



WAVE on Wheels Outreach

Scales and Tails Presentation

Grades K-2

Time requirement

1 Hour

Group size and grade

Up to 50 students maximum

Materials

1 Turtle specie, 1 Snake specie, 1 Lizard or Crocodililan Specie
Turtle, Snake, and Lizard or Croc Artifacts Bin
WAVE Tablecloth

Goal

Through live turtle, snake, and lizard/crocodilian encounter, students will be excited, engaged, and educated about the wonders of reptile life and the importance of conservation.

Objectives

1. Students will be able to identify what animals are reptiles.
2. Students will be able to differentiate between a turtle, snake, lizard, and alligator.
3. Students will be able to list 2 adaptations of turtles, snakes, lizards, and alligators.
4. Students will be able to identify what reptiles eat.
5. Students will be able to discuss how they can help save reptiles.

Theme

Reptiles are unique group of animals that play an important role in their environments.

Kentucky Core Academic Standards – Science

Kindergarten – *Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment*

K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.

LS1.C: Organization for Matter and Energy Flow in Organisms.

K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.

ESS3.A: Natural Resources

ESS3.C: Humans Impacts on Earth Systems

First Grade – *Structure, Function, and Information Processing*

1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

LS3.B: Variation of Traits

Second Grade – *Interdependent Relationships in Ecosystems*

2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.

LS4.D: Biodiversity and Humans

Background

What are Reptiles

Turtles, snakes, lizards, and crocodilians are reptiles. Reptiles are cold-blooded or ectothermic animals, which means they depend on external sources to maintain their body temperatures. Scales or scutes protect reptiles from abrasion and loss of body moisture. Reptiles breathe air through lungs. Most reptiles hatch from eggs which are typically covered in soft, leathery shells.

Turtle (including Tortoises unless Specifically Stated) Adaptations

Turtles have a shell that is made up of 59-61 bones covered by plates called scutes which are made of keratin, like human fingernails and hair. They cannot crawl out of the shell because the spine and rib cage are connected to the shell. They also feel pain and pressure through the shell as nerves run throughout the shell. In addition to the protection of their shell, various types of turtles have a variety of defensive adaptations. In addition to the protection of their shell, various types of turtles have a variety of defensive adaptations. Box turtles have a hinged

shell capable of encapsulating their entire body, while many tortoises have bulky, tough, and sometimes spurred front legs that will protect their head once pulled into the shell. Snapping turtles have a smaller plastron but are more aggressive, and some turtles, like musk turtles, can emit a foul smelling odor.

Turtle Diets

Most turtles are omnivores, which means they eat plants and animals, such as fish, snails, worms, and insects. Most tortoises are herbivores eating grasses, leafy plants, flowers, fruits, and even cacti. Some sea turtles prefer eating jellyfish. Turtles lack teeth but have a large beak specifically shaped to their dietary needs.

A Croc's Adaptations to Aquatic Life

A croc has many features which make it suitable for living in water. Large, powerful tails are used for propelling through the water, while strong webbed feet are ideal for paddling. The dark, bumpy appearance provides camouflage resembling a floating log. Crocs also have excellent eye sight for both above and below water, and they possess an extra eyelid, called a nictitating membrane, that functions similar to underwater swim goggles. Their ears are hidden behind slits that close when they dive under water.

Croc Diets

Crocodylians are carnivores that eat a variety of animals near their habitats which may include but are not limited to: fish, turtles, birds, frogs, pigs, deer, buffalo, and monkeys. Crocs swallow their prey whole rather than chewing. They will tear off large portions, if the animal is too large to swallow whole, by a process called the death roll. After biting the prey the croc rolls around, essentially juggling its food around in its mouth until the right position is reached to toss its head back and slide the food down its throat. Some species of croc can eat up to half of their body weight in one meal. These large meals are converted into fat reserves located in the tail, and these fat reserves may allow a croc to survive over a year without eating.

Lizard Adaptations

Lizards are a large and widespread group of approximately 4,470 reptiles, ranging across all continents except Antarctica. Lizards typically have limbs and external ears. Many lizards can detach their tails in order to escape from predators, but this trait is not universal. Sight is quite important for most lizards for locating prey and communication. Many lizards have highly acute color vision needing to rely heavily on body language and movements to define territory, resolve disputes, and entice mates. Some species of lizard also utilize bright, highly visible colors as defense against predators when necessary.

Snake Adaptations

Snakes include approximately 2,920 species of elongate, legless reptiles that can be found on every continent except Antarctica. Most species are non-venomous and those that have venom

use it primarily to kill and subdue prey rather than for self-defense. Some possess venom potent enough to cause painful injury or death to humans. The skeleton of most snakes consists solely of the skull, hyoid, vertebral column, and ribs. The skull of the snake consists of a solid braincase, and a flexible ligament that allows jaws to separate widely and joins the left and right lower jaws. The skin of a snake is covered in scales. The eyelids of a snake are transparent scales that remain motionless. Snakes shed the outer layer of skin in one layer to replace old, worn skin and get rid of parasites. An older snake may shed its skin only once or twice a year, but a younger snake may shed up to four times a year. All snakes are strictly carnivorous, eating small animals including lizards, other snakes, small mammals, birds, eggs, fish, snails or insects. Snakes use smell to track their prey by using a forked tongue to collect airborne particles then passing them to the Jacobson's organ in the mouth for examination. The fork in the tongue gives the snake a directional sense of smell and taste simultaneously.

Turtle Conservation

It is important to dispose of trash properly. Recall that turtles have small brains and can easily be confused by food items. Sea turtles eat jellyfish, and if a plastic bag gets into the water it resembles a jellyfish. The turtle may think it is food and consume it causing severe issues to their body. It is also important to avoid bright lights by beaches because sea turtle hatchlings use the light of the moon to find water. They will seek to brightest horizon which may sometimes be in the wrong directions thanks to human influences.

Croc Conservation

About 40 years ago, American alligators were close to extinction. Because the fashion industry targeted alligator skin for exotic leather products, the American alligator was listed as an endangered species in 1967. Fortunately, by 1987, alligators made a comeback thanks to the conservation efforts of several organizations. These efforts sustained, and the American alligator was removed from the Endangered Species list. As of today, alligator harvesting is being regulated closely by state authorities in the form of hunting permits. Alligator skin and meat is still desired; however, a portion of the profits generated from these goods are contributed to alligator management and research.

Lizard Conservation

The most endangered group of lizards in the world are the Caribbean island rock iguanas. Governments, academics, nongovernment organizations and private stakeholders are collaborating on more than 20 projects focused on alleviating threats to iguanas, changing public perceptions and ensuring long-term financial, government and public support for iguana conservation. Iguanas are seed dispersers and are vital to the ecosystem and help to maintain healthy native plant communities. Several iguana species exist as single populations with no more than a few hundred individuals. Invasive, introduced mammalian predators such as feral cats and dogs, as well as pigs and goats, are the greatest threat to many iguana species and their habitats. Other significant threats include habitat destruction by charcoal production and land development, collection for the pet trade, hunting, vehicular mortality, and competition and interbreeding with the introduced, invasive common green iguana.

Snake Conservation

The St. Lucia racer is one of the rarest animals on the planet with as few as 18 individuals estimated at one time. These snakes were decimated by the arrival of the invasive mongooses in the late 19th century. Humans introduced the mongoose as a control mechanism for venomous snakes on the island; however, the mongoose does not discriminate. By 1936, the St. Lucia racer was declared extinct. Thanks to local groups such as the British conservation group Flora & Fauna International a small success story may be in the making. In 1995, only 50 St. Lucia racers remained on Earth, but thanks to protective measures their population has swelled to 900.

Vocabulary

Adaptation – The process by which an animal or plant species becomes fitted to its environment through body parts and behaviors.

Camouflage - Concealing coloration, background matching in animals, the use of biological coloration to mask location, identity, and movement, providing concealment from prey and protection from predators.

Conservation – The study of the loss of Earth’s biological diversity and ways this loss can be prevented.

Diversity – The variety of life found in a place on Earth or the total variety of life on Earth.

Environment – The external conditions, resources, stimuli etc. with which an organism interacts.

Habitat – The place where an organism or a community of organisms lives, including all living and nonliving factors or conditions of the surrounding environment.

Invasive species - An alien species whose introduction may cause environmental harm

Observation – The act of attentive watching, perceiving, or noticing.

Predator – An animal whose diet consists of other animals.

Prey – An animal who is eaten by other animals, or predators.

Survive – The continuation of life or existence.

Extension Activities

Project WILD Activities. Please contact your state Project WILD coordinator for more information. See <http://projectwild.org/KentuckyCoordinator.htm> (for Kentucky) or <http://www.projectwild.org/ProjectWILDCoordinators.htm> (for other states).

- Beautiful Basics – Students will identify five basic survival needs shared by people and all other animals, including pets, and wildlife.
- And the Wolf wore shoes – Students will distinguish between real and imaginary animals, and give example of real and imaginary animals and their characteristics.
- Learning to Look, Looking to See – Students will describe differences seen in the environment as the result of casual and detailed observation, and give reason for the importance of looking closely at any environment.

- Animal Charades – Students will define wildlife, and distinguish between domesticated and wild animals.
- Ethi-Thinking – Students will generate a list of activities that are harmful to wildlife and the environment, discuss reasons these activities are inappropriate, and recommend alternate activities that are not harmful.
- What’s That, Habitat – Students will identify their own basic needs for food, water, shelter, and space in a suitable arrangement; and generalize that wildlife and other animals have similar basic needs.

Alligator Card - <http://www.enchantedlearning.com/crafts/animals/alligator/>

Wooden Spoon Crocodile - <http://www.activityvillage.co.uk/wooden-spoon-crocodile>

Snake Craft - <http://crystalandcomp.com/bubble-wrap-paper-plate-snake-craft/-->

Popsicle Lizard - <http://easypreschoolcraft.blogspot.com/2012/09/popsicle-stick-lizard-craft.html-->

Turtle Craft - <http://www.first-school.ws/activities/shapes/animals/turtle-craft.htm>

Resources

WAVE Foundation <http://www.wavefoundation.org>

Project Wild <http://www.projectwild.org>

Project Wet <http://www.projectwet.org>

Project Learning Tree <http://www.plt.org>

Endangered Species Information -

<http://education.nationalgeographic.org/media/endangered/>

Sea Turtle Information - <http://ocean.si.edu/slideshow/meet-seven-sea-turtle-species>

Crocodile Information - <http://crocodilian.com/cnhc/cbd-faq-q1.htm>

Snake Information - <http://www.reptilegardens.com/reptiles/snakes/>

Reptile Information - <http://animals.nationalgeographic.com/animals/reptiles/>