

DISCOVERY SAFARI

A Self-Guided Tour of the International Wildlife Museum
Grades 9-12

Educators

This educator's guide provides you and your chaperones with inquiry-based questions to stimulate discussion among your students as you travel through the museum. These cross-curricular questions are based on the following Arizona Academic Standards:

Science

Language Arts

Social Studies

Preparing for your Safari

This packet is intended to supplement the student discovery packet; however, it may also be used on its own.

1. **Give** a copy of this guide to each chaperone.
2. **Give** a copy of the Chaperone Guidelines to each chaperone.
3. **Assign** each chaperone to no more than 10 students. Using the questions in the educator's guide, the chaperones will be able to enhance the students' museum experience while assisting them in completing their Discovery Safari Field Guide.
4. **Arrange a time** when the chaperones will meet you as a class after completing the self-guided Discovery Safari tour. A tour through the museum takes a minimum of one hour.

Enjoy your visit! Let us know what worked best for you by filling out the Self Guided Tour Evaluation located at the back of this packet. Then, turn it into the Admissions staff or mail it to IWM, Attn: Education Dept., 4800 W. Gates Pass Rd., Tucson, AZ 85745.



International Wildlife Museum

Discovery Safari Educator's Guide

BACKGROUND INFORMATION

The International Wildlife Museum is a natural history museum. We do not condone the collecting of specimens specifically for display. Many of the animal specimens are from a 100-year-old collection on loan from the state of Arizona. Others have been donated by government agencies, wildlife rehabilitation centers, captive breeding farms, zoos, other museums, and hunters. There are also some replicas.

Are the animals in the museum real? Most of them. The arthropods are carefully pinned to boards so their fragile wings and bodies are not damaged. Taxidermists make the other animals look life-like. They use actual animal skins, but artificial bodies, teeth, and eyes. Some taxidermy mounts are completely formed from man-made materials. Exhibit staff create dioramas of their habitats to give you a sense of the animals as they are in the wild.

Why study animals in a natural history museum? You can learn about habits, diets, and habitats in a way that most of us cannot with a live animal. You can make comparisons. Not all these animals would be available in a zoo or in our immediate area. You can make inferences about other animals and see why they all belong to the same animal family.

INSECTS OF THE WORLD

Insects live on every continent and are the most numerous animals. For every human, there are 200 million insects living on the planet.

What do all these animals have in common?

- ❖ They all have jointed legs and appendages, exoskeletons, and segmented bodies.

What are some ways insects and arachnids protect themselves?

- ❖ Possible answers include: camouflage, spines, stingers with venom, poisonous, bad tasting.

MAMMALS

A lot can be learned about an animal by studying its bones and teeth, such as its food habits and age. This touch area allows you to more closely investigate skulls, horns, antlers, and fur.

How do mammals differ from other vertebrates (animals with a backbone)?

- ❖ Mammals produce milk for their young, are born alive (with exception of the duck-billed platypus and echidna), have hair or fur, and have large brains in comparison to their body size.

What are the purposes of hair in mammals?

- ❖ Answers include: insulation, protection, defense, identification, camouflage, sensing, making the animal appear larger, floating and swatting.

BIRDS

Birds have many unique characteristics. Comparing their various adaptations reveals many differences, but also many similarities.

What are some adaptations of birds?

- ❖ Possible answers include: hollow bones, feathers, specialized beaks and feet, wings, large eyes, lay eggs, most can fly, females are usually more camouflaged than males.

Why do birds need a tail? (Hint: Think of an airplane tail.)

- ❖ Lift to rise up off the ground; Rudder to turn; Elevator to move up and down; Brake to stop quickly

PREDATOR & PREY

Predators, such as mountain lions and wolves, eat other animals. Prey animals, including pronghorn antelope, quail, and jack rabbits, are eaten by other animals.

What are some characteristics of a good predator?

- ❖ Sharp claws and teeth.
- ❖ Eyes facing forward allow them to judge depth and distance.
- ❖ Most cats are capable of short bursts of extreme speed, and have furry paws and retractable claws for sneaking up on their prey before attacking.
- ❖ Members of the dog family have an excellent sense of smell, can run for long distances without tiring, and often hunt in packs.

What adaptations help prey animals avoid being eaten by a predator?

- ❖ Prey animals have eyes on the side of the head in order to see all around them. They often have large ears to increase their ability to hear an approaching predator. They may have horns or antlers to defend themselves. They may have hooves or large hind feet to run faster.

CONSERVATION

Rhinoceros are one of the many species that need help to survive, due to habitat loss and poaching. There are 2 rhino species in Africa (White, Black) and 3 in Asia (India, Java, Sumatra). The southern population of white rhinos is the only population that is not endangered.

What is a rhino's most unique characteristic?

- ❖ The most unusual feature of a rhino is its horn. The horn is different from the horns of antelope or cattle, and made of compressed and hardened hair growing from the skin of the snout.

Why are rhinoceros poached for their horns?

- ❖ The horns are sometimes used in folk medicines in Asia and ceremonial dagger handles in Yemen. This illegal hunting has led to the decline of rhino populations around the world.

McELROY HALL

This room contains mammals from Africa, Europe, Asia and North America. Many of these mammals have horns or antlers. Compare the antelope, which have horns and live in Africa, to the deer, which live in North America & Eurasia and have antlers.

What is a horn?

- ❖ A horn is made up of a protein substance similar to your hair and fingernails called keratin. It covers a bone on the animal's skull, is used for defense, grows in one direction, is permanent, and is found on both males and females.

What is an antler?

- ❖ Antlers are made up of bone. They are used for defense, have many points (forks or tines), are shed and re-grown every year, and are found only on males (except in caribou, also known as reindeer, where the males and females both have antlers).

SHEEP AND GOAT MOUNTAIN

Here is a 32-foot high mountain featuring goats and sheep from around the world. Those found in the desert are at the bottom, above that are animals found in higher elevations and at the top are animals that would normally be found at the highest elevations of the world. You can tell the difference between the two by looking at their horns. Sheep horns curl in a spiral as they grow and goat horns grow straight back, though they may twist some.

Around this mountain, are dioramas of animals of Africa, Antarctica, Europe, and North America.

What did Admiral Richard Byrd do during the period of 1928 to 1957? How did this contribute to science?

- ❖ He was the first person to fly to the South Pole. In fact, he was the first to fly to **both** poles.
- ❖ They discovered an unseen land, researched meteors, cosmic rays, weather, geography, geology, the earth's magnetism and seismic movements.

What animal in this room did you like the best? (Answers will vary) What is one fact you learned about this animal? (Country of origin, diet, habitat, interesting fact)

NOCTURNAL CREATURES

Arizona's state mammal, the Ring Tail, is just one of the many nocturnal animals of the Sonoran Desert. Usually, humans do not get to observe animals as they search for food and water and go about their nightly endeavors.

Name some other nocturnal animals.

- ❖ Owls, coyotes, javelinas, deer, pack rats, skunks, foxes, rattlesnakes, and bats.

Why would an animal be active at night in the Sonoran Desert?

- ❖ Possible answers include: to avoid the heat of the day, use darkness as protection from predators, drink dew that sometimes forms as temperatures cool, and eat other animals that are out at night.

BRINGING BACK WILDLIFE

Arizona is home to numerous species of animals, many of which can only live in certain habitats. Unfortunately for the animals, people also enjoy living in these beautiful places. Habitat loss puts a strain on the animal populations, causing some to become endangered.

How else did early settlers contribute to declining animal populations?

Answers will vary, but may include:

- ❖ Many animals made it difficult for pioneers to settle, farm and ranch in this country by eating their livestock and damaging crops and grazing land.
- ❖ Animals were desirable for the fur trade.
- ❖ People depended on wild animals for food.
- ❖ Farmers used pesticides on crops.
- ❖ Fish from other parts of the country were introduced and out-competed the native fish.

How can people help conserve animal populations?

- ❖ Answers will vary, but may include: set aside habitat, maintain biologically sound hunting regulations, make laws against collection of endangered species, and re-introduce native species.

PREHISTORIC MAMMALS

The Woolly Mammoth and the Giant Irish Elk are two mammals that became extinct 10,000 to 11,000 years ago. They existed during a period called the Age of Mammals or Cenozoic.

If the woolly mammoth was adapted for the cold (hair, small ears, size, and tusks for digging grass out of snow), can you think of some reasons for its extinction?

- ❖ Some scientists believe they might have contracted a devastating disease.
- ❖ Others believe they may have been over-hunted by Stone Age man.
- ❖ The last ice sheet contributed to an extreme change in climate, from cold to hot to cold. Most scientists believe this is what led to the extinction of the mammoth and other mammals.
- ❖ Some scientists believe that their extinction was caused by all three reasons.

If these animals are “pre-historic,” how do we know so much about them?

- ❖ Paleontologists find bodies preserved in snow.
- ❖ Fossils of animals, such as extinct bears, camels, and mammoths, are found.
- ❖ Pictures have been found on caves.
- ❖ Antlers of Giant Deer have been found preserved in peat bogs of Ireland.

OPTIONAL POST-VISIT ACTIVITIES

Safari in a Book – Learn more about different animals and create a book for younger children

Materials: photos of animals, pencil & paper, or computer

Procedure: Have each student select an animal from the museum and conduct research to learn more about it, such as its diet, habitat, life span, size, geographical location, predators, conservation status (endangered, stable, threatened), unique characteristics, etc. Write a two paragraph description of the animal at a level that younger children can understand. Assemble each student's description and an image of the animal into a class book. Or, compile the animals into several books by habitat, geography, or other similar characteristics.

Sharing/Grading: The students will be graded on their effort, presentation, satisfactory completion of each part of the procedure, and accuracy of the information regarding their particular animal. The books should be shown/read to a younger classroom of students.

Creature Feature – Design your own made-up, but well adapted animal

Materials: markers, crayons, colored pencils, large sheets of butcher paper, pencil & paper

Procedure: Before drawing their animal, the students need to answer and record their responses to the following questions: Where will it live? What will it eat? How does it move?

Based on the answers to these questions, the group will decide and record which adaptations are necessary for their animal to survive. Then, they will draw their made-up animal on the butcher paper, using the provided materials. Finally, the students will write a brief description including the name of the animal, its habitat, and its lifestyle. They should also include the list of adaptations, reasons for each adaptation, and the advantages provided by the adaptations.

Sharing/Grading: The finished product will be presented to the rest of the class. The students will be graded on their effort, presentation, satisfactory completion of each part of the procedure, and clarity and thoroughness of the report.

Perfect Poetry – Write a poem about your favorite insect or spider

Materials: *Insectlopedia* by Douglas Florian or *Joyful Noise: Poems for Two Voices* by Paul Fleischman, pencil & paper, & information about various insects and spiders

Procedure: Read several poems from the book. In small groups, pairs, or individually, have students choose their favorite insect or spider. Next, they will decide and record what adaptations their insect/spider has to help it survive. Then, they will write a poem about their insect/spider. Suggested types of poems are cinquain, acrostic, haiku, and limerick. Included in the poem should be the adaptations and how they help the insect/spider to survive.

Sharing/Grading: The poem can be presented to the rest of the class. The students are graded on their effort, presentation, satisfactory completion of each part of the procedure, and accuracy of the adaptations mentioned for their particular insect or spider.

SELF-GUIDED VISIT EVALUATION

Date of Tour _____

School (optional) _____

1. How did you learn about the International Wildlife Museum?
Friend/Relative Newspaper Previous Visit Driving by Mailing Other _____
2. Did you have any problems scheduling a tour? YES NO
If YES, please explain. _____

3. Did you have any problems with admissions? YES NO
If YES, please explain. _____

4. Did you use the pre-visit information? YES NO
If YES, what was most useful? _____

5. Was it helpful to have the Arizona Academic Standards? YES NO
6. Did the chaperones use the Discovery Safari packets? YES NO
7. Did your group order food from the restaurant? YES NO
If YES, did any problems occur? _____

8. Were the movie selections appropriate for your students? YES NO
9. How would you rate your field trip to the International Wildlife Museum?
POOR OKAY GOOD GREAT
10. Would you consider scheduling another self-guided museum visit using the Discovery Safari packet? YES NO
11. What would have made your visit more educational or enjoyable?

12. Please add any specific suggestions regarding the Discovery Safari materials.

Thank you for helping us make the museum a better place. Please turn this form in to the Ticket Window or mail to: **International Wildlife Museum, ATTN: Education Department, 4800 W. Gates Pass Rd., Tucson, AZ 85745**