



FOR THE BIRDS

Teaching Unit

Grade 3-5

www.massaudubon.org/education

Birds have always inspired us by their songs, their ability to fly, their seemingly infinite variety of size, shape, and color, their many remarkable adaptations, and their always fascinating and sometimes bizarre courtship rituals. By observing and learning about birds outside the classroom and in the local community, students can acquire and increased understanding about the lives of birds, as well as the animal kingdom, in general.

This unit is ideally co-taught with a parent volunteer or other person who is already interested in birds or else is simply a nature enthusiast.

Effective nature exploration is somewhat dependent upon time of year, weather conditions, and what you hope to observe. Often, however, one observes different wildlife than expected which is one of the things that makes nature observation such fun. Outdoor natural history observations and lessons often present wonderful teaching moments that are unexpected or not planned. Enjoy these moments and relish the unexpected!

Lucy Gertz
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Unit Introduction

Massachusetts Curriculum Frameworks supported in this unit

Lesson One - Introduction to Birds

Activities:

1. What makes a bird a bird? (Reading, prompted group discussion, manipulatives, a designed project)
2. Try being a bird (Gross motor, sensory skills, role play activities, outdoor exploration and observation)
3. Get to know a bird (Collect information, complete a worksheet, present to class)

Lesson Two - Birds in the School Yard

Activities:

1. What do birds need? (Prompted discussion, design projects)
2. Exploring the school yard – “Bird Behavior Bingo”

Lesson Three - A School Yard Bird Feeding Station

Activities:

1. How birds eat (Prompted discussion, manipulatives, role-playing)
2. Setting up a school yard bird feeder
3. Observing birds at the school yard feeder

Lesson Four - Observing Birds near Home

Activities:

1. Bird observation week
2. Reporting

Do More - Ideas for Extending this Unit



Massachusetts Curriculum Frameworks and Learning Standards supported in this lesson

Framework	Strand	Topic	Learning Standards
Science & Technology	Life Science	Characteristics of Living Things	3-5 Life Science #1 Classify plants and animals according to the physical characteristics that they share.
Science & Technology	Life Science	Structures and Functions	3-5 Life Science #3 Recognize that plants and animals go through predictable life cycles that include birth, growth, development, reproduction, and death.
Science & Technology	Life Science	Adaptation of Living Things	3-5 Life Science #6 Give examples of how inherited characteristics may change over time as adaptations to changes in the environment that enable organisms to survive.
Science & Technology	Life Science	Adaptation of Living Things	3-5 Life Science #7 Give examples of how changes in the environment (drought, cold) have caused some plants and animals to die or move to new locations (migration).
Science & Technology	Life Science	Adaptation of Living Things	3-5 Life Science #8 Describe how organisms meet some of their needs in an environment by using behaviors in response to information received from the environment. Recognize that some animal behaviors are instinctive and others are learned.
Science & Technology	Life Science	Adaptation of Living Things	3-5 Life Science #9 Recognize that many animals can survive harsh environments because of seasonal behaviors.
Science & Technology	Life Science	Energy and Living Things	3-5 Life Science # 11 Describe how energy derived from the sun is used by plants to produce sugars (photosynthesis) and is transferred within a food chain from producers (plants) to consumers to decomposers.
Science & Technology	Phys Science	Light Energy	3-5 Physical Science #12 Recognize that light travels in a straight line until it strikes an object or travels from one medium to another, and that light can be reflected, refracted, and absorbed.
Science & Technology	Technology & Engineering	Engineering Design	3-5 Technology & Engineering # 2.4 Compare natural systems that are designed to serve similar purposes, e.g., a bird's wings as compared to an airplane's wings.
English Language Arts	Language	Questioning, Listening, and Contributing	PreK-12 Language #2: Students will pose questions, listen to the ideas of others, and contribute their own information or ideas in group discussions or interviews in order to acquire new knowledge.
Arts	Visual Arts	Observation, Abstraction, Invention, and Expression	PreK-12 Visual Arts #3: Students will demonstrate their powers of observation, abstraction, invention, and expression in a variety of media, materials, and techniques



Lesson One - Introduction to Birds

Through reading, referring to images, and prompted discussions, students will identify the main physical traits and characteristic behaviors and adaptations of birds. By manipulating feathers, students will be introduced to these unique body parts which distinguish birds from other animal groups and enable them to survive. By participating in movement and role-playing activities, students will attempt to mimic and experience some of the distinctive physiological traits and behaviors of birds. By completing a worksheet, students will distinguish the physical and behavioral characteristics of two species of common schoolyard birds. Students will reinforce that understanding by presenting information to the class and will learn about other birds commonly seen in the schoolyard by listening to other students' presentations.

Lesson Objectives

Students will know and be able to:

- Learn about the physical characteristics of birds and classify birds according to the physical characteristics that they share.
- Give examples of how changes in the environment (drought, cold) have caused some birds to die or move to new locations (migration).
- Describe how birds meet some of their needs in an environment by using behaviors in response to information received from the environment. Recognize that some animal behaviors are instinctive and others are learned.
- Give examples of how inherited characteristics may change over time as adaptations to changes in the environment that enable organisms to survive.
- Recognize that many animals can survive harsh or specialized environments because of adaptive behaviors.
- Recognize that when light strikes a feather, it is reflected, refracted, and absorbed, thereby changing the appearance of the feather's color.
- Compare natural systems that are designed to serve similar purposes, e.g., a bird's wings as compared to an airplane's wings.
- Students will pose questions, listen to the ideas of others, and contribute their own information or ideas in group discussions or interviews in order to acquire new knowledge.
- Explain why birds migrate, describe some of the challenges migrating birds face, and how people can help them



Activity Set #1 – What Makes a Bird a Bird?

Materials and Resources

- Various printed images of birds and other animals, from calendars, posters, or magazines
- Any field guide or laminated field sheet of birds that includes Massachusetts. We recommend “A Guide to Backyard Birds of Eastern North America” published by Massachusetts Audubon Society: www.massaudubon.org/shop/guides
- For background reference: “The Birdwatcher’s Companion to North American Birdlife” published by No. Princeton U. Press, written by Chris Leahy: www.amazon.com/Birdwatchers-Companion-Christopher-Leahy/dp/0517189089
- Images of Massachusetts birds printed from online sources such as Google Images
- Bird song recordings (optional)
- Index cards and pencils (one for each student)
- Info about specific bird species –
 - www.allaboutbirds.org
 - www.massaudubon.org/Nature_Connection/wildlife/common_birds.php
 - www.wildbirds.com/IdentifyBirds/CommonFeederBirds/tabid/674/Default.aspx
- To look up the conservation status of Massachusetts bird species; www.massaudubon.org/StateoftheBirds/findspecies

Vocabulary

Adaptation
Physiology/Anatomy
Behavior
Beak

Bill
Feather
Preening
Wings

Flight
Wingspan



Procedures

1. Distinctive characteristics of birds

Have students read a non-fiction chapter, story, or article about birds and look through some field guides and laminated field sheets of Massachusetts birds. Show various bird images and lead a prompted discussion for the students to name the physiological characteristics that distinguish birds from other animals: feathers, bills/beaks, wings, hollow bones. Prompt the students to identify the behaviors that distinguish birds from other animals: flight, birdsong, migration, nest-building, etc.

2. Feathers

Give a few different feathers to each student or small group of students. Have them spend a few minutes examining the feathers. Explain what feathers do for birds:

- insulate birds from water and cold temperatures
- may be plucked to line the nest and provide insulation to the eggs and young
- individual feathers in the wings and tail play important roles in controlling flight
- some species have a crest of feathers on their heads for display and recognition
- the color patterns of feathers serve as camouflage

Have the students look at each feather using magnifying lenses if available. The shaft of the feather is like the trunk of a tree with the barbs of the vane coming off of it like branches. Each barb is lined with barbules that hook to other barbules. Barbules work a bit like Velcro. Students can try splitting the feather's barbs apart, and then try to comb them back into place using a pencil as a "beak." Birds constantly clean and repair their feathers; this is called "preening"

If you find a blue jay feather outside, have the students experiment with light and refraction. When light shines on a blue jay feather, it looks blue. But if students block the light, by shading the light or by holding the feather so that light does not strike it directly, the feather will appear to change color from blue to gray. Scientists think that bird feathers appear blue for the same reason that the sky looks blue. Blue is a structural color (as opposed to pigmented colors like red and yellow.) In bird feathers, the color blue is generated by light interacting with a feather's unique physical arrangement of shapes, sizes, air pockets, and keratin. When you move a blue jay feather so that the light lands on it in a different way, the blue is no longer emitted and it seems to magically disappear!



3. Flight

Have your students spread their arms and measure their “wingspan” from the fingertips in one hand to the fingertips in the other hand. Compare their wingspan to the wingspan of the birds listed below.

Have your students try to “flap their wings” as fast as possible. Working in partners, have them count how many times they can flap their arms in a ten-second period. Compare their wingbeat speed to the birds listed in the chart below.

Bird	Wingspan - in inches	Wingbeats/10 seconds
Great Blue Heron	72	
Osprey	58-72	
Red-tailed Hawk	50	
Broad-winged Hawk	34	
Pigeon		30
Robin	24	23
Blue Jay	24	
Crow		20
Cardinal	12	
American Goldfinch	9	
Chickadee	7.5	270
Ruby-throated Hummingbird	4.5	700



Fun fact - Hummingbirds can fly forwards, backwards and can hover in midair. While hovering, a hummingbird beats its wings approximately 80 times per second!

Have your students design and make paper model birds, similar to paper airplanes. Go out into the schoolyard and flight-test them. Encourage students to experiment with different materials, wing sizes, and shapes to achieve the greatest lift, the straightest flight, and the longest soaring distances. Discuss with students that there are different “ways” of flying: flapping flight, seabirds with long wings using winds, soaring birds needing lift.



Activity Set #2 – Try being a bird

Materials and Resources

- Various printed images of birds and other animals, from calendars, posters, or magazines
- Any field guide or laminated field sheet of birds that includes Massachusetts. We recommend “A Guide to Backyard Birds of Eastern North America” published by Massachusetts Audubon Society: www.massaudubon.org/shop/guides
- For background reference: “The Birdwatcher’s Companion to North American Birdlife” published by No. Princeton U. Press, written by Chris Leahy: www.amazon.com/Birdwatchers-Companion-Christopher-Leahy/dp/0517189089
- Images of Massachusetts birds printed from online sources: Google Images
- Bird song recordings (optional)
- Index cards and pencils (one for each student)
- Project W.I.L.D. <http://projectwild.org/>

Vocabulary

Adaptation
Flight

Migration
Vocalization

Territory

Procedures

1. Physical characteristics and distinctive behaviors of birds

Show various bird images. Prompt the students to recall the physical characteristics birds share: feathers, bills/beaks, wings. Through a prompted discussion, have students review the distinctive behaviors of birds – singing, flight, migration, nest-building, etc.

2. Bird vision

Test how well students can read. Tape a message or word to a classroom wall and see who can read it. Raptors can see very accurately from great distances. How well can the students see?



3. Bird Vocalization

Birds vocalize to attract mates, to announce they are there, to claim mating territory, and to communicate warnings to other birds. Their call can be a song (series of phrases), a call (not musical), or an alarm note (short, urgent call). Bird vocalizations are made with the help of a syrinx, the vocal organ of a bird, usually situated near the junction between the trachea and bronchi. This organ is unique to birds and more versatile than our larynx. Play a recording of bird vocalizations and ask the students to determine if they are hearing a song, a call, or an alarm note. Ask the students to imitate the rhythm, pitch, and intonation as well as they can. Explain that bird songs are one way people identify birds and that the call of some birds sounds like their name (Chickadee and Jay for example.)

Give each student an index card and pencil and go out to the schoolyard. Have the students sit by themselves and listen. On their index card, they should draw or write the location and sound of each bird vocalization they hear. After 15 minutes, have the students come back together and share the sound maps they made. The students can try to determine if the vocalizations they heard were songs, calls, or alarm notes. They can also try to determine how many individual birds were making the vocalizations.

Other bird vocalization activities:

- Clocked bird chorus – This chorus activity helps students understand that each species has its own song and favorite time to sing (from VINS Hands On-Nature).
- Find your match: Hand out two sets of laminated bird cards. One group hides in woods and makes the sound of their birds. The second group must find their matches based on the songs.
- Bird song card game: Play bird songs while showing ID cards. Then hold up three cards and play one song. Can children identify which of three birds they are hearing? This can also be played with two teams for points.



Fun fact - Most of the bird songs we hear are males singing to attract female birds and to claim their territory.



4. Migration

Have a prompted discussion to see what the students know about migration. Show maps of routes and amazing distances travelled by birds. Some travel at night; others by day. Some travel 30,000 miles; others a few hundred miles or not at all. Discuss why some birds migrate and how some overwinter in Massachusetts (because they are able to find enough food here.) Some stay others arrive from further north.

Have students complete the migration maze to help each bird find a safe way to get its winter home.

Have students participate in the “Migration Headache” role-play activity from Project W.I.L.D.

Have students play “follow the leader: in a V formation, like migrating geese. Take turns being the leader

Activity Set #3 - Get to know a bird

Materials and Resources

- Various printed images of birds and other animals, from calendars, posters, or magazines
- Any field guide or laminated field sheet of birds that includes Massachusetts. We recommend “A Guide to Backyard Birds of Eastern North America” published by Massachusetts Audubon Society: www.massaudubon.org/shop/guides
- For background reference: “The Birdwatcher’s Companion to North American Birdlife” published by No. Princeton U. Press, written by Chris Leahy: www.amazon.com/Birdwatchers-Companion-Christopher-Leahy/dp/0517189089
- Images of Massachusetts birds printed from online sources: Google Images
- Bird worksheets – one copy for each student
- Info about specific bird species –
 - www.allaboutbirds.org
 - www.massaudubon.org/Nature_Connection/wildlife/common_birds.php
- *Hands On Nature* - This great book can be purchased at shop.vinsweb.org/browse.cfm/4,18.html
- Mass Audubon’s State of the Birds: www.massaudubon.org/StateoftheBirds



- *Tanglebird*, by Bernard Lodge (about building nests)
- *Feathers for Lunch*, by Lois Ehlert (great colorful art for help with ID and lists some bird calls)
- *Have you seen Birds*, by Barbara Reid (helpful for common birds around town)

Vocabulary

Species

Coloration

Adaptation

Nest

Habitat

Migration

Conservation

Procedures

1. Focus on one bird

Have each student select two different kinds of birds to study. Give each student two copies of the Bird Worksheet. Instruct the students to complete their bird worksheets, referring to a field guide or other information resources to accurately color the male and female birds and eggs. Using a field guide, websites, books, or other reference materials, have students look up information about the bird species they are studying and complete the worksheets.

- What they eat
- Their habitat (in the woods, near a pond, in a meadow, etc.)
- Where they live (nests on the ground, in a tree cavity, on a branch, for example)
- If they live in Massachusetts year-round or if they migrate to live elsewhere in winter
- The conservation status of the two bird species; www.massaudubon.org/StateoftheBirds/findspecies

2. Share what you have learned

Have each student present their completed worksheets and share some of the information they have learned about the two bird species they chose. Students can describe how the female birds and eggs are camouflaged.



Fun fact - Of the 9000+ different species of birds in the world, approximately 300 are regularly seen in Massachusetts.





Mass Audubon
Protecting the Nature of Massachusetts

Migration Maze

Help this warbler find its way to its winter home.



Watch out for tall buildings!



A tropical storm blows him off course!



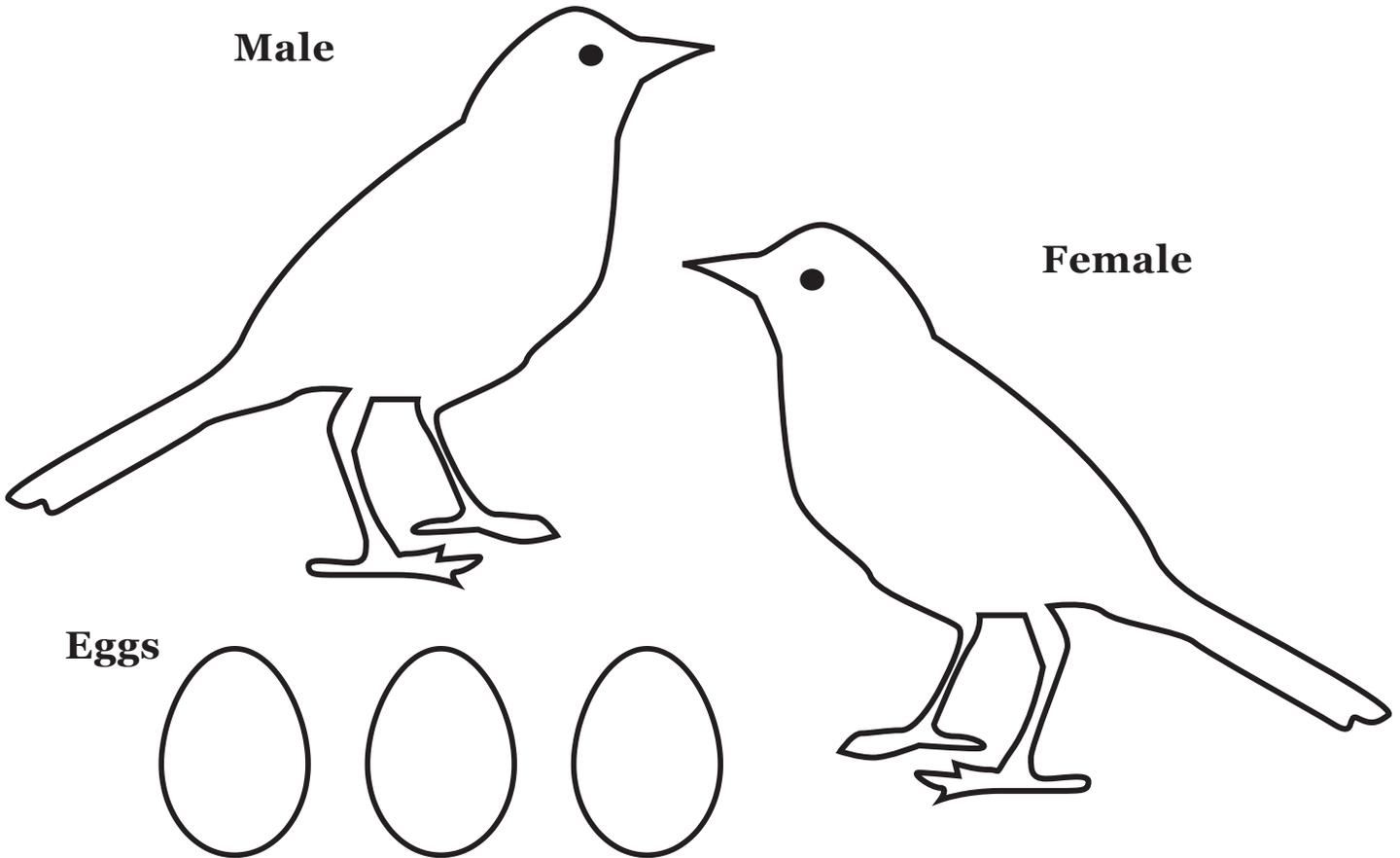
Careful - the falcon is hungry!



The warbler made it to its South American winter home!



Bird Worksheet



Name of Bird _____

Habitat _____

What kind of nest it builds _____

Where does this bird spend the winter? _____

Food this bird eats _____

Conservation Status in Massachusetts _____





Lesson Two - Birds in the School Yard

Through reading, visual presentations, and prompted discussions, students will review the distinctive physical traits and behaviors and adaptations of birds. Students will review the concept of habitat as a place where an animal can find everything it needs (food, water, shelter, air, and space.) Students will be introduced to a variety of nests and nesting resources and will design, build, and test a sturdy nest. Students will learn how to behave to maximize their chances of observing animals in the schoolyard and elsewhere and they will observe birds and bird habitat resources in the schoolyard.

Lesson Objectives

Students will know and be able to:

- Learn about the physical characteristics of birds and classify birds according to the physical characteristics that they share. Some birds look alike, but aren't related (convergence) while others look very different but are related.
- Give examples of how changes in the environment (drought, cold) have caused some birds to die or move to new locations (migration).
- Describe how birds meet some of their needs in an environment by using behaviors in response to information received from the environment. Recognize that some animal behaviors are instinctive and others are learned.
- Recognize that many animals can survive harsh or specialized environments because of adaptive behaviors.
- Students will pose questions, listen to the ideas of others, and contribute their own information or ideas in group discussions or interviews in order to acquire new knowledge.



Activity Set #1 – What birds need to survive

Materials and Resources

- Various printed images of birds featuring shelters (nests, habitats, nesting boxes) and feeding behaviors (birds catching food, eating, feeding young) from calendars, posters, magazines, or online sources
- Any field guide or laminated field sheet of birds that includes Massachusetts. We recommend “A Guide to Backyard Birds of Eastern North America” published by Massachusetts Audubon Society: www.massaudubon.org/shop/guides
- For background reference: “The Birdwatcher’s Companion to North American Birdlife” published by No. Princeton U. Press, written by Chris Leahy: www.amazon.com/Birdwatchers-Companion-Christopher-Leahy/dp/0517189089
- A story for students to read. One suggestion is *Stellaluna* by Janell Cannon
- Nest building materials– sticks, dried plant materials, leaves, string, yarn, etc. These can be collected around the schoolyard by the students, or they can be brought in by the teacher or volunteer.
- Mass Audubon’s State of the Birds: www.massaudubon.org/StateoftheBirds

Vocabulary

Adaptation
Physiology/Anatomy
Behavior

Shelter
Habitat
Camouflage

Nest

Procedures

I. What birds need to survive

Optional – have students read a story such as *Stellaluna* by Janell Cannon. Lead a prompted discussion of what we need to survive – food, water, a place to live, adults to care for us, staying safe and clean, etc. Using the various printed images of birds featuring shelters, lead a prompted discussion of what birds need to survive – food, water, parental care, and shelter. Introduce the word habitat to describe a place where a bird can find everything it needs (food, water, shelter, air, and space) and give examples of habitats - meadows, forests, marshes, schoolyards, and backyards. Name three things that are caused by people that can injure or kill birds (cars, towers, pesticides, habitat loss)



2. Nests

Explain that building and maintaining housing is a distinctive behavior and survival strategy birds work at all the time. Explain that birds need nests to shelter and protect their eggs and hatchlings. Show images of various types and sizes of nests – woven sticks and plant materials, baskets, tunnels, mounds, etc. Discuss that nests are made of many different materials – sticks, stems, leaves, sand, mud, pine needles, moss, hair or fur, bark, spider web silk, etc. depending on what is available in a bird's habitat and how that species of bird has evolved. Explain that birds nest on the ground, in the branches of living trees and shrubs, in holes and cavities in both living and dead trees, in nest boxes people provide in and on buildings, and sometimes in the nests of other birds, and sometimes in no nest at all.

Introduce some of the nesting habits of Massachusetts birds:

- **Eastern Phoebe** (*Sayornis phoebe*) We often enjoy the opportunity to closely watch phoebe hatchlings in one of their well-constructed semi-circular nests, made of mosses, grasses, fibers, and mud pellets, mounted atop a window, beam, or other shelf-like projection.
- **Baltimore Oriole** (*Icterus galbula*) These intricately woven, silvery-colored, deep pouches are often attached to the drooping branches of tall elms, sycamores, cottonwoods, and maples.
- **Ruby-throated Hummingbird** (*Archilochus colubris*) These tiny nests are difficult to spot, not only because of their one-inch size, but also because the outside is typically covered with greenish grey lichens. When viewed from the ground, they resemble mossy knobs on tree limbs.
- **Black-capped Chickadee** (*Poecile atricapillus*) These familiar birds nest in cavities. They either excavate soft rotting wood or utilize an abandoned woodpecker hole. They will also nest in a bird box if it is located 4-10 feet above ground and has an entrance hole slightly less than 1.5 inches in diameter.
- **Killdeer** (*Charadrius vociferous*) These insect-eaters run through grassy fields and paved parking lots to stir up insects. They often scrape nests on the grass, or gravel, and on flat rooftops.
- **Piping Plover** (*Poecile atricapillus*) These small but mighty shorebirds tuck their eggs into depressions in sandy beaches. Their camouflaged nests and eggs also put them at risk of being crushed under the feet and tires of beachgoers.

Using the nest building materials, have each student (or small group of students) design and build a sturdy bird's nest. Test the sturdiness of the nests by creating stormy conditions (blowing on them, pouring water on them, dropping them on the ground as if they have been blown from a tree during a windstorm, etc.)



When nest-building with students, it may be helpful to provide a base structure such as a paper bag or bowl. After gathering materials for nests, mud may be used as the ‘glue’ for the rest of the materials. Students can also make simple nests in a sand pit/digging area to learn how this is done by some ground nesting birds.

3. Camouflage

Through a prompted discussion, introduce the importance of camouflage for keeping birds safe, and for helping birds catch their food. Review what the students learned when completing their bird species worksheet – that male birds are often quite showy and colorful and female birds are often quite camouflaged. Male ducks change into “camouflage” for safety in summer when they lose their flight feathers.

Have the students design and illustrate a well camouflaged bird in its nest and/or habitat. These can be real birds (using a field guide or other reference sources) or imagined birds. When these illustrations are completed, have the students display and explain their camouflaged bird.

Activity Set #2 – Exploring the School Yard

Materials and Resources

- Any field guide or laminated field sheet of birds that includes Massachusetts. We recommend “A Guide to Backyard Birds of Eastern North America” published by Massachusetts Audubon Society: www.massaudubon.org/shop/guides
- Copies of Bird Bingo “Schoolyard Bird Safari” (one card for each student)
- Pencils
- For background reference: “The Birdwatcher’s Companion to North American Birdlife” published by No. Princeton U. Press, written by Chris Leahy: www.amazon.com/Birdwatchers-Companion-Christopher-Leahy/dp/0517189089

Vocabulary

Habitat

Adaptation

Behavior

Niche

Nest

Vocalization

Territory

Physiology

Shelter

Camouflage



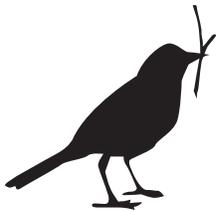
Procedures

I. Bird Behavior Bingo

Explain to the students that the class will be going out to the schoolyard to look for birds, signs of birds, and things birds need in their habitats. Ask students how they think they should behave if they expect to see birds in the school yard. Encourage the students to step slowly and quietly, using their ears as much as their eyes, and “freezing in place” if they see or hear a bird.

Take a walk around the schoolyard and look and listen for birds. If there are any birds, stop and observe them for as long as possible.

Give each student a Bird Behavior Bingo card and a pencil. After the students have spent time in the schoolyard (or surrounding area, if appropriate) observing as many of the ‘bingo’ things as they can bring them back together. In a facilitated group discussion, have the students orally share what they observed.



Fun facts

Birds build nests with their beaks and feet!

A Bald Eagle’s nest is added to each year and may get to weigh more than a ton. These nests can reach 20 feet in depth!



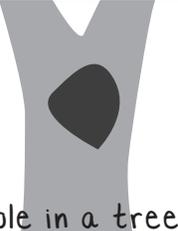
Fun fact - You will see more songbirds in early morning and early evening.

During the day, many birds will rest, staying sheltered and hidden from sight.



Bird Behavior

ABINGO

<p>Perching Bird</p> 	 <p>Molted Feather</p>	 <p>Berries</p>	 <p>Collecting Nest Material</p>	<p>Food for an Insectivore</p> 
<p>Soaring Bird</p> 	 <p>Signs of a Woodpecker</p>	<p>Wading Bird</p> 	<p>Raptor Prey</p> 	<p>Food - a nut</p> 
 <p>Material for Nest Building</p>	 <p>Bird Call</p>	<p>Free Space</p>		 <p>Hole in a tree</p>
<p>Singing bird</p> 	<p>Food for an Insectivore</p> 	 <p>Seeds</p>	<p>Shelter for a Bird</p> 	<p>Hiding Bird</p> 
 <p>Hummingbird Food</p>	 <p>Swimming bird</p>	 <p>Nest</p>	 <p>Flying Bird</p>	<p>Bird Food</p> 





Lesson Three - A School Yard Bird Feeding Station

Through a presentation of images and prompted discussion, students will be introduced to the diets of birds and how the variety of bird beaks relates to bird diet. Students will compare their own diets and the amount of food they eat to a bird's diet. Students will enter the bird world in their classroom through a learning activity linking beak types to food sources. By manipulating a model of a bird's crop students will gain an understanding of bird digestion. Students will help set up one or more bird feeders in the school yard and observe and monitor the birds that visit the feeder, recording the avian visitors on a "Bird Feeder Observation Chart."

Lesson Objectives

Students will know and be able to:

- Name characteristics used to identify birds (color, size, beak type, song, behavior, etc.).
- Learn how birds meet their basic needs in order to survive through pictures, models, and observation of live birds in the schoolyard
- Understand bird adaptations and behaviors for feeding
- Be introduced to bird diets, beak variety, feeding adaptations, and digestion
- Learn about the physical characteristics of birds and classify birds according to the physical characteristics that they share.
- Describe how birds meet some of their needs in an environment by using behaviors in response to information received from the environment. Recognize that some animal behaviors are instinctive and others are learned.



- Students will pose questions, listen to the ideas of others, and contribute their own information or ideas in group discussions or interviews in order to acquire new knowledge.
- Learn about the physical characteristics, behaviors, and adaptations of common Massachusetts bird species
- Make an educated guess about a bird's diet based on the shape and size of its beak and other physical characteristics

Activity Set #1 – Eating Like a Bird

Materials and Resources

- Various printed images of birds featuring different beaks, feeding behaviors (birds catching food, eating, feeding young) from calendars, posters, magazines, or online sources
- Any field guide or laminated field sheet of birds that includes Massachusetts. We recommend “A Guide to Backyard Birds of Eastern North America” published by Massachusetts Audubon Society: www.massaudubon.org/shop/guides
- For background reference: “The Birdwatcher’s Companion to North American Birdlife” published by No. Princeton U. Press, written by Chris Leahy: www.amazon.com/Birdwatchers-Companion-Christopher-Leahy/dp/0517189089
- An identification guide of common feeder birds: www.wildbirds.com/IdentifyBirds/CommonFeederBirds
- Small Ziploc bags containing a few small stones and a few small pieces of softened birdseed
- One or more bird feeders
- Birdseed
- Birdfeeder observation sheets

Vocabulary

Habitat
Adaptation
Behavior

Nest
Feeding
Bill

Gizzard
Diet



Procedures

1. Eating like a bird

Lead a prompted discussion and make a list of the students' favorite foods and drinks. Using the various printed images of birds featuring feeding behaviors, discuss what birds eat – a variety of seeds, nuts, fruits, insects, small mammals, other birds, and fish. Many birds eat different things at different times of the year. Their nutritional needs vary from season to season based on their behavior. At certain times of the year, to fuel up for a long migration or to survive a cold winter season, some birds eat at least the equivalent of their body weight in a day.

Have the students calculate how many quarter-pound hamburgers they would need to eat if they were a bird eating the equivalent of their body weight to fuel up for migration:

_____ (student's weight in pounds) x 4 = _____ (number of ¼ -pound burgers they'd need to eat!)

Using the various printed images of birds featuring feeding behaviors, lead a prompted discussion of how birds' beaks come in all shapes and sizes enabling those birds to eat certain foods. Put out a "bird buffet" of gummy worms, goldfish crackers, raisins, and other foods safe for your students to eat. Provide "beaks" of tweezers, eye droppers, spoons, chopsticks, and drinking straws. Let your students experiment with beak adaptations by attempting to pick up the various foods with the various beaks. Make it extra challenging, by placing the food in cracks and crevices, under rocks, and hidden in places.

Give students a small Ziploc bag containing a few small stones and a few pieces of softened birdseed. By kneading the bag, students can see how a bird's gizzard grinds food that the bird has swallowed. Explain that we chew our food with teeth, but birds don't have teeth. That's why birds swallow their food whole without chewing.

2. Set up a schoolyard bird feeding station

Set up one or more bird feeders in the school yard. (If there is already an established bird feeding station in your school yard, you can simply use that.)

Have students observe and monitor the birds that visit the feeder. Students should record their avian visitors on the "Bird Feeder Observation Chart."



Fun fact - Wild birds eat mostly wild foods. Even birds that regularly come to a feeder get most of their food from their own habitats.





Lesson Four - Observing Birds near Home

In a prompted discussion, students will review what they have learned about birds— physical characteristics, basic needs for survival, behaviors and adaptations, and the individual traits of several species of birds observed in the schoolyard. This introduction into the world of birds will be extended beyond the schoolyard and into the students' neighborhoods. Family members or neighbors can be involved in this lesson, working with the students near home as needed so that the students can observe birds in their neighborhood for one week. By reporting back to the class, students will demonstrate what they have observed, learned, and now understand about bird identification, behavior, and adaptations.

Lesson Objectives

Students will know and be able to:

- Review the introductory information learned about birds in this unit
- Review their understanding of bird adaptations and behaviors
- Observe birds in their neighborhoods
- Identify birds, observe behaviors, and monitor bird activity in their neighborhood
- Complete bird observation worksheets and report back on the experience
- Learn about the physical characteristics of birds and classify birds according to the physical characteristics that they share.



- Describe how birds meet some of their needs in an environment by using behaviors in response to information received from the environment. Recognize that some animal behaviors are instinctive and others are learned.
- Pose questions, listen to the ideas of others, and contribute their own information or ideas in group discussions or interviews in order to acquire new knowledge.
- Learn about the physical characteristics, behaviors, and adaptations of two common Massachusetts bird species

Materials and Resources

- Any field guide or laminated field sheet of birds that includes Massachusetts. We recommend “A Guide to Backyard Birds of Eastern North America” published by Massachusetts Audubon Society: www.massaudubon.org/shop/guides
- For background reference: “The Birdwatcher’s Companion to North American Birdlife” published by No. Princeton U. Press, written by Chris Leahy: www.amazon.com/Birdwatchers-Companion-Christopher-Leahy/dp/0517189089
- “The Young Birders Guide to the Birds of Eastern North America” by Bill Thompson III (Peterson Field Guide Series)
- An identification guide of common feeder birds: www.wildbirds.com/IdentifyBirds/CommonFeederBirds
- Observation sheets
- To check for conservation status of a bird - www.massaudubon.org/StateoftheBirds/findspecies

Vocabulary

Observation
Monitoring

Conservation
Behavior



Procedures

1. Review what we have learned about the world of birds

In a prompted discussion, review what the students have learned about birds— physical characteristics, basic needs for survival, behaviors and adaptations, and the individual traits of several species of birds observed in the schoolyard. Explain to the students that this introduction into the world of birds will now be extended into their neighborhoods.

2. Observing birds in your neighborhood

Explain to the students that the class will be going out in their neighborhoods to look for birds, signs of birds, and things birds need in their habitats. Remind the students how their behavior will affect their success - stepping slowly and quietly, using their ears as much as their eyes, and “freezing in place” if they see or hear a bird will result in more bird observation opportunities.

Give each student a copy of the “Birds in my Neighborhood” worksheet. Using this worksheet, students will look for birds, nests, sources of food and water, places for shelter, and other things birds need in their habitats.

Encourage students to get up at dawn, at least once, and listen to the early morning chorus of bird songs. Ask them to record the time and calls of the earliest hours. Emphasize that they will hear significantly different bird activity at different times of day.

After a week, have the students present their completed worksheets and orally share what they observed in their neighborhoods.

Introduce students to eBird, an online bird listing for birders worldwide. Visit <http://ebird.org/content/ebird> for more information.



Fun fact - Bird watching is the fastest growing and most popular leisure activity in the U.S. Maybe your students will join this growing trend!



Do More

Possible extensions for this unit:

- Have a live bird brought to your classroom by a local bird rehabilitator or bird educator (For more information visit www.massaudubon.org)
- Go to a local wildlife sanctuary or wildlife rehabilitation center for a program with a naturalist or rehabilitator (For more information visit www.massaudubon.org)
- Take a field trip or invite a birder or naturalist to present a program and lead an outdoor experience in the schoolyard (For more information visit www.massaudubon.org)
- Maintain the bird feeding station beyond the duration of this unit and continue to monitor and observe the birds that visit
- Create a bird habitat or bird garden in your school yard or in your community
- Put nesting materials in the schoolyard and see if birds use them to build nests – colorful pieces of yarn or string, drier lint, etc.
- Find ways to help birds at home (For more information visit www.massaudubon.org). Birds need lots of help. Threats to birds include cats, windows, tall towers, cars, and pesticides. Look into local efforts to help birds and have students get involved in these efforts, at home, in school, and in the community.
- Keep a class list of all the birds seen during the unit and for the remainder of the school year (for a Massachusetts bird checklist, visit www.massaudubon.org)
- Read additional books about birds and bird conservation:
 - *She's Wearing a Dead Bird on Her Head* by Kathryn Lasky
- Have students write and perform stories, plays, poems, or puppets shows about birds
- Volunteer at a local bird watching or conservation event
- Lead bird walks for parents, younger students, others
- Enter class bird monitoring data in EBird or Mass Audubon's Birds to Watch database
- Pledge to keep birding!



Thanks to the following people who helped produce this teaching unit:

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Mass Audubon works to protect the nature of Massachusetts for people and wildlife. Together with more than 100,000 members, we care for 35,000 acres of conservation land, provide school, camp, and other educational programs for 225,000 children and adults annually, and advocate for sound environmental policies at local, state, and federal levels. Founded in 1896 by two inspirational women who were committed to the protection of birds, Mass Audubon is now one of the largest and most prominent conservation organizations in New England. Today we are respected for our sound science, successful advocacy, and innovative approaches to connecting people and nature. Each year, our statewide network of wildlife sanctuaries welcomes nearly half a million visitors of all ages, abilities, and backgrounds and serves as the base for our work. To support these important efforts, call 800-AUDUBON (800-283-8266) or visit www.massaudubon.org.

