



# Fur, Feathers and Scales

Study the differences among mammals, reptiles, birds, and fish, and explore how students can make a difference for the future for wildlife. Fur, Feathers and Scales is a 60 minute program for 2<sup>nd</sup> and 3<sup>rd</sup> graders that takes place in the Zoo's Discovery Classroom.

## Before Your Visit

To prepare for your field trip, please take advantage of the following Zoo resources:

### 1. Cleveland Metroparks Zoo's website, [clemet zoo.com](http://clemet zoo.com)

#### **Discover: Animals and Plants**

Check our *Animal News* for the latest updates on recent animal births and new animals to the Zoo's collection. *Animal Facts* is a wonderful resource for students doing research on particular animal species.

#### **Learn: Education**

A variety of student activities can be found under *Students*. Included here are *Animal Fun & Games*, a variety of twelve educational games for students of all ages. Try "Where in the World? Where in the Zoo?" and have your students help plan their field trip day! "Classification Counts" is a fun game designed to help students discover the wild world of animals and fits perfectly with the content of the Fur, Feathers and Scales program. Use the *Walking Map with Distances* to see if you really can see it all without tiring out little legs.

#### **Explore: Plan Your visit**

At 168 acres, you can't see it all in one day, so use the *Zoo Map and Virtual Tour* to plan which exhibits you would like your students to see.

### 2. Teacher Resource Kit for Fur, Feathers and Scales

To prepare your students for this specific program, the Zoo has designed a Teacher Resource Kit to compliment this program. Kits can be checked out 2 weeks prior to your program date at the Reinberger Education Center of the Zoo, Monday-Friday between 8 AM and 6PM and should be returned at the time of your program. The Fur, Feathers and Scales kit contains the following items:

#### 5 "What Is" Posters to explore together!

- What Is a Mammal
- What Is an Amphibian
- What Is a Fish

- What Is a Bird
- What Is a Reptile

#### 5 **Concept Science** Books to read as a class!

- Reptiles are Animals
- Mammals are Animals
- Amphibians are Animals
- Fish are Animals
- Birds are Animals

#### **Games to Play!**

- Wild Animal Lotto-an educational game
- Animal Rummy Cards: snakes, exotic birds, undersea world, wildlife
- Vanishing Wild Pick-up Pairs Game

#### **Touch and Explore!**

- 2 Feathers
- 1 Fur Pelt
- 1 Turtle Skin
- 2 Hand Lenses

#### **Worksheet** Templates (Pertain to academic content standards in math, reading, language arts, and science)

- Reptiles
- Amphibians
- Birds
- Mammals
- Fish

## **At the Zoo**

The classroom portion of the Fur, Feathers and Scales program is designed to focus primarily on 2nd Grade Life Sciences Standards 6-7 and on 3<sup>rd</sup> Grade Life Sciences Standards 1-3 and 6. During the hour, you can expect the following three lessons to be covered by the docents teaching the class:

### **Alien Classification**

**Introduction:** Alien Classification is designed to get students to start thinking about how data can be sorted. Classification makes things easier to find, identify and study. The idea for grouping based upon shared physical characteristics goes back to the 1700's and Carl Linnaeus. This activity allows the students to work with and manipulate data in order to draw their own conclusions, a key skill in critical thinking.

**Goals:** Students will be introduced to Linnaeus's system of classification, which is a scientific sorting based on physical characteristics.

**Objectives:** Students will observe a data set (laminated drawings of aliens) and sort them into groups based on common characteristics.

### **Sorting the Group**

**Introduction:** Sorting the Group is designed to reinforce the concept of classification based on physical characteristics. The activity will build upon Alien Classification in that it will allow students to make observations and draw their own conclusions.

**Goals:** Students will be introduced to Linnaeus's system of classification, which is a scientific sorting based on physical characteristics.

**Objectives:** Students will observe the physical characteristics of an animal in a photo and sort themselves into groups based on common characteristics.

### **Animal Classification Stations**

**Introduction:** Animal Classification Stations will further reinforce the concept of classification based on physical characteristics. Major characteristics of four animal classes (mammals, birds, reptiles, fish) will be discussed. For some students this will be new and for some it may be review. Interactions with small education animals will take place at these stations and students will have the opportunity to touch when appropriate.

**Goals:** Students will discover the characteristics of four different groups of animals (mammals, birds, reptiles, fish).

**Objectives:** Students will participate in guided discussions with a docent to learn the characteristics of four different groups of animals (mammals, reptiles, birds, fish) and will have the opportunity for small animal interaction.

### **Conservation Challenge**

**Introduction:** Conservation Challenge is an effort to bring animal classification back to something that the children can relate to as well as move them forward in taking action to help wildlife and wild places. Local conservation stories will be told and students will participate in a discussion about what they can do to help.

**Goals:** Students will be guided to take action in an effort to conserve local wildlife and wild places.

**Objectives:** Students will listen to a story about a local conservation issue and will propose ideas on solutions to the problem.

A booklet to be used by students and their teachers and chaperones supplements the concepts covered during the classroom program. The booklet can be used in any area of the Zoo, before or after your

participation in the classroom program. Booklets will be distributed to your students upon arrival at the Zoo.

## **Back at school**

Information collected in the booklets during the Zoo visit can lead to a variety of lessons once you return to your school classroom:

### **Language Arts**

- Write about what it would be like to take care of your animal at the Zoo.  
Academic Content Standard Correlations  
1<sup>st</sup> grade – Writing Processes 5-14, Writing Applications 1, Writing Conventions 1-8  
2<sup>nd</sup> grade – Writing Processes 5-15, Writing Applications 1, Writing Conventions 1-16  
3<sup>rd</sup> grade – Writing Processes 5-16, Writing Applications 1, Writing Conventions 1-17
- Write about a typical day for your animal.  
Academic Content Standard Correlations  
1<sup>st</sup> grade – Writing Processes 5-14, Writing Applications 1, Writing Conventions 1-8  
2<sup>nd</sup> grade – Writing Processes 5-15, Writing Applications 1, Writing Conventions 1-16  
3<sup>rd</sup> grade – Writing Processes 5-16, Writing Applications 1, Writing Conventions 1-17
- Write a poem about your animal.  
Academic Content Standard Correlations  
1<sup>st</sup> grade – Writing Processes 5, 7-14, Writing Applications 4, Writing Conventions 1-8  
2<sup>nd</sup> grade – Writing Processes 5, 7-15, Writing Applications 4, Writing Conventions 1-16  
3<sup>rd</sup> grade – Writing Processes 7-16, Writing Applications 5, Writing Conventions 1-17
- Put all of the animals the class studied in alphabetical order. Have all students create a page for a book entitled “Our Classroom Zoo: A-Z.”  
Academic Content Standard Correlations  
1<sup>st</sup> grade – Writing Processes 5-14, Writing Applications 1, Writing Conventions 1-8  
2<sup>nd</sup> grade – Writing Processes 5-15, Writing Applications 1, Writing Conventions 1-16  
3<sup>rd</sup> grade – Writing Processes 5-16, Writing Applications 1, Writing Conventions 1-17
- Sort all of the animals the class studied based on their particular habitat. Create a presentation (skit, song, etc.) about the habitat and the animals that live there and present to the class.  
Academic Content Standard Correlations  
1<sup>st</sup> grade – Writing Processes 1-7, Writing Applications 1, 4, Communication: Oral and Visual 5-7  
2<sup>nd</sup> grade – Writing Processes 1-8, Writing Applications 1, 4, Communication: Oral and Visual 8-10  
3<sup>rd</sup> grade – Writing Processes 1-8, Writing Applications 1, 5, Communication: Oral and Visual 8-9

## Math

- Make a pictograph of how much food your animal would eat in a month and compare to how much food you would eat in a month.  
Academic Content Standard Correlations  
1<sup>st</sup> grade – Data Analysis and Probability Standard 2-3, 5  
2<sup>nd</sup> grade – Data Analysis and Probability Standard 1-2, 4  
3<sup>rd</sup> grade – Data Analysis and Probability Standard 3-6
- Check to see how close your size estimates were by researching the real sizes/weights of the animal and the objects. Use mathematical language and symbols to compare and order.  
Academic Content Standard Correlations  
3<sup>rd</sup> grade – Number, Number Sense and Operations Standard 3
- Based on either size or weight, determine how many of the student it would take to make the animal (if the animal is large) or how many of the animal it would take to make the student (if the animal is small).  
Academic Content Standard Correlations  
2<sup>nd</sup> grade – Measurement Standard 2  
3<sup>rd</sup> grade – Measurement Standard 2
- Sort all of the animals the class studied based on either their taxonomic classification (mammal, reptile, etc.) or on their particular habitat (forest, desert, etc). Determine which animal class or habitat type was studied the most by displaying the data in a chart.  
Academic Content Standard Correlations  
1<sup>st</sup> grade – Data Analysis and Probability Standard 2-7  
2<sup>nd</sup> grade – Data Analysis and Probability Standard 1-2, 4-5  
3<sup>rd</sup> grade – Data Analysis and Probability Standard 2-6, 8
- Arrange all of the animals the class studied based on their size or weight and identify the ordinal position of each object.  
Academic Content Standard Correlations  
1<sup>st</sup> grade – Data Analysis and Probability Standard 6

## Science

- Create a diorama of your animal in their habitat.  
Academic Content Standard Correlations  
1<sup>st</sup> grade – Life Sciences 1  
2<sup>nd</sup> grade – Life Sciences 1-3  
3<sup>rd</sup> grade – Scientific Inquiry 6
- Design a zoo, placing animals together based on taxonomic class or habitat.  
Academic Content Standard Correlations  
1<sup>st</sup> grade – Scientific Inquiry 1, 8  
2<sup>nd</sup> grade – Life Sciences 2-3, Scientific Inquiry 3, 10  
3<sup>rd</sup> grade – Life Sciences 3, Scientific Inquiry 6
- Research which animals are endangered and “what happens when” the animal becomes extinct.  
Academic Content Standard Correlations

1<sup>st</sup> grade – Life Sciences 1-4, Scientific Inquiry 1-2, 8  
2<sup>nd</sup> grade – Life Sciences 1, 5-6, Scientific Inquiry 2, 10  
3<sup>rd</sup> grade – Life Sciences 6, Scientific Inquiry 6

- Sort all of the animals the class studied based on their particular habitat. Create a food web using those particular animals.

Academic Content Standard Correlations

1<sup>st</sup> grade – Life Sciences 4

2<sup>nd</sup> grade – Life Sciences 2-3, 5-7

- Choose one of the animals the class studied, research its conservation story and brainstorm about the things that people can do to help solve the problem.

Academic Content Standard Correlations

1<sup>st</sup> grade – Scientific Inquiry 1-2, 8-9

2<sup>nd</sup> grade – Science and Technology 3, Scientific Inquiry 1-3, 10, Scientific Ways of Knowing 3

3<sup>rd</sup> grade – Life Sciences 6, Science and Technology 2-3, Scientific Inquiry 6

## Suggested Vocabulary List

When beginning to learn about animals and their habitats, there are many new words that will help children to describe scientific concepts. The words on this list will typically be used in Zoo programs. Introduce them to your students prior to participation in a Zoo program or use them when you return to the classroom to reinforce concepts taught at the Zoo.

Adaptation: change in an organism or its parts so that it better survives in its environment

Aquatic: growing or living in or often found in water

Camouflage: to hide by blending in with the background

Carnivore: an animal that eats meat

Classification: sorting objects into groups by their shared characteristics

Cold-blooded: animals whose temperatures change depending on the temperature of the surroundings

Conservation: taking efforts to protect something; in nature, that protection is from pollution, destruction or neglect

Endangered: threatened with extinction

Habitat: the place where a plant or animal normally lives or grows

Herbivore: an animal that eats plants

Invertebrate: lacking a backbone

Omnivore: an animal that eats both meat and plants

Plain: a very flat area of land

Savanna: a grassland containing scattered trees, usually found in Africa

Shelter: something that covers or protects

Vertebrate: having a backbone

Warm-blooded: animals whose temperature remains about the same, regardless of the temperature of the surroundings

# Suggested Reading List

Each year, 10,000 school children from different regions of the United States read and vote on newly published children's books that they like the best. This list of animal-related books is compiled from the past several years of the Children's Choices book list. Children's Choices is a project of a joint committee supported by the International Reading Association and the Children's Book Council.

## **Beginning Readers (ages 5-7)**

### **Actual Size** by Steve Jenkins

Children were fascinated by the life-sized drawings of the animals contained in the book, some so large a fold-out section was necessary. Children measured their hands, feet, and faces against those of the animals.

### **And Here's to You!** by David Elliott

Full-color illustrations and a rhyming tribute to everything from frogs to dogs bound from each page of this salute to all creatures, whether scaled, feathered or furred. An enthusiastic, rollicking repetition of "I love you!" sends an irrepressible message.

### **The Beetle Alphabet Book** by Jerry Pallotta

An informative and fun way for the reader to learn what a beetle is and isn't. Illustrations help the reader see the unique aspects of the featured beetles. Upper- and lowercase letters are included on each page, and there's subtle humor throughout.

### **Big, Bad Wolf** by Claire Masurel

The wolf is always blamed when scary things happen to people. He doesn't frighten his own cubs – they know him as a good father. This peephole book teaches us not to be frightened by what we don't know.

### **The Big, Blue Lump** by Yetti Frankel

Bandy is a little bug who only looks helpless. Cyril the pig was only one of a number of animals to discover that he wasn't an easy meal. The obvious and predictable humor captivates children.

### **The Bugliest Bug** by Carol Diggory Shields

An observant damselfly saves her friends who would otherwise have been eaten at a bogus bug contest hosted by spiders in disguise. The playful poetry of the narrative will stimulate young imaginations, and the pictures help advance the plot.

### **Clara Caterpillar** by Pamela Duncan Edwards

This story artfully combines information about caterpillars with a surprisingly sweet story. Children will enjoy finding all the words that start with c as they learn about caterpillars and friendship.

### **Click, Clack, Quackity-Quack: An Alphabetical Adventure** by Doreen Cronin

Duck takes the cows' typed note, a picnic invitation to all animals, around the farm. The unlikely bouncy humor of this alphabet romp in both verse and illustration is a child magnet.

### **Cock-a-Doodle Moooo! A Mixed-Up Menagerie** by Keith Duquette

In this beautifully illustrated book, cleverly rhyming couplets introduce such creatures as the cooster (cow and rooster) and the firefligeon (firefly and pigeon). Children of all ages are encouraged to "let your imagination run free; create your own menagerie!"

### **Diary of a Worm** by Doreen Cronin

Hilarious journal entries from a worm tell the good (no dentists, no baths), the bad (sidewalks and birds), and the ugly (a face that looks like a rear end) from a character with lots of insight from down under.

### **The Dog Who Cried Wolf** by Keiko Kasza

Moka, an adventurous dog, decides to run away and try the carefree life of a wolf. He tries to hunt for food, but rabbit outruns him; skunk sprays him, and beetle pinches his nose. Finally, he realizes that home is the best place for him.

### **Down by the Cool of the Pool** by Tony Mitton

Frog's exuberance beside the pool begins a chain reaction of joy as each animal does its own kind of dance. Differences are forgotten, and diversity abounds. The colorful drawings help add to children's vocabulary skills.

**Gator Gumbo: A Spicy-Hot Tale** by Candace Fleming

Monsieur Gator is getting old. He can no longer catch the fast-moving food he so loves. Children will enjoy how he cleverly lures possum, otter, and skunk into the delicious pot of sweet-smelling gumbo in this Cajun retelling of an old classic.

**Good Dog** by Maya Gottfried

Sixteen poems about dogs are accompanied by 16 illustrations of the animals that are so real they beg to be scratched and tickled by the reader.

**Good Thing You're Not an Octopus** by Julie Markes

The recurring pattern and humorous illustrations help a little boy see it's a good thing he's not...a bird who has to eat worms, a shark with 200 teeth to brush, or even an octopus trying to get dressed.

**Hunting Sharks** by Kristin L. Nelson

Did you know that a baby shark is called a pup? Children will be fascinated by the brilliant photographs and intriguing facts about the world of sharks. If you would like to learn more about sharks, this book is for you.

**Leon the Chameleon** by Melanie Watt

Leon never turns the same color as everyone else! He learns the benefits of being different, however, when he and the other baby chameleons are lost in the desert. Children will benefit from this lesson of acceptance and self-respect.

**Little Brown Bear Won't Take a Nap** by Jane Dyer

Little Bear decides to follow the geese south for the winter, rather than hibernating. Is he ever surprised to discover that they travel by train instead of flying! By the time Little Bear makes it home, winter is almost over.

**Little Buggy** by Kevin O'Malley

Mother Ladybug teaches her child to fly. At first, there are many problems, mostly of the falling kind. Eventually, Buggy takes off successfully. Two slugs provide helpful and hilarious commentary as they observe mother and child. Readers' will have a bug's eye view thanks to lush green illustrations.

**Little Quack** by Lauren Thompson

When Mama Duck realizes that it is time for her five ducklings to leave the nest and learn to swim, they all resist, especially Little Quack. Mathematical notations across the bottom of the pages, the "Quack-U-Lator," help readers follow the ducklings' progress.

**Mister Seahorse** by Eric Carle

Mr. Seahorse has a special job of carrying his offspring in his tummy. He visits with other fish fathers who also care for eggs in unusual ways. Watch for cleverly camouflaged fish in this pleasing, informative book.

**Never Cry Woof! A Dog-U-Drama** by Jane Wattenberg

An adaptation of "The Boy Who Cried Wolf," this book will appeal to and delight children with the rhyming pattern and humorous word play. Children will also enjoy the actual photographs of dogs.

**Not Norman: A Goldfish Story** by Kelly Bennett

A little boy sets out to trade his goldfish for something better. But he reconsiders when he finds it's not easy to part with the googly-eyed pet who makes him laugh, sways to his tuba, and watches out for him.

**Our Friend Sam** by Mercer Mayer

This book is one of the series of First Readers. Sam is a caterpillar captured in a backyard. Sam builds a chrysalis and becomes a butterfly. The illustrations add to a natural science project.

**The Perfect Pet** by Margie Palatini

Readers will laugh as Elizabeth imaginatively tries to convince her parents to get her the perfect pet, especially when the mother discovers the unconventional pet she has found for herself.

**Sleep Tight Little Bear** by Martin Waddell

As Little Bear settles down for his first night in his private cave, he worries that Big Bear will be lonely. Young children relate to wanting to be independent, but still needing the comfort of a bedtime story and a hug.

**Snug as a Bug** by Amy Imbody

A little boy imagines sleeping like a number of young animals. The rhyming text goes well with the outrageous illustrations. Readers will love pointing out all the silly details.

**So, What's It Like to Be a Cat** by Karla Kuskin

The private lives of cats are explored in this question-and-answer exchange between a precocious young boy and an extremely smart cat. Young readers will be attracted to their rhythmic language and realistic illustrations from the cat's viewpoint.

**Surprising Sharks** by Nicola Davies

This nonfiction book provides loads of information about the different types of sharks. Children love the science and the pictures.

**Tigress** by Nick Dowson

Bold, enchanting pictures immediately draw readers into this nonfiction book. It holds the interest of all students with its two levels of text: One poetically describes a mother tiger's daily activities, and the other, printed in italics, offers tiger facts.

**TIME for Kids: Snakes!** By Lisa Jo Rudy

A snake enthusiast's dream come true! This book covers it all: body parts, movements, egg hatching, size, protection, prey and the future. Full of cool facts and outstanding photography sure to "ooh" or "ugh" readers.

**Worm Gets a Job** by Kathy Caple

The cartoon-strip organization of the book guides young readers through the text. They enjoyed following the word bubbles to find out what job the young worm would take on. Children giggled at the results of the worm's search for employment.

## **Young Readers (ages 8-10)**

**Alphabeasts** by Wallace Edwards

An elegant house is home to many common and exotic animals. Rhyming text and detailed illustrations explain how the various beasts spend their leisure time.

**Army Ants** by Sandra Markle

Army ants are scavenger insects living in tropical rain forests. Students who read the photographs as closely as the text will receive a double-dose of information about these unique clean-up crews. Includes a glossary and additional resources.

**Bow Wow Meow Meow** by Douglas Florian

Shaggy Sheepdogs, dotted Dalmatians, and speeding Whippets share this poetry book with cats, both domesticated and wild. Dachshunds and leopards alike are honored with action-filled paintings and lively verse.

**Crocodiles** by Sandra Markle

Avoid the Nile if you don't want to become a crocodile snack. This perfect predator can see in the dark, hold his breath for an hour, and hear a dragonfly land. Full-color photographs should convince anything nasty to stay ashore.

**Dogs: How to Choose and Care for a Dog** by Laura S. Jeffrey

The puppy on the front made the children want to pick up the book. The chapters use actual pictures of pets and their owners to assist with the context of choosing and caring for a dog that is right for the individual.

**Giraffes Can't Dance** by Giles Andreae

Rhyming text and bright watercolors give this book movement and pizzazz. Students will like Gerald, the clumsy giraffe, as he learns to stop listening to others and dance to his inner music.

**Great White Sharks** by Sandra Markle

The nonfiction aspect of this text appealed to many students, especially male students, because of the ferocious-looking shark on the cover and the many details on these predators of the deep, including their feasts on other ocean life.

**If Dogs Ruled the World** by Faith McNulty

A serious case of owner/pet role reversal is presented in this easy-to-read format. Young readers will be amused at humans guarding houses and playing in fenced-in backyards. The humorous illustrations provide clues to the vocabulary.

**If I Had a Gorilla** by Mercer Mayer

Various animals might be able to come to the rescue of a small boy, at least in his daydreams. Fortunately, his big brother can do that in real life. Mayer's text is simple, making this book accessible to beginning readers.

**Jackalope** by Janet Stevens and Susan Stevens Crummel

Jack Rabbit is unhappy with his looks and tries to make himself over into a donkey, horned toad, and other critters. Armadillo narrates this fanciful tale of how the legend of the jackalope came to be. Readers love the references to lots of nursery rhymes and fairy tales.

**Killer Whales** by Sandra Markle

Slip beneath the waters to hunt with a pod of orcas, fearsome predators of the deep. Watch them spyhopping, breaching and communicating as you become familiar with another skilled hunter from the top of the food chain.

**Lions** by Sandra Markle

Slashing claws and snapping jaws signal a successful hunt as lionesses work together, feeding the pride on the African plains. Young cubs practice their skills, stalking imaginary prey. Stunning photography takes readers right into the world of big cats.

**My First Animal Book** illustrated with photos

The animals in this book are grouped into those with spots, stripes, feathers, spikes, wrinkles, and scales. Photos are large and each animal is identified in bold print. Common and more exotic animals are included.

**Polar Bears** by Sandra Markle

Did you know that a polar bear can swim 60 miles in search of food? Readers will be fascinated with both text and superb photographs as they learn about the Arctic world's powerful, ferocious predators.

**Poop: A Natural History of the Unmentionable** by Nicola Davies

Poop is not just revolting and embarrassing but in fact is scientifically useful. Did you know that animal latrines send messages about group dynamics and population statistics? Through the child-like illustrations, children can enjoy exploring the mystery surrounding poop.

**Spiders** by Carolyn B. Otto

Fascinating photos of many kinds of spiders as they go about the task of spinning webs, catching prey, and raising their young fill the pages of this nonfiction book. Interesting facts and hints for observing (but not touching) spiders are provided.

**Ten Little Monkeys: A Counting Storybook** by Keith Faulkner

Ten playful monkeys find adventure in the jungle. This interactive book will involve children in counting backward while they swing their own manipulative monkeys down from a pop-up tree.

**Wild Dogs: Past and Present** by Kelly Milner Halls

This nonfiction book is beautifully photographed with information on dogs from prehistoric times until today. Readers will enjoy looking at and learning about the fascinating world of wild dogs.