



Lessons on the Lake

Adaptations

Texas Science Curriculum Standards for 5th grade
Science concepts 1A, 1B, 2A, 2B, 2C, 2D, 2E, 9A, 9B, 9C, 10A

Pre-field Trip Activity in Classroom

1) *Classroom Activity*: Make signs with the following vocabulary words and post around the room. Make separate signs with the definitions of vocabulary words. Introduce words and have students pick the correct definition to put underneath the word. This can be repeated once a day as an introduction into any science lesson. Use the definitions that are in your textbook or ones that you think your students will feel comfortable remembering.

Vocabulary List

Observation

Hypothesis

Procedure

Data

Conclusions

Adaptation

Carnivore

Omnivore

Herbivore

Predator

Prey

Ecosystem

2) *Background*: Three ecosystems converge at Amistad National Recreation Area. They are the Chihuahuan Desert from the west, the South Texas Brushlands and the live oak and juniper savannah of the Edwards Plateau from the north. These three different ecosystems provide a great deal of biodiversity to the Amistad area. There is not only diversity of plants but also a diversity of animals. The animals and plants have **adaptations** which are *behavioral or physical characteristics that help them survive in their environment*. Animals have evolved their adaptations. That means that adaptations happen over a number of generations. Many of the animals that live at Amistad have adaptations for the desert or freshwater ecosystems.

Body parts that may be helpful adaptations are webbed feet, sharp claws, whiskers, sharp teeth, long legs, large beaks, wings, hooves, large or long ears, large eyes. The type of body covering that an animal has is also an adaptation that can help to protect an animal in its environment. Fur or hair, quills, plates, feathers and scales are types of protective coverings. Camouflage is also an important adaptation of body coverings. The camouflage may be the colors or patterns of the body covering such as stripes or spots.

Classroom Activity: In your classroom, discuss with students which animals they think live at Amistad. As a class, form a list of names of animals. Please make sure that the following animals are part of the class list.

Turkey vulture (bird)
Great blue heron (bird)
American coot (bird)
Black-tailed jackrabbit (mammal)
Collared peccary (Javalina) (mammal)
Roadrunner (bird)
Kildeer (bird)
Ringtail (Mammal)
Texas coral snake (reptile)
Western diamondback rattlesnake (reptile)
Nine-banded armadillo (mammal)
Coyote (mammal)
Largemouth bass (fish)
Alligator gar (fish)
White-tailed deer (mammal)
Bobcat (mammal)
Mountain lion (mammal)
Porcupine (mammal)
Texas banded gecko (reptile)
Scaled quail (bird)

Remind the students that we will not see all of these animals but we will see some of them.

After the list of animals is made, students will be paired with a partner and will choose an animal to research. They will use an encyclopedia or go to e.nature.com and click on "field guides". In pairs, students will research an individual animal and cut out the picture of the animal. Students will glue the picture onto a large paper and make the title MY AMISTAD ANIMAL. Then students will read the article and write the special characteristics of their animal all around the picture. There are other websites that have descriptions of animals that you may prefer, but this one has all of the animals. Each student pair will introduce their animal to the class. Final discussion to tie it all together: Which of the special animal characteristics are adaptations that could help it to survive in its environment?

Adaptations Activities on the Houseboat

Field Observations

Students will be instructed how to properly use binoculars. While observing wildlife, students will record observations through description and drawings on Nature Journal page. Students will make hypotheses how observed characteristics are adaptations that help each animal to survive in its ecosystem.

Plant Adaptations

Materials

-6 plants

Candellia
Prickly pear
Fishhook
Lechugilla
Leatherstem or any small leaf plant
Hairy cactus

-Laminated cards with picture of object and description

Windbreaker coat ---white hairs or small spines to block the wind so the plant won't lose water

Sunscreen---white hairs or thin spines to block the sun so the plant doesn't dry out

Daggers---hard spines to protect against herbivores and omnivores

Accordion---pleats and folds to help store maximum amount of water

Chapstick---waxy coat to help protect against drying out

Twisty artwork---pads are arranged in a way so that they get the least amount of sun

Bald head---small leaves or no leaves at all help protect against water loss

Procedure:

Each group of 4 students is given a plant and a deck of cards. After students observe plant and analyze information on adaptation cards, students will hypothesize which adaptations their plant has and communicate hypothesis to the class. Given more data, class will draw conclusion about adaptations of each plant to the desert environment. Students will record observations and conclusions.

Animal Adaptations

Materials

Laminated pictures of animals

Props for adaptations

Procedure:

Each student group is given a prop and a deck of animal cards. Students observe the various characteristics of the animals in the decks of cards. Then students analyze which animal or animals from the deck have the adaptation (as interpreted from the prop). Students draw conclusions about how the adaptation helps the animal to survive in the desert and communicate conclusion orally to the class. Using critical analysis, class will determine the accuracy of group's conclusions. Students will record observations and conclusions.

Skulls

Make sure skulls and tags are appropriately numbered.

Tags are removed and kept in case.

Pre-activity procedure:

Give a brief demonstration with one or two skulls introducing how to observe the different characteristics in eye placement and teeth and how to interpret these differences to distinguish between a carnivore, herbivore, omnivore, predator, prey.

Materials

6 skulls

Coyote

Deer

Cougar

Racoon

Beaver

Procedure:

Each group of 4 students is given a numbered skull. By using the information given in the demonstration students will draw a conclusion about the niche of the animal based on their observations of the adaptations on the skull. Students will make a hypothesis about which particular animal they think the skull is from. Students will record conclusions and hypothesis on worksheet.

Tracks

Materials

Moon sand and inflatable sand tray

Assorted track models

Pre-activity procedure:

Explain how the number of toes on different species of animals is an adaptation and how it has helped survival of each.

Procedure:

Give out two to three tracks molds to each group and an inflatable sand tray with moon sand.

Students will place track into the sand and make observations about the number of toe, presence or absence of claws, size of track and make determinations by pressing into the sand how a track might look if the animal is running or walking.

On worksheet, students record their conclusion about which family each animal track belongs and a hypothesis about which particular animal it might be. Students communicate conclusions and hypotheses to class. Class critically analyzes conclusions of group.



Name _____
Teacher _____

Plant Adaptations

Name of your plant _____

Adaptations your plant has to survive in the desert

Explain your answers.

Animal Adaptations

Name of animal adaptation _____

Name of animal or animals that have this adaptation _____

Explain your answers.

Skulls

Number of skull _____

Make one choice:

Herbivore _____

Carnivore _____

Omnivore _____

Make one choice:

Predator _____

Prey _____

Tracks

How many toes does the track have? A _____ B _____ C _____

In which family of animals do you think the track belongs?

Canine _____ Feline _____ Ungulate _____ Beaver _____ Bird _____

(dog) (cat) (deer)

Draw the track here.

A

B

C

What is your hypothesis about which animal the track belongs to?

A _____

B _____

C _____

Post-Field Trip Activities

Pick and choose as best suits your class.

1) *Language Activity:*

Students will write a story of what they learned on the Houseboat and what the field trip meant to them. As a follow-up, classes may return to Amistad Visitor Center to record their stories to be archived as special memories of Amistad National Recreation Area and become part of the "Family of Voices: the Untold Stories of Amistad" Project. If permission is given, a student's story may be read on a local radio station.

2) *Science Activity:*

Choose animals that were not discussed on the houseboat. Find pictures of the animals and their tracks. Hold the picture up to the class. Students will determine if the animal is a carnivore, herbivore, or omnivore. They will determine if it is predator or prey. Look at the tracks. Students will determine what advantage the animal has based on the shape of its foot. Students will determine helpful adaptations of each animal.

3) *Art Activity:*

Students will make a mask of an animal that was studied on the houseboat. Make sure that there are some important adaptations that can be seen on the mask.

4) *Science Activity:*

Fill out the Creature Features Worksheet answering which animals at Amistad have the specific adaptations on the list and how the adaptations allow the animal to survive.

5) *Science Activity:*

If you would like to spend a little more time with identifying tracks of animals, and you have a way of projecting your computer screen onto a big screen that the entire class can see, there is a website that has a great animal tracks quiz for beginners with information about the animals. This is a helpful website for nature science information as well.

<http://www.dnr.state.wi.us/org/caer/ce/eeek/cool/trackQuizLVLOne.htm>

Amistad

National Recreation Area
National Park Service
U.S. Department of the Interior



Creature Features

Name _____

Date _____

Different types of adaptations are listed below. Write the names of animals that you learned about at Amistad that have the listed adaptation. Some adaptations can have more than one correct animal. In each box also write how each adaptation helps the animal to survive in its environment.

<p>Long Ears</p> 	<p>Long Legs</p>  <p>The Leg</p>	<p>Sharp Claws</p> 
<p>Sharp Teeth</p> 	<p>Large Beak</p> 	<p>Hooves</p> 
<p>Wings</p> 	<p>Camouflage</p> 	<p>Webbed Feet</p> 

