DISCOVERY SAFARI

A Self-Guided Tour of the International Wildlife Museum
Grades 3-5

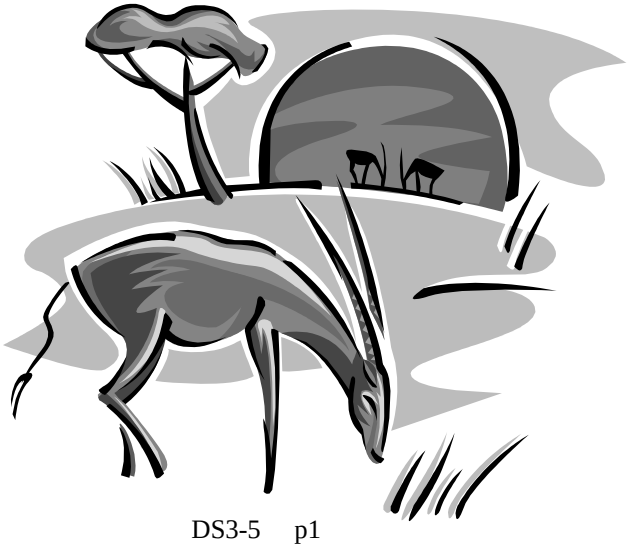
Educators

This educators' 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 Arizona Academic Standards found on page 2 of this guide.

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 educators' guide, the chaperones will be able to enhance the students' museum experience while assisting them in completing their Discovery Safari Field Guide. The chaperone can ask the questions to the group, wait for a response and then read the answer we've provided.
4. If using the student field guide, remember that the answers are found throughout the museum. Students may need to flip through it to complete one or two questions on each page as they enter each room in the museum. The four primary concepts throughout the museum are: adaptation, habitat, predator/prey and conservation.
5. 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.



Arizona Academic Standards

	GRADE 3	GRADE 4	GRADE 5
Science	SC03-S1C1-01	SC04-S1C1-01, 04	SC05-S1C1-03
	SC03-S1C2-01, 03, 05	SC04-S1C2-01, 03, 05	SC05-S1C2-01, 03, 05
	SC03-S1C3-02, 04, 05	SC04-S1C4-01, 03	SC05-S1C3-01, 02, 03, 04, 05
	SC03-S1C4-01, 03	SC04-S4C1-02	SC05-S1C4-01, 03
	SC03-S3C1-01	SC04-S4C3-01, 04	SC05-S3C1-01, 02, 03
	SC03-S4C3-03, 04	SC04-S4C4-01, 02	
	SC03-S4C4-01, 02, 03		

Language Arts	R03-S1C3-01, 03, 05, 06	R04-S1C4-01, 02	R05-S1C4-01, 02
	R03-S1C4-01, 02, 03, 05, 07	R04-S1C5-01	R05-S1C5-01
	R03-S1C6-03	R04-S1C6-03, 06	R05-S1C6-03, 06
	R03-S3C1-02, 03, 04, 05	R04-S3C1-01,02, 04, 05, 06, 08	R05-S3C1-02, 04, 06, 08
	R03-S3C2-01, 03	R04-S3C2-01, 02	R05- S3C2-01, 02
	W03-S2C1-01, 02, 03	W04-S1C1-02,03	W05-S2C1-01, 02, 03
	W03-S2C4-01, 02, 03	W04-S1C2-02	W05-S1C2-02
	W03-S1C5-01,02	W04-S2C1-01, 02, 03	W05-S2C4-01, 02, 03
	W03-S2C6-01, 02, 03, 06, 07, 08, 09, 10, 11, 12	W04-S2C4-01, 02, 03	W05-S1C5-01,02
	W03-S3C2-01, 02, 03	W04-S2C6-01, 02, 03, 07, 08, 09, 10, 12, 13	W05-S2C4-03
	W03-S3C6-01, 02, 03	W04-S3C2-01, 02, 03	W05-S2C6-01, 02, 03, 07, 08, 09, 10, 12, 13
		W04-S3C6-01, 02, 03	W05-S3C2-01, 02, 03
			W05-S3C6-01, 02, 03

Social Studies	SS03-S4C3	SS04-S4C2-04	SS05-S4C3
	SS03-S4C5-02, 03	SS04-S4C3	
		SS04-S4C5-01, 02, 03	

Visual Arts	VA-S1C1-001, 101, 102
	VA-S1C2-001, 002, 101, 102
	VA-S1C3-001, 101
	VA-S1C4-001, 101
	VA-S1C5-001, 101, 102

Discovery Safari Educators' 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? Yes**,** most of them are**.** 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.

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, venomous, poisonous, bad tasting.

INTRODUCTORY HALL

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

How are animals classified?

- The animal kingdom can be split up into two main groups, vertebrates (with a backbone) and invertebrates (without a backbone). Scientists classify each organism according to its Kingdom, Phylum, Class, Order, Family, Genius and Species. A good way to remember the order of classification is Kids Prefer Cheese Over Fried Green Spinach.

What are horns and antlers made of?

- Answers: horns are made up of the same substance your hair and fingernails are made of-keratin. Antlers are made of bone.

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.)*

- The tail serves as a lift to rise up off the ground, rudder to turn, elevator to move up and down and a brake to stop quickly.

PREDATOR & PREY

Predators, such as mountain lions and wolves, eat other animals. **Prey** animals, including pronghorn and quail, 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.

Predator/prey phrase: Eyes in the front, you like to hunt. Eyes on the side, you run and hide.

CONSERVATION

Rhinoceros are one of the many species that are threatened or endangered worldwide. This is mainly due to habitat loss and poaching. There are two rhino species in Africa (White and Black) and three in Asia (India, Java and Sumatra). The white rhino is the only species of rhino not currently listed as endangered.

What is a rhino's most unique characteristic?

- The most unusual feature of a rhino is its horn. The horn is made of compressed and hardened hair, called keratin, growing from the skin of the snout.

Why are rhinoceros poached (illegally hunted) for their horns?

- The horns are used for medicinal purposes in Asia and ceremonial dagger handles in Yemen. Poaching has led to the decline of rhino populations worldwide.

McELROY HALL

This room contains mammals from Africa, Europe, Asia and North America. This comparative species gallery allows you to compare and contrast animals of the same family as well as different families.

Many of these mammals have horns or antlers. Compare the antelope, which have horns and live in Africa, to the deer that have antlers and live in North America, Europe and Asia.

What is a horn?

- A horn is made up of a protein substance similar to your hair and fingernails, called keratin. It covers 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 & 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, while those found at the top of the mountain are animals found at higher elevations around the world. You can tell the difference between the two by looking at their horns. Sheep horns curl in a spiral, growing back towards their face. Goat horns grow straight back, though they may twist.

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

How long in the aardvark's tongue?

- 12 inches

What bird did Benjamin Franklin want to be our country's national symbol instead of the bald eagle?

- The wild turkey

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)

ARIZONA BY NIGHT

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.

What does the word nocturnal mean and name some other nocturnal animals.

- Nocturnal means to sleep in the day and be active at night.
- 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.

What species of North American animals thrive today due to successful conservation efforts?
Answers will vary, but may include:

- White tail deer, Canada goose, Rocky Mountain elk, wood duck, turkey, pronghorn

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.

Why did the woolly mammoth go extinct?

- 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 large 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 in caves.
- Antlers of Giant Deer have been found preserved in peat bogs of Ireland.

OPTIONAL POST-VISIT ACTIVITIES

World Safari in a Book – Learn more about different animals and create your own book
Materials: markers, crayons, colored pencils, large sheets of construction paper, pencil & paper
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. Then, have each student draw a picture of their animal. Assemble each student's work into a class picture book. Or, compile the animals into several books by habitat, geography, or other similar characteristics.
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 accuracy of the information regarding their particular animal. The books may also be shared with classroom of younger students.

Create Your Own Critter – Design your own made-up, 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 short report 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.

Thumbs Down – Students will experience the lack of an opposable thumb and learn how our hands are especially adapted for survival.
Materials: Masking tape, plastic spoons (one per student), shoes to tie, pens to write with
Procedure: Discuss and give examples of adaptations humans have to survive. Divide the students into groups of five students. Each group should have a station with the materials listed above. Tape down the students thumbs across their palms and have them try to use the tools. Afterwards have them perform the same tasks without their thumbs taped down.
Sharing/Grading: Discuss how it was to conduct the tasks with and without thumbs. Think of other animals and discuss their specialized adaptations that help them survive.
Extension: Have the students pick an animal with a specialized adaptation and do a write-up on how the animal uses its specialized adaptation and how it might function without this adaptation.

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. Were the movie selections appropriate for your students? YES NO

8. How would you rate your field trip to the International Wildlife Museum?
   POOR OKAY GOOD GREAT

9. Would you consider scheduling another self-guided museum visit using the Discovery Safari packet?
   YES NO
   If not, why?_____
   _____

10. What would have made your visit more educational or enjoyable?
    _____
    _____

11. 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**