cold blooded)

Find a mammal that is adapted to life in
the water. What is it?

River Otter

List 4 adaptations it has for aquatic life...

1. torpedo-shaped body 2. long, rudder-like tail

3. dense, water-proof fur 4. webbed feet

(also...ability to swim and hold breath for deep,
underwater dives, etc.)

A Tidal Pool is a harsh environment. Find examples of animals in this exhibit that display the following adaptations for survival.

sharp spikes or spines _____ urchins, rockfish _____

a hard shell _____ crabs, limpets, periwinkles, chiton, snails _____

many arms/tube feet for clinging _____ Sea star, octopus _____

poisonous tentacles _____ anemone _____

able to fit/hide in rock crevices _____ crabs, chiton, anemone, greenling, octopus, seastar _____

In the Treasures of the Tropics building find animals that use...

Warning Colors:

_____ poison arrow frogs _____

_____ gila monster _____

Camouflage:

_____ numerous examples of _____
_____ snakes, turtles, lizards, etc. _____

Find an animal from South America that has long legs to enable it to see its prey in tall grasses.

_____ maned wolf _____

Which African animal at the zoo is known for its ability to use tools?

_____ chimpanzee _____

Find an animal from S. America that has long legs to enable it to see predators in tall grass.

_____ guanaco _____

Find an animal from S. America that has webbed feet for swimming.

_____ fulvous whistling duck _____

List 5 adaptations snow leopards, tigers, and mountain lions use to help hunt and capture prey.

1. eyes in the front of their head

2. sharp, retractable claws

3. sharp, pointed teeth

4. whiskers, good sense of smell

5. camouflage

(also, great leaping ability, strong facial muscles/jaw, long tail for balance, etc.)

Zoo tour activity

Adaptations



As you tour the Zoo, look for animals with these adaptations.
What would these body features help the animal do.

