



# Discovery by Nature

Depending on time constraints, each hour-long presentation may include a **storybook reading**, **supplementary worksheet**, and/or **group activity or craft**. At the discretion of Discovery By Nature, the exact composition of each program may vary.

Parents and teachers can request a **free synopsis sheet of each lesson** detailing key concepts, lesson vocabulary, and extension learning resources!

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### What Is A Bird?

Discover what a bird actually is, and why birds are important! We'll begin with an introductory game that explores how much students know about birds, followed by a discussion about five features that "make a bird, a bird." Students will practice these concepts with a coloring worksheet and/or an engaging imagination story, then create "wood cookie" necklaces featuring their very own nature names!

### Identifying Birds

Learn how to recognize and differentiate between the many bird species of Pennsylvania, using helpful tips like size, shape, color, markings, and habitat. We'll examine the best ways to watch birds in the wild, including the use of binoculars and keeping a field journal to document our observations! Students will practice their identification skills to answer worksheet questions. An interactive game of "What Bird Am I?" will also test their observation techniques!

### Feathers

Did you know that blue feathers aren't really blue? Explore the wonder of bird feathers by learning how they are physically structured, why birds grow them, the ways in which they are colored, how birds keep them clean, and why we should respect feathers found in nature. Students will creatively "design" their own feathers and practice lesson concepts through a memory matching game.

### Flight

Explore three special adaptations that birds have in order to fly: bones, wings, and feathers. Students will learn about five types of feathers and their functions, the differences between flapping and soaring, and how molting changes a bird's appearance throughout the year. This program concludes with engaging connect-the-dots worksheets and/or a "flying" origami craft.

## **Migration**

Did you know that over half of all birds migrate each year? We will discuss the five “W’s” of migration (who, what, why, when, where), learn the differences between residents and migrants, and discover how we can assist both migratory and resident birds year-round. Students will learn about the journey of a famous Snowy Owl named Baltimore, and “practice” migration with an a-maze-ing worksheet and/or an interactive group movement game!

## **The Bird–Dinosaur Connection**

Discover how the lineage of dinosaurs led to modern day birds, dispelling a myth that all dinosaurs were once reptiles. We will compare the many features shared between feathered dinosaurs and modern birds by examining a full-scale fossil replica of Archaeopteryx! Students will color a feathered dinosaur-bird illustration and/or create their own feather fossils in clay. Optionally, educators may also elect to participate in an additional scientific “Prehistoric Predictions” activity encouraging students to observe and document the hatching of miniature dino eggs overnight!

## **Sounds & Songs**

Tweet, tweet! Have you heard the nesting bird? Explore the fascinating world of birdsong, including how sounds are made by humans and birds, why birds use sound to communicate, and the ways in which calls and songs differ. We will practice learning sounds using a special technique called “mnemonics” and discover that some birds actually imitate others! Students will reinforce their knowledge with a follow-up worksheet and test their sound-sleuthing skills in a fun guessing activity.

## **Nature’s Nests**

By observing an exceptional collection of actual preserved nests, students will learn what a nest is (and is not!) by considering the many types of nests found in nature. Discover why birds build nests, what types of materials they are made of, and how humans can respect and protect nests in the wild. This lesson concludes with a nest matching worksheet and/or an interactive game of “Nest & Egg” bingo with optional prize stickers.

## **Exceptional Eggs**

Why do birds lay eggs? Explore what types of animals do and do not lay eggs, why birds do not give birth to live young, how parent birds keep their eggs warm, and how baby birds synchronize hatching. Students will examine real and replica bird eggs, observing how egg color, shape, and size can vary depending on habitat and predation pressure. Finally, we will learn how one bird even lays its eggs in the nests of others! Students will complete a follow-up worksheet and create their own “nest of eggs” as a craft.

## **Toes & Talons**

Let's learn about the fascinating ways that birds use their feet, from perching to grasping to climbing! Using both real specimens and imprints preserved in plaster, we will observe how birds' legs and feet have led to special adaptations and advantages in nature. Students will practice matching birds to their feet in a worksheet activity and may conclude by making their own clay bird tracks from resin foot casts.

## **Beaks, Food & Feeders**

By observing an incredible array of bird skulls, students will discover that studying a bird's beak can help to predict what that bird eats and where it lives! Learn about different types of bird feed and how to offer seasonal food like seed, suet, nectar, and even oranges throughout the year. Students will practice drawing beak shapes through a series of connect-the-dots worksheets and solve a riddle based on their work.

## **The Preservation of Parrots**

This lesson focuses on the theme of conservation, exploring how human activity can threaten or extinguish an animal species. After learning many fun facts about parrots—including what they eat, where they live, and how they think—students will discover why parrots are not ideal pets and why their wild populations are declining. After learning how we can assist in parrot conservation, students will honor the extinct Carolina Parakeet with a coloring worksheet, make a paper plate parrot craft, and take home their very own parrot feather!

## **Birds of Prey**

Did you know that the Peregrine Falcon is the fastest animal in the world? Learn how birds of prey are different from songbirds by examining six unique features and adaptations of raptors found within the state of Pennsylvania! Students will also learn why raptors are important to our ecosystem and how they function as an indicator species. They will then review raptor adaptations through a crossword puzzle worksheet and create "flying hawks" as a craft activity.

## **Amazing Owls**

Owls are amazing! We'll examine the many adaptations owls have to assist them with hunting, including special feet, fringed feathers, silent flight, incredible eyesight, and amazing hearing! Students will examine real owl pellets, Great Horned Owl specimens, explore an owl word search worksheet, and create miniature owls out of cardboard tubes.

## **A Celebration of Birds**

To celebrate the completion of at least five avian-themed classroom curricula, this special activity day includes the review of 25 bird species, two engaging bird puzzles, whimsical bird coloring pages, a colorful assortment of crayon rubbings, a group game of "True or False," and the creation of bird necklaces identifying students' favorite birds and facts.



## **Wetland Discoveries**

Discover the wonder of wetlands! We will investigate the differences between marshes, swamps, and bogs, learn how water and nutrients are carried throughout each ecosystem, and examine why wetlands are so important to both animals and people. Students will discuss several plant and animal discoveries they could find within a wetland, as well as practice this knowledge with a narrative work-sheet and/or a “wetland web” game demonstrating ecosystem connections.

## **Color & Camouflage**

Explore the magic of camouflage in nature! Learn how and why animals defend themselves, how color can warn or attract, and how different types of mimicry work in the wild. Students will help a chameleon blend in through a lesson worksheet, match animals to their skin through an innovative matching game, and test their sleuthing skills in a fun game of “I Spy” from the book *Animal Camouflage: A Search and Find Activity Book* by authors Sarah Dennis and Sam Hutchinson.

## **Rescue & Rehabilitation**

Sometimes animals need to be rescued! Discover the ways a local wildlife rehabilitator, Robyn Graboski of Centre Wildlife Care, helps animals in need. Learn how and when animals should be rescued and what we can do to assist wild animals that need our help! This lesson includes several touching video clips showing real rescue in action across various North American wildlife rehabilitation centers.

## **Fantastic Frogs**

*Ribbit, ribbit!* This frog-tastic program explores the wonderful world of frogs! We’ll learn the four stages of frog development through a unique life cycle called metamorphosis, how amphibians are adapted to live in aquatic habitats, how frog biology helps them to adapt to living on both land and in water, and why many frogs today are endangered. Students will “hop” around a mathematical worksheet and engage in a colorful dart frog matching activity. This program may include a live animal.

## **Spectacular Snakes**

Although snakes have a reputation as a scary reptile, this program seeks to teach students how friendly and helpful they really are! Students will learn about common snake species of Pennsylvania, including which are venomous and how to respect snakes in the wild. We will discuss snake adaptations like how they move, hunt, eat, shed, and taste the air through a special organ in their mouth. Finally, we will discuss the psychology of why humans are often afraid of snakes and how they are mischaracterized in popular culture. The program concludes with a “Make-A-Snake” worksheet and snake word search. This program may include a live animal.

## **Reptile Meet & Greet**

Have you ever petted a python? Been fascinated by a frog? Laughed at a lizard? This special herpet-ology program allows audiences to meet three live reptiles and amphibians selected by Discovery By Nature and explore fascinating hands-on specimens like snake skins and frog skeletons. Guests are encouraged (but never required) to interact with these educational ambassadors, with the goal of fostering appreciation and respect for their wild counterparts. Please note that this program is designed as an alternative to otherwise normally pre-structured lessons; the information presented during Meet & Greet encounters is participation-based and will be different every time!



Stay tuned for exciting new programs!

### **Habitat Connections**

**Leapin' Lizards**

**Terrific Turtles**