

Exploring Birds

60 Minute Life Science Lesson

IVC Program

Grades: 1-4

TEACHER GUIDE

Exploring Birds

Description

The Exploring Birds program provides the students the opportunity to uncover the adaptations a bird has that allows it to interact with its environment in a unique and successful way. Students will explore animal senses in order to make connections to multiple adaptations and traits that are special to birds. Each program is customized, based on the grade level of your group.

Objectives

- Students will be able to identify what differentiates a bird from the other animal groups based on their characteristics
- Students will be able to identify adaptations a bird has in relation to the five senses and how they help them survive
- Students will be able to observe a bird and determine how it interacts with its environment

Before Your Museum Virtual Visit

If this will be your first virtual visit to the Museum for your students, you may want to review the following:

- What is a Museum?
- What is our purpose for visiting The Cleveland Museum of Natural History?
- Introduce the vocabulary and additional resources provided below.

Ohio's Learning Standards

Grade 1: Life Science - Basic Needs of Living Things

- Living things have basic needs, which are met by obtaining materials from the physical environment
- Living things survive only in environments that meet their needs

Mathematics Criteria Area 1

- Developing understanding of addition, subtraction, and strategies for addition and subtraction within 20

English Language Arts

- RI.1.3. Describe the connection between two individuals, events, ideas, or pieces of information
- SL.1.2. Ask and answer questions about key details in a text read aloud or information presented in various media and other formats (e.g., orally)

Grade 2: Life Science - Interactions within Habitats

- Ecosystems are sustained by the balanced interactions between its biotic and abiotic factors
- Just as living things impact the environment in which they live, the environment impacts living things.
- Living things cause changes on Earth
- All organisms alive today result from their ancestors, some of which may be extinct. Not all kinds of organisms that lived in the past are represented by living organisms today

Mathematics Criteria Area 2

- Building fluency with addition and subtraction

English Language Arts

- RI.2.3. Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text
- SL.2.2. Retell or describe key ideas or details from a text read aloud or information presented in various media and other formats (e.g., orally)

Grade 3: Life Science - Behavior, Growth and Changes

- Plants and animals have life cycles that are part of their adaptations for survival in their natural environments
- Organisms' physical and behavioral traits affect their ability to survive and reproduce
- Differences in inherited traits give some individuals an advantage in surviving and/or reproducing

Mathematics Criteria Area 1

- Developing understanding of multiplication and division and strategies for multiplication and division within 100

English Language Arts

- RI.3.9. Compare and contrast the most important points and key details presented in two texts on the same topic
- SL.3.3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

Grade 4: Life Science – Earth's Living History

- Suitable habitats depend upon a combination of biotic & abiotic factors
- Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful
- Fossils can be compared [to one another and] to present-day organisms according to their similarities and differences

Mathematics Criteria Areas 1 and 2

- Developing an understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends as part of effectively and efficiently performing multi-digit arithmetic
- Developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers

English Language Arts

- RI. 4.6. Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in perspective and the information provided
- SL.4.3. identify the reasons and evidence a speaker provides to support particular points

Vocabulary

abiotic - non-living chemical or physical parts of the environment, not derived from living organisms

adaptation – an alteration that an animal develops to help it survive

aquatic – an organism that lives in or near water

biologist – a person who studies plant and animal life

biotic - living components of an environment, relating to or resulting from living things

bird – an egg-laying animal with warm blood and feathers

carnivore – an animal that eats meat

diurnal – active during the daytime

domestic – animals that depend on people for food and survival (dogs, cows)

ecosystem – an energy processing system involving the interactions of the living and non-living parts of the environment

ectothermic – an animal that cannot regulate its own body temperature and its body temperature fluctuates according to its surroundings; an animal that is cold-blooded

endothermic – an animal that is dependent on or capable of the internal generation of heat; an animal that is warm-blooded

extinction - the process of no longer being in existence, no living members of a group or species

feather – the outer covering of birds and some dinosaurs

fossil record - the history of life on our planet as documented by fossils (remains or imprints of organisms from earlier geologic time periods)

habitat – the place where an animal lives the place in which animals live, reproduce and find food, water and shelter

herbivore – an animal that feeds primarily on plants

hibernation – deep winter sleep in which the animals lives off stored fat and slows its metabolism

invertebrates – animals without backbones

migration – periodic or seasonal travel of a group of animals from one area to another

nocturnal – active at night

omnivore – an animal that readily eats both plants and meat

raptor – a bird of prey, such as a hawk or owl, that catches food with TALONS, the claws of raptors

terrestrial – living on land

vertebrates – animals with backbones



wild – surviving with their own skills, instincts and experience

zoologist – a person who studies animals

Extension Activities

1. Use the outdoor spaces available to you to bring attention to the world of nature outside your classroom. Take a nature walk and record your observations.
 - Do this at different seasons of the year. Do you observe things that are similar? Different?
 - Do you see any bird species? If so, what adaptations do you notice about them? How are they behaving?
 - Do you see multiple birds? How are they interacting with one another? How are they interacting with their environment?
 - As you walk, look for evidence of human-environment interactions. What are those interactions and would they be beneficial or harmful to the plants and animals living in/around those spaces?
2. Show photos of native Ohio birds and of non-native birds. Name and discuss the ones children are familiar with and introduce those they may not know. Encourage students to choose an unfamiliar native Ohio bird to learn more about. What role does it serve in Ohio habitats/ecosystems? How have human actions influenced this organism's ability to survive and thrive?
3. Create a class life list: Scientists often track the different plants and animals they see as they move through their day to document the variety of life where they are. Compile a life list of different species students observe around school and/or home. The list may include vertebrate and invertebrates. Take data such as the time of day it was observed, the habitat it was using, what behavior it was doing, the date visited, the temperature, the weather, etc. If possible, take pictures of the organisms that students see & share those observations on iNaturalist.
4. Set up a bird feeder outdoors and observe the different birds or other animals using the feeder. Do some animals/birds dominate the feeder and chase others away? Are there different behaviors between male and female? Over a period of days try changing the type(s) of seed(s) or other foods (ex. Sunflower seed, millet or suet). Predict whether or not the same animals use the food or different ones. Track the birds that you see visiting your feeders & submit your findings to eBird. You can also register your feeder with Cornell Lab of Ornithology's Project FeederWatch and participate in an international citizen science project.
5. Some wildlife may not be observed readily, but leave signs and clues that they were around. Explore tracks, fur, feathers, droppings, and places where the animals may have been feeding for clues as to what animals were around.
6. Draw or take photographs of the plants that are growing in the area that wildlife may or have used. Are the plants bitten? Are there holes in leaves? Can you determine what type of animal was eating or using the plant material from the type of damage left behind? Share with students evidence of boring insects, galls, leaves that have been nibbled, etc. What clues do these pieces of evidence reveal about the animals living in this area?



Online Resources for Teachers and Students

Click the link below to find additional online resources for teachers and students. These websites are recommended by our Museum Educators and provide additional content information and some fun, interactive activities to share with your class.

CMNH Educators regularly review these links for quality. Web addresses often change so please notify us if any links have issues.

Cleveland Museum of Natural History <https://cmnh.org/edlinks>

Educator Resource Center (ERC)



Educator Resource Center
CLEVELAND MUSEUM OF NATURAL HISTORY
Celebrating 30 years of supporting science education

The Educator Resource Center is dedicated to providing teachers with the classroom resources and professional development they need to create dynamic, enriching, and inquiry-based experiences for their students. Contact the ERC at 216-231-2075 for information on individual or school membership and/or to schedule an appointment to borrow materials. Visit the ERC website for more information on workshops <https://www.cmnh.org/educator-workshops>

ERC Hours

- By Appointment Only Curbside or Browsing Appointments
- **Wed, Thurs & Fri 2 pm to 5 pm**
- Call or email (erc@cmnh.org) to schedule an appointment
- Closed major holidays & some Professional Development days.

Materials for Loan

With close to 100 dioramas and over 130 thematic teaching kits, our lending library has the materials you need to make science come alive for your students.

If you're interested in additional resources be sure to browse our lending library collection at <https://cmnherc.myturn.com/library/>



Educator Professional Development

Get connected to trending teaching methods, best practices in science education, and hot topics in current scientific research.

To learn more visit

<https://www.cmnh.org/learn/educator-resource-center/educator-workshops>

Email inquiries to erc@cmnh.org or call 216-231-2075 to speak with an ERC staff member.

