

2017-2018

DISCOVERY



Resource Guide



MIREYA MAYOR PINK BOOTS AND A MACHETE



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Welcome to the 2017-2018 Discovery Series at Victoria Theatre Association. We are very excited to be your education partner in providing professional arts experiences to you and your students!

For the first time, we have a National Geographic Live speaker on our Discovery Series. I'm sure you and your students love adventures. Well, Mireya Mayor is no exception. Dr. Mayor's adventures have taken her to some of the more remote parts of the world where she has discovered elusive, rare, and sometimes undiscovered animals. You and your students will hear about some of those amazing activities!

The information and activities in this resource guide have been carefully crafted to help you and your students explore the many ways a live theatre experience can open up learning opportunities. Grade level icons will help you determine which activities are good for students, too. And don't forget to take advantage of the local resources listed inside to extend the play-going experience and make even more curricular connections for you and your students. Thank you again and welcome!

Gary Minyard
Vice President -
Education & Engagement



Curriculum Connections



You will find these icons listed in the resource guide next to the activities that indicate curricular connections. Teachers and parents are encouraged to adapt all of the activities included in an appropriate way for your students' age and abilities. *MIREYA MAYOR: PINK BOOTS AND A MACHETE* fulfills the following Ohio and National Education Standards and Benchmarks for Grades 3-12:

Ohio's Learning Standards for Science

- Grade 3**- Life Science (Behavior, Growth & Change), Earth & Space Science (Earth's Resources)
- Grade 4**- Life Science (Earth's Living History), Earth & Space Science (Earth's Surface)
- Grade 5**- Life Science (Interactions with Ecosystems)
- Grade 6**- Life Science (Cellular to Multicellular)
- Grade 7**- Life Science (Cycles of Matter and Flow of Energy)
- Grade 8**- Life Science (Species & Reproduction)
- Grades 9-12**- Biology (Heredity, Evolution, Diversity & Interdependence of Life)

Ohio's New Learning Standards for Social Studies

- Grade 3-6**- Spatial Thinking and Skills & Places and Regions
- Grades 7-8**- Spatial Thinking and Skills
- Grades 9-12**- World Geography

National Core Arts Theatre Standards

- Grade 2**—TH:Re7.1.2, TH:Cn10.1.2, TH:Cn11.1.2, TH:Cn11.2.2
- Grade 3**—TH:Re7.1.3, TH:Cn10.1.3, TH:Cn11.1.3, TH:Cn11.2.3
- Grade 4**—TH:Re7.1.4, TH:Cn10.1.4, TH:Cn11.1.4, TH:Cn11.2.4
- Grade 5**—TH:Re7.1.5, TH:Cn10.1.5, TH:Cn11.1.5, TH:Cn11.2.5
- Grade 6**—TH:Re7.1.6, TH:Cn10.1.6, TH:Cn11.1.6, TH:Cn11.2.6
- Grade 7**—TH:Re7.1.7, TH:Cn10.1.7, TH:Cn11.1.7, TH:Cn11.2.7
- Grade 8**—TH:Re.7.1.8, TH:Cn10.1.8, TH:Cn11.1.8, TH:Cn11.2.8
- Grades 9-12**—TH:Pr4.1.1., TH:Pr5.1.1., TH:Re7.1.1., TH:Re8.1.1., TH:Cn10.1.1., TH:Cn11.1.1.

This resource guide was created by Amy Handra. All activities are available for distribution and use in the classroom or at home.

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About the Show



As a two-time Emmy Award®-nominated field correspondent for the National Geographic Channel, Mireya Mayor has reported to audiences worldwide on pertinent wildlife and habitat issues. Closest to her heart is her ongoing study of a newfound species of *Microcebus*, or mouse lemur, which she discovered on a 2000 field expedition to Madagascar. Her work with this rare primate inspired the prime minister of Madagascar to establish a national park to help protect the new species, conserving the 10 percent that remains of the African island nation's once vast forest. Mayor recently earned her Ph.D. while conducting research on the effects of forest fragmentation and isolation on two types of lemurs found only in northern Madagascar. When not deep in the jungle on assignment, Mayor, a National Geographic Emerging Explorer, speaks to audiences about the importance of conservation for a vigorous and healthy planet.

About Dr. Mireya Mayor

Born and raised in Miami, Florida, Dr. Mireya Mayor is a scientist, explorer, wildlife correspondent, anthropologist, author, and inspirational speaker (and, former NFL cheerleader!). Mireya's curiosity and love for animals started at a very early age. Since she could crawl, Mireya had birds, fish, dogs, cats, parrots, rabbits, turtles, and a little chicken named Maggie. But it was in 1996, while attending the University of Miami that she realized that her passion for animals could become a career, and she went on to earn her Ph.D. in Anthropology from Stony Brook University.



Photo Courtesy of Our Sports Central

Mayor has since gone on to become the first female wildlife correspondent for the *Ultimate Explorer* series on National Geographic Television, and has spent more than fifteen years exploring some of the wildest and most remote places on earth, often armed with little more than a backpack, a notebook and hiking boots (usually pink!). Since then, Mayor has slept in remote jungles teeming with poisonous snakes, gone diving with great white sharks, been charged by gorillas and chased by elephants—and that's just in the last few months!

Ohio Spotlight



To learn more about mouse lemurs, gorillas, elephants, and animals of all shapes and sizes, visit the Cincinnati Zoo and Botanical Garden. Field trips to the Cincinnati Zoo are available year-round, every day of the week and students are just \$6.00 with every teacher or chaperone per 10 students FREE! For more information, please visit <http://cincinnati-zoo.org>.



COMPREHENSION

Important Vocabulary to Know

SCIENCE

Adaptation (noun): The process of change by which an organism or species becomes better suited to its environment.

Conservation (noun): A careful preservation and protection of something; planned management of a natural resource to prevent exploitation, destruction, or neglect.



Forest Fragmentation Image Courtesy of Greenpeace

Extinction (noun): The condition or fact of being extinct or extinguished; the process of becoming extinct.

Forest fragmentation (noun): The breaking of large, contiguous, forested areas into smaller pieces of forest; typically, these pieces are separated by roads, agriculture, utility corridors, subdivisions, or other human development.

Habitat (noun): The natural home or environment of an animal, plant, or other organism.

Isolation (noun): The process of an animal being geographically isolated or separated from other animals of the same species.

Primate (noun): A biological order of mammals characterized by having **hands and feet capable of grasping**, by having **flexible shoulder and hip joints**, and **large brains**. Major kinds of **primates** are humans, apes, monkeys, tarsiers, lemurs, and lorises. There are more than 300 species, or types, of primates.

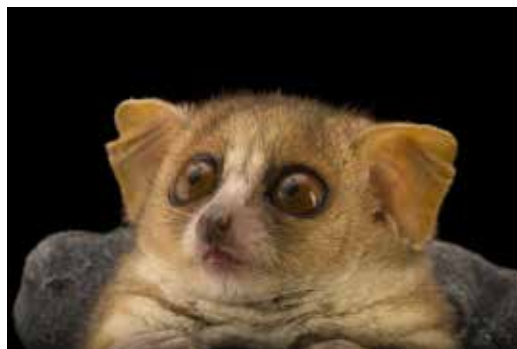
Primatology (noun): The scientific study of **primates**. **Primatologists** study both living and extinct **primates** in their natural habitats and in laboratories by conducting field studies and experiments, in order to, understand aspects of their evolution and behavior.

Did you Know?

SCIENCE

Adaptation is the evolutionary process in which an organism becomes better suited to its habitat. This process takes place over many generations. It is one of the basic phenomena of biology.

Because they spend most of their time in trees, lemurs are highly **adapted** for life in the trees. Lemurs have one claw on each of their back feet, but most digits have nails. Their hands allow these animals to grab branches for climbing and feeding. Young lemurs also use this grip to hold onto their mother's fur. Another useful lemur **adaptation** is their strong back legs that allow them to jump between trees. Long tails help them to keep their balance.



COMPREHENSION

Let's Take a Trip to Madagascar!

SOCIAL
STUDIES



*Dr. Mireya Mayor has spent much of her career conducting research in the country of **Madagascar**, an island off the continent of **Africa**.*

Where in the World is Madagascar?

Allow students to spend time with a world map or globe and locate the African continent and the country of Madagascar.



Use the following questions to encourage students to infer:

- Is Madagascar north or south of the equator?
- What kind of climate do you think Madagascar has? Is it warm or cool? Wet or dry?
- What sorts of habitats might you find?
- What is unique about its location and how might that affect its climate and wildlife?
- Based on its location, what kind of challenges might Madagascar face?

Then, allow students to visit a library or website to find answers to the following questions:

- What is the capital city of Madagascar? Describe the city.
- What are some neighboring countries?
- What is the primary language spoken in Madagascar?
- What is unique about Madagascar's wildlife?
- Why is Madagascar's environment and wildlife endangered?
- Under which political system does Madagascar operate?

Art Extension Activity



Have students work in pairs or small groups to create an informational travel brochure or travel poster for Madagascar, incorporating what they have learned. When finished, present them to the class.

COMPREHENSION

Madagascar's Most Wanted

SCIENCE

SOCIAL STUDIES



Madagascar is sometimes called **Lemur Island** because **lemurs** live on Madagascar and nowhere else in the world! **Lemurs** are evolutionary relatives of monkeys, apes—and people.

Lemur in Latin means “ghost” and many of the Malagasy people believe **lemurs** are similar to spirits or ghosts because of their haunting stare and night activity.



The **pygmy mouse lemur** is the smallest primate in the world. Its head and body are less than two and a half inches long, though its tail is a bit more than twice that length. These threatened nocturnal lemurs live in the dry forests of western Madagascar and rarely leave the forests' trees. Little is known of these rare primates.

Lemurs are perhaps Madagascar's most famous residents, but there are plenty of other unusual ones found here too. *In fact, there are 13 species of animals found in Madagascar and nowhere else on the planet!*

Tenrecs are shrew-like or hedgehog-like animals with dense fur or spines. The world's only **tenrecs** are found in Madagascar and nearby islands where there are around 30 species.

Most species of **tenrecs** are nocturnal and have poor eyesight. Their other senses are well developed, however, and they have especially sensitive whiskers.



Madagascar is also famous for its many and varied reptiles – there are over 365 endemic, or native, species of reptiles found on Madagascar. The island is home to around half the world's **chameleons**.



Of the 13 species, found nowhere else on the planet, the **Giant Leaf-tailed Gecko** is the second largest. It is a large nocturnal **gecko**. Because the eyes are extremely sensitive to light—350 times more sensitive than the human eye!—the species is able to see in colors even at night. By day, it plasters itself to a small tree trunk and rests with its head down. If disturbed, it will raise its tail and head, open its mouth and scream.

COMPREHENSION

Habitats of the World



A **habitat** is the natural home or environment of an animal, plant, or other organism. There are many different types of **habitats** in the world and different types of animals live in each **habitat**.



The **Savanna** is a rolling grassland with scattered shrubs and isolated trees. The **Savanna** is in a hot climate where there are two seasons—rainy season and dry season. Because there are few trees or places to hide in the **Savanna**, speed is important for both predators and prey.



The **Temperate Deciduous Forest** is a rich, abundant habitat full of trees and shrubs and all kinds of animals. The **Forest** is in a climate that has four seasons—fall, winter, spring, and summer. Animals in these **forests** have to adapt to the changing seasons. To adapt to the changing climate, some animals hibernate or migrate and those who don't must have special adaptations to deal with higher exposure to predators in the winter.



The **Tropical Rain Forest** is lush and warm all year long. The environment is wet in tropical rainforests, maintaining a high humidity with a lot of rainfall year-round. **Tropical rainforests** are home to half of the plant and animal species on Earth. Animals in the **tropical rainforest** have adapted to live in this unique environment. A common characteristic is an adaptation to living in trees. The canopy protects them from predators and supplies all the food they need.



The **Desert** is extremely dry and gets very little rain. **Desert** climates can be either hot or cold. Because of the harsh conditions, few animals and plants are adapted to the extremely dry **desert** life. Many animals that live in the hot **desert** are cold-blooded, like snakes, insects, and lizards. Mammals that live in the **desert** are usually small because there are few places to hide from predators.



The **Marine** or **Ocean** habitat is the biggest biome in the world! It covers about 70% of the earth and includes five main oceans as well as many smaller gulfs and bays. Marine regions are usually very salty! The constant motion of the ocean results in currents and waves that may either be warm or cold depending on the weather and temperature of that area. Many marine animals have special adaptations to handle this difficult salty and cold environment.



Polar regions are located in the very north and very south of the Globe—the two pole ends of the Earth. The northern polar region is called the **Arctic**, and the southern is the continent of **Antartica**. Polar regions have just two seasons—summer and winter, but even summer is normally very cold.

CONNECTION

Animal Habitat Activity Worksheet



Name: _____ Date: _____

Step One: Form small groups and assign each group one of the **habitats** from **Page 6**. Ask students to collect detailed research on both the **physical** and **biotic** characteristics of their assigned habitat. **Physical** characteristics should include *soil, moisture, light intensity, and range of temperature*. **Biotic** characteristics should include *the availability of food and the presence or absence of predators*.

Step Two: Next, assign each group (or each student) an animal and ask them to complete the worksheet below by using the research they collected about their assigned habitat.

STUDENT DIRECTIONS: You are the animal your teacher has assigned to you, and in order to survive, you need **food, water, cover,** and **places to raise your young**. Using the information that you collected on your assigned habitat, evaluate whether or not you will stay in this habitat to set up your home or if you will seek out a new habitat in which to live.



Food Source: _____



Water Source: _____



Cover: _____



Place to Raise Young: _____

Will you stay and set up home here? _____

Why or why not? _____

Animal Habitat Activity Worksheet



Name: _____ Date: _____

Step One: As a class, discuss the concept of a **dynamic ecosystem**, *a community of plants, animals and microbes interacting with each other and their environment*. The term **ecosystem** describes both *the living and non-living components of an area that interact with one another*.

Step Two: Form small groups and assign each group one of the **habitats** from **Page 6**. Ask students to conduct research to provide as much detailed information as possible about the **chemical, geological and physical** features of the environment. Consider the **sunlight/energy, temperature, waves** and **other physical features** of the system.

Step Three: Now, ask students to investigate the type of **adaptations** that are present in the habitat they were assigned. *What characteristics enable organisms in the habitat to survive?* Ask students to make a list of the traits they feel are most important for an organism in this habitat.

Step Four: Instruct students to use the research they have conducted to design an organism uniquely adapted to the habitat they were assigned. They should design both **internal** and **external** body parts for the organism and should consider each of the following areas when completing their design:

body design/symmetry	diet/acquiring food
sensory ability	communication
shelter/protection/skeleton	digestion
waste removal/water regulation	mobility reproduction/life cycle
temperature regulation/respiration	other unique adaptations/behaviors

Step Five: Ask students to prepare an oral presentation complete with a sketch or model of their organism in its environment.

Optional Extension Activity:

Enter an environmental stressor into the ecosystem such as a volcanic eruption, drought, soil erosion, toxic waste, storm, etc. Ask each group to reevaluate their **designer organism** in order to assess how well its features would allow it to adapt to the new environment. Discuss as a class which organisms would survive and why. Explain how the process of **natural selection** impacts the organisms and the chosen habitats.

Habitat Scavenger Hunt Activity from USDA Forest Service



You Will Need:

- Markers
- Crayons
- Glue or Tape
- Index Cards
- Old Nature Magazines
- Large Sheet of Paper
- Backpack or Jar (optional)



Procedure:

Step One: Start by telling students they are going on a scavenger hunt. Discuss what they might find **in the air, on the ground, and in the water**. Then, list and discuss each of these elements on large paper or on a chalkboard.

Step Two: Have students cut out photographs from old nature magazine of **air, ground, and water** items that they may find on the scavenger hunt. Have students paste or tape pictures onto index cards, labelling one side **air, ground, or water** and placing the picture on opposite side. Alternately, instead of using magazines, students can draw a picture directly on the card. Collect the cards when completed.

Step Three: Divide children into **Air, Earth, or Water** groups and give them the corresponding scavenger hunt cards. Now, go hunting! Using a crayon, children can write a mark on the index card of the items they find. Without disturbing the environment, allow children to place a few samples in the backpack or jar such as dried leaves, twigs, or stones.

Step Four: Once back in the classroom, have students create a mural or collage that includes everything they found on the scavenger hunt. Students can paste the cards or the items they collected directly onto the mural or the collage, or they can draw the items. Students should then share and compare what they brought back from the hunt.

CREATIVITY

Repurpose and Reuse: Make Your Own Recycled Crafts!



You Will Need:

- Recycled Materials to Create Crafts (Boxes, Plastic containers, Milk cartons, Soda Bottles, Plastic Cups, Egg Cartons, Coffee Cans, etc.)
- Construction Materials (Scissors, Hole punch, Glue, Hot Glue Gun, etc.)
- Decorative Supplies (Markers, Paint, Old Magazines, Greeting Cards, Newspapers, etc.)

Procedure:

Step One: Get started by talking about the three R's for the environment: **Reducing, Reusing, and Recycling.**

Step Two: Have students bring in items from home that they otherwise would throw away that could be used to make something new.

Step Three: Have students choose one of the following recycling crafts to create or challenge them to design and create their own!



Bird Feeders: Cut a hole (about 1 ½ inch in diameter) on a milk carton or plastic soda container. Poke or glue a used popsicle stick, pencil, or plastic spoon to or through the container just under the hole. Punch a hole in the top and loop a piece of string through it. Punch a small hole in the bottom to let out rain. Decorate your container using craft supplies. Be creative! Fill the feeder with birdseed and hang it from a nearby tree or outside your window.

Miniature Gardens: Punch a small hole in the bottom of a used plastic cup, aluminum can, coffee can, or cut a used plastic soda bottle in half and poke a hole in the bottom. Decorate your container. Fill in with soil and plant a seed or plant. Create and place several planters together to create your own miniature garden.



Desk Caddy: Cut cardboard tubes into varying lengths or use different size aluminum cans—short tubes are great for pushpins or paper clips, while taller ones are ideal for paintbrushes or pens. Paint and decorate cardboard tubes. Cut out a square base using a cereal box or other recycled cardboard and paint the square base. Hot glue the tubes to the base.

Resources for Students & Teachers

Publications for Students:

I Am Coyote, Written by Geri Vistein. Tilbury House Publishers: 2015.

Hoot, Written by Carl Hiaasen. Random House Children's Books: 2004.

Rare Portraits of America's Endangered Species, Written by Joel Sartore. National Geographic Society: 2010.

Publications for Teachers & Parents:

Pink Boots and a Machete: My Journey from NFL Cheerleader to National Geographic Explorer. Written by Mireya Mayor. National Geographic Society: 2011.

Teaching Kids How to Love the Earth, Written by Marina Lachecki, Joseph F. Passineau, Ann Linnea, and Paul Treuer. University of Minnesota Press: 1991.

American Women Conservationists: Twelve Profiles, Written by Madelyn Holmes. McFarland & Company: 2004.

Websites for Teachers and Students:

<http://mireyamayor.com/>; Learn more about Dr. Mireya Mayor, including upcoming events, tv appearances, and publications.

<http://kids.nationalgeographic.com/>; Nat Geo Kids inspires young adventurers to explore the world through award-winning magazines, books, apps, games, toys, videos, events, and a website, and is the only kids brand with a world-class scientific organization at its core.

<https://www.fs.usda.gov/main/conservationeducation>; This website helps people of all ages understand and appreciate our country's natural resources -- and learn how to conserve those resources for future generations. Through structured educational experiences and activities targeted to varying age groups and populations, conservation education enables people to realize how natural resources and ecosystems affect each other and how resources can be used wisely.

Victoria Fuse's Local Resource



The name Five Rivers MetroParks comes from five major waterways that converge in Dayton. These waterways are the Great Miami River, Mad River, Stillwater River, Wolf Creek, and Twin Creek. Five Rivers MetroParks includes more than 15,400 acres and 25 facilities with a number of amenities and features. These include hiking trails, a mountain bike area (MoMBA) at Huffman MetroPark, horse bridle trails, a disc golf course, a whitewater feature at Eastwood MetroPark, and a large butterfly house at Cox Arboretum MetroPark. Five Rivers MetroParks provides year-round recreation, education and conservation opportunities to the Greater Dayton community. For more information, please visit <https://www.metro parks.org/>.

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National Geographic explorers, photographers, filmmakers, and scientists embody the importance of living curious, responsible, and empowered lives. We're proud to present these inspiring role models through our student matinees.

Matinee presentations are approximately one hour long, including a short question and answer session with the speaker after their talk. National Geographic Live Student Matinees take place in various venues around the United States and some international locations.

For more information, please visit

<https://www.nationalgeographic.org/student-matinees/>.

DON'T FORGET

All schools that receive scholarships for a show and/or transportation are asked and encouraged to create thank-you letters or cards for our sponsors. Please address your students' thank-you notes to:

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