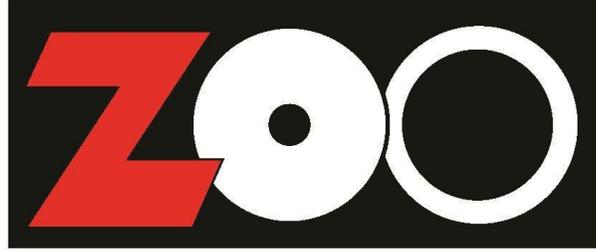


THE JACKSON



Zoo Connections Curriculum

A Closer Look:

How animals are adapted for survival in their environments and how you can help

3rd grade

Curriculum is aligned with the Mississippi Academic Framework. Lessons and support material are provided in the following areas:

Life Science – 3a, 3c; Language Arts – 3c;
Mathematics – 1d; Social Studies – 5b.

Pre-Visit

Vocabulary Words

Habitat

Predator

Grassland

Tundra

Adaptation

Prey

Wetland

Camouflage

Forest

Desert

Concepts

- There are many diverse environments in the world that provide habitats where animals live.
- A good habitat provides food, water, shelter and space.
- Different animals live in different habitats.
- Conservation of these habitats is needed and can be accomplished by small things we can do every day.
- In order to survive in their habitats, animals have adaptations.
- Adaptations serve different functions of the animal's survival in its habitat; therefore an animal will only be able to survive in a habitat to which it is adapted.

Activities

Vocabulary Words

Introduce the vocabulary words to your class. Review their meaning together. You can then pass out the **Word Jumble** for them to complete in class or at home.

Habitat Pictures

Using pictures from magazines, books, or the internet, show your class what different habitats look like. Talk about what each one has or is missing; discuss what it provides for animals that live there (food, water, shelter, space). Ask the students to create their own picture of one of the habitats that you talked about. Be creative about the materials that they can use – crayons, construction paper, tissue paper, etc... Remind them that if they want animals to live in their environments they need food, water, shelter, and space.

Is It Really Trash?

When the students are finished creating their habitats, discuss them. Ask them why an animal might like to live there. Then ask them what might happen to make an animal want to move away. Things like litter, cutting down trees, dirty water, and food disappearing might make an animal want to move away. Begin a discussion with the students on simple ways they can help make sure their environment stays clean. Things like turning off the lights when they leave the room, not letting the water run when they brush their teeth, and end with recycling. Have a pile of "trash" set-up, except have most things be recyclable (paper, cardboard, cans, glass, plastic). Ask the students to place the real trash in the garbage and sort out what is recyclable. Discuss how small the amount of actual trash is; discuss ways they can help to do this at home.

Adaptations

Review the definition of adaptation. Discuss with your students that they have adaptations too! The most notable being their opposable thumb. Tell them you are going to play a game to demonstrate how important it is to have an opposable thumb. Using masking tape – or any other tape that won't hurt badly when removing it, tape the students thumbs to the palms of their hands, making them unmovable. Ask them to do several tasks such as tying/untying their shoes, writing their names, putting on their jacket or backpack, or any other activity that would usually involve using thumbs.

Once everyone has their thumbs back, use pictures to help the students identify the adaptations of some different animals. Ask them to think about where the animal lives and some things that would help survive in its habitat. Start with some more obvious adaptations and work up to some that might be more difficult to spot. See the next page for some ideas.

- Cheetah: **Spots**=camouflage; **Long/flat tail**=rudder; **Small head**=decrease wind resistance to run faster; **Claws**=dig into the ground to prevent slipping when running-like football cleats
- Rattlesnake: **Forked tongue**=pick up the scent of prey; **Smooth scales**=easily move along the ground, camouflage; **Rattle**=scare/warn predators
- Deer: **Antlers**=defense; **Brown fur**=warmth, camouflage; **Slim body & long legs**=easily navigate the forest quickly
- Owl: **Feathers**=fly, warmth, camouflage, fly silently; **Big eyes**=let more light in to see better; **Flat face**=catch sound and direct to ears on side of head; **Sharp beak & talons (claws)**=catch prey and rip up to eat
- Turtle: **Shell**=protection from predators, camouflage; **Webbed feet** (water turtles)=help to swim; **Claws** (land turtles)=help with digging; **Beak**=catch and rip food
- Rabbit: **Strong back legs**=warning/kicking predators, jumping far and fast; **Whiskers**=feel surroundings; **Natural colored fur**=warmth, camouflage; **Large ears**=listening for predators or other dangers; **Sensitive nose**=smelling for food
- Polar Bear: **White fur**=camouflage, warmth; **Thick blubber**=keep warm in water; **Big paws**=traction on ice, spread weight over ice; **Teeth**=jagged for eating meat; **Nostrils**=close under water

At the Zoo

Remind your students about what they have learned about habitats and adaptations. Have your students work in groups at the zoo to complete the **Zoo Activity Sheet**. Make enough copies for each group to have one. For ease, if you print it double sided the students will only have one piece of paper to keep track of. Let your students help you teach. Ask them questions that help them discover the information they want to learn. Remind them to read signs and ask any zoo staff member or volunteer any questions that they have!

*While every animal is not listed on the Zoo Activity Sheet, we encourage you to visit all of the exhibits.

Some adaptations of the animals on the activity sheet are listed below to help you to guide the students to the answers. The students may surprise you and come up with even more!

Caribbean Flamingo

The flamingo has a beak that is made for filter feeding; it can filter out its food from the water simply by letting it pass through its beak. The small organisms in the water: algae, crustaceans, and small mollusks are its main diet. It lives around water for food, so its long legs are perfect for wading while still staying dry. The flamingo gets its color from the food that it eats.

Reticulated Giraffe

The giraffe has an elongated neck and legs for reaching treetops and spotting predators. It has a tongue that can reach up to 2 feet in length! The tongue has the ability to grasp leaves from between the thorny branches of trees common to the African plains.

Zebra

What colors do you see? The black and white stripes of a zebra serve to confuse predators when they are in herds. One seemingly blends into another and it's difficult to tell where one begins and another ends. The stripes are much like our fingerprints. Though they all seem to look alike, each one has a pattern uniquely its own. Their hooved feet enable them to run swiftly away from predators. A baby zebra is born already able to walk and run.

Orangutan

Orangutans are tree dwellers. Their long powerful arms are perfectly built to support them while they swing from branch to branch. A male can have an arm span of up to 7.5 feet! They have the ability to grasp with not only their fingers, but with their toes as well. The male has cheek pads to project long calls through the forest.

Sumatran Tiger

The tiger has a pattern for camouflage in its natural environment which is often tall grass. Being the smallest of the tiger species, it is easier for the Sumatran tiger to move through the jungle. The white spots on the back of tiger's ears are called "eye spots" or "predator spots". These spots are believed to function as false eyes as well as to make it look larger to any predator approaching from behind. This is particularly helpful in keeping cubs safe.

White Rhinoceros

The white rhinoceros looks like an intimidating creature. Its powerful body and massive horns make it seem like a strong predator. But its most effective tool in catching its food is its wide mouth...rhinos are vegetarians and graze for their food. Their strong lips and wide rectangular mouths are perfect for plucking grass. They also make it a practice of covering themselves with mud to protect them from the hot sun. Their large ears can hear very well, which somewhat makes up for their poor vision.

Red Panda

The red panda is not a bear. In fact, the panda makes up its own family. It is a tree dweller and has sharp claws to help it climb. It has thick, dense fur to protect it from cold and rain. Sharp teeth allow it to eat bamboo, a prominent plant species in its habitat.

American Beaver

The beaver is North America's largest rodent and is built for life in the water. It has waterproof fur and webbed hind feet for swimming. The beaver's front teeth continuously grow which means they won't ever grow dull from the chewing he does not only to eat, but also to build his home.

American Alligator

The alligator is built perfectly to live and survive in the water. It has a powerful tail that is used as a rudder when it swims and to knock prey down. Its eyes and nostrils are on the top of its head so that it can be almost completely submerged under water and still be able to see and breathe. The alligator has hard scales on its back called scutes that act like a suit of armor for protection. Most notable is the alligator's strong mouth; with over 80 teeth and about 2,125 pounds of force! (That is about the weight of a small pick-up truck)

Eastern Diamondback Rattlesnake

This snake has a rattle that it uses to warn predators before it bites them. The bite can be deadly as the diamondback is a venomous snake. When it bites, it injects a toxin from its hollow fangs into its prey to kill it. To find its prey the snake uses its tongue for scent tracking and heat sensing pits below its nostrils. The eastern diamondback, just like all snakes, has a stretchy ligament in its jaws that enable it to open its mouth wide to swallow prey up to 3 times the size of its head whole.



Habitats and Adaptations Zoo Activity Sheet

Welcome to the Jackson Zoo! Walking around the zoo, visiting the animals is bound to be fun and exciting. Below are a few of the animals that you will see in the zoo; as you are looking at them, remember what you have learned about adaptations and habitats. Try to figure out what sort of habitat the animal would live in and what adaptations it has to survive in that habitat.

 <p>Caribbean Flamingo</p> <p>Habitat:</p> <p>Adaptations:</p>	 <p>Reticulated Giraffe</p> <p>Habitat:</p> <p>Adaptations:</p>
 <p>American Alligator</p> <p>Habitat:</p> <p>Adaptations:</p>	 <p>White Rhino</p> <p>Habitat:</p> <p>Adaptations:</p>
 <p>Sumatran Tiger</p> <p>Habitat:</p> <p>Adaptations:</p>	 <p>American Beaver</p> <p>Habitat:</p> <p>Adaptations:</p>

Habitats and Adaptations Continued

 <p>Zebra</p> <p>Habitat:</p> <p>Adaptations:</p>	 <p>Red Panda</p> <p>Habitat:</p> <p>Adaptations:</p>
 <p>Orangutan</p> <p>Habitat:</p> <p>Adaptations:</p>	 <p>Eastern Diamondback Rattlesnake</p> <p>Habitat:</p> <p>Adaptations:</p>

What is your favorite animal you saw at the zoo today and why is it your favorite?



Post-Visit

Vocabulary

Pass out the **Crossword Puzzle** for the students to complete as the review for what they have learned about the vocabulary words

Add an Animal

Pass out the Environment Pictures the students made in the Pre-Visit activities. Ask them to add an animal that they saw at the zoo into their environment. Remind them that an animal needs to live in the correct environment to survive. When they are finished you can have each student present their complete picture.

Compare Your Information

Have the students get into the groups that they were in at the zoo. Hand out their **Habitats and Adaptations** Activity Sheet. Work with them to compile all of their information together. Once the information has been compiled work together as a class to figure out what fraction of the animals had certain characteristics. Compare the numbers using fractions, for example: figure out which environment has the most animals from your activity sheet living in it, or which adaptation is the most common and which one is the least common. (ex: 9/10 use camouflage, 1/10 use venom, etc...)

Camouflage

I think you will find that camouflage is one of the most common adaptations for animals. It's time to put it to the test. To prep this activity, you will need a box for each group filled with cut grass – to represent a grassland. You will need a supply of colored toothpicks for each group – to represent the animals living in the grassland. Drop toothpicks of every color into the boxes of grass. Tell the students that they are the predators looking for their prey – toothpicks. The members of each group will take turns "hunting". When they hunt, they can only use their eyes to find the toothpicks, no rooting around in the box. Each group member will pick one toothpick out of the grass and then let the next group member go. After a set amount of turns or time, compare how many of each color was found. What color was found the most? The least? Why do you think that is?

Narrative Project

Have the students pick one of the animals that you discussed in class or saw at the zoo to write about it in a descriptive report. They should use at least 4 of the vocabulary words. They should describe where the animal lives, its adaptations, and anything else they find interesting about the animals. You can add an additional aspect to this project by asking the student to do a little research about where their animal is from and what it means to the people there (pest, hunted, revered, etc...). At the end of the project, have them read their projects out loud to the class.

I Can Make a Difference

Sometimes it is easy to forget that the small things we do everyday can make a big difference. After learning about these animals, their adaptations, and habitats; have the students complete individual and/or group projects that will not only help to conserve so that these animals may survive, but will also remind them that they can help every day. Below are some project ideas; you can choose to do one or you can do them all!

1. Collect cardboard boxes that are no longer being used. Paper boxes work well, or ask a local grocery or department store if they can save some boxes for you when they receive a shipment. Have the students decorate them and turn them into recycling boxes to collect paper, plastic, or aluminum. You can use these boxes in the classroom, at the student's home, or ask local businesses if your class could create recycling boxes for them to use. This project not only reuses the boxes (a form of recycling) but it will also remind people to recycle every time that they see the beautifully decorated boxes.

2. The average toilet uses between 3 and 7 gallons of water each time that it flushes. This project will help to save one half to one gallon of water per flush (about 10 gallons per day in an average home). Instead of recycling them, collect enough plastic water bottles for your class. You will also need some pebbles that can fit through bottle opening. You may want to have some food coloring, shiny sequins, glitter, or other craft supplies to make each one unique.

Pass out a water bottle (including the lid) to each student. Have them fill it up about half way with the pebbles, then add water leaving about 1/2 inch at the top. Use the sequins, glitter, or other craft supplies to give it character; add food coloring if desired. Place the lid on the bottle and screw it on tight.

How it works: Tell the students to take their bottle home, along with the **Toilet Tank Trick** information provided. Have them ask their parents to place the bottle in the water tank of the toilet, away from the moving parts. This bottle will displace enough water to save about 10 gallons of water per day. This will not only help their water bill, but will help to conserve clean water, which is increasingly scarce.

3. Do some research with your students to find a park or other community facility in your area that could use a good clean-up and beautification. Schedule a time on a Saturday or after school for the class to take on this project. Have the students create invitations to pass out to others in the school, their parents, and community members to join them in completing this project. The students will not only get a sense of accomplishment from completing this project, but will also know that they have helped to get others involved.

Resources

Habitats: <http://environment.nationalgeographic.com/environment/habitats/>

- Plenty of information about the different habitats including maps, conservation efforts and the animals that live there.

Go Green: <http://cincinnatizoo.org/conservation/go-green/>

- Provides information about current “green” initiatives and gives several tips about what you and your students can do to make a difference.

Design a Panda Habitat: <http://nationalzoo.si.edu/Education/ConservationCentral/default.cfm>

- An interactive game where students design a proper habitat for the giant panda.

How Animals Meet Their Needs: <http://www.harcourtschool.com/activity/animalneeds/>

- An interactive game where students answer questions about the adaptations animals have that help them to survive in their habitats.

Recommended Zoo Programs

Are you looking for another way to bring the lessons in this curriculum to life? We’ve got just the thing; when you’re at the zoo stop by the Gertrude C. Ford Education building for a fun educational program that supports this material or have the Jackson Zoo come to you!

At the Zoo

Animal Programs:

Home Sweet Africa- Come and explore Africa! Learn about the variety of environments that the continent offers as homes for its many animals. Find out how all of these environments are different and why different animals prefer different ones.

Mississippi Wilds- Have you ever wondered what might be living in your back yard? Here in Mississippi it could be anything from otters to owls! Discover how these native animals are surviving during this look into their lives.

Let us Visit You

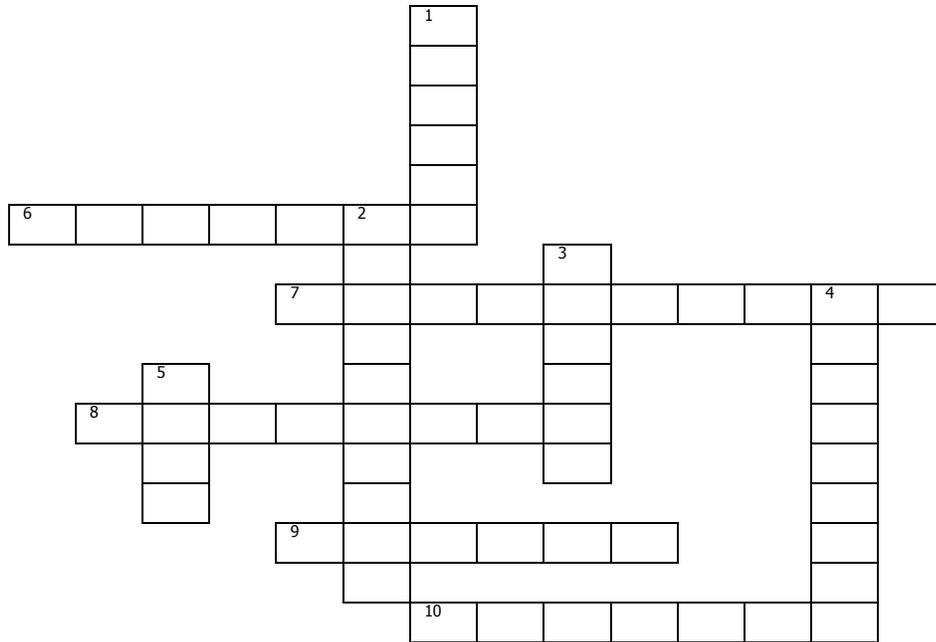
Zoo Mobile:

Habitat Sweet Habitat- What does it take to survive? For starters, a good home always helps. It’s all about the habitat; animals have different physical and behavioral adaptations to thrive where they live. Let’s discover a few of them!

For more information or to schedule any of these programs for your class, visit our website at www.jacksonzoo.org or call 601-352-2580 ext 240. All of these programs must be scheduled at least two weeks in advance.

Habitats and Adaptations Crossword Puzzle

Complete the crossword puzzle by filling in the vocabulary words that match their definitions.



DOWN

1. A dry, hot environment
2. Something that helps an animal to survive
3. A cold environment without trees
4. An environment covered with grass and a few trees
5. An animal that is hunted by other animals

Across

6. An area where an animal lives; has food, water, shelter, and space
7. Coloration that animals use to blend in
8. An animal that hunts other animals
9. A tree filled environment
10. An environment that contains mostly water at least part of the year

Make enough copies of this sheet to send one card home with each student to explain how the bottle works.

Toilet Tank Trick

Every time the toilet flushes, it uses between 3 and 7 gallons of water.



Place this bottle in the tank away from the moving parts to displace some of the water that the tank holds.

Each time you flush you will be saving between one half and one gallon of water, about 10 gallons a day!

This will not only show on your water bill, but it will also help to conserve clean water – which is increasingly rare.

By doing this one little thing, you make a big difference to the planet!



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