



# OUR FEATHERED FRIENDS

## STEM Preschool Teaching Unit

Ages 2.9-5 years

[www.massaudubon.org/education](http://www.massaudubon.org/education)

**Y**oung children are naturally curious about birds, and all animals, and are delighted when they can observe birds up close. This unit offers several activities for observing birds and learning about birds, their habitats, their foods, and their behaviors. The investigations includes the following.

1. What do you know about birds?
2. What are feathers? How do they help birds?
3. How are beaks useful to birds? Why are they different?
4. What sounds do birds make? Are they all the same?
5. What are nests? How are they made? How do they help birds?
6. How do birds survive?
7. What is migration? Why do birds migrate? Do all birds migrate?

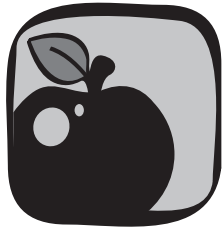
This unit is ideally taught with the involvement of a parent volunteer or other person who is already a birdwatcher or nature enthusiast.

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## What we strive for

At Mass Audubon we strive to create learning experiences that are enriching, innovative, meaningful, and engaging. Our preschool programs support Massachusetts Science, Technology, and Engineering Standards. Our network of wildlife sanctuaries and nature centers located in urban, suburban, and rural communities around the state enable us to develop, evaluate, and sustain nature-based early childhood education programs in all settings. We are fully committed to creating a positive and supportive learning environment that is inclusive, open to all learners, and sensitive to cultural diversity.

## Place-based learning

Place-based learning is an educational philosophy that connects learning to what is local to the learner. As children, we develop an understanding of where we are and what this place is like. It might be the child's backyard, local park, beach, forest, or meadow. By learning and understanding your own city, town, or neighborhood, as you grow you have the power and commitment to become an active part of that community.

## Play-based learning

Play-based learning in nature takes advantage of a child's innate curiosity in the world around them and, like all play-based learning utilizes discovery as a motivator in learning by supporting children as they choose activities that engage and match their own interests and ideas. Teachers create learning environments that encourage play and exploration in the natural world and even step aside to let a child engage directly with the wonder of nature to guide curriculum. Nature play encourages and provides opportunities for children to construct their own surroundings, design tools and materials, develop give-and-take of social relationships, and solve problems as individuals and part of a team.

## Inquiry-based learning

Inquiry-based learning is focused on teamwork, being learner centered, questioning ourselves and the world around us, providing a more focused time-intensive exploration, promoting lifelong learning, communication, and learning as fun.

## Embracing the serendipity of outdoor exploration

Nature exploration is dependent upon the weather and other conditions. A class might observe different wildlife than they expected to see. An outdoor lesson can sometimes provide unexpected but enriching teachable moments on a natural history topic that was not planned. Enjoy and celebrate the learning and discovery that nature will offer your classroom.

# Brain Building in Progress



## Building Young Brains and a More Prosperous Future For All

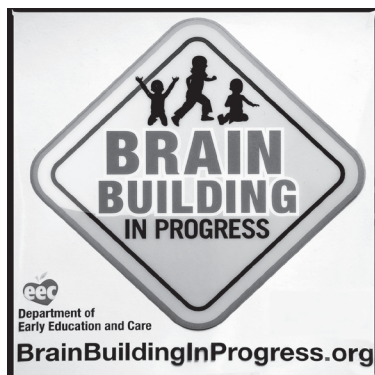
The Brain Building in Progress campaign is a public/private partnership of the Massachusetts Department of Early Education and Care, United Way of Massachusetts Bay and Merrimack Valley and a growing community of early education and child care providers, academic researchers, business leaders and individuals. Our work is based upon the latest science and research on early childhood development. Our mission is to raise awareness of the critical importance of fostering the cognitive, social and emotional development of young children by emphasizing its future impact on the economic prosperity of everyone in Massachusetts. We welcome the business, education, and policy-making communities, as well as members of the media to be part of this crucial venture. By giving a strong start to our youngest citizens, we create a stronger, more prosperous future for all.

Learn how you can take action for young minds and Massachusetts' future at [www.brainbuildinginprogress.org/](http://www.brainbuildinginprogress.org/)

## The Science Behind Brain Building

When we understand the sequence and process by which brains are built, it's easy to understand why it's a smart investment to start every child out strong. Scientific research shows that early experiences directly shape how the brain develops. According to the Harvard University Center on the Developing Child, Stanford University and other leading researchers:

- In the first few years of life, 700 new neural connections are formed every second.
- Neural connections and the architecture of the developing brain are built through back-and-forth interactions with adults in enriching environments.
- Brain building is disrupted by “toxic stress,” a term that describes chronic stressful conditions rooted in causes such as poverty, neglect, or maternal depression. Toxic stress increases the likelihood of developmental delays.
- Several studies have shown that, as early as 18 months, there are notable disparities in vocabulary between children from language-rich, high interaction homes and those who are not. Recent Stanford research showed that by age two, this equals a six month gap in language processing skills and vocabulary. By increasing interaction, using richer language and child-directed talk, parents can help their child to learn more quickly.



Brain Building can happen anywhere, not just in a formal school or early education programs. Anyone can be a Brain Builder by reading with children, asking lots of open-ended questions or engaging them in play. For fun ideas about how you can turn any moment into a brain building moment, download our activity guides.

# The Nature of Early Childhood Science in the Outdoor Classroom



Children have wonderful imaginations and an innate desire to explore through direct experience. Like scientists, children are continuously gaining new knowledge about the world around them through observation, inquiry, and experimentation. Often they do this by asking questions, lots of them. These questions, flowing from experience and observation, are at the heart of early childhood science. Early childhood educators can guide this natural curiosity as well as model skills and attitudes for learning. Teachers, you will have questions too, as you explore the natural world together with your students. Share your questions with children—your willingness to “not know” is actually one of the easiest and most powerful ways that you can model what it means to “practice science” in the early years.

When you are exploring the natural world, science is all around you, but where do you start with a group of young learners? Sometimes it’s best to start with their curiosity and other times you may begin your explorations with activities and tools that help to focus attention and observation. Integrating science exploration in early education can both develop future scientific understanding as well as promote essential learning attitudes and confidence. It also provides a strong foundation for critical thinking and comfort with the practice of science.

Outside the classroom door, the natural world opens up the child’s innate sense of wonder. Here’s an example from a classic:

“That’s funny,” said Pooh (standing by a picket fence). “I dropped it on the other side,” said Pooh, “and it came out on this side! I wonder if it would do it again?” And he went back for some more fir cones.” It’s likely that you recognize this passage from A.A. Milne’s *The House at Pooh Corner*. It embodies what is at the heart of practicing science in the early childhood classroom—that learners observe, question, experiment, ask questions, and inquire, through direct experience of the world around them.

Through these four units, you can jump start nature-based science learning and discovery by exploring your school yard or outdoor classroom and focusing on the things that capture children’s attention in any setting—birds, soil, trees, and weather. We encourage you to experiment with methods and activities for using the natural world to create a culture of wonder and scientific thinking in your early childhood education setting.







## Ten Tips for Taking Preschoolers Outdoors

1. Start with free play. Playing outdoors, exploring textures and colors, running and jumping, designing and building are all learning activities in and of themselves.
2. Continue with short focused trips outside. A ten-minute walk can yield lots of observations. If possible, ask additional adults to come along for outdoor activities.
3. Be safe. Preview the space to be explored whenever possible. Point out dangers such as broken glass or thorny plants. Make sure everyone has appropriate clothing for the weather and think about a plan in case of emergency.
4. Encourage respect for nature. Tell children that they need to respect plants and animals just like they respect one another. Be a good role model by being gentle with leaves and insects. Before you go out, talk about whether it is okay to pick flowers or collect worms.
5. Focus on one question or phenomenon, such as, “Can you find anything green outside?” or “What sounds do you hear?” Make sure students know what they are looking and listening for before they go outside.
6. Look for things to study in unlikely places. Students can find amazing things looking at brick walls rock outcrops, lawns, broken pavement, and weeds.
7. Encourage a sense of wonder. If you don’t know the names of plants or birds, don’t worry. Just make sure students are observing and using their senses. There are plenty of field guides available if students want to try to identify something.
8. Visit the same spot multiple times over the course of the year. Even in winter, there can be interesting rocks, twigs, birds, and signs of animals to observe.
9. Draw and write. When students record observations, they are more focused and have more to think and talk about when you get back inside.
10. Be flexible. You never know what you might see. If the lesson is about clouds, but a cluster of ladybugs captures children’s attention, be ready to change your plans.





**B**irds have always inspired us by their songs, their ability to fly; their seemingly infinite variety of shapes, sizes, and coloration; 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 gain a greater understanding about the lives of birds everywhere and the entire animal kingdom in general.

Birds are commonly found in all settings, in every community. The birds you can observe from inside your preschool classroom, in the school yard, and in the community will vary with the weather and the seasons. What will be consistent is the excitement, interest, and enthusiasm the students will reveal when they are encouraged to learn about and observe the birds that can be found in your community.

When a young child learns about birds, he/she is discovering the entire world of animals and nature. And when young children gain experience observing birds, they will also naturally learn about bird identification, bird behavior, habitats, and conservation.



**Investigation Objectives and Alignment to  
Massachusetts Department of Education Pre-K Science, Technology  
and Engineering Standards 2013  
for 2015-2016 implementation**

Investigation	Children will be able to:	PRE-K Learning Standards
<p><b>#1</b> <b>Introduction to birds:</b> <b>What do you know or want to know about birds?</b></p>	<ul style="list-style-type: none"> <li>• Describe that birds are living things because they need food, water, shelter, air to grow and reproduce.</li> <li>• Compare the life cycle of a bird to that of another animal.</li> <li>• Name some characteristics of what makes a bird a bird.</li> </ul>	<p><b>PreK-LS2-1(MA).</b> Use evidence from animals and plants to define several characteristics of living things that distinguish them from non living things.</p> <p><b>PreK-LSI-2(MA).</b> Recognize that all plants and animals grow and change over time.</p> <p><b>PreK-LSI-3(MA).</b> Explain that most animals have 5 senses they use to gather information about the world around them.</p> <p><b>PreK-LSI-1(MA).</b> Compare, using descriptions and drawings, the external body parts of animals (including humans) and plants and explain functions of some of the observable body parts.</p>
<p><b>#2:</b> <b>What are feathers?</b> <b>How do they help birds?</b></p>	<ul style="list-style-type: none"> <li>• Explain the role feathers play in a bird's survival.</li> </ul>	<p><b>PreK-LSI-1(MA).</b> Compare, using descriptions and drawings, the external body parts of animals (including humans) and plants and explain functions of some of the observable body parts.</p> <p><b>PreK-PS2-1(MA).</b> Using evidence, discuss ideas about what is making something move the way it does and how some movements can be controlled.</p>
<p><b>#3:</b> <b>How are beaks useful to birds?</b> <b>Why are they different?</b></p>	<ul style="list-style-type: none"> <li>• Understand the design of a bird's beak.</li> <li>• Discuss adaptations of beaks for survival.</li> </ul>	<p><b>PreK-LSI-1(MA).</b> Compare, using descriptions and drawings, the external body parts of animals (including humans) and plants and explain functions of some of the observable body parts.</p>
<p><b>#4:</b> <b>What sounds do birds make? Are they all the same?</b></p>	<ul style="list-style-type: none"> <li>• Compare sounds of common neighborhood birds, tone, and length of song.</li> <li>• Understand how sounds may differ for survival and safety of young.</li> </ul>	<p><b>PreK-LSI-3(MA).</b> Explain that most animals have 5 senses they use to gather information about the world around them.</p> <p><b>PreK-LSI-4(MA).</b> Use their five senses in their exploration and play to gather information.</p>





<p><b>#5:</b>  <b>What are nests?</b>  <b>How are they made? How do they help birds?</b></p>	<ul style="list-style-type: none"> <li>• Design and build a model of a bird nest.</li> <li>• List some of the different places where birds make nests and why.</li> <li>• Compare and contrast the various materials that birds use for their nests.</li> </ul>	<p><b>PreK-LSI-1 (MA).</b> Compare, using descriptions and drawings, the external body parts of animals (including humans) and plants and explain functions of some of the observable body parts.</p> <p><b>PreK-LSI-4(MA).</b> Use their five senses in their exploration and play to gather information.</p> <p><b>PreK-LS2-2(MA).</b> Using evidence from the local environment explain how familiar plants and animals meet their needs where they live.</p> <p><b>PreK-PSI-3(MA).</b> Differentiate between the properties of an object and those of the material of which it is made.</p>
<p><b>#6:</b>  <b>How do birds survive?</b></p>	<ul style="list-style-type: none"> <li>• Name habitats of birds in their neighborhood.</li> <li>• Name foods found in those habitats.</li> <li>• Explain an adaptation that helps a bird survive.</li> </ul>	<p><b>PreK-LSI-1 (MA).</b> Compare, using descriptions and drawings, the external body parts of animals (including humans) and plants and explain functions of some of the observable body parts.</p> <p><b>PreK-LS2-2(MA).</b> Using evidence from the local environment explain how familiar plants and animals meet their needs where they live.</p>
<p><b>#7:</b>  <b>What is migration? Why do birds migrate? Do all birds migrate?</b></p>	<ul style="list-style-type: none"> <li>• Discuss the basic concept of migration and why it is necessary for some birds.</li> </ul>	<p><b>PreK-LS2-2(MA).</b> Using evidence from the local environment explain how familiar plants and animals meet their needs where they live.</p> <p><b>PreK-LS2-3(MA).</b> Give examples from the local environment of how animals and plants are dependent on one another to meet their basic needs.</p>



## Suggested outdoor exploration materials

- Images of birds, nests, and foods that birds eat
- Feathers (from a crafts store)
- Bird shapes cut from cardboard
- Toilet paper tubes
- String or yarn
- Coffee filters
- Household objects that imitate birds' beaks (see investigation #3)
- Bird seed
- Materials for constructing bird nests (see investigation #5)
- Hand lenses
- Popsicle sticks
- Clipboards (can attach pencils with string or velcro)
- Trowels (small shovels)
- Penlight or other small flashlight
- Small plastic containers to hold living things
- White plastic plates to observe samples
- Ziploc bags, various sizes
- Plastic terrariums
- Spray bottles
- Measuring tapes or string
- Field guides to birds (Pocket Naturalist laminated guides are great)
- Disposable or digital camera
- Crayons and markers (fine and thick point)
- Paints
- Clay or playdough
- Collage materials
- Bendable wire or pipe cleaners
- Posters about birds

## Keep it easy!

- Assemble outdoor kits in backpacks to pick up and go as you walk outdoors!
- Families will gladly save and send in recyclables that are both reusable and disposable. Just ask!



# OUR FEATHERED FRIENDS

## Basic Concepts and Fun Facts



### What makes a bird a bird?

#### Is it the pretty colors?

No – other animals, like fish and insects, come in all sorts of beautiful colors too.

#### Is it the bill or beak?

No – other animals, like turtles have beaks.

#### Is it the eggs?

No – other animals, like fish, amphibians, reptiles, insects and even some mammals, hatch from eggs

#### Is it the wings?

No – other animals, like insects and some mammals, have wings.

#### What is it?

Feathers! All birds have feathers and birds are the only animals that do!

### Characteristics of a Bird

#### A bird:

- has a backbone
- is warm-blooded
- has two feet
- has feathers
- has two wings
- has a beak or bill without any teeth
- lays a egg with a hard shell
- has a high metabolic rate

### How do birds fly?

- Most birds that fly have hollow bones that are very light and strong.
- Flight feathers are perfectly aerodynamic – lightweight, strong, smooth, flexible.
- Strong breast muscles give them power to flap their wings and push themselves through the air.
- Their wings are airfoils (like an airplane wing) that produce lift when they flap them.
- Their respiratory and circulatory systems are very efficient so they have plenty of oxygen and energy for their flight muscles.
- They have a higher body temperature than mammals, which allows their muscles to work faster and recover more quickly.



**While all birds share a broad set of traits, they have many unique physical and behavioral adaptations that allow them to live in a variety of environments.**

### **Bird Feet**

Some birds can walk, some birds can hop, and some can do both, but all birds have feet. Almost all birds have 4 toes arranged with 3 in front and 1 in back. However, bird feet are highly adapted to where they live and what they eat.

- Raptors (birds of prey) have very sharp, hook-like claws that are used to catch prey. (Red-tailed Hawk)
- Birds that perch in trees have long toes and curved claws to help them balance on a branch or other perch. (Black-capped Chickadee)
- Birds that wade through water have very long toes that spread out to keep them from sinking in the mud. (Great Blue Heron)
- Birds that climb trees have 2 toes in the front and 2 in the back. (Downy Woodpecker)
- Birds that swim have webbed toes. (Mallard Duck)
- Birds that walk on the ground and scratch for food have short blunt claws. (Wild Turkey)

### **Bird Beaks**

All birds have a beak or bill but they don't have any teeth. The shape of a bird's beak is suited to the type of food it eats.

- A multipurpose bird bill is relatively short with a blunt point. It's good for small seeds, berries, and insects. (Black-capped Chickadee)
- Raptors have strong hooked beaks for tearing flesh. (Red-tailed Hawk)
- Seed-eating birds have short, thick, cone-shaped beaks for cracking nuts and seeds. (Northern Cardinal)
- Birds that stalk and strike at their prey have long, straight, broad beaks for stabbing and grabbing. (Great Blue Heron)
- Hummingbirds have long tubular beaks to reach into the bottom of a flower and drink nectar. (Ruby-throated Hummingbird)
- Insect-eating birds have slender tweezer like beaks that let them pick small insects from leaves or flowers. (Yellow Warbler)

- Birds that catch insects out of the air also have small beaks, but they have large mouths. (Tree Swallow)
- Birds that live in water and eat algae and aquatic insects have flat, broad, rounded beaks that they use to strain food from the water. (Mallard Duck)

### **Feathers**

Feathers are a complex body covering unique to birds and can be very different depending on their function.

- Down feathers for insulation have no central shaft and are soft and fluffy. These are the first layer of feathers on a bird's body.
- Contour feathers cover the bird's body and tops of the wings. They do have a central shaft, but the vanes on either side of the shaft are still fairly soft and able to conform to the curves of the body or wing.
- Flight and tail feathers have a strong central shaft and the vanes are very firm. They are stiff enough to hold their shape as the bird moves through the air.
- Most birds molt and grow a new set of feathers every year. Feathers molt symmetrically so you might notice a flying bird with a missing feather on both wings.
- Feather patterns and colors create camouflage or special coloration. Some birds grow a new set of feathers every spring for a breeding plumage that attracts mates.
- Although very light, a bird's feathers usually weigh 2 to 3 times as much as its skeleton.

### **Bird Wings and Flight**

- Where and how a bird flies is reflected in the shape and size of its wings.
- The most common wing shape is relatively short and rounded. This type of wing allows the bird to take off quickly, but is not very fast or good for gliding (found on most songbirds and ground-dwelling birds).
- Raptors that soar have broad, long wings that allow them to ride on rising air currents (found on eagles, vultures, hawks).
- Birds that fly very fast or migrate long distances have long, slender, pointed wings (found on shorebirds, falcons, swallows, hummingbirds).



- Birds that spend their lives soaring low over the ocean have extremely long, narrow wings (found on albatrosses, shearwaters, jaegers).

### Bird Vision

Birds have the best vision among all vertebrate animals and it is their most important sense. They also have the largest eyes for their size. Most birds cannot move their eyes.

- Birds that hunt for prey have both eyes facing forward, which gives them the depth perception necessary to catch prey. Most birds of prey can also turn their heads far enough to look directly behind themselves.
- Birds have three eyelids. Birds use the transparent third eyelid to blink with and some species use it to protect their eyes while flying or diving underwater. Birds only use their outer eyelids when they close their eyes.

### Birdsongs and Sounds

Birds communicate by making a variety of sounds and songs. They warn each other, declare their territories, give information about food, and attract a mate by the songs or calls they use.

- There are two basic categories of sounds. Longer, more elaborate songs attract mates and declare territories while briefer calls are used to identify each other and convey information about food or predators.
- Some birds imitate or mimic the songs of other birds or human sounds such as alarms or whistles. (northern mockingbird)
- Woodpeckers have songs and calls, but they also communicate by rapping or drilling on trees or other surfaces. (downy woodpecker)

### FUN FACTS:

- There are around 10,000 different species of birds worldwide.
- At nearly 9 feet, the ostrich is the largest bird in the world. It also lays the largest eggs and has the fastest maximum running speed (60 mph).
- Hummingbirds are the smallest birds in the world. They can be as small as the Bee Hummingbird, 2 inches long. Hummingbirds can fly backwards.
- The chicken is the most common species of bird found in the world.
- A birds' weight is about 95% muscle and 5% bone.

**Bee hummingbird shown at actual size!**



# PRESCHOOL INTEREST AREAS PLANNING FORM

**THEME: FEATHERED FRIENDS**

(#1-7 indicates the investigation to go to for detailed instructions)

<p><b>ART</b></p> <ul style="list-style-type: none"> <li>• Paint with feathers (#2)</li> <li>• Bird footprints (#1)</li> <li>• Nest building (#5)</li> <li>• Toilet paper roll binoculars (#1)</li> <li>• Coffee filter birds (#2)</li> <li>• Bird seed collage (#3)</li> </ul>	<p><b>COOKING</b></p> <ul style="list-style-type: none"> <li>• Bird shape cookies (#1)</li> <li>• Eat like birds – fruit and seed buffet (#3)</li> <li>• Edible bird nests (#3)</li> <li>• Bird feeders (#6)</li> <li>• Fruity Nests to Nibble (#5)</li> <li>• Homemade suet (recipes)</li> </ul>	<p><b>DISCOVERY/SCIENCE</b></p> <ul style="list-style-type: none"> <li>• Bird feathers</li> <li>• Bird seed/nests</li> <li>• Hand lenses</li> <li>• Pictures of common birds in your area</li> <li>• Sequencing cards/life cycle (#5)</li> <li>• Bird beak investigation (#3)</li> </ul>	<p><b>DRAMATIC PLAY</b></p> <ul style="list-style-type: none"> <li>• Bird puppets</li> <li>• Act like: hawks, robins hopping and pulling up worms, woodpeckers pecking bark for insects, etc.</li> <li>• Build nests in different areas of the room</li> <li>• Imagine hatching: Guided Imagery (#5)</li> </ul>
<p><b>ENGINEERING/DESIGN</b></p> <ul style="list-style-type: none"> <li>• Build bird houses or nests using various materials or blocks</li> <li>• Design bird shapes (can be one dimensional/flat on ground)</li> <li>• Create bird habitats around room (to provide food, water, shelter, space)</li> </ul>	<p><b>LITERACY</b></p> <ul style="list-style-type: none"> <li>• See attached annotated bibliography for multiple selections</li> <li>• Use your local library as a resource</li> </ul>	<p><b>MATH NUMERACY</b></p> <ul style="list-style-type: none"> <li>• Measure length of assorted feathers using different lengths of string/yarn</li> <li>• Sort feathers by size, pattern, or color</li> <li>• Use a balance scale to compare weight of feathers to other objects.</li> <li>• Egg carton/bird seed count (#6)</li> <li>• Read <i>This Tree Counts!</i> (see bibliography).</li> <li>• Seed Math (#6)</li> <li>• Measure wingspans (#2)</li> </ul>	<p><b>MUSIC/MOVEMENT</b></p> <ul style="list-style-type: none"> <li>• Tie colorful scarves to children's wrists to move like birds while listening to music – Birdsong CD</li> <li>• Balance like a heron (one foot)</li> <li>• Flap arms (wings) to imitate different birds</li> <li>• Bird olympics (#7)</li> <li>• Bird calls (#4)</li> <li>• Seed shakers (#4)</li> </ul>
<p><b>OUTDOORS</b></p> <ul style="list-style-type: none"> <li>• Use toilet paper roll binoculars to practice observing birds (#1)</li> <li>• Imitate bird sounds you hear (#4)</li> <li>• Neighborhood bird walk</li> <li>• Fly like a bird relay races</li> <li>• Make bird habitats around room</li> </ul>	<p><b>SENSORY</b></p> <ul style="list-style-type: none"> <li>• Trace/make bird shapes or tracks</li> <li>• Make bird nests with sand, water, twigs</li> </ul>	<p><b>GAMES/MANIPULATIVES</b></p> <ul style="list-style-type: none"> <li>• Bird puzzles</li> <li>• Bird stuffed animals</li> <li>• Bird bingo (#1)</li> <li>• Bird memory game (#1)</li> <li>• Egg matching game (#5)</li> <li>• Migration game (#7)</li> <li>• Owl and mouse game (#4)</li> <li>• Egg and Spoon race (#5)</li> </ul>	<p><b>COMMUNITY CONNECTIONS</b></p> <ul style="list-style-type: none"> <li>• Encourage families to visit parks or natural spaces in your area to observe birds.</li> <li>• Invite a naturalist/local birder to visit.</li> <li>• Families may contribute cardboard toilet paper rolls, birdseed, etc.</li> <li>• Include photos of student observations and activities in a newsletter to be shared with families.</li> </ul>

**THEME: FEATHERED FRIENDS**





# INVESTIGATION SUMMARIES

See full Investigation lessons for specific “how-to” details.

Big Ideas	Investigation #1 What do you know or want to know about birds?	Investigation #2 What are feathers? How do they help birds?	Investigation #3 How are beaks useful to birds? Why are they different?	Investigation #4 What sounds do birds make? Are they all the same?
<b>LARGE GROUP LEARNING</b>	<ul style="list-style-type: none"> <li>• KWL chart (see page 17) – teacher listens and scribes – guiding discussion if needed.</li> <li>• Include feathers, nests, and beaks</li> <li>• Sing “Little Bird, Little Bird” or another song/fingerplay (see resources)</li> <li>• Read selected story (see bibliography)</li> </ul>	<ul style="list-style-type: none"> <li>• Provide feathers for each child to examine.</li> <li>• Discuss importance of feathers and wings. See lesson detail.</li> <li>• Read selection</li> <li>• (see bibliography)</li> </ul>	<ul style="list-style-type: none"> <li>• Display photos of many kinds of bird beaks.</li> <li>• Why are they so different; how do birds use them?</li> <li>• Read aloud (see bibliography)</li> </ul>	<ul style="list-style-type: none"> <li>• Act out birds finding each other by sound.</li> <li>• Song or Fingerplay (see resources).</li> <li>• Read: <i>Where’s the Party?</i> or other selection (see bibliography).</li> <li>• Bird calls – children imitate common birds.</li> </ul>
<b>SMALL GROUP LEARNING</b>	<ul style="list-style-type: none"> <li>• Bird bingo (resources)</li> <li>• Finger painting</li> <li>• Matching games</li> <li>• Field guides (see bibliography)</li> <li>• Post a pictograph at window to tally what birds show up at feeders</li> </ul>	<ul style="list-style-type: none"> <li>• Examine feathers with hand lenses.</li> <li>• Experiment with them using air and water</li> <li>• Children measure each other’s arm lengths to determine wingspan and make wings</li> </ul>	<ul style="list-style-type: none"> <li>• Bird Beak investigation: children explore many kinds of beaks to see how well different utensils work to “eat” different foods</li> <li>• Bird seed collages</li> </ul>	<ul style="list-style-type: none"> <li>• Listen to CDs for birdsongs, especially those children might hear in their neighborhood. Teacher matches sound to picture for clarification.</li> <li>• Children make bean/seed shakers for sound discrimination.</li> </ul>
<b>OUTDOOR LEARNING</b>	<ul style="list-style-type: none"> <li>• Bird Walk: How many kinds of birds can we find? Keep track for a count.</li> <li>• Hang feeders (details in #6)</li> </ul>	<ul style="list-style-type: none"> <li>• Bird Walk: Look for birds and signs of birds (feathers, nests, tracks, droppings).</li> <li>• Listen for birds.</li> <li>• Imitate birds.</li> </ul>	<ul style="list-style-type: none"> <li>• Return to places where we scattered seeds. Have birds been here? What are the signs?</li> <li>• Children act out being birds looking for food.</li> </ul>	<ul style="list-style-type: none"> <li>• Owl and mouse game: discover how the owl uses sound to find food.</li> <li>• Bird walk to imitate and distinguish bird sounds.</li> </ul>



# INVESTIGATION SUMMARIES

BIG IDEAS	<b>Investigation #5</b> What are nests? How do they help birds? How are they made?	<b>Investigation #6</b> How do birds survive?	<b>Investigation #7</b> What is migration? Why do birds migrate? Do all birds migrate?
<b>LARGE GROUP LEARNING</b>	<ul style="list-style-type: none"> <li>• Discussion: Ask what children know about nests and why birds need them.</li> <li>• Show images of sizes, types of nests, and locations.</li> <li>• Children suggest materials birds might use to make a nest.</li> <li>• Choose song or fingerplay (See resources).</li> <li>• Imagine hatching: (See resources).</li> <li>• Vocabulary: brooding, clutch and egg tooth.</li> </ul>	<ul style="list-style-type: none"> <li>• What do people need to survive?</li> <li>• Discuss a habitat and what it provides.</li> <li>• Have children give examples of a bird habitat.</li> <li>• Discuss roll of talons on birds of prey.</li> </ul>	<ul style="list-style-type: none"> <li>• Discuss migration and why birds need to leave our neighborhoods.</li> <li>• Display a world map for a visual discussion.</li> <li>• Read <i>Flute's Journey</i> or <i>No Two Alike</i> (see bibliography).</li> </ul>
<b>SMALL GROUP LEARNING</b>	<ul style="list-style-type: none"> <li>• Practice building a nest with outdoor materials provided. Glue it together with mud, just like birds!</li> <li>• Egg matching game</li> <li>• Fun snack: Fruity Nests to Nibble (see recipes section).</li> </ul>	<ul style="list-style-type: none"> <li>• Easy bird feeders children can make.</li> <li>• Owl pellet investigations to discover what the owl ate.</li> <li>• Seed Math – measuring with spoons and cups.</li> <li>• Make suet (see recipes section).</li> </ul>	<ul style="list-style-type: none"> <li>• Allow children to use maps to string lines from Massachusetts to migration areas.</li> <li>• Take a walk outside to find natural food the birds might eat.</li> </ul>
<b>OUTDOOR LEARNING</b>	<ul style="list-style-type: none"> <li>• Practice building a nest outdoors.</li> <li>• Egg and spoon relay race</li> <li>• Class design/build huge nest for group to sit on eggs and listen to a read aloud.</li> </ul>	<ul style="list-style-type: none"> <li>• Bird Walk: could a bird live here? Is this a habitat?</li> <li>• Visit a spot where you spread seed. What happened?</li> <li>• Hang a variety of feeders made by children.</li> </ul>	<ul style="list-style-type: none"> <li>• Watch for goose formations.</li> <li>• Migration Game (see resources).</li> <li>• Take a walk outside to find natural food the birds might eat.</li> </ul>



# What do you know or want to know about birds? What makes a bird a bird?

## LARGE GROUP LEARNING ACTIVITIES

Teacher scribes on a KWL (what a student knows [K], wants to know [W], and has learned [L]) chart as **students orally describe their own background experiences**, knowledge or observation of birds, vocabulary, characteristics, etc. Students may need help by referring to pictures you provide from the internet or other source to get them started.

For example:

**Read a story** – suggested story *Birds* (annotated bibliography provided in resources section)

What do we <b>KNOW?</b>	What do we <b>WANT to know?</b>	What did we <b>LEARN?</b>
Birds can fly	How do birds fly?	Some birds migrate
Birds live in trees	How far can they go?	Some birds cannot fly
Birds have nests	Why do they fly south?	

**Provide colorful images to discuss what children notice birds have in common.**

(See “Take a Look Outside” poster in resources section and the many available online.) Take note of their comments on the KWL chart. What did ALL the birds have? **FEATHERS!**

**Discuss that FEATHERS are the defining characteristic of a bird.** Provide feathers for children to examine closely. Large clean ones from a craft store will do. Provide one for each child. Ask them what they noticed? They may respond with answers relating to length, softness, color, color patterns, weight, etc.

In this introduction, **display an actual nest or photos of nests** in many sizes and made of many materials.

**Sing “Little Bird, Little Bird”** or other song/fingerplay (in resources section)

## SMALL GROUP LEARNING ACTIVITIES

### Bird Bingo Game

- Can be made (see sample in resources section)
- Children receive laminated Bingo cards with pictures of things birds need to survive (food, water, shelter, air) – three across and three down
- Cards (to fit squares on Bingo card) with same photos are cut and laminated
- Students take turns to match card to those on Bingo card
- Goal is to get three photos vertically, horizontally, or diagonally



- Consider the development of the children playing as they may simply want to match their card with the template. The goal is to become familiar with various types of birds.
- Outdoors this could also be used as a scavenger hunt

Using the media of your choice, basic shapes (circle, rectangle, square, oval, triangle) or just free-handed scribbles, **children draw/finger paint their own bird.**

**Matching/memory games** – use 2 sets of laminated photos of many species of birds.

**Field guides** – have simple guides available for children (see bibliography in resources section for suggestions).

**Post a bar graph or pictograph** at a window with feeders outside. Children can tally what birds are seen. Over a week they can determine the frequency of feeder visitors.

**Bird footprints:** Teacher should make a demo bird foot, by twisting pipe cleaners together to show the children the expectation and then allow the children the freedom to create their own. After twisting a footprint, dip in paint and “walk” across the paper.

- Construction paper
- Pipe cleaners
- Paint

**Toilet paper roll binoculars:** Children assemble imitation binoculars for use many times throughout the bird unit. Have them decorate the rolls with markers (a name is also helpful). Use tape to connect the two rolls together. Use the punch to make a hole on the outer side of the two rolls. Insert the yarn through each hole to form a strap for the binoculars.

- Toilet paper rolls – enough for every child to have two
- Markers for decorating
- Tape
- Hole punch
- Yarn – as a binocular strap

### Bird shape cookies

- Use pre-made refrigerated dough

- Children roll out dough
- Cut out shapes using bird cookie cutters or use shape cutters (circle, square, triangle) to design their own
- Bake as directed

## OUTDOOR LEARNING ACTIVITIES

### Bird walks

**Students will track how many birds they see.**

**Can they count them?**

**How many colors do they notice?**

**How many can we hear but not see?**

**What do we need to do to watch them closely?** (Be quiet, watch, and listen)

**Identify birds** using a picture scavenger hunt; circle what you see

**Hang bird feeders** Suggestions for child-made feeders are in Investigation #6 – How do birds survive?

- At the start of this unit, it is important to hang bird feeders that provide different types of seed for students to observe the birds that eat them.
- Try to hang them close to trees, flowers or shrubs. That will attract more birds since they will feel safer and have places to hide between visits to the feeders.



# What are feathers? How do they help birds?

## LARGE GROUP LEARNING ACTIVITIES

**Provide feathers** (from a craft store) for each child to examine.

**Discuss what feathers do for a bird.** Have children give ideas. Photos may help guide their thinking.

- Feathers insulate from water and temperature (example: wrap child in down comforter)
- Feathers can be plucked to keep young warm
- Feathers help control flight
- Feathers help distinguish male and female (males typically have brighter and more vibrant coloring)
- Feathers help camouflage and protect birds (google birds and camouflage for good photos)

**Read selection** (see bibliography)

## SMALL GROUP LEARNING ACTIVITIES

**Examine feathers with hand lenses.**

**Observe colors, patterns, designs in feather.** Using several feathers, the teacher will describe one and the children will observe all and tell the teacher which one they are describing.

**Try to split them and comb them back using a pencil as a beak.**

**Children blow on feathers to keep them in the air.** Discuss results. Discuss what children notice (journal your notes).

**Have children squirt a small amount of water on the feathers.** What happens? (feathers repel water).

**Talk about wingspan, from hummingbird up.** Measure the child's wingspan. Cut out paper to that measured length and children can make their own wings.

**Paint with feathers:** Allow children to manipulate feathers, to know them in different ways. In this activity, children will use them as a brush. It will help them understand the texture, weight and capacity of a feather. Allow them to be creative and play with color and feathers.

- Construction paper
- Feathers (craft store feathers will work)



- Paint: dip into small cup or jar and also try laying them flat in a disposable tray for different coverage

**Coffee-filter birds:** Precut several bird shapes out of stiff paper/cardboard (see resources). Children select a shape and place it on a coffee filter. Using a dropper, children add one drop of paint at a time on the filter surrounding the silhouette. The paint will spread and mix together. Remove the silhouette.

### **Coffee filters (white)**

#### **Bird shape cut from cardboard**

- Droppers
- Small pots of paint

## **OUTDOOR LEARNING ACTIVITIES**

### **Bird walk:**

- Look for birds and signs of birds high and low (feathers, nests, tracks, droppings)
- Listen for bird sounds

### **Children use their arms to imitate birds**

soaring, flapping, turning, and landing

**With wings children made (see above) play some music** as children fly around testing their new wings





# How are beaks useful to birds? Why do they differ from one another?

## LARGE GROUP LEARNING ACTIVITIES

**Display photos of many kinds of bird beaks.** Have children note differences in size, shape.

**Google bird images for a variety of beaks** from swallows (short and pointed) to shorebirds (long and flat) to raptors (curved with a sharp tip).

**Have children hypothesize** why they are they so different and how birds use them.

**Eat like birds** – fruit and seed buffet

- Snack time could include pumpkin seeds, fruit, berries, etc.

## SMALL GROUP LEARNING ACTIVITIES

**Bird beak investigation** – (in bibliography, *Small Wonders*, p. 32)

- Provide tweezers, tongs, straws, toothpicks, etc. to use as beaks
- Children try to pick up what a bird might eat using that beak
- Provide various types of “food” such as beans, seeds, rice, grapes floating in water, goldfish crackers in Jell-O, etc. to simulate food sources for different species of birds

**Birdseed collages** – copy large silhouettes of birds (see resources section) onto cardstock. Children fill in with glue and various types of seed.

**Sort and classify different types of seeds**

**Edible bird nests** (see resources/recipes)

## OUTDOOR LEARNING ACTIVITIES

**Have children lay seeds in patterns** of their choice in an outdoor area.

**Children predict what happened to the seeds.** The next day, return to places where seeds were scattered. Have birds been here? Anyone else? What are the signs?

**Children act out birds searching for food** using clothespins to find pipe cleaner worms.



# What sounds do birds make? Are they all the same?

## LARGE GROUP LEARNING ACTIVITIES

**Have children act out how birds recognize each other by using sets of shakers.** Find the sound that closely matches yours (for shakers, see small group activity below).

**Sing a song or recite selected fingerplay** (see resources section)

**Suggested reading** (see bibliography):

- *Where's the Party?*
- *Have You Heard the Nesting Bird?*
- *Birdsongs*

**Bird calls:** Ask the children if anybody knows how to sound like a bird. Let them try one by one. They should be able to do a chicken, a turkey, a song bird, a baby chick. Let them think of others. Let the children come up one at a time and make a bird call. Let the rest of the children try to guess what kind of bird they are.

## SMALL GROUP LEARNING ACTIVITIES

**Listen to CDs for birdsongs**, especially those children might hear in their neighborhood. Teacher matches sound to picture for clarification (see resources).

**Children design their own sound shaker** by putting different amounts of beans and seeds in a small container (recycled plastic containers, baby food jars, etc.).

## OUTDOOR LEARNING ACTIVITIES

**Owl and mouse game:** The blindfolded child listens carefully to discover which child is holding the squeaky toy (a large brown bag is a good substitute for a blindfold as it lets light in but the child cannot see beyond a short range).

**On a bird walk, listen for bird sounds. Imitate them.** Are the birdsongs short, long, loud, or soft? Do birds squeak, squawk, or squeal? Can you see the bird making the sound?



# What are nests? How are they made? How do they help birds?

## LARGE GROUP LEARNING ACTIVITIES

**Students will discover that nests are used for shelter, and protection for their babies.**

**Bird nests come in all shapes and sizes.** Today we're going to look at a few different types of nests and talk about whom they belong to, where they are built, what they're made of, and why.

**Why does a bird build a nest? What is the nest used for?** Nests are safe, warm homes for eggs and baby birds. Every bird makes a nest just like the one its parents made. How does it know how to build a nest? It just knows. It has a deep knowing called *instinct*. By instinct, every bird knows exactly how to build the right kind of nest for its eggs.

**Let's flap our wings like a bird looking for a good spot to build a nest.** Birds build their nests in all kinds of different places. In a tree, on the ground, inside tin cans, on top of cliffs, under bridges, even inside chimneys! Different birds make nests in different places.

**There are many kinds of bird nests.** Show images of sizes, types of nests, and locations (search google images).

- Ducks and killdeer are examples of birds that construct their nests on the ground.
- Woodpeckers use natural holes or cavities in trees and other places to lay their eggs.
- Swifts and swallows construct their nests on the sides of rock cliffs. Their nests are holes in the mud.
- Eagles build nests on top of the highest trees.
- Ospreys build high nests, sometimes on the tops of tall poles (like telephone poles).
- Hummingbirds build tiny nests. They are built by the female alone in trees (oaks, birches, pines), bushes, or other interesting places like loops of chain or wire.
- American robin nests are made of straw, twigs, grass, and feathers, held together by mud, and usually located in a tall shrub or tree between 5 to 15 feet off the ground. Robins might take 5 to 7 days to build their first nest.



Most raise a second brood (clutch of eggs) during the breeding season, which can fledge just 5 weeks after the first! The second time a robin builds a nest it might take only 2 to 3 days

- Pine warbler: Much smaller than nest of a robin or wood thrush, but similar materials. They prefer to build in pine trees, hence their name.
- Barn swallow: Nest made mostly of twigs and small bits of mud. Built in open barns or stables, occasionally under bridges.
- Baltimore oriole: Nest is a pouch that hangs from outer branches of leafy trees, sometimes up to 30 feet off the ground. Made of straw, grass, and other plant materials.
- Great crested flycatcher: Collects many different materials to make a messy nest. It uses grass, leaves, roots, feathers, and even snakeskin or cellophane. Its nest is built in tree cavities.

**Have students flap their wings like a bird looking for materials to build a nest.** Birds make nests out of many different materials. They use materials that are easy to find where they live. What do you think a bird might use in its nest to make a warm, safe home for its eggs? (Grass, straw, twigs, string, mud, pieces of plastic wrap, paper, etc).

**Children suggest materials used:** Twigs, mud, moss, yarn, cloth, pine needles, hair, burlap, etc.

**Once a nest is built, the birds usually add something to act like a soft pillow on the bottom.** Why? It keeps the eggs from cracking and keeps the baby birds warm and cozy. What types of things do you think they use? (Feathers, sawdust, wood chips, fine grass)

**Once the eggs are laid in the nest, the bird does one last thing to keep the eggs safe and warm.** Can you guess? She sits on them! This is called *brooding*.

**Bird eggs come in different sizes or colors, but usually have the same shape.** What shape is it? A group of eggs laid at one time is called a *clutch*. Some birds might have 2 to 4 clutches each spring and summer. After 2 to 3 weeks, most eggs are ready to hatch. Does anybody know how the baby birds get out of the shell? They use an *egg tooth*, which is a pointy piece at the end of their beaks. The egg tooth helps them break through the shell, and then it falls off within a week or two.

**Let's pretend we're baby birds trying to peck our way out of an egg with our egg tooth.**

- Curl up on the floor, covered by a towel, sheet, blanket, piece of cloth, etc.
- Hold your hand in front of your mouth to be the beak, and stick one finger out to be the egg tooth.
- Slowly "peck" against the covering, using only your egg tooth. How many pecks do you need to make a crack?
- Slowly stretch feet and wings, one at a time.
- Continue to "peck" and stretch until you're hatched.

## SMALL GROUP LEARNING ACTIVITIES

**Practice building a nest** with materials provided using only your beak (may need a bowl or paper bag as a base structure). Glue it together with mud!

**Egg matching game:** Cut 10 to 12 egg shapes from white construction paper. Decorate eggs then cut them into halves, varying the cut pattern (zigzag, wavy, straight, etc.). Glue one-half of a set into a folder. Have the children match the halves.

**Life cycle card game** (resources) – children tell story of life cycle while completing puzzle

**Fun snack** – Make fruity nests to nibble (see resources/recipes).



## OUTDOOR LEARNING ACTIVITIES

**Nest building** – Children will gather outdoor materials then flatten and shape playdough on the paper plate as a base to hold nesting materials together. Secure one end of twigs in the playdough. Other nesting materials can be twisted, piled, or connected to each other to form a nest (as imagined by the child).

- Paper plates
- Playdough
- Collection of twigs, sticks grass, and other natural materials. If possible have the children collect items on a walk.

**Children build a nest with natural materials** using only a tool representing a beak (tweezers, tongs, chop sticks, toothpicks, etc.). A bowl or sandwich bag with top folded down several times may be used as a base structure. Glue it together with mud.

**Egg and spoon relay race:** Use plastic or playdough eggs.

**Larger-than-life nest:** Have children collect and make a *huge* nest out of natural materials found outdoors (leaves, twigs, branches, etc.) or materials you have brought outdoors (pillows, blankets, etc.). Children sit in the nest on their eggs while listening to a story (see bibliography).



# How do birds survive?

## LARGE GROUP LEARNING ACTIVITIES

**What do people need to survive** (food, water, adult care and shelter)?

**Discuss a habitat and what it provides** (food, water, shelter, air and space) for birds that live there.

**Have children give examples of a bird habitat.** Where have they seen birds (forests, meadows, backyards, rivers, schoolyards, etc.)? List responses.

**Talk about talons on birds of prey** and how these help these birds survive (demonstrate with pipe cleaners)

## SMALL GROUP LEARNING ACTIVITIES

**Bird Feeders:** Children string Cheerios on a pipe cleaner, shape it into a “J” and hang it from a schoolyard tree.

**Bagel feeders: spread with Crisco or sun butter, dip in seed and hang.** Birds will eat it all, leaving nothing behind to clean up.

**Toilet Paper Roll bird feeders:** Spread a toilet paper core with peanut butter or lard. Children roll in birdseed. Pat it in place to stick. Slide onto a branch that is close to a window.

**Make suet for outside feeders** (see recipes in resource section)

**Put owl pellets (bones and feathers owls throw up) in a glass jar.** Provide magnifying glasses/hand lenses and let your children look at them close up. Can you tell what the owl ate? Call a local nature center for information or see bibliography for on-line sources.

**Seed Math:** Fill a couple of large tubs with wild birdseed. Provide the children with funnels, measuring cups, measuring spoons, bowls etc. Spend some time at the table talking with the children about measurements. “How many quarter cups will it take to fill up this cup?” “How many teaspoons are there in this quarter cup? Let’s count them.” Let them count and measure, pour and stir. Save the birdseed for feeders.

### Egg carton bird seed counting game

- Label the bottom of an egg carton with a numeral from 1 to 12
- Children will use their selected “beak” (tweezers, clothespin, chopstick, etc.) to put the correct number of seeds or beans in each section.

## OUTDOOR LEARNING ACTIVITIES

**Bird Walk:** Could a bird live here? How about here? Is this a good habitat? Why or why not?

**Visit a spot where you spread seed.** What happened? What are the clues?

**Hang a variety of child-made bird feeders close to windows to observe daily.**





# What is migration?

## Why do birds migrate?

## Do all birds migrate?

### LARGE GROUP LEARNING ACTIVITIES

**Discuss migration and why some birds need to leave our neighborhoods.** Do all our birds leave? Why not? Think about their habitats? What do they need to survive? What is winter like in your neighborhood. What does that mean for the birds?

**How do birds stay warm in winter? How do we stay warm in winter?** We wear coats, hats, gloves, and boots. Birds can't do this, but they can turn their feathers into big puffy coats! They puff up their feathers and the air trapped inside heats up and keeps them warm! And though they don't have hats, gloves, or boots, birds can tuck parts of their bodies into their "puffy coat" to keep them warm. That's why you sometimes see a bird standing on one leg in the winter. It will tuck one leg in for a while, and then switch and tuck the other leg in. Let's stand up and try that to keep warm like a bird!

**Display a world map for a visual discussion of migration routes** (from Massachusetts to Florida, Mexico, South America, etc.).

**How fast do birds fly?** Speed ranges from 20 to 50 miles per hour. Larger birds fly faster than smaller birds. If the flock flies for 10 hours a day, then they could fly about 400 miles a day!

**Navigation is complicated** because it requires three things: birds must know their current location, their destination, and the direction they must take to get there. Most birds fly by night in small flocks. This allows them to eat during the day and avoid some predators.

**Some birds use the sun and the stars to navigate.** Some also use landmarks like rivers, mountains, or coastlines. Some might use smell. Still others might follow the other birds in the flock.

**Read** *Flute's Journey* (see bibliography)

### SMALL GROUP LEARNING ACTIVITIES

**Allow children to use a map and yarn** to string lines from Massachusetts to where the birds may migrate.

**Bird Olympics:** Students challenge themselves to flap their arms for ten seconds and compare flaps to those of different birds.



## OUTDOOR LEARNING ACTIVITIES

**Watch for goose formations.** What shape are they?

**Migration Game:** Children learn about the distances birds and other animals travel to find food and shelter. Lay hula hoops in different locations. Children select a bird to represent and “fly” from place to place in order to get water, food, and rest to continue their journey.

**Take a walk outside** to find natural food the birds might eat during migration in your area (berries, seeds, etc).





## Possible extensions for this unit:

- Have a live bird brought into your classroom by a local bird rehabilitator or bird educator  
[www.massaudubon.org](http://www.massaudubon.org)
- Go to a local wildlife sanctuary or wildlife rehabilitation center for a program with a naturalist or rehabilitator  
[www.massaudubon.org](http://www.massaudubon.org)
- Take a field trip or invite a birder or naturalist to lead an outdoor program in your school yard or neighborhood [www.massaudubon.org](http://www.massaudubon.org)
- Maintain the bird feeding station at your preschool beyond the unit to observe the birds that visit in each season.
- Create a bird habitat in your school yard or community
- Put nesting materials in your school yard and see if birds use them for nests – try yarn, string, drier lint, etc.



**CHILDREN'S BIBLIOGRAPHY**

<b>Title</b>	<b>Author</b>	<b>Description</b>
<i>A Nest Full of Eggs</i>	Priscilla Jenkins	This first look at robins follows a full year of growth and change.
<i>About Birds: A Guide for Children</i>	Cathryn Sill	This child-friendly book offers a first thoughtful glimpse into the world of birds: from eggs to nests, from song to flight.
<i>An Egg is Quiet</i>	Dianna Aston	An exceptionally handsome book on eggs, from the delicate ova of the green lacewing, to the rosy roe of the Atlantic salmon to the mammoth bulky shell of an ostrich egg.
<i>Are You My Mother?</i>	P. D. Eastman	A baby bird goes in search of his mother in this hilarious Beginner Book edited by Dr. Seuss.
<i>Backyard Birding for Kids</i>	Fran Lee	This field guide will help you identify all kinds of birds because, no matter where you go, you're bound to spot a bird!
<i>Bear and Bird</i>	James Skofield	One spring evening an old bear finds a young bird that still learning to fly, has fallen to the ground. When the bear lifts the bird to safety, a friendship begins.
<i>Birds</i>	Anna Pomaska	Hours of educational fun in a coloring book featuring 30 different birds and large, simply drawn illustrations.
<i>Birds</i>	Kevin Henkes	Birds come in all sizes, shapes, and colors. Birds are magic. Birds are everywhere.
<i>Birds (My First Discovery Series)</i>	Rene Mettler	Young children can see the skeleton beneath the feathers of a bird, discover a nest of eggs hidden in a tree, and watch a ptarmigan change colors with the changing seasons.
<i>Birdsongs: A Backwards Counting Book</i>	Betsy Franco	Celebrate neighborhood birds in this poetic picture book, and count their sounds backward from ten to one.
<i>Birds Build Nests</i>	Yvonne Winer	Full-page, detailed, realistic watercolors, each showing a particular species of bird in its natural habitat, are the real highlight of this very simple, poetically written introduction to birds.
<i>Bird Nests</i>	Helen Frost	Describes the nests of various types of birds and the materials used to build them.
<i>Bird, Nests &amp; Eggs</i>	Mel Boring	A fun, informative, take-along guide that will help children identify 15 birds and learn how and where birds build their homes and all about their young.
<i>Chicks and Salsa</i>	Aaron Reynolds	What happens at Nuthatcher Farm when the chickens get tired of the same old chicken feed?
<i>Counting Is for the Birds</i>	Frank Mazzola Jr.	Count up to 20 colorful backyard birds as they gather to crack seeds at the feeder while a cunning cat lurks below!



<b><i>Cock-a-Doddle Hooooooo</i></b>	Mick Manning	One stormy night, a lost and lonely owl walks into a farmyard looking for a place to sleep.
<b><i>Don't Let the Pigeon Drive the Bus</i></b>	Mo Willems	When a bus driver takes a break from his route, a very unlikely volunteer springs up to take his place...a pigeon!
<b><i>Duck on a Bike</i></b>	David Shannon	When Duck gets the zany idea to ride a bike one day, each animal on the farm has a reaction.
<b><i>Feathers for Lunch</i></b>	Lois Ehlert	An escaped house cat encounters 12 common birds in the backyard but only captures feathers for lunch.
<b><i>Flute's Journey</i></b>	Lynne Cherry	This is a story of a wood thrush's first year and his arduous first migration--across thousands of miles.
<b><i>George Flies South</i></b>	Simon James	A little bird waiting in his nest for his mother to bring back food is blown into the sky, nest and all, by a great wind. Will he be able to fly?
<b><i>Have You Heard the Nesting Bird?</i></b>	Rita Gray	Woodpecker calls from a tree, "cuk-cuk-cuk." Starling sings, "whistle-ee-wee." But have you heard the nesting bird?
<b><i>Loon Baby</i></b>	Molly Griffin	When Mama Loon dives for the baby's dinner and disappears, baby loon worries because she has never been gone so long.
<b><i>Mama Built a Little Nest</i></b>	Jennifer Ward	There are so many different kinds of birds, and those birds build so many kinds of nests to keep their babies cozy.
<b><i>No Two Alike</i></b>	Keith Baker	Follow a pair of birds on a snowflake-filled journey though a gorgeous winter landscape to explore how everything, everywhere is wonderfully unique--from branches and leaves to forests and trees to friends and loved ones.
<b><i>Owl Babies</i></b>	Martin Waddell	When three baby owls awake one night to find their mother gone, they can't help but wonder where she is.
<b><i>Owl Moon</i></b>	Jane Yolen	As expansive as the broad sweep of the great owl's wings and as close and comforting as a small hand held on a wintry night.
<b><i>Quiet</i></b>	Peter Parnall	A young boy goes into a field and lies down on his back, perfectly still, perfectly quiet, with a pile of seeds and apple cores placed on his chest.
<b><i>Snowballs</i></b>	Lois Ehlert	Pull on your mittens and head outside for a snowball day. Grab some snow and start rolling. With a few found objects--like buttons and fabric and seeds--and a little imagination, you can create a whole family out of snow.
<b><i>The Bird House</i></b>	Cynthia Rylant	Cheerless and homeless, a girl is ambling along a river when she sees a bright blue house thronged by birds.
<b><i>Where's the Party?</i></b>	Katharine Crawford Robey	From the time Kate wakes up, birds seem to be singing messages to her. A robin sings, "News!" A cardinal whistles, "Par-ty!" Of course Kate wants to go, but where?



## TEACHER’S BIBLIOGRAPHY/RESOURCES

Title	Author	Description
<b><i>Discovering Nature with Young Children</i></b>	Ingrid Chaloufour Karen Worth	This explores the wide-ranging elements that make up the natural world around us. The curriculum replaces simple fact-feeding practices with the development of long-term scientific reasoning.
<b><i>Hands-on Nature</i></b>	Jenepher Lingelbach	Grouped around five themes (Adaptations, Habitats, Cycles, Designs of Nature, and Earth and Sky), fact-filled essays introduce each subject, followed by field-tested, experiential activities that engage students in learning about the natural world.
<b><i>Hug A Tree and Other Things to Do Outdoors With Young Children</i></b>	R. Rockwell, E. Sherwood, and R. Williams	Make a rainbow, take a bird to lunch, or measure the wind. Parents and teachers will be able to guide children on a magical discovery tour of the outdoors.
<b><i>Ibird app – Smartphone</i></b>	<a href="http://ibird.com/">http://ibird.com/</a>	Birdsongs, photos and descriptions.
<b><i>Identifyer</i></b>	Amazon	Identify bird songs at the touch of a button.
<b><i>Nature’s Playground</i></b>	Fiona Danks	Children will learn how to build a den from branches, make twig boats to sail across a pond, and voyage through the backyard to find tiny insects and creatures.
<b><i>Mudpies to Magnets: A Preschool Science Curriculum</i></b>	Williams, Rockwell, and Sherwood	224 hands-on science experiments and ideas with step-by-step instructions delight and amaze children as they experience nature, the human body, electricity, floating and sinking, and more.
<b><i>More Mudpies to Magnets: A Preschool Science Curriculum</i></b>	Williams, Rockwell, and Sherwood	Develop the natural scientist in every child with 260 hands-on science activities and ideas.
<b><i>Owl Pellet Sources</i></b>	pellet.com, carolina.com, teachersource.com	Order individual pellets to full kits.
<b><i>Small Wonders: Nature Education for Young Children</i></b>	Linda Garrett, Hannah Thomas	Introduces children ages 3 through kindergarten to the natural world in a special hands-on way.
<b><i>Stokes Beginner’s Guide to Birds: Eastern Region</i></b>	Stokes, Donald and Stokes, Lillian	This pocket-size, brilliantly colorful, simple-to-use guide contains dozens of full-color photographs that enable readers of all ages to identify the most common species.
<b><i>Stokes Field Guide to Bird Feeding</i></b>	Stokes, Donald and Stokes, Lillian	This large format paperback book contains the essential information that backyard nature enthusiasts want and need to select feeders and understand the basics of bird feeding.
<b><i>Ten-Minute Field Trips</i></b>	Helen Ross Russell	For all school environments – urban, suburban, or rural – the author describes more than 200 short, close-to-home field trips that explore new dimensions of familiar spaces and objects.



# FINGERPLAYS

## Two Little Birds

Two little black birds, sitting on a hill  
One named Jack, one named Jill  
Fly away Jack, fly away Jill  
Come back Jack, come back Jill

(hands behind back)  
(bring pointer finger on one hand forward, then the other)  
(hide one hand behind back, then other hand)  
(bring pointer finger on one hand forward, then the other)

Two little blue birds, sitting on a hill  
One named Jack, one named Jill  
Fly away Jack, fly away Jill  
Come back Jack, come back Jill

(may substitute fingers for black, blue, or red birds attached to a craft stick as a puppet)

Two little red birds, sitting on a hill  
One named Jack, one named Jill  
Fly away Jack, fly away Jill  
Come back Jack, come back Jill

## Robin Red Breast

Way up high, little robin flying just so  
Quick down low for a worm he must go  
With a wing on the left and a wing on the right,  
Fly to your tree for soon it will be night

(put hands up as high as possible)  
(put hands low, almost touching the floor)  
(extended arms one at a time)  
(flapping arms like flying)

## Five Little Birds

Five little birds in a nest in a tree  
Are just hungry as can be  
“Peep,” said baby bird number one  
Mother bird promised she would come  
“Peep, Peep,” said baby bird number two,  
If she doesn’t come, what will we do?  
“Peep, Peep, Peep,” said baby bird number three,  
I hope she can find this tree.  
“Peep, Peep, Peep, Peep,” said baby bird number four,  
She never was so late before.  
“Peep, Peep, Peep, Peep, Peep,” said baby bird number five,  
When will our mother bird arrive?  
Well, here she comes to feed her family  
They’re all as happy as can be!

(hold up right hand)  
(wiggle one finger)  
  
  
  
  
  
  
  
  
  
  
(use left hand as mommy bird)

## Hummingbirds

Five humming birds flying in the air,  
The first one landed in my hair,  
The second and third were a pair,  
The fourth humming bird didn’t care,  
The fifth humming bird hummed everywhere.

(Hold up five fingers)  
(Grab little finger)  
(Touch index finger and thumb together.)  
(Grab ring finger.)  
(Touch middle finger and hum loudly)





## Five and Five Eggs

Five and five eggs	(hold up hands)
That makes ten	
Sitting on top is mother hen	(fold one hand over the other)
Crackle, crackle, crackle	(clap hands three times)
What do I see	(fingers around eyes)
Ten fluffy chickens	
As yellow as can be	(hold up ten fingers)

## Wide Eye Owl

There's a wide eye owl	(make binoculars with hands on eyes)
With a pointed nose	(point to nose)
Two pointed ears	(grab ears)
And claws for toes	(wiggle fingers and point to toes)
He lives way up in the tree	(point up to the ceiling)
And when he looks at you	(point)
He flaps his wings	(flap arms like wings)
And says Who....Whooo!	(continue flapping)

## RECIPES

### No-Cook Playdough

1 C flour  
1/3 C salt  
1/2 C water  
Few drops vegetable oil or liquid soap  
Mix flour and salt. Slowly add water, then oil.  
Knead, store covered.

### Edible Bird Nests

- melt chocolate chips
- mix with chow mein noodles (shredded wheat or pretzels work as well)
- shape into nests
- add jelly beans for eggs

### Fruity Nests to Nibble: makes 6

Ingredients: mixing bowl, 2 large shredded wheat biscuits, measuring cups & spoons, 1/4 cup coconut, 1 tbsp. brown sugar, 1/4 cup margarine or butter (melted), muffin tin, foil, fruit or jelly beans

1. To make the nests, in a mixing bowl crumble shredded wheat biscuits with your fingers. Use a spoon to stir in coconut and sugar. With adult help, pour in the melted margarine. Stir everything together.
2. Line each of the 6 muffin cups with a piece of foil. Press the shredded wheat mixture onto the bottoms and up the sides of the foil-lined cups.
3. With adult help, bake in 350 oven about 10 minutes or till crisp. Cool the nests in the cups.
4. Remove the nests from cups by lifting up on the foil. Carefully peel the foil off nests.
5. Fill the nest with fruit or jelly beans. If desired, top the fruit with a spoonful of yogurt.



## SONGS

### **Little Bird, Little Bird** (Tune: Twinkle, Twinkle, Little Star)

Little bird, little bird, fly around,  
Up to the sky, down to the ground.  
Little bird, little bird, flap your wings.  
Open your beak, and sweetly sing.  
Little bird, little bird, fly to your nest.  
Now it is time to take a rest.

### **Feed the Birds** (Tune: Row, Row, Row Your Boat)

Feed, feed, feed the birds In the wintertime.  
When the days are dark and cold, food is hard to find.  
Feed, feed, feed the birds, till the spring has come.  
Scatter birdseed on the snow, feeding birds is fun!

### **Owl in the Tree** (Tune: Skip to my Lou) (Suggested for morning circle when doing Bird theme)

Owl in the tree says, who, who, who  
Owl in the tree says, who, who, who  
Owl in the tree says, who, who, who  
Who, who, are you? (point to a child and have he/she say his/her name)

