An Interdisciplinary Unit on Migratory Birds for Grades 2 to 4

Smithsonian
National Zoological Park
Migratory Bird Center

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Introduction

Neotropical migratory birds are birds with two homes. They spend our winter in Mexico, Central America, South America, and/or the Caribbean Islands and come to the U.S. and/or Canada to breed during our spring and summer. Through their annual journeys between their summer and winter homes, these birds connect distant places and, by extension, the people who live there.

It's amazing to think that the tiny ruby-throated hummingbird you could see sipping nectar in your schoolyard one spring day spent the winter in Mexico or Central America. Or that the wood thrush singing its flute-like song in a nearby forest flew thousands of miles from its winter home, which could be in a forest outside a Mayan village in Guatemala, or on the slopes of a volcano in Nicaragua. The ruby-throated hummingbird and wood thrush are just two examples of the over 200 species of birds that connect Latin America and the United States through their migrations.

As part of the Bridging the Americas/*Unidos por las Aves* program, your class will have the opportunity to learn about these birds with two homes and to communicate with a class in one of the distant places where "our" birds go for part of the year.

What follows is a short and flexible, interdisciplinary unit on migratory birds for grades 2 to 4 which is aligned with specific Common Core State Standards for English Language Arts, as well as Next Generation Science Standards, and Virginia State Standards of Learning for English, Science, History and Social Studies (see Appendix 1).

This unit is intended to be completed during the months of September, October and November, leading up to a December 10 due date for mailing in the materials your class has prepared to have sent to your Latin American partner class. In the spring, as the migratory birds are returning to our area, your class should receive a packet from your partners in return. Your class may also have the opportunity to communicate with your partner class via video-calls or email.

Unit overview

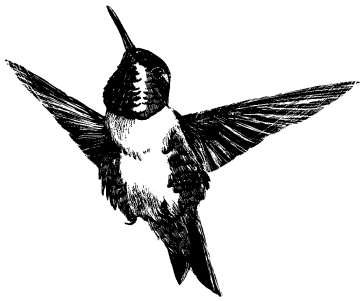
September and October: Exploring the wonder and challenges of bird migration

1. Engage students in thinking and learning about bird migration by reading aloud the children's book *Flute's Journey: The Life of a Wood Thrush* by Lynne Cherry. This book tells the realistic tale of the first year in the life of a wood thrush that migrates from Maryland to Costa Rica and back again (grade level equivalent for independent reading is 5.5; Lexile measure 1030).

Two lesson plan approaches to using this book in your classroom are provided, one for grade 2 and the other for grades 3 and 4. Through *Flute's Journey*, students will practice reading comprehension skills while learning what the journey is like for a migrating bird, about the hazards they face, and how people's actions can have a positive or negative effect on the survival of birds.

An alternative engagement activity for grade 2 Spanish immersion classes entitled *Is this Nicaragua?* is available in the Bridging the Americas online teacher resources on the Smithsonian Migratory Bird Center's web site www.si.edu/smbc (password is bta4teachers).

2. In the *Great Migration Challenge* game, students participate in a migration simulation to learn about the challenges and dangers birds face, and brainstorm actions that people can take to help birds survive.



3. Explore with your students the question of why some birds migrate through a lesson entitled *Should I Stay or Should I Go?.* Students will learn about the foods different kinds of birds eat, and how seasonal weather changes affect the availability of those foods. Based on this information, students can hypothesize as to whether certain bird species of our area are resident (that is, stay here year-round) or migratory.

4. Assign or have students select a migratory bird species that breeds in your area and winters where your partner class is located. They will research and write about this species, illustrate it, and show on a map of the Americas the range in which their species is found during the breeding and non-breeding seasons.

   The students' research worksheets and bird illustrations will be compiled to send to the Latin American partner class. This compilation can be in the form of a class book.

November: Cross-cultural connections

5. Explore with your students what it is like where your partner class lives using printed materials and a PowerPoint presentation that are provided, and involve your students in writing a letter to send to your partner class. Students will also participate in answering eight questions found on the "Tell Your Partner Class About Yourselves" form which will also be sent.

   If students want to share more info about themselves as individuals, they can each complete an "All about Me" form that is provided or create a visual collage of photos or drawings that reveal important details about themselves without English words.

6. By December 10, mail the following to the Smithsonian Migratory Bird Center in the 12" X 15" envelope that's provided:

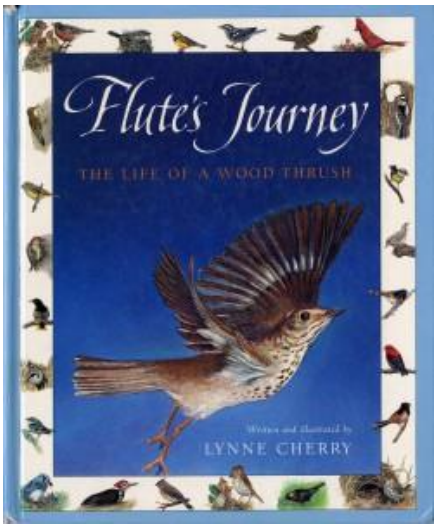
   - Class book or other compilation of the bird illustrations, range maps, and research done by the students

- Class letter of introduction and a few photos of you and your students
- A completed "Tell Your Partner Class about Yourselves" form
- Optional: "All about Me" forms or collages

If your class is partnered with a class that has internet access, you will have the opportunity to have one or more video calls or internet exchanges with them between mid-February and the end of your school year.

If all goes according to plan, you will receive a packet in return from your partner class in mid- May.

Lesson 1– *Flute's Journey: The Life of a Wood Thrush*



Big Idea: Many birds migrate long distances between the places in the United States and/or Canada where they nest, lay eggs, and raise their young and the places in Central America, South America and/or the Caribbean islands where they go during the northern temperate zone winter. These birds with two homes depend on safe habitats in both locations, as well as in the places where they stop to rest and eat while migrating.

Overview: Engage students in learning and thinking about bird migration by reading aloud *Flute's Journey: The Life of a Wood Thrush* by Lynne Cherry (grade level equivalent 5.5 for independent reading; Lexile measure: 1030L). This beautifully illustrated book tells the realistic tale of a wood thrush named Flute and the challenges he faces during his first year of life. Readers follow Flute from the Belt Woods in Maryland where he hatches from an egg, to Costa Rica where he spends the temperate zone winter, and back again to the Belt Woods where he returns to breed and raise a family. Throughout the year he encounters many hazards, some natural and some human-made, including habitat loss, pesticides, outdoor cats, and natural predators. He is helped by children who created habitat on their school grounds that provide a place for Flute to rest and eat while on migration, and by others who worked together to preserve breeding habitat in Maryland and wintering habitat in Costa Rica.

Objectives

Students will be able to:

- describe the annual life cycle of a Neotropical migratory bird;
- identify at least three dangers migratory birds face throughout the year;
- identify ways that people can help migratory birds;
- practice, review and apply geography and map skills;
- practice, review and apply reading, writing, and oral language skills.

See matrix in Appendix 1 for details on this lesson's alignment with standards of learning.

Key concepts:

- Birds build nests, lay eggs and raise their young during only one portion of the year which is referred to as the ***breeding season*****.** The remainder of the year when birds are not reproducing is considered the ***non-breeding season***.
- Bird migration is the regular, back and forth movement between an area where breeding takes place and an area where the bird spends the non-breeding season.

- There are over 200 species of birds that migrate in the spring to the United States and/or Canada to breed, and return in the fall to Mexico, Central America, South America, and/or the Caribbean Islands where they remain throughout our winter. As a group, these birds are called ***Neotropical migratory birds***. The wood thrush is a Neotropical migratory bird species.

  Neotropical defined: "Neo" means new, which refers to the New World (the Western Hemisphere). "Tropical" refers to the tropics, a region of the earth which straddles the equator between the Tropic of Cancer and Tropic of Capricorn (lines of latitude that are 23.5° north and south). The tropics include Mexico, Central America, the Caribbean Islands, and some of South America.

Materials needed:

One or more copies of *Flute's Journey: The Life of a Wood* ***Thrush*** **by Lynne Cherry.** This book is out of print but is widely available as an inexpensive, used book. Search for it on Amazon.com, hpbmarketplace.com, or alibris.com.

The pages in *Flute's Journey* are not numbered. To make it easier to follow the page numbers referred to in the lesson plans, use a sharpie marker or sticky notes to number the pages in your copy of the book in advance. The page beginning with the sentence "Four lovely turquoise eggs lay in a nest…" should be labeled as page 1 to coincide with the page numbers used in the lesson plans.

- The migration journey is risky. Hazards include storms, predators, and difficulty finding safe and suitable places to rest and eat along the way.
- People's actions can have a positive or negative effect on the survival of birds.
- A common misconception is that a bird's nest is its "home" and that birds live in a nest all year. In actuality, birds build nests only during the breeding season for the purpose of having a place to lay their eggs.

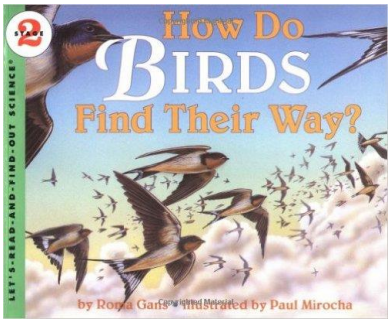
Procedure: See the following Grade 2 or Grades 3-4 Reading Comprehension Guide.

Extensions and cross-curricular options:

- Access the following resources in the **BTA online teacher resources section of the Smithsonian Migratory Bird Center's web site.** Go to www.si.edu/smbc; click on "Learn", then on "Bridging the Americas", then "login". Password is bta4teachers.
  - An alternative engagement activity for grade 2 Spanish immersion teachers entitled *Is this Nicaragua?.* Find this under the heading "Recursos Españoles".
  - Have students read a biased article about cowbirds and discuss the difference between fact and opinion in a lesson entitled "What About those Cowbirds?"

- Play an online migration game featuring a wood thrush: http://nationalzoo.si.edu/scbi/migratorybirds/education/kids_stuff/woth_game/

- Read *How do Birds Find Their Way?* by Roma Gans (Grade level 3.9; guided reading N; Lexile level 690). This non-fiction book will begin to answer some of the questions about how birds migrate that may arise during the reading of *Flute's Journey.*



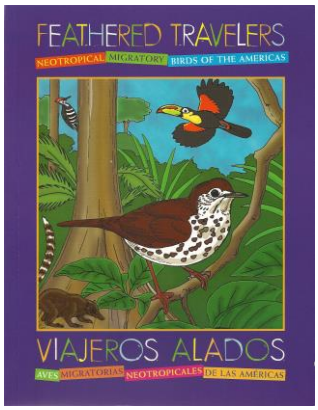
- Music: The very talented and generous songwriter Mike Nobel has written two songs about the wood thrush intended for children to learn and sing: "The Song of the Wood Thrush" and "Ee-o-lay". Lyrics and music for these and other songs can be found here: http://www.gorhamschools.org/~janellem/BIRD%20SONGS%20PRACTICE%20PAGE%201.html

  His beautiful song called "Miracle of the Birds" is available on iTunes. Lyrics and song can also be found on YouTube:

  https://www.youtube.com/watch?v=hPDJW8Xfylg

  https://www.youtube.com/watch?v=MCYo9Q3ADvk

  Contact Mike Nobel: mainesongwriter@gmail.com



- Read a mock interview with a migratory bird found in the bilingual book *Feathered Travelers* to learn about its annual cycle and challenges (page 5).

- For building map skills, you'll find a variety of printable map worksheets at superteacherworksheets.com.

- Explore and learn more about the temperate deciduous forest biome where Flute and many other birds breed during the spring and summer, and the tropical rainforest biome where Flute and many other birds spend our winter: http://www.untamedscience.com/biology/biomes/temperate-deciduous-forests/

  http://www.untamedscience.com/biology/biomes/tropical-rainforests/

Other recommended children's books about migration:

1. ***Is this Panama****?* by Jan Thornbill and Soyeon Kim. **Grades K-3**. Fictional story of a Wilson's warbler migrating from the Arctic Circle to Panama who asks for help from different animals along the way. Available on Amazon.

2. ***Red Knot: A Shorebird's Incredible Journey*** by Nancy Carol Willis. **Grades 1-4**. Realistic fictional story of a red knot that migrates from South America to the Arctic Circle, highlighting the importance of coastal stopover sites such as the Delaware Bay coast. Available on Amazon.

3. ***The Peregrine's Journey*** by Madeleine Dunphy and Kristin Kest. **Grades K-4**. Realistic fictional story based on the migration of an actual peregrine falcon that was tracked using satellite telemetry by the Fish and Wildlife Service as it traveled from Alaska to Argentina. Available on Amazon

4. ***The Far-Flung Adventures of Homer the Hummer*** by Cynthia Furlong Reynolds. **Grades K-3.** Realistic fictional story of a ruby-throated hummingbird migrating from Costa Rica to and Michigan. Available on Amazon

5. ***The Long, Long Journey: The Godwit's Amazing Migration*** by Sandra Markle and Mia Posada. **Grades 1-3.** Realistic fictional story of a bar-tailed godwit migrating between Alaska and New Zealand. Available on Amazon.

6. ***Flight of the Golden Plover: The Amazing Migration between Hawaii and Alaska*** by Debbie S. Miller. **Grades 4+.** Realistic fictional story of a Golden Plover making a transoceanic migration between Hawaii and Alaska. Available on Amazon.

7. ***Hope is Here!*** by Cristina Kessler. **Grades 2+.** The true story of Hope the whimbrel, who migrates between St. Croix and the Arctic every year and is tracked using satellite telemetry. Available on Amazon.

8. ***On the Wing: American Birds in Migration*** by Carol Lerner. **Grades 3-6.** Non-fictional book about the process and patterns of migration, and about some of the research that's been done to better understand the phenomenon. Available on Amazon

9. ***How Do Birds Find Their Way?*** by Roma Gans. **Grades 1-3**. Basic facts about how birds migrate. Available on Amazon.

10. ***On the Move: Mass Migrations*** by Scotti Cohn and Susan Detwiler. **Grades K-3.** A description of migration in birds, reptiles, mammals, amphibians, fish, and insects. Available on Amazon.

11. ***Wild Wings*** by Gill Lewis. **Grades 3+**. Lexile measure 600. Gripping, fictional story about a boy from Scotland and a girl from West Africa who join together to save a migrating osprey.

Recommended bird field guides for children:

1. ***Eastern Birds: A Guide to Field Identification*** (Golden Field Guide from St. Martin's Press by James Coe
2. ***A Field Guide to the Birds of Eastern and Central North America*** by Roger Tory Peterson
3. ***The Young Birder's Guide to Birds of Eastern North America*** (Peterson Field Guides) by Bill Thompson III
4. ***Pocket Naturalist Guide Series- Virginia Birds*** **or** ***Maryland and DC Birds*** by J. Kavanagh and R. Leung (laminated)
5. ***Sibley's Backyard Birds of the Mid-Atlantic and South Central States*** available at www.foldingguides.com (laminated)
6. ***Birds of the Western Chesapeake, Washington, DC and Maryland*** by Middleton Evans (laminated)
7. ***Birds of Virginia*** or ***Birds of Maryland and Delaware*** (including Washington, DC and Chesapeake Bay) by Stan Tekiela
8. ***A Guide to the Birds of Nicaragua*** by Juan Carlos Martinez-Sanchez, et al. (in Spanish and English)

All the above are available through Amazon.com

A Grade 2 Reading Comprehension Guide to *Flute's Journey: The Life of a Wood Thrush* by Lynne Cherry

Synopsis of the book: *Flute's Journey* tells the story of the first year in the life of Flute, the Wood Thrush. The reader follows Flute as he journeys through the seasons -- from his first spring and summer spent in the Belt Woods in Maryland through the following fall and winter seasons in Costa Rica, and back again. We learn about Flute's life cycle, his habitat needs, the route of his migration and the problems he faces throughout the year.

Through this storyline, the children will begin to understand the habitat needs that are crucial for a bird's survival, why some birds migrate, the problems and perils birds face during migration and throughout the year, and how we can all help resident and migratory birds to survive.

Standards alignment: See Appendix 1 for details on how the following lessons align with specific Common Core Standards for English Language Arts, Next Generation Science Standards, and Virginia Standards of Learning in English, Science, History and Social Science. This reading comprehension guide follows the Arlington Public School's English Language Arts Scope and Sequence Instructional Guide for the first quarter.

Materials needed:

- One or more copies of *Flute's Journey: The Life of a Wood Thrush* by Lynne Cherry
- Optional student worksheets from Appendix 2.

Part I
Previewing the book: Be a book detective!

Before hearing the story read aloud, students will look closely at the cover and introductory parts of the book and predict what the story is about while beginning to connect their prior knowledge to it.

Lesson 1.1. Can you read this book by its cover?

Have students take a close look at the book's front cover and answer the following questions. This can be done as part of a class discussion, or as an individual or small group writing assignment using the worksheet that is provided (*see Worksheet #1: Be a book detective! Can you read this book by its cover?*).

1. Why do you think the author chose *Flute's Journey, The Life of a Wood Thrush* as the title of this book?

Key vocabulary:

prediction – *noun*: a statement about what will or might happen in the future. *Pre* means *before* and *diction* has to do with talking

illustration – *noun*: a picture or diagram that explains or decorates

character – *noun*: a person, part or role in a novel, play or movie

journey – *noun*: the act of traveling from one place to another, usually taking a long time. *Verb*: to travel somewhere

2. Who do you think Flute is?
3. What is a journey?
4. Where do you think Flute goes on his journey?
5. What clues does the illustration on the cover give you about this book and its characters? What details do you notice?
6. Describe the back cover.
7. What clues does the back cover give you about the book?
8. Make a prediction: What do you think this book is about?

Lesson 1.2. Map walk: What clues and information do the map and illustrations on the inside front cover give us about this book?

Have students look closely at the map and bird illustrations on the inside front cover and think about what information is conveyed. The following questions may be read and answered orally as a group or as a writing project completed in a large group, small groups or with partners (*See Worksheet #2*).

1. What do you notice?
2. Can you find the state where you live on the map?
3. What is the continent shown on this map?
4. Can you locate any specific countries?
5. Can you name the oceans and other bodies of water you see?
6. What do you think the red curving line is showing you?
7. What does the key to the "Birds of Belt Woods" tell you about the birds pictured around the border? *(Some bird species are year-round residents of the mid-Atlantic region where a forest called the Belt Woods is located. Others pass through this region while migrating to another destination, and still others migrate to forests in this area and stay there temporarily to nest during the spring and summer.)*
8. Do you recognize any of the birds around the border of the page?
9. Make a list of the birds on the border that you think you have seen in your schoolyard or neighborhood. (*The birds most likely to be seen in a typical suburban or urban neighborhood with at least some trees and shrubs are: American robin, Northern cardinal, Downy woodpecker, Brown-headed cowbird, Rufous-sided towhee--also known as Eastern towhee, Blue jay, Red-bellied woodpecker, White-breasted nuthatch, and Yellow-shafted flicker. The other birds pictured here require larger trees and/or larger forested areas, like the habitat found in the Belt Woods*.)
10. What are some similarities and differences you notice between the birds on this page?
11. Find the detailed square illustration of the woods. It shows what the habitat is like in a forest called the Belt Woods in Maryland. Can you locate the Belt Woods on the map? Describe the woods. What season do you think it is? What does this illustration tell us about the habitat needs of the birds who live there?

Key Vocabulary:

continent – *noun*: a large unbroken land mass often surrounded by water, although in some cases continents are or were in part connected by land bridges. The seven continents are North America, South America, Europe, Asia, Africa, Australia and Antarctica.

ocean –*noun*: the vast body of salt water that covers almost three fourths of the earth's surface. The five geographical divisions of this body are commonly given as the Atlantic, Pacific, Indian, Arctic and Southern.

Latin America – *noun*: the part of the American continents south of the United States in which Spanish or Portuguese is officially spoken.

Central America – noun: a region of southern North America extending from the southern border of Mexico to the northern border of Colombia.

country – noun: an area of land that is controlled by its own government.

state – noun: a territory with its own government and borders within a larger country.

bird – noun: a warm-blooded (endothermic), egg-laying vertebrate of the class Aves, distinguished by the possession of feathers, forelimbs modified into wings, scaly legs, a beak, no teeth. Not all birds fly; those that do have light-weight, hollow bones.

resident bird – noun: a bird that does not migrate and lives in an area where its food is available throughout the year.

migratory bird – noun: a bird that moves regularly between breeding and non-breeding areas in response to seasonal changes in the availability of food.

habitat – noun: the natural home or environment of an animal, plant or other organism; the place where an animal finds food, shelter, water and a safe place to raise young.

Lesson 1.3. What clues and information do the introduction, title page, and dedication give us about this book?

1. Read the **introduction** (on the page opposite the title page) to your students as a visualization exercise. Have them imagine it is a "still, starry fall evening" as you read. Afterwards, record the images that stood out for them on chart paper. What did they "hear?" What did they "see?" What did they "smell?" What are they wondering about? What questions do they have?
2. Look at the illustration on the **title page**. Describe the Wood Thrush. Where is the Wood Thrush's nest? Describe the nest. What do you think it is made of?
3. Refer to the **dedication** page ("To Seton Belt, who had the foresight to try to protect and preserve his magnificent forest for all time").
   - What do you think the dedication means?
   - Who do you think Seton Belt is?
   - Why do you think this book is dedicated to him?
   - What do you think the words, *foresight*, *protect* and *preserve* mean?

- Imagine you are the bird in the illustration. What "bird's eye view" do you see below you?
- Do you think these are the Belt Woods?
- What are the brown areas in the illustration?

Key vocabulary:

dedication- *noun*: a short, personal note included at the beginning of a book that recognizes one or more people who helped or inspired the author

foresight- *noun*: the ability to predict what will happen or be needed in the future

protect- verb: to keep safe

preserve - verb: to maintain something as it is (i.e., in its original or existing state)

tropics– noun: the region of the Earth located between the Tropic of Cancer (the line of latitude 23.5 degrees north of the Equator) and the Tropic of Capricorn (the line of latitude 23.5 degrees south of the Equator).

Neotropical– adjective: a geographical division of the New World (also known as the Western Hemisphere) extending from the Tropic of Cancer southward to the Tropic of Capricorn.

forest– noun: a large tract of land covered with trees and underbrush; woodland.

tropical forest– noun: tropical forests include rainforests, cloud forests, dry forests and pine savannas, etc., found within a zone that straddles the equator where temperatures in all areas below a certain elevation remain warm throughout the year and where considerable rain fall occurs seasonally.

understory– noun: the shrubs and plants growing beneath the main canopy of a forest.

canopy- noun: upper layer or habitat zone formed by mature tree crowns. Sometimes it refers to the outer layer of leaves of an individual tree or group of trees.

"Growing words": migrate, migrated, migrating, migrates, migratory

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Part II
Picture walks followed by teacher "read-alouds"

The lessons in Part II divide the book into three sections that correspond with three important phases of Flute's annual life cycle:

1) Flute's first spring and summer in Maryland when he hatches, fledges (leaves the nest), and becomes independent
2) The fall and winter during which Flute prepares for and experiences his first migration to Costa Rica, and his arrival and establishment of a territory there

3) Flute's second spring and summer when he migrates from Costa Rica back to Maryland, finds a mate, builds a nest, and raises his young

Each of the three lessons begins with a "picture walk" in which students view illustrations in the book and respond to questions that prompt them to make predictions and connect their prior knowledge and experiences to the story. Picture walks are followed by a read-aloud of the corresponding text, and then the creation of a story map, or a discussion.

Note: The pages in *Flute's Journey* are not numbered. To make it easier to follow the page numbers referenced in these lessons, use a sharpie marker or sticky notes to number the pages in your copy of the book in advance. The page beginning with the sentence "Four lovely turquoise eggs lay in a nest…" should be labeled as page 1 to coincide with the page numbers used below.

Lesson 2.1. Flute's first spring and summer (hatching, fledging, and becoming independent)

Picture walk: Have students take a close look at the pictures beginning with the illustration of the nest on page 1 and ending with the illustration of birds flying in front of the moon on page 6. This can be done as a whole group, in small groups, or with small groups focusing on specific illustrations and then sharing as a group (*See worksheet #3*).

Use the comprehension questions below to guide the children through the story illustrations in sequence:

Page 1- The nest and eggs:

- Describe the nest. What do you think it is made of? Where do you think it is?
- Describe the color of the eggs. What else in nature is this color? How many eggs do you see?
- If you have the *Peterson Field Guide to Eastern Birds' Nests or* other book about bird nests in your classroom or access to online resources: Look through the guide to find this nest. Can you find other birds that lay eggs of similar color?

Page 2- The adult bird and the baby birds in the nest:

- Describe the adult bird. If possible, try to find this bird in a field guide.
- What does the adult bird have in its mouth?
- Describe the baby birds. What do you notice about them? What are they doing?

Page 3- Sleeping baby birds in the nest:

- Have the baby birds changed compared to the previous picture?

Pages 4 and 5- The forest:

- Describe the forest. What colors do you notice? How many different plants can you find?
- What animals do you see?
- What are the children doing in the illustration?

- How many birds can you find? How many different kinds of birds are there? What are the birds doing?
- Try to identify the birds using the illustrations on the inside of the front cover. *(Birds on page 4: The birds in and near the nest on the far left are Wood thrushes. The bird with the red crest in front of the tree cavity is a Pileated woodpecker, and bird to its right is a Rufous-sided towhee, also called an Eastern towhee. Birds on page 5: bird above the deer and to the left is a White-eyed vireo, the red and black bird is a Scarlet tanager, the orange and black bird is a Baltimore oriole. Below the oriole is a Wood thrush and below it is another White-eyed vireo.)*

Page 6 and 7: Flying by moonlight

- What is the time of day in this illustration?
- Why are the birds flying in the moonlight?
- Where do you think they are they going?

Read-aloud and story map: Read aloud pages 1 (beginning with "Four lovely turquoise eggs . . .") through the words ". . . had learned to take care of themselves" on page 6. Then use the Story Map worksheet to create a story map together using information, details, and vocabulary from the story (*See Worksheet #4: Flute's first spring and summer*). This story map will focus on Flute's first spring and summer, from the

Key vocabulary:

season –noun: a period of the year marked by certain weather conditions and numbers of hours of daylight. In the temperate zone we experience four seasons (spring, summer, fall and winter). In the tropics there are two seasons (dry and wet). The tilt of the Earth's axis combined with its yearly revolution around the sun causes the change of seasons.

temperate zone –noun: in geography, the temperate latitudes of Earth lie between the tropics and the polar regions.

species –noun: a group of living organisms with similar characteristics that are able to breed with each other. Regarded as the basic category of biological classification.

egg –noun: the round or oval object produced by female birds, reptiles, fishes, insects and some other animals which usually contains a developing embryo and nutrients. The eggs of birds are enclosed in a hard but porous shell.

fledgling –noun: a young bird that has recently acquired flight feathers, has left the nest, and is just learning to fly.

fledge –verb: to leave the nest and develop the feathers necessary for flying.

plumage –noun: the entire feathery covering of a bird; all the feathers that form the color and patterns of a particular bird.

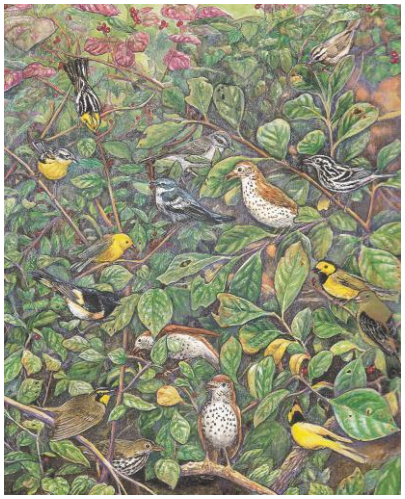
"Growing words": fledge, fledgling, fledged

time he hatches from an egg to when he becomes independent from his parents and siblings.

Lesson 2.2. Flute's first fall and winter (preparing and experiencing his first migration to Costa Rica, arriving and establishing a territory there)

Picture walk: Take a picture walk beginning with the illustration of Flute flying in front of the moon on page 6 and ending with the illustration of the tropical forest on pages 14 and 15. This can be done as a whole group, in small groups or with small groups focusing on specific illustrations and then sharing as a group (*See Worksheet #5*).

Use the comprehension questions below to guide the children through the story illustrations in sequence:



Pages 6, 7, 8, and 9- Taking flight, flocking, eating:

- Why would Flute fly during the night? *(Most Neotropical migratory songbirds migrate at night because it is cooler, the winds are calmer, and they may be better protected from predators.)*
- What signs of the fall season do you see in the illustrations on pages 8 and 9?
- What are the birds doing? What do you think they are eating?
- Look at the photos of the migratory birds that connect your class with your partner class in Latin America. Can you find any of these birds in the picture? List them. *(Species pictured in illustration on page 8: worm-eating warbler, black-and-white warbler, wood thrush, hooded warbler, female scarlet tanager, ovenbird, Kentucky warbler, American redstart, yellow warbler (difficult to tell for sure), magnolia warbler, blackburnian warbler, cerulean warbler)*

Pages 10 and 11- Tropical forests:

- Think of adjectives to describe the illustration on the bottom of page 10.
- What do you notice about the forest? Do you think this is a large or small area?
- What do you think the weather is like?
- Look at the next illustration on page 11. Think of adjectives to describe what you notice in this picture.
- Look at the photos of the migratory birds that connect your class with your partner class in Nicaragua. Can you find any of these birds in the picture? Add them to your list. *(Baltimore oriole, Azure-hooded jay, chestnut-sided warbler*, long-tailed manakin, yellow-throated bush finch, violet sabrewing hummingbird, spangle-cheeked tanager, black-faced solitaire, male and female scarlet-thighed dacnis, pair of emerald toucanets, resplendent quetzal, wood thrush)*
- Do you think all the birds in this picture are migratory birds*? (Only the Baltimore oriole and wood thrush are migratory birds. The others are resident birds that live in the Costa Rican rainforest year-round.)*

Pages 12 and 13- Eating, drinking and resting:

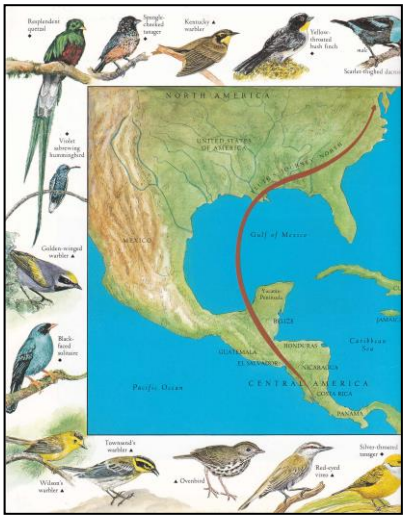
- What is Flute doing in these pictures?
- Where is he bathing?

Pages 14 and 15- Winter destination:

- Think of adjectives to describe the illustrations on pages 14 and 15.
- What do you notice about the plants?
- What animals can you find?
- What do you think the two Wood Thrushes are doing?

Read-aloud, map walk, and story map: Read aloud the section beginning with the following sentence on page 6: "September came and a cool breeze ruffled Flute's feathers", and ending with this sentence on page 15: "But Flute, though young, was bold and able to defend his winter territory."

After reading, have students look carefully at the map at the end of the book. The following questions may be read and answered orally as a group or as a writing project completed in a large group, small groups or with partners (*see Worksheet #6)*



1. What continents are shown on this map?
2. Can you find the country where you live on this map?
3. What other countries can you locate?
4. Can you name the oceans and bodies of water you see?
5. What do you think the red curving line is showing you?
6. Do you recognize any of the birds around the border of the page?
7. What does the key tell us about the birds of the Monteverde Rain Forest?
8. Which of the birds on the border are year-round residents of the Monteverde Rain Forest (also called the Bosque Eterno de los Niños)?
9. What are some of the similarities and differences you notice between the birds on this page?
10. Find the detailed square illustration of the woods. It shows what the habitat is like in the Monteverde Rain Forest in Costa Rica. Can you find the Bosque Eterno de los Niños on the map? Describe the woods. What does this illustration tell us about the habitat needs of the birds who live there?

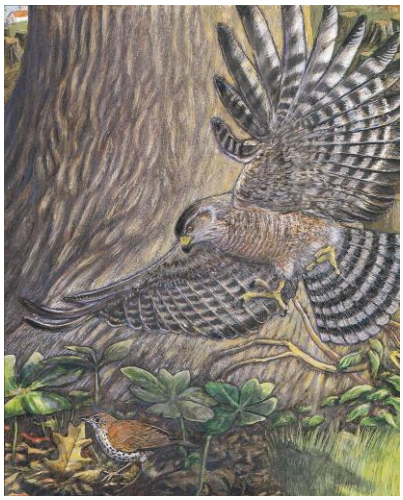
Create a detailed, illustrated story map by organizing this part of the story into three parts --focusing on the beginning, middle and end of Flute's journey thus far. Include a compass rose, the characters, settings, problems, solutions and your own personal reflections. Use the included templates and questions to guide your story map (*see Worksheet #7*)

While reading this part of the book, students could select and begin their research on a species of migratory bird that connects them with their partner class in Latin America. See unit lesson 4 "About My Migratory Bird" for details about the student research.

Lesson 2.3. Flute's second spring and summer (migrating from Costa Rica to Maryland, finding a mate, nesting, and raising his young)

Picture walk: Take a picture walk beginning with page 16 and ending with page 28. This can be done as a whole group, in small groups or with small groups focusing on specific illustrations and then sharing as a group (*see worksheet #8*).

Use the questions below to guide the children through the following story illustrations in sequence. The children will most likely speculate that the Wood Thrush in most of the illustrations is Flute as now they have more background knowledge and information.



Pages 16 and 17- Clear-cutting of the forest and hawk:

- Compare and contrast the land pictured in the illustration on page 16. How is the land on the left different from the land on the right?
- What do you notice?
- What do you think happened to the land on the right side of the illustration?
- Do you think all the land looked the same at one time?
- Which side of the illustration will be a more secure habitat for Flute? Explain your ideas.
- Why is the hawk so close to Flute in the illustration on page 17?
- What do you notice in the upper left hand corner of this illustration?
- How do you think the hawk is able to find Flute in these woods?

Pages 18 and 19- Outdoor cat & Flute on the forest floor:

- What do you think the cat is doing in the woods?
- Do you think the cat lives in the woods?
- Why is Flute on the forest floor in the illustration on page 18?
- What is the cat doing in the large illustration on page 19?

Page 20- Development and fragmentation:

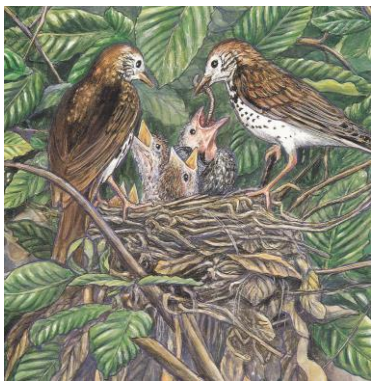
- What do you notice about the woods in this illustration?
- What does Flute see from his "bird's eye view?"
- Where do you think Flute will choose to land? Explain your ideas.

Page 23- Calls and songs:

- What is Flute doing in this illustration?
- Where exactly do you think he is?

Pages 24 and 25- Nesting:

- Who do you think is sitting in the nest on page 24?
- Do you think the bird in the large illustration on page 25 is a Wood Thrush?
- Why do you think one egg looks different from the rest?



Page 26- Baby birds:

- Who are the two adult birds standing on the nest?
- Do all the baby birds in the nest look the same?
- Why are their mouths open?
- What is in the adult bird's mouth?
- Do you think all the baby birds are eating?
- What do you notice about the bird in the illustration on page 27? Is it a baby bird? Do you think this fledgling is a Wood Thrush? *

Page 28- Taking flight!:

- What are the two children doing in the woods?
- Why are the children waving?

Read aloud and class discussion: Read aloud from the following sentence on page 16: "In the North, longer days heralded spring's arrival," to the end of the story on page 28.

*Brown-headed cowbirds sneak their eggs into the nests of thrushes and other species, relying on the unsuspecting "foster parents" to raise their young for them, usually to the detriment of the foster parents' young. For more information, refer to the article entitled *The Brown-headed Cowbird*.

Key Vocabulary:

arduous –adjective: involving or requiring strenuous effort; difficult and tiring.

habitat destruction –noun: a process in which natural habitat is changed so that it is unable to support the species that previously depended on it.

clear-cut –noun: an area where most or all of the trees are cut down.

dormancy –noun: a period in an organism's life cycle when growth, development, and (in animals) physical activity are temporarily stopped. Dormancy helps an organism to conserve energy and is closely associated with environmental conditions.

forage –verb: to search widely for food.

grub –noun: the larva of an insect, especially a beetle.

larva –noun: the immature, wingless feeding stage of an insect that undergoes complete metamorphosis.

peril –noun: serious and immediate danger.

predator –noun: an animal that lives by killing and eating other animals in order to survive.

landmark –noun: an object or feature of a landscape or town that is easily seen and recognized from a distance, especially one that enables someone to establish their location.

fragmentation –noun: the process or state of being broken into smaller bits or parts.

pesticide –noun: a substance used for destroying insects or other organisms that humans consider to be "pests."

lethargic –adjective: sluggish, inactive, lifeless.

"Growing Words –ly": effortlessly, intermittently, wildly

The Brown-headed Cowbird

The Brown-headed Cowbird might be better named the bison bird. Over 150 years ago, it had never even seen a cow. Instead, this bird lived in the Great Plains of North America where it followed the huge herds of bison as they grazed their way in great sweeping arcs across the vast sea of prairie grasses. The cowbirds went along on these migrations, riding on the great shaggy backs of the bison while picking ticks and mites from their fur. They strutted along beside the great beasts, eating seeds and insects stirred up by their giant hooves.

The cowbirds had a way to follow the bison on their travels and not be left behind to raise their young. They had other birds adopt their eggs and raise their young. Cowbirds probably don't have a clue how to build a nest or feed babies. Instead, they wait for a bird to leave its nest for a moment. In the few minutes that the bird is gone, the cowbird slips in and lays an egg in the nest. Then the cowbird is able to hit the road again leaving the unsuspecting owner of the nest to raise the cowbird chick. When a bird lays its eggs in another bird's nest, it is called *nest parasitism or brood parasitism.*

Sometimes the nesting bird recognizes the strange egg and shoves it out of the nest. Or it builds another nest over it. Or it may leave the nest even if it already has its own eggs in it. Many birds, however, don't seem to notice anything unusual about the extra strange egg. They go ahead and raise the cowbird chick along with their own.

Cowbird eggs usually hatch before the bird's own eggs. The cowbird chicks grow faster and beg louder than the other chicks. Because of this, they get more of the food. Many times the only chick to survive in a nest that contains a cowbird chick is the cowbird chick.

Why are they called cowbirds? When Europeans began to move to North America, they began clearing forests and moving in cattle. Cowbirds quickly moved into these new grasslands and began to join this new "bison." They still laid their eggs in other birds' nests. After all, that's what they naturally do. There was no reason to change the way they act just because these "bison" didn't migrate.

Two hundred years ago, the cowbird had 50 host bird species to choose from. But today, as our landscape has changed, the cowbird has moved into the breeding grounds of songbirds that have not developed any natural defense against cowbirds. Now the Brown-headed Cowbird has about 150 new bird hosts. Many of these migrants are in danger because they are not raising their own young.

Meanwhile, there are many more cowbirds now because cowbirds do well in the open, disturbed habitat that comes with cutting down and opening up woodlands. Another reason there are so many cowbirds now is because the average female cowbird can lay up to 40 eggs a year. Most song birds lay three to five eggs a year.

A Grades 3-4 Reading Comprehension Guide to
"Flute's Journey: The Life of a Wood Thrush" by Lynne Cherry

Read the story
Flute's Journey

FLUTE'S JOURNEY

Objectives

Students will:

- use information in the story to create a concept map of the natural history of a Wood Thrush.
- compare and contrast breeding and non-breeding habitats in Maryland and Costa Rica.
- locate a migratory route on a map.
- identify positive actions children can take to help migratory birds.

Subjects

Science, Geography, Literature, Language Arts

Suggested time

1 hour

Getting Ready

✓ Post the map on the wall.

✓ Prepare to play recording of the wood thrush song available on www.allaboutbirds.org

✓ List the vocabulary words on a chart or on the board:

Vocabulary

DOWN - soft underfeathers that are used for insulation

PINFEATHERS - emerging adult flight feathers

FLEDGE - when a young bird leaves the nest and is ready to fly

FLEDGLING - a young bird that has recently left its nest but still depends on its parents

MIGRATE - to travel from one place to another at a certain time of year

SONGBIRDS - birds that live on land and have feet designed for perching on branches; they often sing

PREDATOR - an animal that kills and eats other animals

INDIGENOUS - native to an area, and also found in other areas

TERRITORY - an area an animal uses and defends against other animals

TROPICAL - the region of the world that lies on either side of the equator

FOREST PRESERVE - a woodland that is protected from development

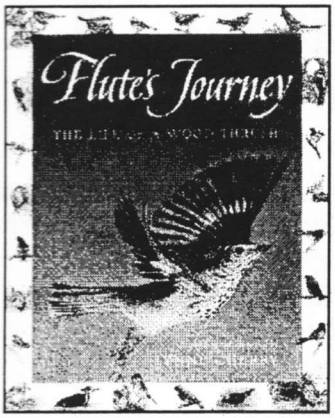
LARVAE - the worm-like form of newly-hatched insects

FORAGE - to search for food

NESTLING - a young bird that has hatched but not left the nest

Story synopsis

This is the story of one young Wood Thrush's first migration - across thousands of miles- from his nesting ground in the Belt Woods of Maryland to his winter home in Costa Rica and back again. During his journey, Flute encounters many of the perils that threaten songbirds. His survival depends upon luck, his instincts, and help from people who are working to preserve songbird habitat.



Introducing the book

Ask students to close their eyes and imagine that they visiting a northern forest in Maryland in early spring. Tell them:
The air is cool and moist. You are surrounded by beech, dogwood and tulip poplar trees. Shafts of sunlight drop down through the leafy roof forming golden patches on the forest floor. As you step around big old rotting trees that have fallen to the forest floor, you sink into the ground as if you are walking on a sponge. In the distance you can hear a stream rushing over rocks covered with slippery green moss. All is quiet except for the buzzing of insects. And then you hear this melody . . .

(play wood thrush song available on www.allaboutbirds.org)

Ask them how they would describe the sound of that bird song. Tell students that the bird that they are hearing is a Wood Thrush. It is considered one of the most beautiful singers of all the birds. The story they are about to hear is about a Wood Thrush named Flute. The story is called Flute's Journey written and illustrated by Lynne Cherry.

Fascinating Facts

Wood Thrushes have 2 sets of vocal chords which can work independently to produce their complex and beautiful songs.

Preview and predict

Show students the front cover of the book and thumb through some of the pages. Ask them what kind of book they think it is.
What clues are there to suggest that the book is realistic fiction?

Vocabulary

Explain to students that Flute's Journey contains many words relating to birds and their environment. Go over the posted vocabulary words. Tell students that as you read the story aloud they should listen for those words. Have them signal to you when they hear the words in the story. During your reading, take some time to have students discuss the meaning of the words within the context of the story.

Geography

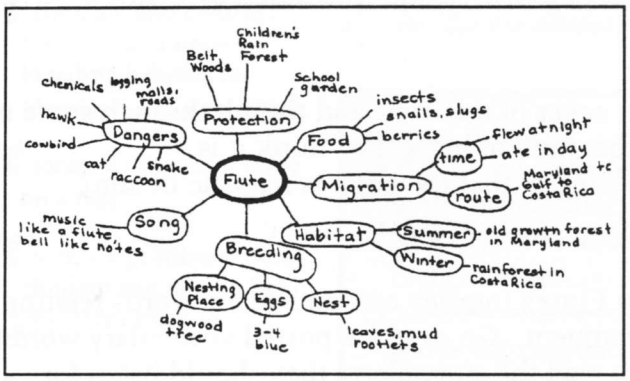
Explain to students that Flute is a Neotropical migratory songbird. That means that he breeds and nests in North America and then travels or migrates to the Neotropics in the fall. In the spring he returns to North America again to breed. Show students on the map that the Neotropics is the area around the equator from the Tropic of Cancer to the Tropic of Capricorn. Tell students that the settings of the story are Maryland and Costa Rica and all the places in between. On the map point out Maryland and Costa Rica. As you read the story, take time to place push pins or stickers on the map to show the locations of the places mentioned in the story. Older students could trace Flute's migration journey on their own copies of maps.

Procedure

Read the story aloud to students. At the end of the story, consider leading students in a discussion to stimulate conversation and comprehension.

Discussion

What did you learn about Flute's life from hearing this story?
Start a concept map on the board and have students help you fill in the organizer with all the information they recall about Flute's natural history. Include headings such as food, habitat, migration, breeding, song, dangers and protection. Older students could create their own concept maps independently. Refer back to the book if students need to recall details.



What are the main points people should know about migratory songbirds? *Possible answers: They have two different homes. They face many dangers and problems. Songbird habitats are being destroyed. People can help protect songbirds and their habitats.*

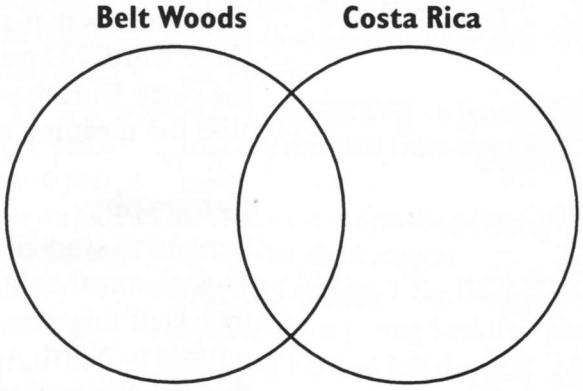
How do the settings compare to our community?
Have students list how their own community is similar or different.

Was the story realistic? In what ways?
Possible answers: The story shows the life cycle of a Wood Thrush. The problems that Flute faces are real problems that songbirds face. The Belt Woods and the Children's Rain forest really exist.

What were the dangers and problems that Flute faced in the story? *Escaping from predators such as cats, raccoons, hawks, snakes. Getting sick from eating chemicals. Losing stopover habitat because trees were cut down for houses. Losing a chick from cowbird parasitism.*

What helped Flute to survive? What was luck? *Possible answers: Escaping a hawk, escaping a cat, recovering from the pesticides.* **What was instinct?** *Knowing where and when to migrate. Knowing how to defend his territory, find food.* **How did children help?** *Children planted a spicebush grove in their schoolyard, preserved rain forest land in Costa Rica, planted a forest in Virginia.*

Compare life in the Belt Woods with life in Costa Rica. How are they alike and different?
Create a Venn diagram. Record the characteristics of each setting in the diagram indicating similarities and differences.



What do think would have happened if the Belt Woods had been cut down? How would the story have been different?

Why do you think Lynne Cherry chose to write a children's book about a Wood Thrush?

Assessment

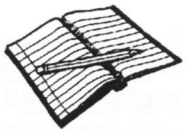
Performance Assessment

Assign the following task:

Create a calendar of Flute's year of adventures. In each of 12 boxes representing months of the year, draw and write Flute's location and a description of his activities during each month. Start in May when he hatches and end when he returns to Maryland the following April.

Student Reflections

Have students record their thoughts about Flute's Journey in their journals. Suggested writing prompts include:



This book made me realize that . . .
This book made me decide that . . .
This book made me wonder about . . .
This book made me hope that . . .

What does the author want you to remember from this book to use in your life?

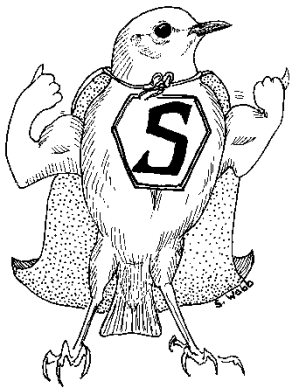
Lynne Cherry's advice to children is this: "Go outside - explore the woods and streams, plant trees, save whales and acres in the rain forest. You can make a difference!" What do you think of this statement?

Teacher Reflections

- ❑ Did students use information gleaned from the story to complete a detailed concept map of Flute's life and an accurate yearly calendar ?
- ❑ Can students accurately describe the life cycle of a migratory songbird?
- ❑ Can students identify changes in the environment that are both detrimental and beneficial to songbirds?
- ❑ Can students identify significant similarities and differences when comparing habitats in Maryland and Costa Rica?
- ❑ Could students share positive actions that children can take to conserve migratory songbirds and their habitats?

Lesson 2: *The Great Migration Challenge*

Big Idea: Like the wood thrush in *Flute's Journey*, migratory birds of all kinds face many natural and human-made dangers. There are actions that all of us can take to help birds survive.



Overview: Students pretend to be wood thrushes migrating from Costa Rica to Washington, DC. and learn about some of the hazards and benefits birds encounter on their journeys. They then brainstorm ideas about what actions people can take to help birds survive, and illustrate or write about one action he or she will take.

Objectives

Students will:

- think about the hazards migratory birds face throughout the year;
- identify actions that people can take to help birds survive;
- be able to explain why protecting Neotropical migratory birds depends on people in multiple countries.

See matrix in Appendix 1 for details on this lesson's alignment with standards of learning.

Key concepts:

- Migration is risky: birds encounter many hazards and challenges to their survival along the way.
- People's actions can have a positive or negative effect on the survival of birds.
- People share a responsibility to conserve the environment that we and the birds depend on.

For teacher background information on threats to birds, see "When Songbirds Sing the Blues" on page 27.

Materials needed:

- Great Migration Challenge scenario sheets from Appendix 3
- Great Migration Challenge student worksheet- page 37 (1 per student or 1 per group)
- *Threats to Birds*- page 39
- *"I'm For the Birds!"* pledge sheet- page 44 (1 per student)

Procedure:

1. In a classroom, hallway, or outdoors, spread out the 17 Great Migration Challenge scenario sheets in the order they are numbered. Use as much area as you have available as the sheets represent a migratory bird's long journey. This activity could be broken down over multiple days if needed.
2. Ask students to try to remember what the migration journey was like for Flute in the book *Flute's Journey*. What hazards or threats did he face? (pesticides, outdoor cat, a hawk, habitat loss) Was he helped out in any way by actions people

took? (children created habitat on their school grounds, and others preserved habitat in the Belt Woods and in Costa Rica)

3. Explain to the students that they are going to pretend to be wood thrushes migrating from Costa Rica to Washington, DC. They will go from one "Great Migration Challenge" scenario sheet to the next. Each one describes something that could happen to a bird as it migrates. At each one, they should read what it says on the sheet, do what it says, and then fill in the information asked for on the worksheet (i.e., what happens in each scenario and if that experience would be a hazard or a benefit to a migrating bird).

4. Hand out the worksheets and have students take turns moving through the scenarios individually or in small flocks.

5. After all students are finished, follow with a discussion:

   What were some of the good things that happened on your migration?

   What were some of the hazards?

   How do humans play a role in creating hazards for migrating birds?

   Are there things people can do to help migratory birds?

   *True or False?: If every person in the United States did everything they could to help migratory birds survive, migratory birds would be safe. (*False. Because migratory birds spend part of the year in North America and part of the year in countries south of the United States, migratory birds can be safe only if people in each of the places where they live throughout the year protect them and their habitats.)

6. After students have time to share their ideas about what people can do to help birds, have students read together "Threats to Birds" and then each can draw or write about one thing they will do to help birds using the "I'm for the Birds!" pledge sheet.

Key vocabulary for "The Great Migration Challenge":

benefit –*noun*, an advantage or gain.

collision –*noun*, an event in which two or more bodies exert forces on each other for a relatively short time, such as a bird flying into a tall building or window.

fragmentation -*noun*, the process or state of being broken into smaller bits or parts.

habitat destruction –*noun*, a process in which natural habitat is changed so that it is unable to support the species that previously depended on it.

hazard –*noun*, a danger or risk.

navigate –*verb*, to plan and direct the route or course especially by using instruments or maps.

pesticide -*noun*, a substance used for destroying insects or other organisms that humans consider to be pests.

plantation –*noun*, a large farm on which cotton, tobacco, coffee, sugar cane or the like is cultivated.

predator -*noun*, an animal that lives by killing and eating other animals in order to survive. Flute encounters a hawk (a wild predator) and a domestic cat.

pollution -*noun*, the presence in or introduction into the environment of a substance that has harmful or poisonous effects. The contamination of air, water or soil by substances that are harmful to living organisms.

shelter -*noun*, a place giving temporary protection from bad weather or danger; verb, to protect, shield, cover, save or safeguard.

slingshot –*noun*, a forked stick with an elastic band attached for shooting small stones.

storm -*noun*, a violent disturbance of the atmosphere with strong winds and usually rain, thunder, lightning or snow.

wildlife refuge –*noun*, an area designated for the protection of wild animals, within which hunting and fishing are either prohibited or strictly regulated.

Teacher Background for The Great Migration Challenge

Every living plant and animal faces many threats to its life. Different species have evolved different ways of coping with problems such as storms, predators and droughts. If things change slowly enough over thousands of years, many species can adapt to new conditions through selection of individuals with behaviors or physical abilities that enable them to better cope with the alterations. If conditions change so rapidly that there is not enough time for selection to favor new kinds of individuals, then the individuals of that species will not reproduce fast enough to counteract the increased death rate, and the species will go extinct.

Frightening Facts

In some eastern states, songbird numbers have dropped by as much as 70% in the last 15 years.

Since life began on earth, many species have gone extinct. They were species that could not adapt fast enough to changing conditions such as ice ages, long drought cycles and the evolution of new species that could out-compete them or more efficiently prey on them. Right now humans are changing conditions on earth very rapidly by altering landscapes. Consequently, many species are heading for extinction. On the other hand, when conditions change, there are usually some species that are adapted for the new way things are. The populations of these species may increase astronomically.

Migratory songbirds are no exception to these facts. They represent a great variety of species with widely differing habitats and requirements. It is no wonder that the rapid changes taking place on the planet today are adversely affecting some species while favoring others. Many studies have indicated significant declines in populations of migratory birds.

Frightening Facts

Since European settlement, 90% of the original forests over the lower 48 states has been logged or lost to natural factors.

The following briefly explains a few of the human-caused actions that are adversely affecting some of our songbird species:

Habitat Loss

The most significant factor affecting migratory bird populations is the loss and fragmentation of habitat in the breeding grounds in the United States and Canada and the destruction of non-breeding habitat throughout Latin America. On the breeding grounds, more than 99 percent of the virgin forests that once covered the eastern United States have been cut. What remains in the eastern U.S. is mostly second-growth forest. The character and species composition of the second-growth forests often differ from the original forests. The forests that are left are frequently used for homes, resorts, and commercial developments.

The Midwest and Great Plains states used to be covered with prairie. Almost all of the prairie has been converted to farmland, towns and cities. Wetlands have also been lost. In all of the United States over half of its wetlands have been converted; in the Midwest over 70 percent of the wetlands have been drained.

Frightening Facts

The tallgrass prairie has been reduced by more than 95% since 1830.

Habitat loss is also occurring in the forests, grasslands and wetlands of Latin America. The biggest threat to migratory birds on their wintering grounds is loss of habitat. Deforestation of the wintering grounds has a great impact on migratory birds as well as the resident birds that live in Latin America. The tropical forests of Latin America are home to many resident birds, such as quetzals, parrots, trogans, in addition to the hundreds of migratory species which breed in the United States and Canada. Worldwide tropical forests continue to be eliminated at the rate of 50 acres a minute. One half of this destruction is in Latin America.

Frightening Facts

The United States has lost more than half of the wetlands that existed prior to European settlement.

Because of Latin America's growing human population, there is an increasing need to clear land for farming and grazing so that the people can make a living and have food to eat. In Latin America, the rate of deforestation is about 10 times as great as the rate of reforestation. In Costa Rica over 83% of the original forest has been removed.

Enormous numbers of long-distance migrants are packed into a small area each winter. This makes them more affected by changes in their tropical habitat. Many states in Mexico have been cleared of much of their forests for raising cattle and crops. Although some migratory birds do well in pastures and farm fields, many others depend on the forest. Because some species of migratory and resident birds are found only in the forest, clearing forests could cause them to disappear.

Frightening Facts

Tropical forests worldwide are being eliminated at the rate of nearly 50 acres per minute.

Habitat fragmentation

Loss of habitat has made a significant impact on bird populations. And yet habitat fragmentation has had even more far-reaching consequences for nesting migratory birds. Habitat fragmentation happens when large areas of relatively uniform habitat is divided up into smaller areas that are no longer linked together. Habitat can be fragmented and reduced by roads, subdivisions, livestock grazing and drainage of wetlands.

Fragmentation of a forest increases the amount of edge habitat in a given area. Increased edge makes birds more vulnerable to predators and nest parasites. Habitats that are most severely fragmented and reduced are old-growth forest habitat, riparian habitat and native prairie. Habitat fragmentation and reduction leads to the following phenomena which directly cause species to decline:

Frightening Facts

Cats kill hundreds of millions of migratory songbirds each year.

Predators

When habitat is fragmented and reduced, birds are forced to nest closer to the edges of their preferred habitats. Often the areas where different habitats join have high densities of both songbirds and nest-predators such as skunks, squirrels, raccoons, snakes, crows, opossum, cats, and jays. As songbird habitat becomes more fragmented and reduced, more birds must nest and live near their habitat borders. So it becomes easier for predators to find and kill songbirds and their eggs.

Cowbird Parasitism

The open spaces in fragmented forests also attracts the Brown-headed Cowbird, a nest parasite that lays its own eggs in the nests of many Neotropical migratory birds. Now living in most of North America, the Brown-headed Cowbird successfully parasitizes more than 144 bird species. Cowbird eggs usually hatch before the host's eggs and the cowbird chicks develop very rapidly. Sometimes cowbird chicks push out the other birds in the nest. They also can eat all of the food so that the other baby birds die of starvation. As forests are fragmented, the nests of forest-dwelling songbirds are more frequently exposed to nest parasites.

Other Environmental Threats

A variety of other factors also impact populations of many migratory birds:

Frightening Facts

Hundreds of millions of birds fly into windows and are fatally injured.

People-made Structures

Structures such as big picture windows, skyscrapers, aircraft and electrical lines all kill thousands of birds annually. Many birds are killed at the crossbars of high-voltage power lines.

Introduced Species

Humans have introduced bird species from Europe to America that often compete with our native birds. Two good examples are European Starlings and House Sparrows whose populations have exploded. European Starlings and House Sparrows are now competing with our songbirds for food and nesting sites.

Poisons

Humans produce and release large amounts of toxic materials into the environment annually. Some releases such as pesticides are purposeful; others, such as oil spills, are accidental. Many pesticides are toxic to songbirds because songbirds feed on the poisoned insects. While many pesticides are banned in the United States because of their toxic effects, the United States still produces and sells these pesticides to Latin American nations where many of our summer birds winter.

Cats

Domestic cats prey on eggs, nestlings and adult birds. Cats are efficient predators on nestlings and adult birds. Domestic house cats are estimated to kill 3-4 million birds each day in the U.S.

Frightening Facts

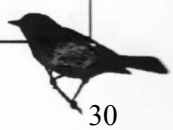
In Latin America, the rate of deforestation is about 10 times as great as the rate of reforestation.

Slingshots

Some children throw rocks, use B-B guns or slingshots to hurt or kill songbirds.

Market Sales

In Latin America both songbirds and resident birds such as parrots are caught and sold in the markets for pets.



Talking with Children About Songbird Problems

In discussing issues surrounding declining migratory bird populations and human activity, it is important consider and discuss all sides of the issues. Controversy can provide opportunities for increasing the quality of students' thinking and their ability to solve problems. When students understand that many issues are controversial because they are complex and have no clear-cut right and wrong answers, they can focus on clarifying their own viewpoints through discussion and debate. Understanding the thoughts and feelings of each side of an issue can help clarify it. In discussing controversial topics keep in mind the following guidelines:

1. Try to ask open-ended questions. Accept opinions and analyses of facts and arguments.

2. Paraphrase, clarify, and summarize points periodically.

3. Encourage discussion among students by asking rebound questions, sending paraphrased answers back to students, asking questions like:

   Is that what you mean?
   What do you think?
   Who agrees? disagrees?
   Who can explain why you feel that way?

4. Stay with students long enough for them to develop a point.

5. Accept all responses, correct them if facts are wrong, point out irrelevant or illogical statements.

In dealing with most issues, the atmosphere of the classroom must be as neutral as possible. Teachers should be familiar with all sides of an issue and use the classroom as a stage for rational, informed debate. Teachers should resist the temptation to let their own positions on issues be known and consequently bias the conclusions reached by the students. If possible, invite resource speakers to come to the class and speak about one or more of the issues. Try to provide for a balance of viewpoints.

Helping students to analyze other people's perspectives as well as their own perspectives can broaden their ways of thinking about the world. Encourage students to discover the reasoning behind their opinion and compare it with the reasoning behind an opposing viewpoint. When students are faced with conflict about their opinions, have them ask themselves the following questions:

What do I believe about this?
Why do I believe it?
What is another way to look at it? What is the other opinion?
Why might someone else believe that?

Text from "The Great Migration Challenge" scenario sheets (scenario sheets can be found in Appendix 3)

1. Watch out! **Power lines** ahead near San José, Costa Rica. Don't hit them! Crawl on your hands and feet to the next stop.

   ¡Cuidado! Hay **líneas de energía eléctrica** cerca de San José, Costa Rica. ¡No te choques! Gatea sobre tus manos y pies hasta la próxima parada.

2. Good news! A **coffee plantation** owner has left lots of tall trees growing over his coffee plants. There's **plenty of shelter and lots of delicious fruits and insects** to feed on. Say "yummy" out loud 10 times and fly ahead to the next stop.

   ¡Buena noticia! El dueño de una **plantación de café** ha dejado crecer muchos árboles altos sobre sus plantas de café. Hay **muchísimo refugio y deliciosas frutas e insectos** con que alimentarse. Di "que rico" en voz alta 10 veces y vuela hacia la próxima estación.

3. Bad news! You land near a **polluted marsh** in Nicaragua and become sick from the food you eat. Sit down. Hold your stomach and count to 20. Groan 10 times. Then move ahead 1 space.

   ¡Mala noticia! Aterrizas cerca de un **pantano contaminado** en Nicaragua y te enfermas debido a la comida que consumiste. Siéntate. Sostén tu estómago y cuenta hasta 20. Gime 10 veces. Después avanza un espacio.

4. Watch out for the **hungry hawk**! It wants to catch you and eat you! Freeze, count to 10, then sneak ahead to the next station.

   ¡Ten cuidado con el **halcón hambriento**! ¡Quiere atraparte y comerte! No te muevas, cuenta hasta 10, y avanza a escondidas hacia la próxima parada.

5. You get caught in a **heavy rainstorm** in El Salvador. Count to 20 while you wait for the storm to blow over.

   Te quedas atrapado en medio de una **tormenta fuerte** en El Salvador. Cuenta hasta 20 mientras esperas que pase la tormenta.

6. Whew! After flying all night, you land in some trees near a sparkling lake where there's plenty of **clean water, food, and shelter**. Take three deep breaths and move ahead.

¡Puf! Después de volar toda la noche, aterrizas en unos árboles cerca de un lago brillante donde hay **bastante agua limpia, comida y refugio**. Respira profundamente 3 veces y avanza.

7. Look out! A boy with a **sling shot** aims right at you. Luckily, you move out of the way just in time. Crouch down and hide for 10 seconds while you wait for the boy to leave. Then move ahead.

   ¡Cuidado! Un niño te está apuntando con **una honda**. Afortunadamente logras moverte justo a tiempo. Agáchate y escóndete por 10 segundos mientras esperas a que el niño se vaya. Luego avanza.

8. **Strong winds** blow you off course. Flap your arms 20 times as fast as you can and then move ahead.

   Vientos fuertes te desvían de tu rumbo. Aletea tus brazos lo más rápido que puedas 20 veces y sigue adelante.

9. You're in luck! Navigating by the stars one clear night over Mexico, you encounter **good winds** that help you travel far. Flap your arms gently 10 times and move ahead.

   ¡Que suerte! Mientras navegas bajo las estrellas en una noche despejada sobre México, te encuentras con **vientos favorables** que te ayudan a viajar muy lejos. Aletea tus brazos tranquilamente 10 veces y sigue adelante.

10. Whew! You've just flown for twenty hours across the Gulf of Mexico. Luckily, you land in a beautiful park with **big trees and lots of insects and berries** to eat. Breathe two big sighs of relief and move ahead one space.

    ¡Puf! Acabas de volar por veinte horas a través del Golfo de México. Por suerte, aterrizas en un hermoso parque con **árboles grandes y muchos insectos y bayas** para comer. Respira dando dos suspiros de alivio y avanza un espacio.

11. It's your lucky day! In Louisiana, you find a backyard where someone has planted **trees and bushes that make a safe place for you to rest and eat**. Sit and relax for the count of ten.

    ¡Es tu día de suerte! En Luisiana, te encuentras con un patio trasero donde alguien ha plantado **árboles y arbustos que te ofrecen un lugar seguro para que puedas descansar y comer**. Siéntate y relájate hasta la cuenta de diez.

12. Thump!! You just flew into a **tall glass building** in Alabama. Sit down, hold your head and say "Ouch!!" 5 times before flying to the next stop.

Acabas de volar contra un **alto edificio de vidrio** en Alabama. Siéntate, sostén tu cabeza y di "¡Ay!" 5 veces antes de volar a la próxima parada.

13. Help! In Tennessee, a **cat** almost catches you! You escape but you slightly sprain your wing. Get it back in shape by slowly swinging your arm around 10 times before you fly ahead to the next stop.

    ¡Socorro! ¡Un **gato** casi te atrapa en Tennessee! Logras escaparte pero sufres un ligero esguince en tu ala. Gira tu brazo lentamente diez veces para ponerte en forma antes de continuar volando a la próxima parada.

14. You can't find the resting spot you stopped at last year because **a new shopping mall** has been built on the site. Walk around in a circle four times searching for a place to rest and feed. Luckily you still have enough energy to make it to the next stop.

    No logras encontrar el lugar de descanso en el que paraste el año pasado porque se ha construido un **nuevo centro comercial** en ese sitio. Camina en un círculo cuatro veces buscando un lugar para descansar y alimentarte. Por suerte aún tienes suficiente energía para llegar a la próxima parada.

15. It's hard to find caterpillars to eat because the forest where you land in North Carolina has been sprayed with a **pesticide** (a poison used to kill insects or other unwanted pests). Open and close your eyes 10 times while you look hard for food, then slowly fly ahead to the next stop.

    Es difícil encontrar orugas para comer porque el bosque en donde aterrizaste en Carolina Norte ha sido rociado con **pesticidas** (un veneno usado para matar insectos u otras pestes indeseadas). Abre y cierra tus ojos 10 veces mientras buscas comida, luego continua volando lentamente hacia la próxima parada.

16. You spend a few days resting and eating in a **wildlife refuge** in Virginia. Do 4 push ups to show how strong you are, then fly on to the next stop.

    Te pasas unos cuantos días descansando y comiendo en un **refugio de vida silvestre** en Virginia. Haz 4 flexiones para demostrar lo fuerte que eres y después vuela a la próxima parada.

17. Congratulations! You have finally made it to **Rock Creek Park** in Washington, DC where you'll find a mate, build a nest, and raise a family before heading back to Costa Rica in the fall!

    ¡Felicitaciones! ¡Al fin lograste llegar al **Parque de Rock Creek** en Washington, DC donde encontrarás una pareja, construirás un nido y criarás una familia antes de regresar a Costa Rica en el otoño!

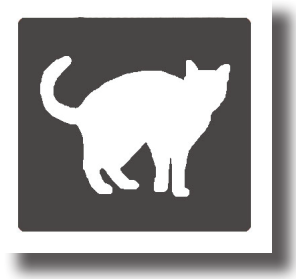
Stop #	What happens?	Hazard (bad!)	Benefit (good!)
1	Have to avoid hitting power lines	x	
2	Find good habitat with shelter and food		x
3	Get sick from pollution	x	
4	Hawk tries to catch you	x	
5	Get caught in a heavy rainstorm	x	
6	Find clean water, food and shelter		x
7	Someone shoots at you with a sling shot	x	
8	Strong winds blow you off course	x	
9	Good winds help you along		x
10	Find good habitat with trees and food in a park		x
11	Find good habitat in someone's backyard		x
12	Fly into a tall building	x	
13	Cat almost catches you	x	
14	Trouble finding a place to rest—shopping mall built in your resting place from last year	x	
15	Can't find insects to eat because they've been killed by pesticides	x	
16	Find good habitat in a wildlife refuge		x
17	Make it to your nesting place in Rock Creek Park in Washington, DC		x

The Great Migration Challenge Student Worksheet _____

Stop #	What happens?	Hazard (bad!)	Benefit (good!)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			

Threats to Birds

Birds face many threats during migration and while living on their breeding and wintering grounds. Many of these threats are caused by humans. We can work together to help birds so that they face fewer threats, and live longer lives. Here are some of the dangers birds face and what we can do to help.



House cats

House cats kill billions of birds and other animals every year.

What you can do:

Keep your cat indoors. Not only are birds safer when cats stay indoors, but cats live longer, healthier lives, too! If your cat currently is an outdoor cat, your vet can give you advice on how to transition your cat to a happy indoor life.

‹ *A cat shelf placed on a window like this one is a fun way to watch outdoor birds with your cat.*

Pesticides

When pesticides are sprayed on plants, birds are in danger of ingesting these chemicals, which can make them very sick, or kill them.

What you can do: Avoid using pesticides.

Many birds eat insects. If you provide a good habitat for birds, they can work to control insect pests in your yard!

The American robin is just one bird that hunts for worms on lawns and is in danger of pesticide poisoning. ›

Window collisions

Birds can't see glass and will fly right into windows of houses and other buildings. Many birds die from collisions with glass windows.

What you can do:

You can make windows in your house more visible to birds. Stickers or tape can break up the reflection so that birds realize there is something there to avoid. You can also decorate windows, or use blinds.

A window made visible using blinds, and artwork. ›

Pollution

Pollution contaminates the air, water, and soil that birds and humans depend on to survive.

What you can do:

Car exhaust is one type of pollution. Consider ways that you can get from place to place without using a car, such as by riding a bike, walking, or using public transportation.

‹ *Riding the bus can be a safe and environmentally friendly way for kids to get from place to place.*

Remember not to litter!
Think of ways that you can reduce waste, such as by recycling, composting, and using reusable water bottles and bags.

Habitat loss

Birds are losing the habitats they need for food and shelter, and as places to raise their young.

What you can do:

Restore habitat in your community by planting native trees and other kinds of plants that will provide food, shelter, and nesting sites.

‹ *Kids can help create habitat for birds!*

As birds lose habitat, they may not be able to find safe places for nesting. For those bird species that build their nests in tree holes, we can help them by putting up nest boxes!

Collisions with tall, lighted buildings

Many birds migrate during the night, and rely on the stars to navigate. Lights on skyscrapers and other tall buildings can confuse birds, and cause them to collide with these lighted structures.

What you can do:

If you live in an apartment building, turn out unnecessary lights and close window blinds or curtains between 11 pm and 6 am during spring and fall migration.

Some other ways to help:
•Put out a bird bath, and keep it clean.
•Don't forget to reduce, reuse, and recycle!
•Tell any coffee drinkers you know to buy only "Bird friendly" shade-grown coffee.

Your city might have a lights out campaign! You can check your local Audubon chapter for more information. ›

Things YOU can do to help birds!

- Make your yard and neighborhood bird friendly!
  - Create habitat: plant native trees, bushes and flowers to provide food and shelter.
  - Provide a water source year round.
  - Avoid chemical pesticides and fertilizers.
  - If you put up bird feeders or bird baths, clean them regularly.
  - Don't throw trash on the ground.
- Put up decals, screens, or streamers on windows to prevent birds from flying into them.
- Keep pet cats indoors.
- Buy shade grown coffee to protect bird habitat in places where many of our birds spend the winter. Look for the Smithsonian's Bird Friendly coffee seal.
- Learn about birds, and become a bird watcher.
- Reduce, reuse, recycle!
  - Use cloth grocery bags and reusable bottles.
  - Use less energy by driving less, and walking or biking more. Take public transportation. Turn off lights, televisions, and computers when not in use.
- Buy a Federal Duck Stamp, available at most post offices. The money is used to buy land that is valuable bird habitat.
- Support conservation organizations.

To learn more about birds, visit the Smithsonian Migratory Bird Center's website at www.si.edu/smbc

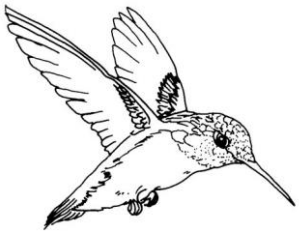
I'm For The Birds!

Draw a picture of or describe in words what you will do to help save birds (look for a list of ideas on the back of this page). Then sign the pledge and keep it as a reminder of how to make the world more bird-friendly!

Signature_____ **Date**_____

Lesson 3: *Should I Stay or Should I Go?*

Big Idea: Seasonal changes in the availability of food is the primary reason why some birds migrate.



Overview: Students brainstorm as to why some birds leave our area and fly south for the winter, only to return again in the spring. They learn about the types of foods various birds eat, and think about how seasonal weather changes affect the availability of those foods, and thus the ability of birds to survive through our winters.

Based on diet information, students will hypothesize as to whether certain bird species are resident or migratory in our area. They may check to see if they are correct by looking at range maps that show the year round distribution for each species.

Objectives

Students will be able to:

- explain why some birds migrate south for the winter and return in the spring;
- make hypotheses about which species of birds are resident and which are migratory based on their diets;
- identify some of our resident and migratory birds.

See matrix in Appendix 1 for details on this lesson's alignment with standards of learning.

Key concepts:

- ***Migratory*** birds move between breeding and non-breeding locations at certain times of the year. In contrast, birds that stay in the same area year-round are called ***resident*** birds.
- During the breeding season, most birds eat and feed their young insects and other invertebrates, which are high in protein and thus important for growth.
- Neotropical migratory birds move from the tropics to the temperate zone to lay eggs and raise their young during our spring and summer. They do this primarily because of the abundance of protein-rich insects which become available here at this time of the year. This abundance of insects enables them to raise more young than they could if they remained in the tropics.
- In addition to plentiful insects, two additional advantages to migrating to the temperate zone to breed are more space over which the birds can spread out

Materials needed:

- Copies of the level 1 or level 2 "Should I Stay or Should I Go" worksheet- pages 53 and 55
- Optional: copies of "Resident and Migratory Birds"- page 51

and find nesting locations, and more hours of daylight in which to search for food to feed their young.

- Most Neotropical migratory birds require insects and other invertebrates in their diet year-round. Because the cold temperatures of winter drastically reduce the number of available insects during the temperate zone winter, these birds return to the tropics where they are able to find insects and other foods to sustain them through the non-breeding season.

- It is a common misconception that birds migrate south for the winter to avoid cold temperatures. But the truth is birds can withstand cold temperatures, as long as they can find enough food to eat. It is the effect that the cold temperatures have on the availability of some foods (particularly insects) that makes it necessary for some birds to migrate. Birds that don't leave during our winter have adaptations for feeding on foods that are available at that time of year, such as seeds and berries.

Procedure:

1. Review with students that in the book *Flute's Journey*, Flute leaves Maryland in the fall and returns the following spring. Ask students "Why do you think Flute migrated from Maryland to Costa Rica? Why didn't he stay in Maryland through the winter?"

   Some students may suggest that birds leave because it gets too cold during the winter. Counter that suggestion with the question "If cold temperatures are the reason, then why don't all birds leave for the winter?"

   Explain that birds are warm-blooded (endothermic), which means they are able to maintain their body temperature even when it is cold outside. Feathers provide excellent insulation from the cold by trapping in body heat. Birds are able to withstand cold temperatures, *as long as they are able to find enough suitable foods to eat.* The calories or energy from food is needed to generate sufficient body heat.

2. Could food have anything to do with why some birds leave for the winter? What kinds of food do birds eat? Think about different kinds of birds such as owls, hawks, hummingbirds, and songbirds such as northern cardinals. Do these different kinds of birds eat the same things? What did Flute eat? List in a column the types of food students can think of, and add to it if needed so that it includes all the items in the following chart.

3. Go through each item in the list and ask students to think about what effect the cold or freezing temperatures of winter would have on each one. Which are available throughout the winter, and which are not? See following chart.

Food	Available in winter?	Explanation and for more info:
Insects, spiders and other small invertebrates	No	Insects and other invertebrates such as spiders are not active during the cold winter months. Most hide away either as adults or in immature stages under bark, in fallen logs, or in other protected spaces. lancaster.unl.edu/hort/articles/2002/winterbugs.shtm www.si.edu/Encyclopedia_SI/nmnh/buginfo/winter.htm
Nectar	No	No flowers, no nectar.
Snakes, lizards, frogs, fish	No	Cold blooded (ectothermic) animals cannot stay active during the winter.
Berries	Yes	Many plants have berries on them throughout the winter. www.nwf.org/News-and-Magazines/National-Wildlife/Birds/Archives/2010/Birds-and-Berries.aspx
Nuts	Yes	Fallen nuts are a great food source for many birds (examples include acorns, beechnuts, and pine nuts).
Seeds	Yes	Many plants and flowers keep their mature seed heads well into winter, and birds can cling to or perch on the plants to reach the seeds. Seeds that fall can also be found in leaf litter or under plants as long as they aren't covered too deeply by snow.
Food scraps discarded by people	Yes	
Small mammals	Yes	Some small mammals remain active all winter. www.exploringnature.org/db/detail.php?dbID=5&detID=2280

For a good summary of what birds eat in winter:
http://birding.about.com/od/birdfeeders/a/What-Winter-Birds-Eat.htm

4. Would a bird that needs a type of food that is not available during our winter be able to survive? No, if a bird's food is not available it must migrate to a place where it will be able to find the food it needs to survive.

   Alternatively, birds that eat foods that are available during our winter do not need to migrate.

   Birds that stay here all year are referred to as **resident** birds. Birds that migrate are referred to as **migratory** birds. Discuss the meaning of the words "reside" and "resident". You could also introduce the word "classify" as a vocabulary word (arranging or categorizing things based on one or more shared characteristics): birds of a region can be classified according to one of two categories, resident or migratory.

   Optional: Have students read *Resident and Migratory Birds* before continuing with step 5.

5. Hand out copies of the "Should I Stay or Should I Go?" worksheet (level 1 or level 2 depending on which is most appropriate for your students). With what students now know about bird foods and their winter time availability, they will predict whether each bird species on the worksheet is resident (stays here year round) or migratory (migrates south for the winter). Students ready to grasp the concept of maps can check their answers by looking at the range maps provided for each species.

6. You could follow-up by asking students to think about why migratory birds don't just stay in the tropics. What ideas do they have?

   Migrating to the temperate zone offers the advantages of more food, more space, and more daylight hours, all of which translate to being able to raise more offspring than if they stayed in the tropics to breed. The potential to raise more offspring outweighs the risks of migrating.

Advantages to migrating to the temperate zone to breed:

#1: More food. To us humans, the many mosquitoes, ants, gnats, caterpillars, and other insects that characterize our summers can be a nuisance, but for birds that feed their young insects, this bounty of insects is a feast worth traveling many miles for. From a parent bird's perspective, the more insects there are the more mouths you can feed, thus the more baby birds they will be able to raise. The superabundance of insects in the higher latitudes during the summer months is a reflection of the fact that the warm conditions insects require to be active and to reproduce are compressed into a shorter period of time compared to in the tropics where conditions favor insect activity throughout the year.

#2: More space. Have students take a look at a map and compare the amount of land area in the tropics where the birds are in the winter (between the Tropic of Cancer and the Tropic of Capricorn lines of latitude), versus the amount of land area in the U.S. and Canada where the birds are in the spring and summer. Greater land area means more space over which they can spread out and find nesting locations.

#3: More daylight hours. Consider the difference in the number of daylight hours between the tropics and the temperate zone. In Nicaragua, which is at approximately 10° N, there are about 12.5 hours of daylight on June 15. In Washington, DC which is at approximately 40° N, there are about 15 hours of daylight. For diurnal birds, that extra 2.5 hours of daylight means more time to feed their young.

This site has animation showing how day length varies with latitude: http://astro.unl.edu/classaction/animations/coordsmotion/daylighthourse xplorer.html

Extensions and cross-curricular options:

- The online educational program called **Journey North** is an excellent resource for information and classroom lessons that foster an understanding of the concepts underlying bird migration. The following components of the Journey North program are especially relevant to the important question of why birds migrate:
    - **Why migrate north in the spring? Migration, geography and the seasons**
      http://www.learner.org/jnorth/tm/humm/WhyComeBackIndex.html
      A slide show and suggested discussion points focusing on how geography and the seasons relate to the migration of ruby-throated hummingbirds.
    - **When will our hummingbird habitat be ready?**
      http://www.learner.org/jnorth/tm/humm/HabitatInteractPredict.html
      Considering the habitat needs of a hummingbird, students explore the chain of sun-driven events that must occur before hummingbirds can return to their breeding habitat.
    - **Exploring land mass versus water: A globe-toss game**
      http://www.learner.org/jnorth/tm/humm/WhyComeGlobalGame.html
      Using a globe, students compare the land mass in the northern vs. southern hemisphere to help them grasp why so many birds migrate to North America in the spring.

- *Fill the Bill* is a lesson plan and activity which demonstrates how bird beaks of different shapes and sizes are adaptations for eating different kinds of foods. It can be found here: Go to www.si.edu/smbc; click on "learn", then on "Bridging the Americas", then "login". Password is bta4teachers. Scroll down to the heading "Physical Adaptations and Anatomy".
- A reader's theater script on bird beaks as an adaptation for eating different kinds of food is also available in the same section of online resources referenced above (www.si.edu/smbc). Available in both Spanish and English.
- Get students outside to observe birds around school using *Bird Behavior Bingo* or *Bird Behavior Scavenger Hunt.* Available on www.si.edu/smbc; click on "learn", then on "Bridging the Americas", then "login". Password is bta4teachers. Scroll down to the heading ""Behavioral Adaptations"
- Technology application: Have students learn to identify local birds using a free app from Cornell Lab or Ornithology called Merlin. It has you answer a few basic observational questions (main colors and relative size of the bird, the location, the date, what the bird was doing) and then it will present photos and information on the most likely species.

- Check out the eBird web site (ebird.org). Enter your city or state under the "Explore Data" tab to view data showing which bird species are resident and which are migratory in your area (select the "Bar Charts" option).

When do birds reproduce in our area?

The **breeding season** for most birds in our area is roughly from March through August. Resident birds can get busy with the tasks associated with reproduction (establishing territories, finding a mate, building a nest, laying eggs, raising young) early on during this time span, whereas the migratory birds coming up from the tropics typically don't begin arriving on the scene until late April or early May.

Since birds build nests for the purposes of reproduction, **"nesting season"** is synonymous with breeding season. Kids often have the mistaken notion that birds build nests to live in throughout the year. That is not true. Birds build nests only so that they have a safe place to lay their eggs.

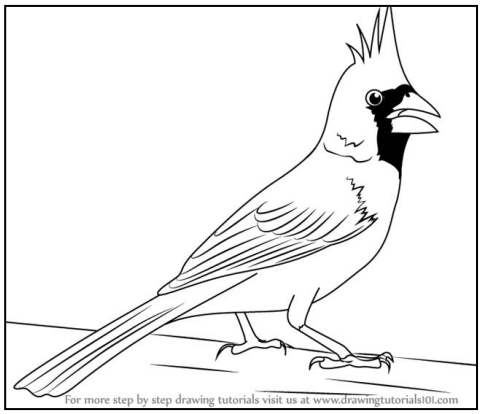
Most birds are free from the demands of reproduction from roughly August through March, thus this part of the year is referred to as the **"non-breeding" season**. Because it coincides with our winter, the non-breeding season is synonymous with **"wintering season"**.

A revolving door for migratory birds

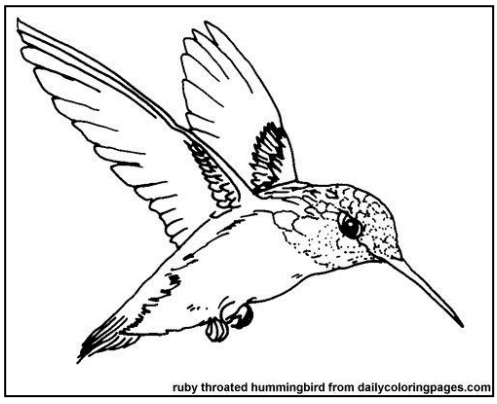
Migratory birds can be categorized into three groups according to the time of the year they are here. There are some, such as the blackburnian warbler, that just pass through. They are here for a brief time in the spring when in route to breeding areas farther north and then again in the fall on their way to wintering areas to the south. Others, such as dark-eyed juncos and white-throated sparrows, spend summers breeding in more northern parts of the US or in Canada and come here for the winter. A third category is composed of those species that come here to breed in the spring and summer and then head south for the winter. It is the latter category that is the focus of this activity.

Resident and Migratory Birds

Some birds live in our area all year round, while others live here for only part of the year. The birds that stay here all year are called resident birds. The birds that move away for part of it are called migratory birds. Whether a bird is resident or migratory depends on whether or not the kinds of food it needs are available through all the seasons of the year.



The northern cardinal is an example of a resident bird. Like other resident birds, northern cardinals stay here year round because they are able to find foods they can eat during all four seasons. During the spring and summer when they are nesting and raising their young, the adults eat mostly insects. They also feed insects to their young. Insects contain lots of protein which is important for growth. Insects become hard to find in the fall and winter because it is too cold for them to be active. During the fall and winter, cardinals are able to switch to eating seeds and berries, which they can find through the cold months.



The ruby-throated hummingbird is an example of a migratory bird. Ruby-throated hummingbirds come here in the spring to nest and raise their young when insects are becoming active and flowers are beginning to bloom. The hummingbirds eat insects and nectar from the flowers, and they feed insects to their young. In the fall, they must leave our area because nectar and insects, the only foods they can eat, are not available here during our winter. Unlike cardinals, hummingbirds must eat insects and nectar all year round. They are not able to switch to other kinds of foods which are available here in the winter, such as seeds and berries.

Should I stay or should I go? (Level 1)

Predict which birds are migratory and which are resident based on what they eat.

Name of bird	Diet	Resident or migratory?
European starling 	  **Seeds** **Insects and spiders**	☐ resident  ☐ migratory 
Ovenbird 	 **Insects and spiders all year**	☐ resident  ☐ migratory 
Rock pigeon 	  **Berries** **Seeds**	☐ resident  ☐ migratory 
Black-and-white warbler 	 **Insects and spiders all year**	☐ resident  ☐ migratory 

Should I stay or should I go? (Level 2)

Predict which birds are migratory and which are resident based on what they eat.

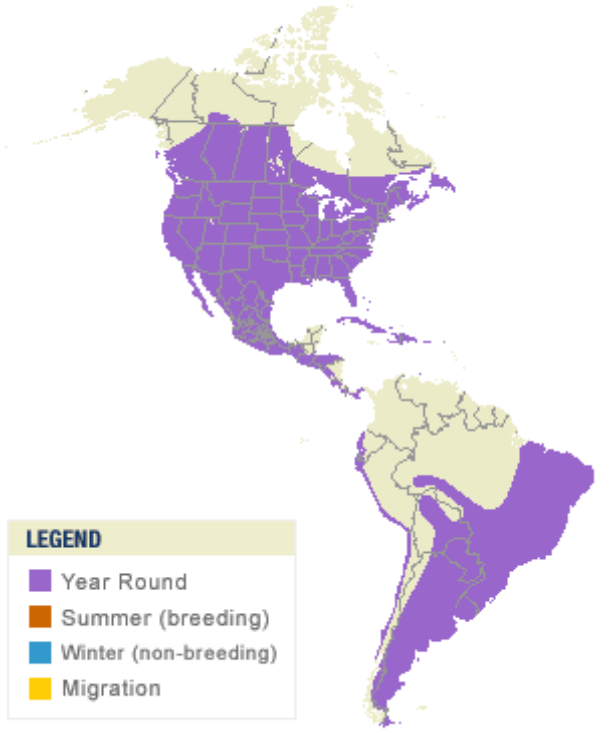
Name of bird	Diet	Resident or migratory?
House sparrow 	Eats seeds and food discarded by people. In summer, needs insects to eat and to feed to its young.	☐ resident ☐ migratory
Wood thrush 	Needs insects all year. Also eats berries.	☐ resident ☐ migratory
Black-and-white warbler 	Needs insects and spiders all year.	☐ resident ☐ migratory
Northern cardinal 	Eats mainly seeds and fruits, especially berries. In summer, needs insects to eat and to feed to its young.	☐ resident ☐ migratory
Ruby-throated hummingbird 	Needs nectar, insects and spiders all year. Also eats tree sap.	☐ resident ☐ migratory

Name of bird	Diet	Resident or migratory?
European starling 	Eats insects when they are available. Also eats seeds, nectar, and foods discarded by people.	☐ resident ☐ migratory
Ovenbird 	Needs insects all year.	☐ resident ☐ migratory
Baltimore oriole 	Needs insects and spiders all year. Also eats nectar and fruits, such as berries.	☐ resident ☐ migratory
Rock pigeon 	Eats seeds, bread and other foods discarded by people, and fruits, such as berries.	☐ resident ☐ migratory
Blue jay 	Eats nuts, seeds, eggs, and small animals such as mice, lizards, and other birds. Also eats insects during summer.	☐ resident ☐ migratory

Should I stay or should I go?

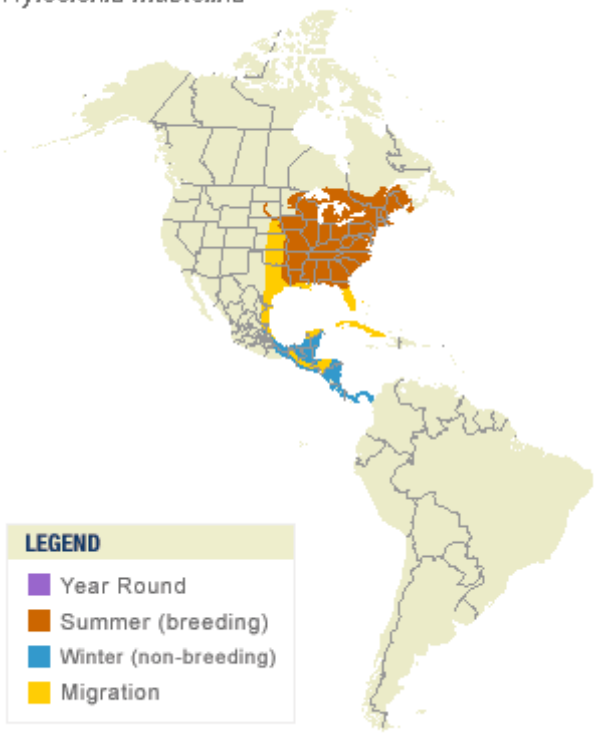
See which birds are migratory and which are resident using these range maps that show where each species is found at different times of the year.

House Sparrow
Passer domesticus



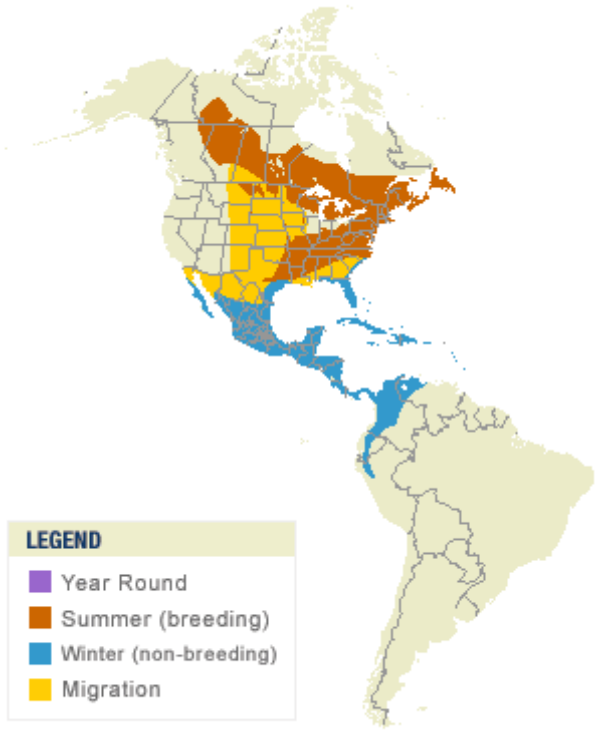
Map by Cornell Lab of Ornithology
Range data by NatureServe

Wood Thrush
Hylocichla mustelina



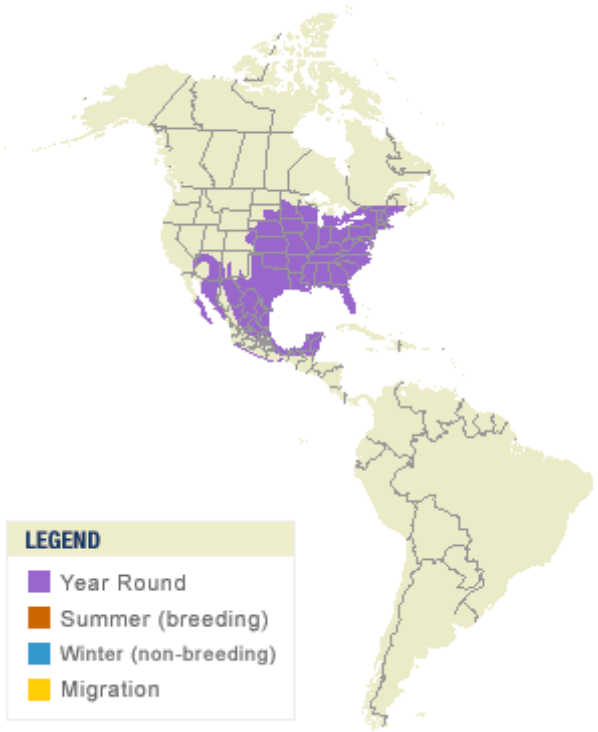
Map by Cornell Lab of Ornithology
Range data by NatureServe

Black-and-white Warbler
Mniotilta varia



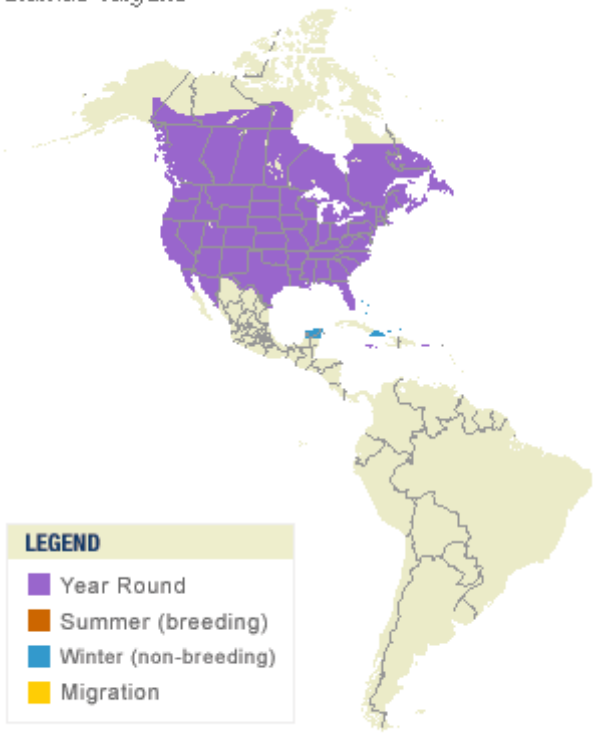
Map by Cornell Lab of Ornithology
Range data by NatureServe

Northern Cardinal
Cardinalis cardinalis



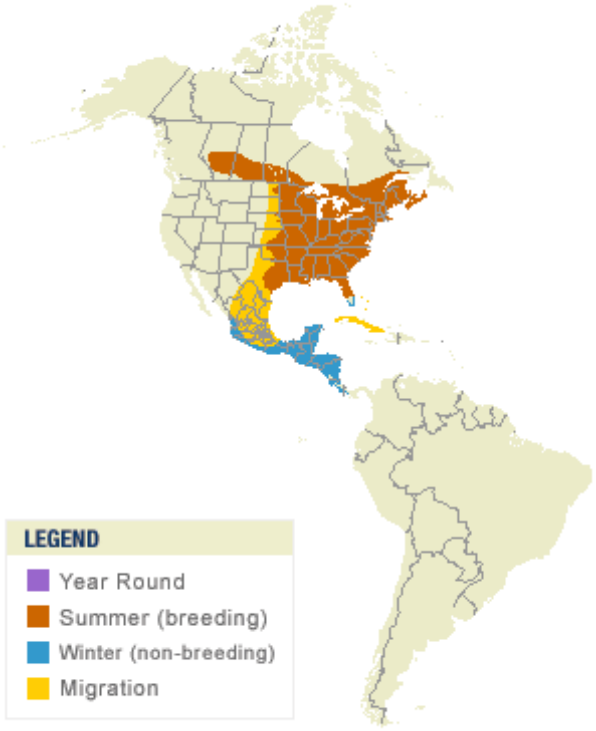
Map by Cornell Lab of Ornithology
Range data by NatureServe

European Starling
Sturnus vulgaris



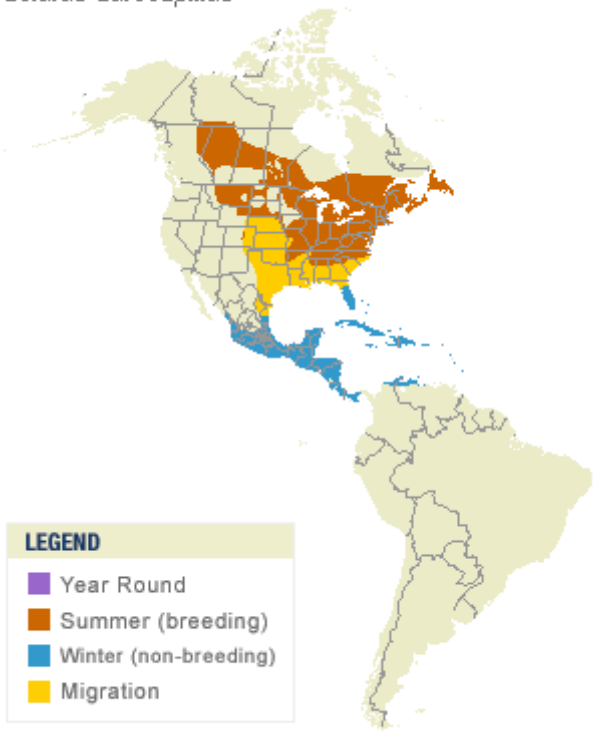
Map by Cornell Lab of Ornithology
Range data by NatureServe

Ruby-throated Hummingbird
Archilochus colubris



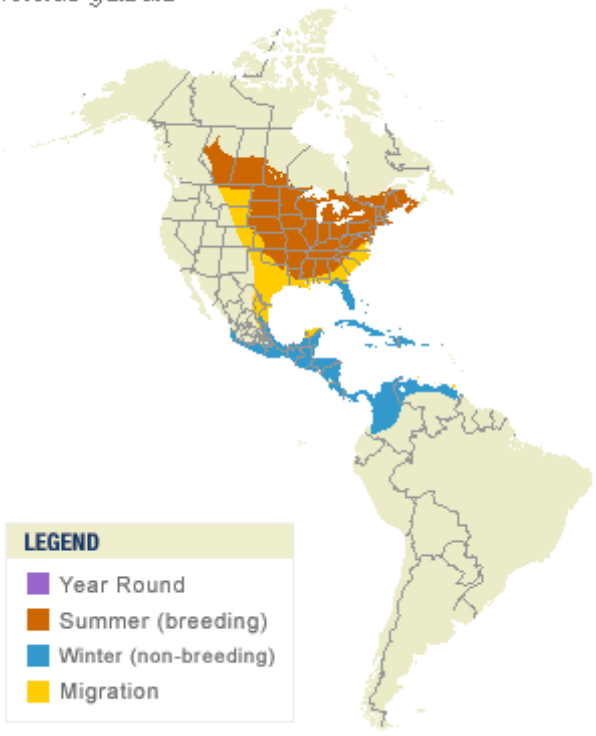
Map by Cornell Lab of Ornithology
Range data by NatureServe

Ovenbird
Seiurus aurocapillus



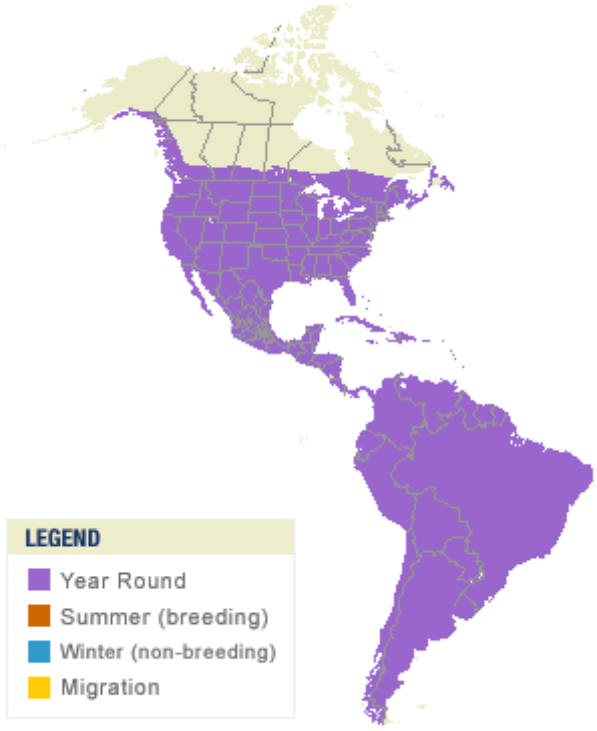
Map by Cornell Lab of Ornithology
Range data by NatureServe

Baltimore Oriole
Icterus galbula



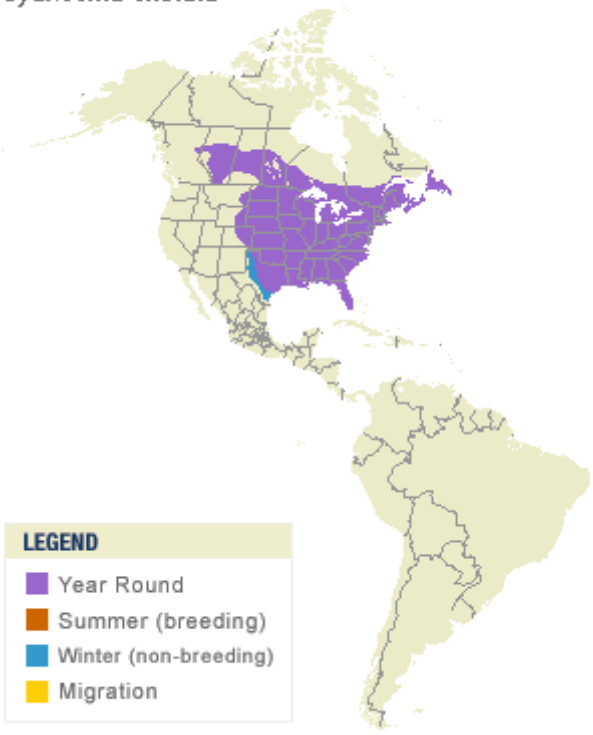
Map by Cornell Lab of Ornithology
Range data by NatureServe

Rock Pigeon
Columba livia



Map by Cornell Lab of Ornithology
Range data by NatureServe

Blue Jay
Cyanocitta cristata



Map by Cornell Lab of Ornithology
Range data by NatureServe

Our Local Resident Birds

Some of the common birds that live in and around Washington, DC all year round:

Great blue heron 	**Wood duck** 	**Mallard** 	**Red-tailed hawk** 	**Mourning dove** 
Eastern Screech-owl 	**Barred owl** 	**Downy woodpecker** 	**Hairy woodpecker** 	**Pileated woodpecker** 
Blue jay 	**American crow** 	**Carolina chickadee** 	**Tufted titmouse** 	**American robin** 
Northern mockingbird 	**European starling** 	**Northern cardinal** 	**Song sparrow** 	**Common grackle** 
House finch 	**American goldfinch** 	**House sparrow** 	**White-breasted nuthatch** 	**Carolina wren** 

Lesson 4: *About My Migratory Bird*

Big Idea: In a sense we are connected with our Latin American partner class through the migratory birds that spend part of the year where we live and part of the year where they live. Each of these bird species we share has a unique set of characteristics.

Overview: Each student will gather information and write about one migratory bird species selected from a list of birds that nest in our area in the spring and summer and travel to our partner class' location for the winter months. They will also illustrate their bird and create a range map showing where their species is found during the breeding and non-breeding seasons. Some or all of this student work will be compiled to send to your partner class.

Objectives

Students will:

- read informational text from print and online sources to build an understanding of the characteristics, life history, habitats, range, and problems of a Neotropical migratory bird species;
- write and/or create illustrations to inform others about a migratory bird species;
- accurately illustrate a species of migratory bird;
- contribute to a collaborative class project which will be sent to a Latin American partner class.

See matrix in Appendix 1 for details on this lesson's alignment with standards of learning.

Key concepts:

- There are many species of migratory birds that nest in our area in the spring and summer and migrate to our partner class' area for the winter.
- While these migratory bird species share some similarities, they each have a unique set of characteristics and adaptations relating to their shape, appearance, behaviors, habitat needs, range, and other natural history traits.

Materials needed:

- List and photos of migratory bird species that breed in your area and winter in your partner class' location (list is on page 67; photos are in Appendix 7)
- Selected worksheet to guide student research- pages 71 to 78
- Map of the Americas for showing breeding and non-breeding ranges- page 69
- Bird fact sheets and access to other sources of bird information for student research (see Appendix 7 for bird fact sheets)

Procedure:

1. Explain that our class has been partnered with a class in a place where many of our migratory birds go for the winter. Both classes will learn about these birds we share, and also about each other's country

and culture. We will be sending a special packet to our partner class which will include information about our school, our surroundings, and ourselves, and also information about our shared migratory birds. Our partner class will send us a packet in return in the spring.

2. Assign or have each student select a migratory bird species from the provided list of birds that breed in your area and winter in your partner class' location. Color photos of the birds on this list are also provided.

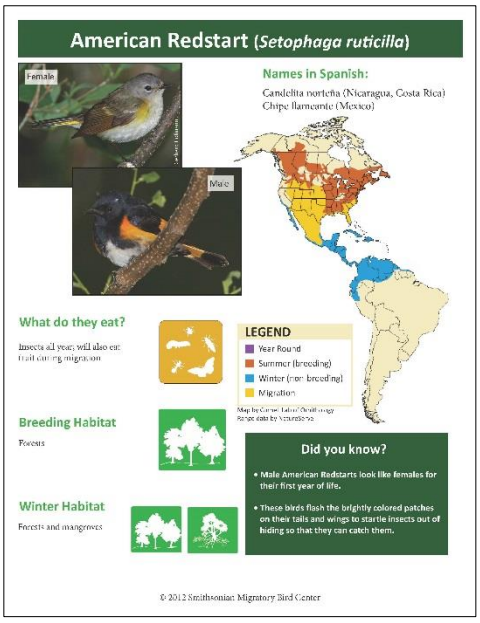
   Each student is going to become the class expert on their assigned or selected species. They will research information about their species, illustrate it, and create a range map showing where the species breeds and where it winters. Students not ready to grasp this range map concept can instead show on the provided map of the Americas where they live and where their partner class lives.

   Some or all of their work will be compiled to send to your Latin American partner class.

<u>Researching information</u>

Several alternative worksheets to guide student research are provided. Select the one that is most appropriate for your students.

The following informational resources are recommended for student research:



- Bird fact sheets from the Smithsonian Migratory Bird Center—see set provided in Appendix 6. These fact sheets, along with a more advanced version, are available online in both English and in Spanish. Go to: www.si.edu/smbc; click on "learn", then on "Bridging the Americas", then "login". Password is bta4teachers. Scroll down to the heading "Bird Migration".
- Profiles of 26 Migratory Birds- printable version also available on above web page, also under the heading of "Bird Migration".
- Cornell Lab of Ornithology's All About Birds web site: www.allaboutbirds.org

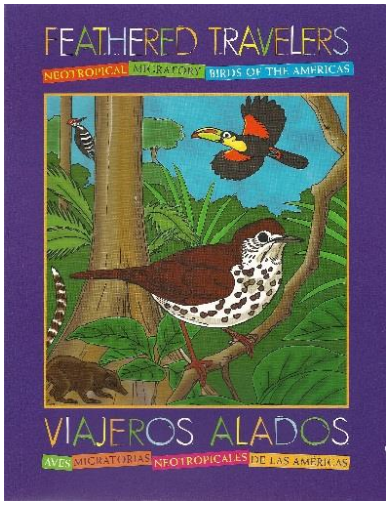
One approach to completing this form is to have students focus on one or a couple individual topics per day. For example, first discuss the birds' common, Spanish and scientific names. Where do birds get their common names? Are the common names the same in all the places where the bird is found? What is a scientific name? What language is it in? Why are all living things given a scientific name?

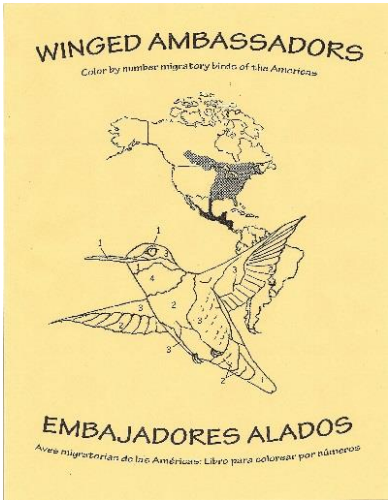
Depending on your grade level and desired learning objectives, students can be tasked with just completing a research worksheet, or they can be tasked with using the information they gathered for the worksheet to write a paragraph, one-page report, or a few sentences in response to a writing prompt such as "The most interesting fact I learned about my bird is….".

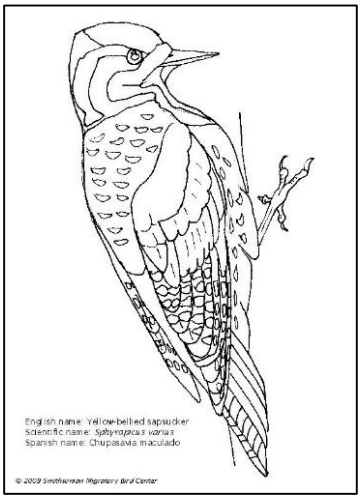
Bird illustrations

Space for students to illustrate their bird species is provided on some versions of the research worksheet. However, feel free to have students use other paper and to be more creative in artistically depicting their birds. Colored pencils, crayons, markers, paints, collages…take your pick of media and be as creative as you wish but keep in mind that the artwork must fit into an 11"X 17" envelope. Think about collaborating with your school's art teacher on this component.

Drawings can be freehand, or students can trace or color in the bird outline drawings found in the *Feathered Traveler's* coloring book, *Winged Ambassadors* color-by-number book, or on the online teacher resources page of the Smithsonian Migratory Bird Center's web site: www.si.edu/smbc. See above under "Researching information" for instructions on accessing this web page.







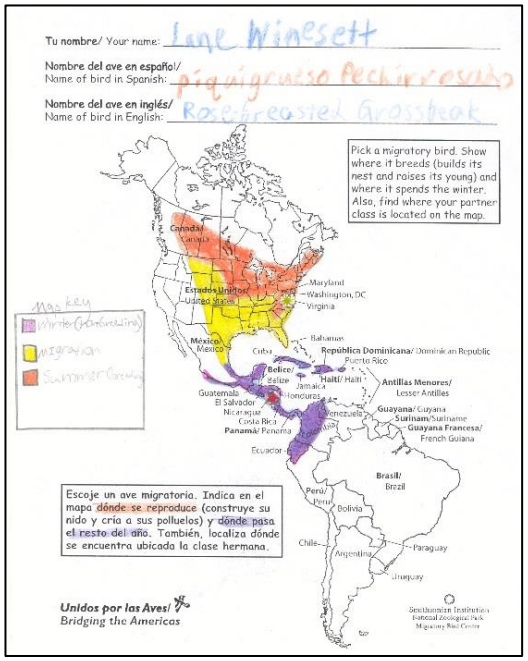
For art ideas, see examples of past student work posted on the online Bridging the Americas Google+ Community forum (email deinleinm@si.edu to be added to the forum if you are not already a member).

Range maps

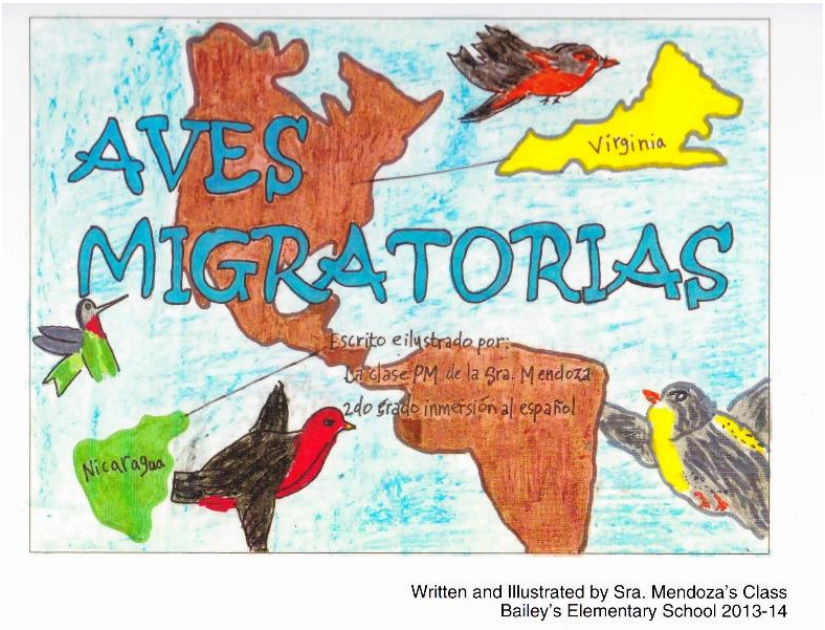
Using the provided map of the Americas as a worksheet, students will show where their bird species is found during the breeding and non-breeding seasons. Use one color to show the breeding season range and another color to show the non-breeding season range and create a map key (or legend) that explains the distinction.

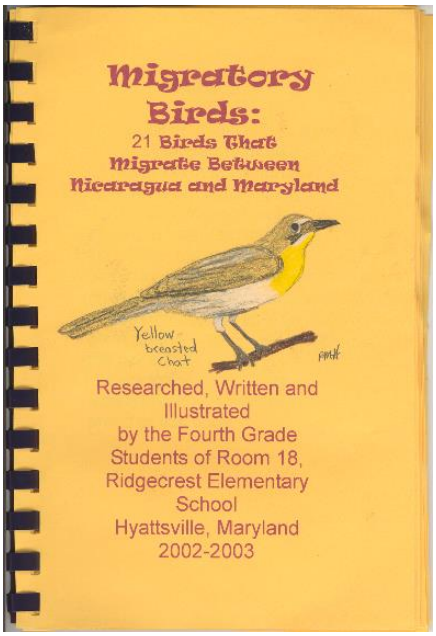
Students could also add a compass rose, and label North America, South America, and the Atlantic and Pacific Oceans.

Modify what you ask students to do with the maps as needed. For example, students not ready to grasp the range concepts can instead indicate where they live and the country where their partner class lives, and perhaps draw arrows indicating that birds move from one to the other and back again.



3. Compile some or all of the above components of the student work to send to your partner class. Consider combining the student work together to make a class book on migratory birds. Another idea is to create a symbolic "mixed species flock" consisting of the bird illustrations, each with one interesting fact about the species and the student's name on the back, to send to the partner class.





Extensions and cross-curricular options:

- As an engagement activity, before having students begin their research, have each student complete the worksheet provided in Appendix 4 entitled "My Interview of My Migratory Bird". On it they will draw their bird as accurately as they can, and write down three scientific questions they would ask their bird if it could talk.

Smithsonian
National Zoological Park
Migratory Bird Center

Unidos por las Aves/
Bridging the Americas

Below are some of the Neotropical migratory birds that breed in Maryland, Virginia, and/or the District of Columbia and winter in Nicaragua. Birds marked with an asterisk are known to winter on Ometepe Island:

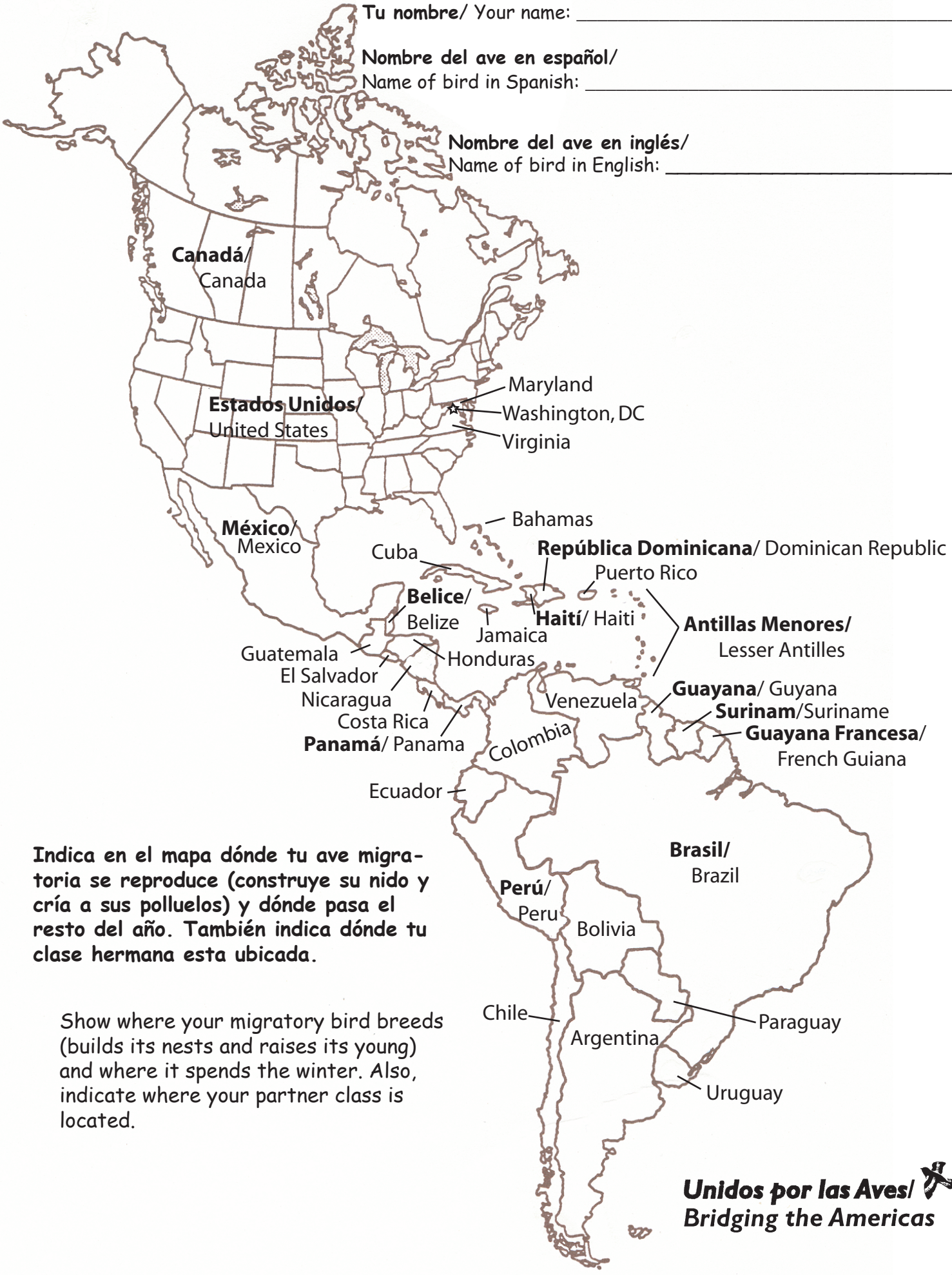
English	Spanish	Scientific name
*Blue-winged teal	Cerceta aliazul	*Anas discors*
*Spotted sandpiper	Andarrios maculado	*Actitis macularius*
Broad-winged hawk	Gavilán aludo	*Buteo platypterus*
*Ruby-throated hummingbird	Estrellita pasajera (or colibrí gorjirrubí)	*Archilochus colubris*
*Great crested flycatcher	Güis migrador	*Myiarchus crinitus*
*Wood thrush	Zorzal grande (or zorzal de bosque)	*Hylocichla mustelina*
Gray catbird	Maullador gris	*Dumetella carolinensis*
*Yellow warbler	Reinita amarilla	*Setophaga petechia*
*Chestnut-sided warbler	Reinita flanquicastaña	*Setophaga pensylvanica*
*Ovenbird	Reinita andarina (o reinita hornera)	*Seiurus aurocapilla*
Black-throated green warbler	Reinita gorginegra	*Setophaga virens*
Yellow-throated warbler	Reinita gorjiamarilla	*Setophaga dominica*
*Black-and-white warbler	Reinita trepadora	*Mniotilta varia*
*American redstart	Candelita norteña	*Setophaga ruticilla*
*Prothonotary warbler	Manguito dorado (o reinita dorada)	*Protonotaria citrea*
Northern parula	Parula norteña	*Setophaga americana*
Worm-eating warbler	Reinita anteada	*Helmitheros vermivorum*
Louisiana waterthrush	Reinita acuática cejiblanca	*Parkesia motacilla*
Common yellowthroat	Enmascarado norteño	*Geothlypis trichas*
Yellow-breasted chat	Reinita grande	*Icteria virens*
*Summer tanager	Tángara veranera	*Piranga rubra*
*Rose-breasted grosbeak	Piquigrueso pechirrosado	*Pheucticus ludovicianus*
*Indigo bunting	Azulito norteño	*Passerina cyanea*
*Orchard oriole	Chichiltote castaño	*Icterus spurius*
*Baltimore oriole	Chichiltote norteño	*Icterus galbula*

To see maps showing the breeding and wintering ranges for each of these species, go to www.allaboutbirds.org , enter the name of the species, and click on "Find". Maps for some of these species can also be found in "Winged Ambassadors" and on the fact sheets found in the BTA online teacher resources section at www.si.edu/smbc.

Tu nombre/ Your name: _____

Nombre del ave en español/
Name of bird in Spanish: _____

Nombre del ave en inglés/
Name of bird in English: _____



Indica en el mapa dónde tu ave migratoria se reproduce (construye su nido y cría a sus polluelos) y dónde pasa el resto del año. También indica dónde tu clase hermana esta ubicada.

Show where your migratory bird breeds (builds its nests and raises its young) and where it spends the winter. Also, indicate where your partner class is located.

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About My Migratory Bird

Researched by: _____

Common name in English: _____

Scientific name: _____

Spanish name: _____

What does the male of this species look like? Describe its colors and field marks:

_____

_____

_____

Size (from tip of bill to tip of tail): _____ **Do males and females look alike?** _____

If not, how is the female different? _____

_____

Diet: _____

Breeding habitat: _____

_____

Nest and eggs: _____

_____

Wintering habitat: _____

_____

Song or call: _____

_____

Hazards/problems: _____

_____

Did you know? _____

_____

_____

_____

Sobre Mi Ave Migratoria

Investigado por: _____

Nombre del ave en español: _____

Nombre científico: _____

Nombre en inglés: _____

¿Cómo es el macho de esta especie? Describe los colores y rasgos distintivos:

_____

_____

_____

Tamaño (del pico a la cola): _____ ¿Parecen iguales los machos y las hembras? _____

Si no, ¿Cómo se diferencia la hembra del macho? _____

_____

Alimentación: _____

Hábitat para anidar:_____

_____

Nido y huevos: _____

_____

Hábitat de invierno (durante la época no-reproductiva): _____

_____

Canto o llamada:_____

_____

Riesgos/problemas:_____

_____

¿Sabía usted? _____

_____

_____

_____

About My Migratory Bird

Use words or pictures to tell what you've learned about your bird.

Researcher: _____

Name of bird in English:_____

Name of bird in Spanish:_____

My bird comes to _____ every spring and summer to breed. That means it comes
(name of your state)
here to nest and raise its young. It arrives here in April and leaves by October. It comes here because at this time of year there are so many insects to eat and to feed its young.

Diet (What my bird eats):	Breeding habitat:

My bird leaves my state for the winter because it cannot find enough food here then. One of the countries it migrates to for the winter is _____, which is where our partner class lives. It lives there from November to March. It does not breed when it is there.

"Winter" (non-breeding) habitat:	One interesting fact about my bird:

One danger or threat my bird faces:

One action I can take to help my bird survive:

Drawing of my bird:

Sobre mi ave migratoria

Use palabras o dibujos para demostrar lo que has aprendido de tu ave.

Investigador(a): _____

Nombre de mi ave en inglés:_____

Nombre de mi ave en español:_____

Mi ave viene a _____ cada primavera para reproducirse. Llega aquí en abril
(nombre de tu estado)
para anidar y criar a sus crías, y se va en septiembre u octubre. La razon por la cual migra aquí es porque en esta epoca del año hay muchos insectos para comer y poder alimentar a sus crías.

Dieta (Lo que mi ave come):	Hábitat de anidación:

Durante el invierno, mi ave deja mi estado porque no puede encontrar suficiente comida aquí cuando hace frío.

Un país a donde migra en el invierno es _____, que es donde vive nuestra clase compañera, y donde mi ave habita desde octubre o noviembre hasta marzo. No se reproduce cuando está allí.

Hábitat de "invierno" (no-reproductiva):	Un hecho interesante acerca de mi ave:

Un peligro o una amenaza que enfrenta mi ave:	Algo que puedo hacer yo para ayudar a mi ave a sobrevivir:

Dibujo de mi ave:

Mi Ave Migratoria/My Migratory Bird

¡Hola amigos de/ Hello friends in _____!

Mi nombre es / My name is_____.

El nombre en español de mi ave es/ The name of my bird in Spanish is _____

_____.

El nombre científico de mi ave es / The scientific name of my bird is _____

_____.

El nombre en inglés de mi ave es/ The name of my bird in English is _____

_____.

Sus colores son/ Its colors are _____.

Se alimenta de/ It eats _____.

Donde yo vivo, yo la observo en los meses de / Where I live, I can see this bird in the months of

_____.

Una cosa que yo voy a hacer para cuidarla es / One thing I am going to do to help this bird is

_____

_____.

Cuidamos de ellas para que regresen hasta ti.

¡Estamos unidos por las aves!

————————

We will take care of them so they can return to you.

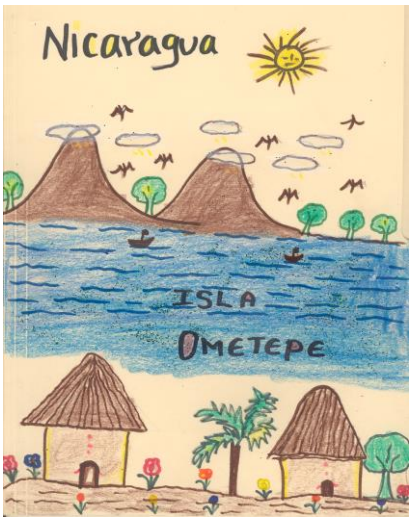
We are united by the birds!

Este es un dibujo de mi ave migratoria:

This is a drawing of my migratory bird:

Lesson 5: *Cross-cultural Connections*

Big Idea: Conserving Neotropical migratory birds requires cooperation between people in each of the places where the birds live throughout the year. Getting to know people in these other places is an important step toward working together to protect the environments that we and the birds depend on.



Overview: Students will explore what it is like in their partner class' country, and write a class letter to send to their partner class. They will also answer questions collectively on a form entitled "Tell Your Partner Class about Yourselves". As an option, students may also share information individually by creating a picture collage or by completing an "All About Me" form.

Objectives

Students will:

- explore what it is like in the place where their partner class lives;
- locate on a map of the Americas where their partner class is located;
- collaborate in deciding what information to share with their partner class about themselves, their school, and their community.

See matrix in Appendix 1 for details on this lesson's alignment with standards of learning.

Key concepts:

- Through their annual travels, Neotropical migratory birds connect us to distant places and the people who live there.
- These birds with two homes can survive only if people in each of the places they live throughout the year protect them and their habitats. In order to work together to protect birds and the environment, we need to get to know each other.
- All cultures have beliefs, values, and traditions that shape human interactions with the environment.

Materials needed:

- Sources of images and information about your partner class' country, including the provided PowerPoint presentation and the printed materials found in Appendix 5.

  To access the PowerPoint presentation, go to www.si.edu/smbc; click on "learn", then on "Bridging the Americas", then "login". Password is bta4teachers. Scroll down to "Slide Shows" to find a presentation on Nicaragua (an English and a Spanish version) and a presentation entitled "Introduction to Ometepe Island, Nicaragua".
- "Tell Your Partner Class About Yourselves" form- page 83
- "All About Me" form (optional)- page 85

Procedure:

1. Set the stage

Explain that now we shift from learning about migratory birds to learning about one of the places where the birds go when they are not here and some of the people who live there. We will write a class letter introducing ourselves to our partner class. We will also answer some questions so that our partner class can learn more about us. We will mail our letter and information about ourselves, along with a few photos, and some of the work we did on birds to our partner class. In the spring we will receive a similar packet from them in return.

Getting to know people in other places where the birds go is an important step toward working together to protect the environments that the birds depend on.

2. Explore partner class' country

Have students locate where their partner class lives on a world map or map of the Americas. Using the provided printed materials and PowerPoint presentation on your partner class' country, as well as other print and internet sources of your choosing, explore with your students what it is like where your partner class lives. As you explore, have students think of questions they'd like to ask their partner class about their daily lives and surroundings (topics to consider: volcanoes, weather, temperature, plants, animals, school, food, family members, games, sports, homes). Record these questions and include them in or with the class letter of introduction. If you will have the opportunity to communicate with your partner class via the internet, these questions could also be the basis for that interaction.

Consider using Google Earth to locate where your partner class lives.

Comparing and contrasting images of what it is like in your partner class' country as shown in the PowerPoint presentation with your own surroundings using a Venn diagram may help students' generate questions they'd like to ask their partner class.

3. Write a class letter of introduction and decide what photos to include

Write a class letter of introduction to your partner class, involving the students in deciding what information they'd like to share about the class, the project, their school and community. This letter is a very important component of what you will be sending to your partner class. Be sure that it gives them a sense for who you are and what it is like where you live. What is special and interesting about where you live? Suggest including in the letter your thoughts about the Bridging the Americas project, information your students have

enjoyed learning about the birds, and a description of an action they have taken or plan to take to help birds.

Have students also decide what they should take photos of to accompany the letter. Photos do a lot to personalize the communications between classes. Consider having your students hold their bird illustration in a class photo.

Important considerations for the class letter:

The teacher and students of your partner class most likely speak Spanish only, therefore all correspondence must be in Spanish. If you are not able to write the letter in Spanish yourself, consider finding a Spanish-speaking volunteer from your school or community to help. If you are not able to have your letter translated, the Smithsonian Migratory Bird Center will translate it for you, although we ask that in this case you please keep the length of the letter to no more than two pages.

If you can arrange your own translations, you are welcome to include letters in Spanish from individual students in addition to the letter from the class as a whole. It is important to note though the correspondence with your partner class meant to be on a class to class basis, not student to student. Please avoid setting up the expectation that each of your students will receive an individual letter from a student in the partner class. Rarely are partnered classes composed of exactly the same number of students.

4. <u>Complete the "Tell Your Partner Class about Yourselves" form with your class</u>

This form is meant to supplement the class letter and highlight some of the similarities and differences between your students' lives and those of the partner class. Read the questions aloud and summarize the responses from your students on the form. If needed, the Migratory Bird Center staff will translate your answers for you. Your partner class will be asked to complete and return the same form.

5. <u>Optional items to send to partner class</u>

If students want to share more information about themselves as individuals, they can complete the "All About Me" form provided or they could create a collage of photos or drawings that relay details about themselves.

You may send other items of your choosing to your partner class, such as post cards or calendar photos of your area, but remember that items must fit within the 11"x17" envelope that's provided.

Extensions:

- Plan an imaginary trip to your partner class' community using information provided, including the PowerPoint presentation, and other resources such as guide books or the internet. Discuss when would be the best time of year to go, how you might get there, what you'd like to do while you are there, what sorts of things you would need to bring. You could have students relate this imaginary trip to the actual trip made by a migratory bird, thinking about the sorts of things the birds do to prepare and how they are able to make such journeys with nothing but the feathers on their backs.

Suggested web sites on Nicaragua:

http://visitnicaragua.us/

https://vianica.com/nicaragua/ometepe

http://www.ometepenicaragua.com/

"Tell Your Partner Class About Yourselves"
"Cuentenle a su clase compañera acerca de ustedes"

Teachers: Please read the following questions aloud to your class and record as many of their responses as you think is practical given the allotted space. Return this form along with your students' drawings and other materials.

Maestros: Por favor, llene esta hoja y envíela junto con los dibujos y otros materiales de sus estudiantes. Sugerimos que usted lea las preguntas en voz alta a su clase y anote la mayor cantidad de respuestas posibles teniendo en cuenta el espacio previsto.

1. What are the most interesting things you've learned about migratory birds?
   ¿Qué son las cosas más interesantes que han aprendido acerca de las aves migratorias?

2. What kinds of activities do you like to do after school?
   ¿Qué tipos de actividades les gusta hacer después de la escuela?

3. What sports do you like to play or to watch?
   ¿Qué tipo de deportes les gusta jugar o mirar?

(over)

4. How do you get to school (car, bus, walk, etc.) and how long does it take you?
¿Qué forma de transporte (carro, autobús, a pie) usan para llegar a la escuela y cuánto tiempo dura el viaje?

5. What do you want to do when you grow up?
¿Qué quieren hacer cuando sean adultos?

6. How many children are there in your family? (Record either a range or an average)
¿Cuántos niños hay en tu familia?

7. What do you usually have for breakfast, for lunch, and for dinner? What is your favorite food?
¿Qué tipo de comida comen generalmente para el desayuno, el almuerzo, y la cena? Cuál es tu comida favorita?

8. What type of work do your parents do?
¿Qué tipo de trabajo hacen tus padres?

About Me/ ***Sobre Mí***

Unidos por las Aves/
Bridging the Americas

My name is/**Mi nombre es**: _____

My country/**Mi país**: _____

My teacher/M**i profesor(a)**:_____

My school/Mi e**scuela**:_____

Grade/**Grado**:_____ I am _____ years old./ **Tengo _____años.**

My favorite thing to do at school is/ **La cosa favorita que me gusta hacer en la escuela es:**

_____

_____

My favorite activity to do after school is/ **La actividad que me gusta hacer después de las clases es:**

_____

_____

I have _____ sister(s) and _____ brother(s)./**Tengo _____ hermana(s) y _____ hermano(s).**

My chores at home are/ **Las tareas que debo hacer en mi casa son**:

_____

_____

My favorite holiday is/ **Mi día de fiesta favorito es**: _____,

because/**porque**_____

_____.

Things that make me laugh are/**Las cosas que me hacen reír son**:

_____

_____

My favorite/ **Mis cosas favoritas:**

Food/**comida**: _____

Color/**color**:_____

Book/**libro**:_____

Game/**juego**:_____

One thing I want you to tell you about the place where I live/ **Una cosa que yo quiero decirte sobre el lugar donde yo vivo:**

_____

_____

_____

Sample class letter of introduction

Ms. Payack's Second Grade Class
Jamestown Elementary School
3700 N. Delaware Street
Arlington, Virginia 22207

November 2014

Dearest Partner Class,

We are very excited to share this special packet with you, our dear friends! Our packet includes our research worksheets, colored maps, computer drawings and artwork --each representing the migratory birds we studied. We wrote as much as we could in Spanish! We made prints of the shape of each bird on an antique map of North and South America. The original drawings we used are on the back. We also are including a photo book about our favorite places at school and a quilt showing the symbols of our state of Virginia.

The name of our school is Jamestown Elementary School and it is located in Arlington, Virginia. The capital of the United States, Washington, D. C., is close by. There are almost 600 students in our school ranging from 2 year olds to fifth graders. The members of our second grade classroom include 14 boys, 10 girls and one guinea pig --our beloved classroom pet, Coco Puffs.

We love learning about the migratory birds that travel back and forth between Ometepe Island, Nicaragua and our state of Virginia. We enjoy memorizing the songs they sing. We worry about the problems they face when they migrate and we are thinking of ways to help them. We hope you enjoy the packet we made for you!

It is almost the season of winter here in Virginia and it is starting to get cold. Outside our classroom window is a large field of grass surrounded by trees. From our window view we see large flocks of resident birds including American Robins, American Crows, Common Grackles and European Starlings. We also spot Turkey Vultures and hawks soaring overhead.

Our school building surrounds a beautiful courtyard that includes a "Bird Feeding Station" with birdfeeders and birdbaths. We are helping birds through the cold winter months. Tufted Titmice, Blue Jays, Carolina Chickadees, White-breasted Nuthatches, Northern Juncos and Downy Woodpeckers are visiting!

We are looking forward to hearing from you when it is springtime here!

With our love and friendship,

Ms. Payack

Ms. Payack's Second Grade Class

November 20, 2011

Gilford Middle School

72 Alvah Wilson Rd.

Gilford, NH 03269

Lake Winnipesaukee, NH

Hola from the 7th Grade class of Gilford Middle School,

We are so excited to send you the materials from our study of migratory birds this fall. We hope you enjoy them and learn a lot. We can't wait to see what you learn about these same birds now that they are living in your beautiful forests.

To tell you about our town, Gilford is a medium sized rural area with approximately 3,000 people. We have a fire station, police station, town hall and library. There is a ski mountain five minutes from the town's center. Our school has about 350 students.

Our school has students in grades 5-8 or ages 10-14. The school was built 7 years ago and has two floors. We have two rooms with computers for students to use and a fairly large library with more computers and lots of books. We have a running track and sports fields behind our school. Our school day goes from 7:20-2:20 Monday through Friday. Our day starts really early!

After school many kids in Gilford like to play sports. During the winter skiing and snowboarding is very popular. Other activities include tubing, sledding playing in the snow and ice skating. Kids play basketball inside. When spring comes sports like lacrosse, baseball, track and field, and tennis are popular. Summer is fun in the "lakes region" because we have so many beaches. People like to swim, boat, and fish on Lake Winnipesaukee which is pictured above.

Many of the birds that we saw here in Gilford this fall have already made it to your country for the winter. We have some birds that stay here all year and we see them at bird feeders in people's back yards. If birds become sick or injured sometimes people take them to the Audubon society or the local science center to get help. If these birds become healthy again, they can be released to the wild.

What is the weather like where you live? Ours changes a lot from season to season. Right now the weather is getting cold and we may get snow later this week. During the winter temperatures can drop below zero. In the summer it can get very hot and humid, sometimes 90 degrees or more. What kinds of things do kids there do for fun? Do you like sports?

We are looking forward to learning more about you and your school. We hope that we will hear back from you soon. Say hello to all our birds for us, we'll see them in the spring!

Gracias,

The GMS 7th Grade Class

Sample class letter of introduction

¡Hola Amigos en México!

Somos una clase del tercer grado en la Escuela Waples Mill en Oakton, Virginia, USA. Nuestra maestra se llama Sra. Scadron. Oakton es un suburbio en las afueras de Washington, DC, el capital de los Estados Unidos. Esperamos con ilusión aprender sobre las aves migratorias que conectan a nuestras comunidades y recibir su carta y dibujos de aves. Imagínense: ¡es posible que las aves que cantan en nuestros jardines en junio puedan ser las mismas que viven en sus jardines en este momento!

De la clase de 2do grado de la mañana de Sra. Bachelet

Hola amigos y amigas de Nicaragua,

Nosotros estamos en segundo grado en la escuela Lake Anne Elementary que queda en la ciudad de Reston en el estado de Virginia, USA.

A nuestra clase le gusta aprender español. Nosotros tenemos clases de matemáticas y ciencias naturales en español y las clases de lectura, escritura y estudios sociales en inglés.

Muchos venimos a la escuela en auto porque nuestras casas están lejos. Unos pocos pueden venir caminando y a veces en la bicicleta.

Aprendimos mucho de las aves migratorias y les preparamos un juego de matemáticas con las fotos de los dibujos que hicimos en clase. En este juego solo tienes que saber sumar mentalmente. Para jugar se tienen que poner en círculo y repartir a jugador una tarjeta hasta que se han terminado todas las tarjetas. Luego empieza el que tiene "cero" y lee su problema de "aves y sumas" el niño que resuelve el problema se va al centro del círculo y así se van cambiando cada vez que sale otro problema.

Desde nuestra ventana podemos ver aves residentes y pensamos como lo estarán pasando en sus vacaciones de invierno las aves migratorias. A las aves de Virginia les hemos puesto semillas para que puedan comer ahora que ya va a empezar el invierno. Nosotros aprendimos que ustedes no tienen nieve y que tienen una estación lluviosa y una más seca. Nosotros tenemos cuatro estaciones y ahora está por terminar el otoño y va a empezar el invierno. Reciban nuestro cariñoso saludo y ojalá les guste el ave que les mandamos de peluche como regalo... ¡Es para que tengamos la misma mascota en las dos clases!

Saludos de la clase de Sra. Bachelet!

Appendix 1.

Alignment of the Bridging the Americas Unit with Common Core Standards for English Language Arts, Next Generation Science Standards, and Virginia State Standards of Learning for English, Science, History and Social Science.

Appendix 1. Alignment with Common Core Standards for English Language Arts, Next Generation Science Standards, and Virginia State Standards for English, Science, History and Social Science

	Flute's Journey	Great Migration Challenge	Should I Stay or Should I Go?	About My Migratory Bird	Cross-cultural Connections
Common Core Standards- English Language Arts					
Reading: Foundational Skills 2.3., 3.3, 4.3. Know and apply grade-level phonics and word analysis skills in decoding words.	x			x	
Reading: Literature 2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.	x				
2.2. Recount stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral	x				
2.3. Describe how characters in a story respond to major events and challenges.	x				
2.5. Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action.	x				
2.7. Use information gained from the illustrations and words in a print or digital text to demonstrate understanding of its characters, setting, or plot.	x				
3.1. Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.	x				
3.2 Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.	x				
3.3. Describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.	x				
3.7. Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood, emphasize aspects of a character or setting).	x				
4.2. Determine a theme of a story, drama, or poem from details in the text; summarize the text.	x				
4.3. Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).	x				
Reading: Informational Text 2.1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.				x	

	Flute's Journey	Great Migration Challenge	Should I Stay or Should I Go?	About My Migratory Bird	Cross-cultural Connections
2.5. Know and use various text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, icons) to locate key facts or information in a text efficiently.				x	
3.1 Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.				x	
3.4. Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.				x	
3.5. Use text features and search tools (e.g., key words, sidebars, hyperlinks) to locate information relevant to a given topic efficiently				x	
3.7. Use information gained from illustrations (e.g., maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).		x		x	
4.1. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.				x	
4.2. Determine the main idea of a text and explain how it is supported by key details; summarize the text.				x	
4.4. Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.				x	
4.7. Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.				x	
Writing 2.3. Write narratives in which they recount a well elaborated event or short sequence of events, include details to describe actions, thoughts, and feelings, use temporal words to signal event order, and provide a sense of closure.	x				
2.5. With guidance and support from adults and peers, focus on a topic and strengthen writing as needed by revising and editing.				x	
2.7 Participate in shared research and writing projects				x	
2.8 Recall information from experiences or gather information from provided sources to answer a question.	x			x	
3.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic and group related information together; include illustrations when useful to aiding comprehension. b. Develop the topic with facts, definitions, and details. c. Use linking words and phrases (e.g., also, another, and, more, but) to connect ideas within categories of information. d. Provide a concluding statement or section.				x	

	Flute's Journey	Great Migration Challenge	Should I Stay or Should I Go?	About My Migratory Bird	Cross-cultural Connections
3.4. With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.				x	
3.5. With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing.				x	
3.7. Conduct short research projects that build knowledge about a topic.				x	
3.8. Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.				x	
4.2. Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. c. Link ideas within categories of information using words and phrases (e.g., another, for example, also, because). d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Provide a concluding statement or section related to the information or explanation presented.	X			x	
4.4. Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.	x			x	
4.5 With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing				x	
4.7. Conduct short research projects that build knowledge through investigation of different aspects of a topic.				x	
4.8. Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources.				x	
Speaking and Listening 2.1 Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups. a. Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, speaking one at a time about the topics and texts under discussion). b. Build on others' talk in conversations by linking their comments to the remarks of others. c. Ask for clarification and further explanation as needed about the topics and texts under discussion.	x	x	x		x
2.2. Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.	x				
2.3 Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.	x		x		

	Flute's Journey	Great Migration Challenge	Should I Stay or Should I Go?	About My Migratory Bird	Cross-cultural Connections
3.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.	x	x	x		
3.2. Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	x				
3.3. Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.	x				
4.1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.	x	x	x		
4.2. Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.	x				
Language 2.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	x	x		x	
2.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	x			x	
2.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 2 reading and content, choosing flexibly from an array of strategies. a. Use sentence-level context as a clue to the meaning of a word or phrase. b. Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., happy/unhappy, tell/retell). c. Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., addition, additional). d. Use knowledge of the meaning of individual words to predict the meaning of compound words (e.g., birdhouse, lighthouse, housefly; bookshelf, notebook, bookmark). e. Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.	x			x	
2.6. Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using adjectives and adverbs to describe.	x				
3.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	x	x		x	
3.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	x			x	
3.4. Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies.	x			x	

	Flute's Journey	Great Migration Challenge	Should I Stay or Should I Go?	About My Migratory Bird	Cross-cultural Connections
3.5. Acquire and use accurately grade-appropriate conversational, general academic, and domain specific words and phrases, including those that signal spatial and temporal relationships	x		x	x	
4.1. Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.	x	x		x	
4.2. Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.	x			x	
4.4. Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.	x			x	
4.6. Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).	x		x	x	x
Next Generation Science Standards- Disciplinary Core Ideas					
Earth and Space Sciences ESS3.A Natural resources Living things need water, air, and resources from the land, and they live in places that have the things they need.	x	x	x	x	x
ESS3.C Human impacts on Earth systems Things people do can affect the environment but they can make choices to reduce their impacts.	x	x			x
Life Sciences LS1.B Growth and development of organisms Parents and offspring often engage in behaviors that help the offspring survive. Reproduction is essential to every kind of organism. Organisms have unique and diverse life cycles.	x		x		
LS1.C Organization for matter and energy flow in organisms Animals obtain food they need from plants or other animals.	x		x	x	
LS1.D Information Processing Animals sense and communicate information and respond to inputs with behaviors that help them grow and survive.	x		x		
LS2.C Ecosystem dynamics, functioning, and resilience When the environment changes some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die.	x	x	x		x

	Flute's Journey	Great Migration Challenge	Should I Stay or Should I Go?	About My Migratory Bird	Cross-cultural Connections
LS4.C Adaptation Particular organisms can only survive in particular environments	x		x	x	
LS4.D Biodiversity and humans A range of different organisms lives in different places. Populations of organisms live in a variety of habitats. Change in those habitats affects the organisms living there.	x	x	x	x	x
Virginia State Science Standards					
Life Processes 2.4 The student will investigate and understand that plants and animals undergo a series of orderly changes as they mature and grow. Key concepts include animal life cycles.	x			x	
3.4 The student will investigate and understand that adaptations allow animals to satisfy life needs and respond to the environment. Key concepts include a) behavioral adaptations; and b) physical adaptations.	x		x	x	
Living Systems 2.5 The student will investigate and understand that living things are part of a system. Key concepts include a) living organisms are interdependent with their living and nonliving surroundings; b) an animal's habitat includes adequate food, water, shelter or cover, and space.	x	x	x	x	
3.6 The student will investigate and understand that ecosystems support a diversity of plant and animals that share limited resources. Key concepts include b) terrestrial ecosystems; d) the human role in conserving limited resources.	x	x		x	x
4.5 The student will investigate and understand how plants and animals, including humans, in an ecosystem interact with one another and with the nonliving components in the ecosystem. Key concepts include a) plant and animal adaptations; c) flow of energy through food webs; d) habitats and niches; f) influences of human activity on ecosystems.	x	x	x	x	
Earth Patterns, Cycles, and Change 2.7 The student will investigate and understand that weather and seasonal changes affect plants, animals, and their surroundings. Key concepts include a) effects of weather and seasonal changes on the growth and behavior of living things.	x	x	x	x	
3.8 The student will investigate and understand basic patterns and cycles occurring in nature. Key concepts include a) patterns of natural events such as day and night, seasonal changes, Simple phases of the moon, and tides; b) animal life cycles.	x		x	x	x
Earth Resources 2.8 The student will investigate and understand that plants produce oxygen and food, are a	x	x	x	x	

	Flute's Journey	Great Migration Challenge	Should I Stay or Should I Go?	About My Migratory Bird	Cross-cultural Connections
source of useful products, and provide benefits in nature. Key concepts include c) plants provide oxygen, homes, and food for many animals.					
3.10 The student will investigate and understand that natural events and human influences can affect the survival of species. Key concepts include a) the interdependency of plants and animals; b) the effects of human activity on the quality of air, water, and habitat; d) conservation and resource renewal.	x	x			x
4.9 The student will investigate and understand important Virginia natural resources.		x	x	x	x
Virginia State English Standards					
Oral language 2.1 The student will demonstrate an understanding of oral language structure.	x				
2.2 The student will expand understanding and use of word meanings. a) Increase listening and speaking vocabularies. b) Use words that reflect a growing range of interests and knowledge. c) Clarify and explain words and ideas orally. d) Identify and use synonyms and antonyms. e) Use vocabulary from other content areas.	x	x	x		
2.3 The student will use oral communication skills. a) Use oral language for different purposes: to inform, to persuade, to entertain, to clarify, and to respond. b) Share stories or information orally with an audience. c) Participate as a contributor and leader in a group. d) Retell information shared by others. e) Follow three- and four-step directions.	x		x		
3.1 The student will use effective communication skills in group activities. a) Listen attentively by making eye contact, facing the speaker, asking questions, and summarizing what is said. b) Ask and respond to questions from teachers and other group members. c) Explain what has been learned. d) Use language appropriate for context. e) Increase listening and speaking vocabularies.	x	x	x		x
Reading 2.6 The student will use semantic clues and syntax to expand vocabulary when reading. a) Use information in the story to read words.	x				
2.7 The student will expand vocabulary when reading. c) Use knowledge of antonyms and synonyms. d) Discuss meanings of words and develop vocabulary by listening and reading a variety of texts. e) Use vocabulary from other content areas.	x			x	
2.8 The student will read and demonstrate comprehension of fictional texts. a) Make and confirm predictions. b) Relate previous experiences to the main idea. c) Ask and answer questions about what is read. d) Locate information to answer questions. e) Describe characters,	x				

	Flute's Journey	Great Migration Challenge	Should I Stay or Should I Go?	About My Migratory Bird	Cross-cultural Connections
setting, and important events in fiction and poetry. f) Identify the problem and solution. g) Identify the main idea. h) Summarize stories and events with beginning, middle, and end in the correct sequence. i) Draw conclusions based on the text					
2.9 The student will read and demonstrate comprehension of nonfiction texts. d) Set purpose for reading. e) Ask and answer questions about what is read. f) Locate information to answer questions.		x		x	
2.10 The student will demonstrate comprehension of information in reference materials. a) Use table of contents. b) Use pictures, captions, and charts. c) Use dictionaries, glossaries, and indices. d) Use online resources.				x	
3.4 The student will expand vocabulary when reading. a) Use knowledge of homophones. b) Use knowledge of roots, affixes, synonyms, and antonyms. c) Apply meaning clues, language structure, and phonetic strategies. d) Use context to clarify meaning of unfamiliar words. e) Discuss meanings of words and develop vocabulary by listening and reading a variety of texts. f) Use vocabulary from other content areas. g) Use word reference resources including the glossary, dictionary, and thesaurus.	x	x	x	x	
3.5 The student will read and demonstrate comprehension of fictional text and poetry. a) Set a purpose for reading. b) Make connections between previous experiences and reading selections. c) Make, confirm, or revise predictions. d) Compare and contrast settings, characters, and events. e) Identify the author's purpose. f) Ask and answer questions about what is read. g) Draw conclusions about text. h) Identify the problem and solution. i) Identify the main idea. j) Identify supporting details. k) Use reading strategies to monitor comprehension throughout the reading process. l) Differentiate between fiction and nonfiction.	x				
3.7 The student will demonstrate comprehension of information from a variety of print and electronic resources. a) Use encyclopedias and other reference books, including online reference materials. b) Use table of contents, indices, and charts.				x	
4.4 The student will expand vocabulary when reading.	x	x		x	
4.5 The student will read and demonstrate comprehension of fictional texts, narrative nonfiction texts, and poetry. a) Explain the author's purpose. b) Describe how the choice of language, setting, characters, and information contributes to the author's purpose. c) Identify the main idea. d) Summarize supporting details. e) Identify the problem and solution. f) Describe the relationship between text and previously read materials. g) Identify sensory words. h) Draw conclusions/make inferences about text. i) Make, confirm, or revise predictions. j) Identify cause and effect relationships. k) Use reading strategies throughout the reading process to monitor comprehension. l) Read with fluency and accuracy.	x				

	Flute's Journey	Great Migration Challenge	Should I Stay or Should I Go?	About My Migratory Bird	Cross-cultural Connections
Writing 2.11 The student will maintain legible writing.	x			x	
2.12 The student will write stories, letters, and simple explanations.	x			x	
2.13 The student will edit writing for correct grammar, capitalization, punctuation, and spelling.	x			x	x
2.14 The student will use available technology for reading and writing.				x	
3.9 The student will write for a variety of purposes. a) Identify the intended audience. b) Use a variety of prewriting strategies. c) Write a clear topic sentence focusing on the main idea. d) Write a paragraph on the same topic. e) Use strategies for organization of information and elaboration according to the type of writing. f) Include details that elaborate the main idea. g) Revise writing for clarity of content using specific vocabulary and information.	x			x	
3.10 The student will edit writing for correct grammar, capitalization, punctuation, and spelling.	x			x	
3.11 The student will write a short report. a) Construct questions about the topic. b) Identify appropriate resources. c) Collect and organize information about the topic into a short report. d) Understand the difference between plagiarism and using own words.				x	
4.7 The student will write cohesively for a variety of purposes. a) Identify intended audience. b) Focus on one aspect of a topic. c) Use a variety of pre-writing strategies. d) Organize writing to convey a central idea. e) Recognize different modes of writing have different patterns of organization. f) Write a clear topic sentence focusing on the main idea. g) Write two or more related paragraphs on the same topic. h) Use transition words for sentence variety. i) Utilize elements of style, including word choice and sentence variation. j) Revise writing for clarity of content using specific vocabulary and information. k) Include supporting details that elaborate the main idea.				x	
4.8 The student will edit writing for correct grammar, capitalization, spelling, punctuation, sentence structure, and paragraphing.	x			x	
Communication: Speaking, Listening, Media Literacy 4.1 The student will use effective oral communication skills in a variety of settings. a) Present accurate directions to individuals and small groups. b) Contribute to group discussions across content areas. c) Seek ideas and opinions of others. d) Use evidence to support opinions. e) Use grammatically correct language and specific vocabulary to communicate ideas. f) Communicate new ideas to others. g) Demonstrate the ability to collaborate with diverse teams. h) Demonstrate the ability to work independently.	x	x	x		x
Research 4.9 The student will demonstrate comprehension of information resources to research a topic. a) Construct questions about a topic. b) Collect information from multiple resources including				x	

	Flute's Journey	Great Migration Challenge	Should I Stay or Should I Go?	About My Migratory Bird	Cross-cultural Connections
online, print, and media. c) Use technology as a tool to organize, evaluate, and communicate information. d) Give credit to sources used in research. e) Understand the difference between plagiarism and using own words.					
Virginia State History and Social Science Standards					
Geography 1.5 The student will develop map skills by a) recognizing basic map symbols, including references to land, water, cities, and roads; b) using cardinal directions on maps; c) identifying the shapes of the United States and Virginia on maps and globes; e) constructing simple maps, including a title, map legend, and compass rose.	x			x	
1.6 The student will develop a geographic understanding that the location of Virginia determines its climate and results in four distinct seasons.	x		x		
2.6 The student will develop map skills by using globes and maps of the world and the United States to locate a) the seven continents and the five oceans; b) the equator, the Prime Meridian, and the four hemispheres; and c) major rivers, mountain ranges, lakes, and other physical features in the United States.	x		x	x	x
Civics 2.11 The student will explain the responsibilities of a good citizen, with emphasis on describing actions that can improve the school and community.		x			x
Skills 3.1 The student will demonstrate skills for historical thinking, geographical analysis, economic decision making, and responsible citizenship by e) comparing and contrasting ideas and perspectives to better understand people or events in world cultures; g) explaining connections across time and place.					x

Appendix 2.

Student worksheets for the Grade 2 Reading Comprehension Guide to *Flute's Journey: The Life of a Wood Thrush*

Name: _____ Date: _____

Flute's Journey: The Life of a Wood Thrush
Written and illustrated by Lynne Cherry

Worksheet #1: BE A DETECTIVE! CAN YOU READ THIS BOOK BY ITS COVER?

1. Why do you think the author chose Flute's Journey as the title of this book?

_____

_____

_____

2. Who do you think Flute is? _____

_____

3. What is a journey? _____

_____

4. Where do you think Flute goes on his journey?_____

_____

5. What clues does the illustration on the cover tell you about this book and its characters? What details do you notice? _____

_____

_____

6. Describe the back cover. _____

_____

7. What clues does the back cover give you about the book?

_____

_____

_____

8. Make a prediction. What do you think this book is about?

_____

_____

_____

Name: _____ Date: _____

Flute's Journey: The Life of a Wood Thrush

Worksheet #2: Take a close look at the map on the inside of the front cover

1. Can you find the state where you live on this map?

2. What continent is pictured? _____

3. Can you locate any countries? _____

_____

4. What oceans and other bodies of water do you see? _____

_____

_____

5. What do you think the red curving line is showing you? _____

_____

6. What does the key to the "Birds of the Belt Woods" tell you about the birds pictured around the border? _____

_____

_____

7. Do you recognize any of the birds pictured? List the birds you think you have seen around your schoolyard or neighborhood.

_____

_____

_____

_____

8. What are some similarities and differences you notice between the birds on this page?

_____

_____

_____

_____

(over)

9. Find the detailed square illustration of the woods. It shows what the habitat is like in a forest called the Belt Woods in Maryland. Can you locate the Belt Woods on the map? Describe the woods. What season do you think it is? What does the illustration tell us about the habitat needs of the birds who live there?

_____

_____

_____

_____

Name: _____ Date: _____

Flute's Journey: The Life of a Wood Thrush

Worksheet #3- Take a picture walk: Pages 1 to 7

Picture on page 1- The nest and eggs:

1. Describe the nest. What do you think it is made of? Where do you think it is?

_____

_____

_____

2. Describe the color of the eggs. What else in nature is this color? How many eggs do you see? _____

_____

Picture on page 2- The adult bird and the baby birds in the nest:

3. Describe the adult bird. If possible, try to find this bird in a field guide.

_____

_____

_____

4. What does the adult bird have in its mouth? _____

5. Describe the baby birds. What do you notice about them? What are they doing?

_____

_____

_____

Picture on page 3- Sleeping baby birds in the nest:

6. Have the baby birds changed compared to the previous picture? _____

_____

_____

Picture on pages 4 and 5- The forest:

7. Describe the forest. What colors do you notice? How many different plants can you find? _____

_____

(over)

8. What animals do you see? _____

_____

_____

9. What are the children doing in the illustration?

_____

10. How many birds can you find? How many different kinds of birds are there? What are the birds doing? _____

_____

_____

_____

11. Make a list of the birds you can identify using the illustrations on the inside of the front cover.

_____

_____

_____

_____

_____

Picture on p*age 6 and 7: Flying by moonlight*

12. What is the time of day in this illustration? _____

13. Why do you think the birds are flying at night? _____

_____

_____

14. Where do you think they are going? _____

_____

_____

Name: _____ Date: _____

Flute's Journey: The Life of a Wood Thrush
Written and illustrated by Lynne Cherry

Worksheet #4: Flute's first spring and summer

Directions: Listen to the part of the book that is about Flute's first spring and summer. Then, complete the following categories using information, details and vocabulary from the story.

Main Characters

Setting

First Main Event

Second Main Event

Third Main Event

Problem in this part of the story.

Solution – How is the problem solved?

Draw or list the new bird facts you learned in this part of the story.

Draw your own story map of what has happened so far.

Name: _____ Date: _____

Flute's Journey: The Life of a Wood Thrush
Worksheet #5. Take a picture walk: Pages 6 to 15

Pictures on pages 6, 7, 8, and 9- Taking flight, flocking, eating:

1. Why would Flute fly during the night?

_____

_____

_____

2. What signs of the fall season do you see in the illustrations on pages 8 and 9?

_____

_____

_____

3. What are the birds on page 8 doing? What do you think they are eating?

_____

_____

4. Look at the photos of the migratory birds that connect your class with your partner class in Latin America. Can you find any of these birds in the picture? List them.

_____

_____

_____

Pictures on pages 10 and 11- Tropical forests:

5. Think of adjectives to describe the illustration on the bottom of page 10.

_____

_____

6. What do you notice about the forest? Do you think this is a large or small area?

_____

_____

_____

7. What do you think the weather is like?_____

_____

_____

8. What adjectives can you think of to describe the illustration on page 11?

_____

_____

9. Look at the photos of the migratory birds that connect your class with your partner class in Nicaragua. Can you find any of these birds in this picture? List them.

_____

_____

_____

10. Do you think all the birds in this picture are migratory birds?_____

_____

Pictures on pages 12 and 13- Eating, drinking and resting:

11. What is Flute doing in these pictures?

_____

12. Where is he bathing?

_____

Pictures on pages 14 and 15- Winter destination:

13. Think of adjectives to describe the illustrations on pages 14 and 15.

_____

14. What do you notice about the plants?

_____

_____

15. What animals can you find?_____

_____

_____

16. What do you think the two Wood Thrushes are doing?

_____

_____

Name: _____ Date: _____

Flute's Journey: The Life of a Wood Thrush

Worksheet #6: Take a close look at the map on the inside of the back cover

1. What continents are shown on this map? _____

_____

2. Can you find the country where you live on this map? _____

3. What other countries can you locate? _____

_____

_____

_____

_____

4. What oceans and other bodies of water do you see? _____

_____

_____

5. What do you think the red curving line is showing you? _____

_____

6. Do you recognize any of the birds around the border of the page?

_____

_____

_____

7. What does the key tell us about the birds of the Monteverde Rain Forest?

_____

_____

_____

_____

(over)

8. Which of the birds on the border are year-round residents of the Monteverde Rain Forest (also called the Bosque Eterno de los Nños)?

_____

_____

_____

_____

_____

_____

9. What are some similarities and differences you notice between the birds on this page? _____

_____

_____

_____

_____

10. Find the detailed square illustration of the woods. It shows what the habitat is like in the Monteverde Rain Forest in Costa Rica, also known as the Bosque Eterno de los Niños. Can you find this forest on the map? Describe the woods. What does the illustration tell us about the habitat needs of the birds who live there?

_____

_____

_____

_____

Name: _____ Date: _____

Flute's Journey: The Life of a Wood Thrush

Worksheet #7: Flute's first fall and winter

Directions: Listen to the part of the book that is about Flute's first fall and winter. Then, complete the following categories using information, details and vocabulary from the story.

Main Characters

Setting

First Main Event

Second Main Event

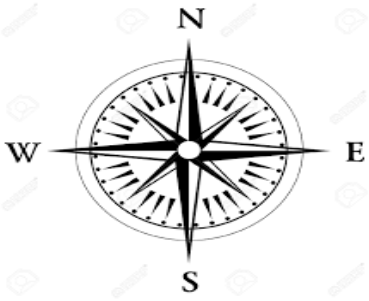
Third Main Event

Problems in this part of the story.

Solutions – How are the problems solved?

Draw or list the new bird facts you learned in this part of the story.

Draw a story map of Flute's journey south.



1. Taking Flight, Flocking, Eating

2. Tropical Forests

3. Eating, Drinking and Resting

4. Winter Destination

Name: _____ Date: _____

Flute's Journey: The Life of a Wood Thrush
Worksheet #8. Take a picture walk: Pages 16 to 28

Pictures on pages 16 and 17- Clear-cutting of the forest and hawk:

1. Compare and contrast the land pictured in the illustration on page 16. How is the land on the left different from the land on the right? _____

_____

_____

2. What do you think happened to the land on the right side of the illustration?

_____

_____

3. Do you think all the land looked the same at one time?

_____

_____

4. Which side of the illustration will be a more secure habitat for Flute? Explain your ideas.

_____

_____

_____

5. Why is the hawk so close to Flute in the illustration on page 17?

_____

_____

6. What do you notice in the upper left hand corner of this illustration?

_____

_____

7. How do you think the hawk is able to find Flute in these woods?

_____

_____

_____

Pictures on pages 18 and 19- Outdoor cat & Flute on the forest floor:

8. What do you think the cat is doing in the woods?

_____

_____

_

9. Do you think the cat lives in the woods?

_____

10. Why is Flute on the forest floor in the illustration on page 18?

_____

_____

_____

11. What is the cat doing in the large illustration on page 19?

_____

_____

Picture on p*age 20- Development and fragmentation:*

12. What do you notice about the woods in this illustration? _____

_____

_____

13. What does Flute see from his "bird's eye view?" _____

_____

_____

14. Where do you think Flute will choose to land? Explain your ideas.

_____

_____

_____

_____

Picture on page 23- Calls and songs:

15. What is Flute doing in this illustration? _____

16. Where exactly do you think he is?_____

_____

Picture on pages 24 and 25- Nesting:

17. Who do you think is sitting in the nest on page 24?_____

_____

18. Do you think the bird in the illustration on page 25 is a Wood Thrush? _____

_____

19. Why do you think one egg looks different from the rest? _____

_____

Picture on page 26- Baby birds:

20. Who are the two adult birds standing on the nest? _____

_____

21. Do all the baby birds in the nest look the same? _____

_____

_____

22. Why are their mouths open? _____

_____

23. What is in the adult bird's mouth? _____

_____

24. Do you think all the baby birds are eating? _____

_____

_____

_____

25. What do you notice about the bird in the illustration on page 27? Is it a baby bird? Do you think this fledgling is a Wood Thrush? _____

_____

_____

_____

Picture on page 28- Taking flight!:

26. What are the two children doing in the woods? _____

_____

_____

27. Why are the children waving? _____

_____

_____

Appendix 3.

Great Migration Challenge scenario sheets

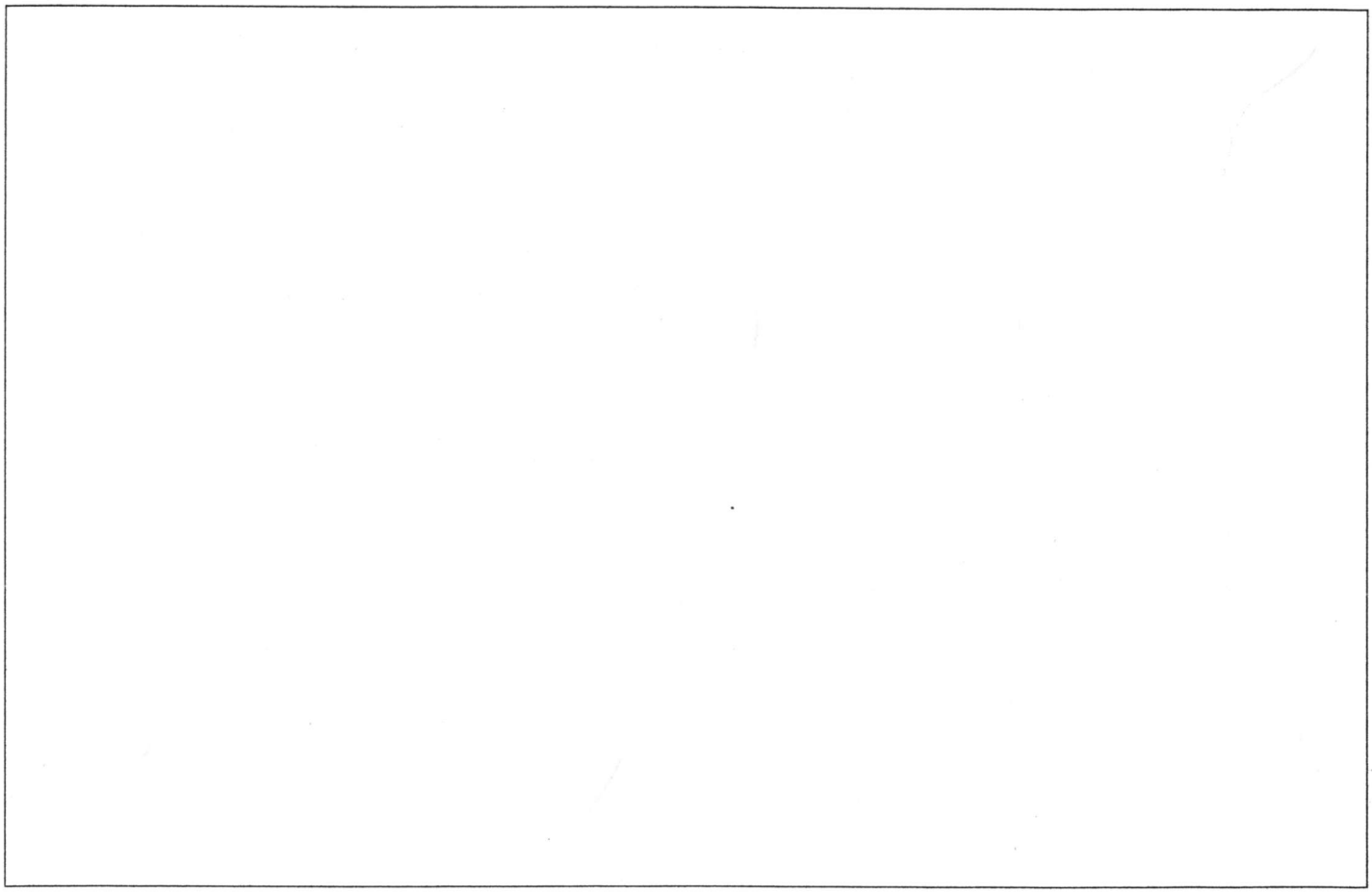
Appendix 4.

My Interview with My Migratory Bird worksheet

MY INTERVIEW OF MY MIGRATORY BIRD

My Name: _____ Date: _____

My drawing of my migratory bird.



My scientific questions for my migratory bird:

1. _____

_____

2. _____

_____

3. _____

_____

Appendix 5.

Information on your partner class' country

A PowerPoint presentation on your partner class' country is available on the Smithsonian Migratory Bird Center's website at www.si.edu/smbc. Click on "Learn", then on "Bridging the Americas", then "Login". Password is bta4teachers. Scroll down to the heading "Slide Shows".

Facts about Nicaragua, "Land of Fire and Water"

◦ Nicaragua is the **largest country in Central America**. Its area is about 50,000 square miles, which is close in size to the state of Virginia (Virginia is about 43,000 square miles).

◦ The capital of Nicaragua is Managua.

◦ Nicaragua is known as the **land of fire and water** because it has numerous volcanoes and lakes, as well as two coastlines.

◦ There are 19 active and extinct **volcanoes** on the Pacific side of the country.

Locations of some of Nicaragua's volcanoes

See web cam images and animations of some of Nicaragua's volcanoes: http://web-geofisica.ineter.gob.ni/webcam/

◦ Spanish is the **official language** and is spoken by most people in Nicaragua. English and some native languages are spoken on the Caribbean coast.

◦ Nicaragua is the **second poorest country** in the Americas. Most people in the country work hard, but many struggle to have enough to take care of all their basic needs.

◦ The **school year** in Nicaragua is from early February through late November. Because of a limited number of teachers, schools, and resources, the school day is divided into two shifts and all students attend either in the morning or the afternoon.

◦ About 4 out of every 10 children in Nicaragua stop attending school by the age of 15, most often because they need to work to help support their families.

◦ The **country flag** has three horizontal stripes: a white stripe in the middle with a blue stripe above and below it. In the center is the national seal, consisting of a triangle which represents equality and justice. Within the triangle are: five volcanoes representing the five Central American countries that gained independence from Spain in 1821; a rainbow symbolizing peace; water symbolizing the two oceans that border Nicaragua; and a red cap symbolizing freedom.

Image source: Wikipedia

(For Spanish speakers and learners: Muppets explain the colors and symbols on the Nicaraguan flag in Spanish in a video linked to from this site, https://www.mined.gob.ni/index.php/biblioteca-interactiva-educacion-primaria/. Click on "Simbolos patrios" under "Conociendo mi mundo". "Mis Caminos Capítulo #12" explains the flag.)

◦ There are **two seasons** in Nicaragua. The dry season is roughly from November through April. It is refered to as "verano", which means summer in English. The wet season is from May through October and is called "invierno" which means winter in English.

◦ **Baseball is the most popular sport in Nicaragua**. Soccer is played there, but it is not as popular as it is in many other Latin American countries.

◦ One of the most **popular foods** in Nicaragua is called *gallo pinto* in Spanish. It is made with rice and beans. Photos and recipes for other Nicaraguan foods can be found on these web sites:

http://www.whats4eats.com/central-america/nicaragua-cuisine (in English)

https://www.mined.gob.ni/mapainteractivo/ (in Spanish)

◦ About **700 species of birds** live in Nicaragua for all or part of the year. That is an amazing number for a country about the size of Virginia, especially when you consider that there are about 900 bird species in all of North America (not including Mexico). The number in Virginia is about 470 species.

◦ **We share about 120 species of migratory birds with Nicaragua**. These migratory species are in Nicaragua from about November through March, and in the US and Canada during the other months of the year.

◦ The Nicaraguan **national bird** is the turquoise-browed motmot (*Eumomota supercioliosa*), or "guardabarranco" in Spanish. The Spanish name translates to guardian of the ravine, which comes from the fact that this species nests in holes built in the banks of ravines.

Photo by Stephen Turner, Creative Commons

Ometepe Island

◦ The **largest lake** in Nicaragua, and in all of Central America, is Lake Nicaragua (also called Lake Cocibolca). It contains over 350 islands. One of these islands is called Ometepe, which is where many of our "Bridging the Americas" partner classes are located.

◦ The island is 100 square miles in size. It is about 20 miles long, and 3 to 6 miles wide.

◦ The word Ometepe means "two peaks" in the native nahuatl language, which refers to the two volcanoes that make up most of the island. The Concepcion volcano is active and is 5,250 feet high. The Maderas volcano is dormant, with a beautiful lake in its crater, and is 4, 600 feet high.

◦ About 35,000 people live on the island.

◦ Each year about 40,000 tourists from around the world visit Ometepe. It is a popular place to visit because of the kindness and hospitality of the people who live there and because of its natural beauty.

◦ Although not common, **bull sharks** occasionally enter Lake Nicaragua by swimming up the San Juan River, which connects the lake to the Caribbean Sea. There have not been any deaths or injuries to people due to sharks since 1944.

Two bull sharks caught in fish nets in 2000. (Photo credit: Anna Maria Adamo/Hacienda Merida.)

◦ Nicaraguan musician and composer Luis Enrique Mejia Godoy wrote a song called *Ometepe*. Lyrics to this song and a couple links to internet recordings of it are on the pages that follow.

PowerPoint presentations about Nicaragua and Ometepe Island are available on the Migratory Bird Center's web site at www.si.edu/smbc in the Bridging the Americas online teacher resources section (password is BTA4teachers; scroll to the bottom of this list of resources to find the PowerPoint presentations).

Sources:

http://www.lonelyplanet.com/destinations/central_america/nicaragua/

https://www.cia.gov/library/publications/the-world-factbook/

http://www.vianica.com/nicaragua

www.**visitaometepe.com**, http://www.ometepenicaragua.com/index.php

https://www.epdc.org/sites/default/files/documents/EPDC%20NEP_Nicaragua.pdf

Ometepe – music and lyrics by Luis Enrique Mejia Godoy**

Bajo el cielo azul de Nicaragua
en el mar dulce del Cocibolca
hay una isla con dos volcanes
un paraíso verde de paz
un día que llega siempre regresa
en donde el cacique Nicarao
de su belleza se enamoró.

Ometepe, tierra prometida
Ometepe, oasis de paz. x2

La playa blanca de Santo Domingo
bajo la luna parece un mar
donde sus aguas tibias y buenas
entre el Maderas y el Concepción
y el dulce lago en noches de febrero
donde el isleño ofrece su mano
y que respeta su tradición.

Ometepe, tierra prometida
Ometepe, oasis de paz. x2

Lugar sagrado de barro y clave
de los abuelos que la fundaron
como mandaba la profecía
donde tallaron en piedra dura

su historia llena de maravillas
nuestro mestizo que aun perdura
y que amalgama su identidad.

Ometepe, tierra prometida
Ometepe, oasis de paz. x2

Chico largo en charco Verde su leyenda
un misterio matizado con amor
y un milagro en el paisaje de la punta
la paloma acuarela solo pintada por Dios
Ometepe de sonaja y ocarina
amuleto de obsidiana en mi canción.

Ometepe, tierra prometida
Ometepe, oasis de paz. x2

Moyogalpa y Altagracia son los ojos
de esta india que se baña bajo el sol
y su pecho que se mira de San Jorge
son los volcanes Madera y Concepción
Ometepe es sonaja y ocarina
amuleto de obsidiana en mi canción.

Ometepe, tierra prometida
Ometepe, oasis de paz.

** Recordings of *Ometepe* by Luis Enrique Mejia Godoy can be found on the internet. For example:

http://www.radiolaprimerisima.com/canciones/40 (music only)

https://www.youtube.com/watch?v=OHc7uNcjhbc-- (photos of Ometepe set to the music—teachers should note that at 3:50 there is a mildly inappropriate photo which may be noticed by kids and be a distraction!)

Appendix 6.

Bird fact sheets

These sheets, along with a more advanced version, are available in English and Spanish on the Smithsonian Migratory Bird Center's website at www.si.edu/smbc. Click on "Learn", then on "Bridging the Americas", then "Login". Password is bta4teachers. Scroll down to the heading "Bird Migration".

Appendix 7.

Photos of migratory birds that breed in your area and winter in your partner class' location (list of birds included in Lesson 4: *About My Migratory Bird*).

Photos are also available available on the Smithsonian Migratory Bird Center's website at www.si.edu/smbc. Click on "Learn", then on "Bridging the Americas", then "Login". Password is bta4teachers.