



Massive Migrations



Goal:

Students will recognize that birds come from different parts of North America and show the length of time it takes some migratory birds to reach their destination is not the same.

Objectives:

- Learn the terms migration and habitat
- Measure distance migratory birds travel based on non-standard units of measurement
- Role play the needs of birds on their journey southward—nesting areas, non-nesting areas, and stopover locations

Grade Level: K-4

Subject Areas:

science, math, and geography

Materials Needed:

- science notebook
- bird track templates
- string for fishing poles if making your own
- string—different colors for migration pathways; jump ropes will also work
- tape
- play fishing poles—ready-made toy or can be made with a stick and string
- building shelter materials—cardboard building blocks, bean bags, bring in pillows and blankets, etc.
- bird calls—<http://www.enature.com/birding/audio.asp>

Time to Complete:

30 minutes

Background

A habitat is the place where a species' requirements for food, water, cover, and places to raise young are found (distinguished from an ecosystem, which is the set of interactions between living and nonliving components in the environment). Migratory birds require three different habitat types: breeding and nesting areas, where they lay their eggs; non-breeding areas (often used to find food, water, and shelter); and migratory stopover locations as the birds move from the breeding to the non-breeding areas. Most Arctic wildlife species are temporary residents; they move to more favorable climates during the harshest time of the year. However, some species spend the entire year in the arctic ecosystem. Year-round resident birds such as the ptarmigan, raven, ivory gull, bald eagle, and dovekie have thicker feather than migrants such as arctic terns, snow geese, eiders, and sandhill cranes. The best time of year for birds to live in the Arctic is during the summer months with long days in which to find food, warm temperatures, and plenty of insects!

Arctic terns make the longest migration of any species on earth, traveling from the northern Arctic to the southern Antarctic each year, a distance of 25,000 miles total or about 11,000 miles each way.

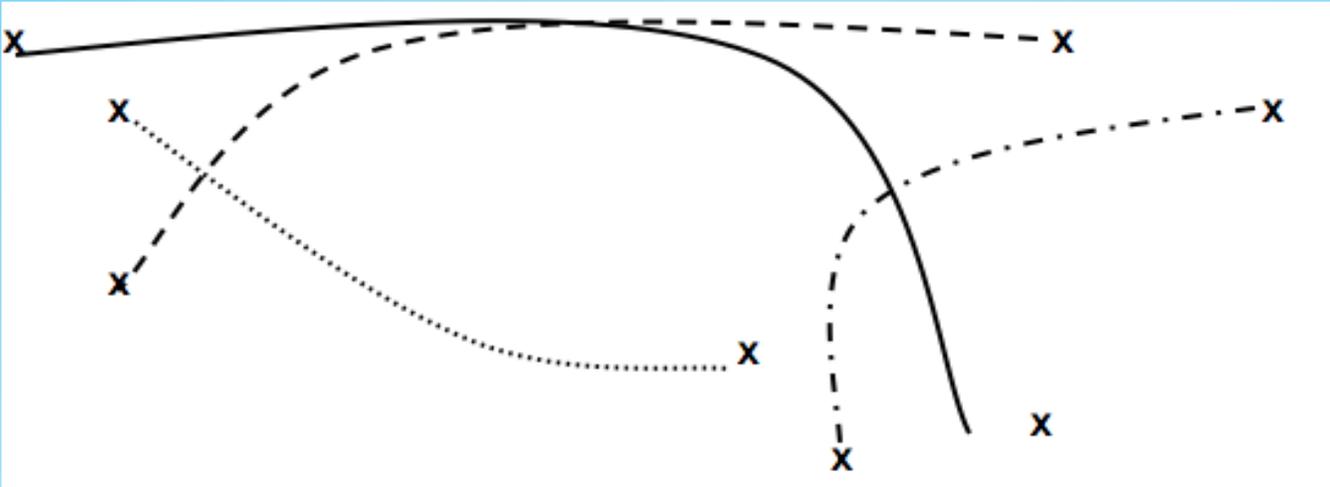
Snow geese nest in the arctic during the summer, traveling from their winter homes in the Gulf of Mexico, a distance of 2,000 miles.

Snowy owls may migrate depending on prey availability—if there is enough prey in their home habitat, they don't need to migrate, but if there isn't enough prey, they will migrate south. Alaska's snowy owl s then to spend autumns in the prairies and marshlands of Canada.

Preparation (30 Minutes)

- Cut out 2 sets of bird tracks from each of the 4 bird track templates.
- Use model diagram on the next page to set up your area—classroom, hallway, common area, gym, outside.
- Choose 3 additional spots, other than the beginning and end, along the migration route for your students to stop (nesting area, non-nesting area, and a stopover location.)
 - The nesting area will have materials for students to make their nests, i.e. pillows, blankets, bean bags, stacking blocks, etc. With these items students will build a "nest" while at this stop along their journey.
 - The non-nesting area will have toy or make-shift fishing poles for students to simulate feeding. You may also want to attach a magnet ("hook") to the end of the string and use paper clips as "fish" to simulate the feeding that migratory birds are doing at this point along their journey.
 - The stopover location will be an opportunity for students to listen to or practice a migratory bird call and socialize with fellow flyers. At this point in their journey students will actually try different bird calls that they have heard in their

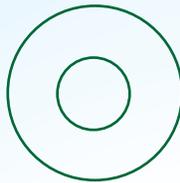
Massive Migrations



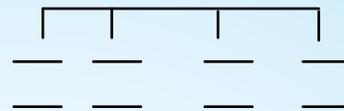
neighborhood or that you have shared with them in class. Ask students to bird call to each other in the group, just as if they were talking to one another at recess. Remind them, they are birds.

Procedure

1. Create a class circle map to see what students know about birds— pre-assess any prior knowledge of migration or flying south in the winter.
2. Set your expectations and explain to students:
 - a. You are going to participate in an activity that has a beginning and an end.
 - b. As you fly from the beginning to the end you will count how many steps you take and record that number at each stop; you will make three stops.
 - c. Follow the directions at each stop.
 - d. At each stop record these things in your science notebook:
 - i. How many steps did I take?
 - ii. What did I do at this stop?
 - e. When you reach the end sit down in a circle around the bird tracks and add up all three numbers and record your answer in a sentence.
3. Use a tree map to classify the student's information. This will allow the students to discuss their findings and to see similarities and differences between the groups.



Circle Map



Tree Map

4. See if your students come up with any of the following key terms: *migration*, *journey*, *route*. Either way talk with your students about the journey they took. Explain if needed what the word *migration* means—the regular movement of all or part of a population to and from an area; usually refers to seasonal journeys to and from breeding grounds or feeding areas¹. Please adapt to meet your students' level of understanding.
5. Read one of the stories about bird migration from the list below.

Assessment

1. Have students draw a picture of a bird's migration, perhaps your state's migratory arctic bird from the resources list below and write about what the bird does as it travels from the Arctic to the student's state – students will draw on experiences in the role play activity, from class discussions, and from reading. Make sure students use science words in their writing – this should be a part of the assessment. Words to look for – *migration*, *journey*, *route*. Look for evidence of understanding what birds do along the journey southward.
2. Create a 3-tab foldable – under each tab there

¹ Cornell Lab of Ornithology <http://www.birds.cornell.edu/netcommunity/Page.aspx?pid=1478>



Massive Migrations



would be a description or drawing of what occurs at each point along the migration route.

Nesting Stop	Non-Nesting Stop	Stopover Location
Migration is...		

Foldable

below to see which bird is an example of a species that summers in Alaska and winters in your state. In addition to these, there are likely many other local species in your area with similar migration patterns.

Children's Literature

- *The Flight of the Golden Plover: The Amazing Migration between Alaska and Hawaii* by Debbie S. Miller
- *Nacho and Lolita* by Pam Munoz Ryan
- *How Do Birds Find Their Way?* (Let's Read and Find Out-Science 2) by Roma Gans
- *Red Knot: A Shorebird's Incredible Journey* by Nancy Carol Willis
- *Migration* (First Step Non-Fiction: Discovering Nature Cycles) by Robin Nelson

Resources

- **List of Selected Arctic Birds and States They Migrate to or Through:** Check the list of Arctic birds

- **Smithsonian National Zoological Park – Migratory Bird Center:**

<http://nationalzoo.si.edu/scbi/MigratoryBirds/Education/default.cfm>

- Songbird kit-loaner chest of all things birds
- Computer-based games
 - Migration Game
 - Online Coloring Book
- Citizen Science (all ages)
 - Neighborhood Nestwatch

- **U.S. Fish and Wildlife Service:**

http://www.fws.gov/educators/E_birds.html
Has both educator and student pages.

- **Thinking Maps®:**

<http://www.thinkingmaps.com/products.php>

- **Dinah Zike's Notebook Foldables®:**

<http://www.dinah.com/>

List of Selected Arctic Birds and States They Migrate to or Through

Alabama – Ruby-crowned Kinglet	Montana – Golden Eagle
Alaska – Redpoll	Nebraska – Wilson's Warbler
Arizona – Fox Sparrow	Nevada – Green-winged Teal
Arkansas – Mallard	New Hampshire – Dunlin
California – Snow Goose	New Jersey – Canvasback
Colorado – Bohemian Waxwing	New Mexico – Sandhill Crane
Connecticut – Greater Scaup	New York – Semipalmated Sandpiper
Delaware – Black-bellied Plover	North Carolina – Semipalmated Plover
Florida – Peregrine Falcon	North Dakota – Rough-legged Hawk
Georgia – Gray-cheeked Thrush	Ohio – American Tree Sparrow
Hawaii – Golden Plover	Oklahoma – Savannah Sparrow
Idaho – Short-eared Owl	Oregon – Brant
Illinois – Northern Flicker	Pennsylvania – Lapland Longspur
Indiana – Dark-eyed Junco	Rhode Island – Horned Grebe
Iowa – Sharp-shinned Hawk	South Carolina – Ruddy Turnstone
Kansas – Smith's Longspur	South Dakota – Northern Shrike
Kentucky – Merlin	Tennessee – Yellow-rumped Warbler
Louisiana – Long-billed Dowitcher	Texas – White-crowned Goose
Maine – Least Sandpiper	Utah – White-crowned Sparrow
Maryland – Tundra Swan	Vermont – Snow Bunting
Massachusetts – Golden Plover	Virginia – Lesser Scaup
Michigan – Oldsquaw	Washington – Varied Thrush
Minnesota – Red-throated Loon	West Virginia – Rusty Blackbird
Mississippi – Northern Waterthrush	Wisconsin – Snipe
Missouri – American Pipit	Wyoming – Townsend's Solitaire

Source: US Fish and Wildlife Service, <http://alaska.fws.gov/nwr/arctic/birdpost.htm>

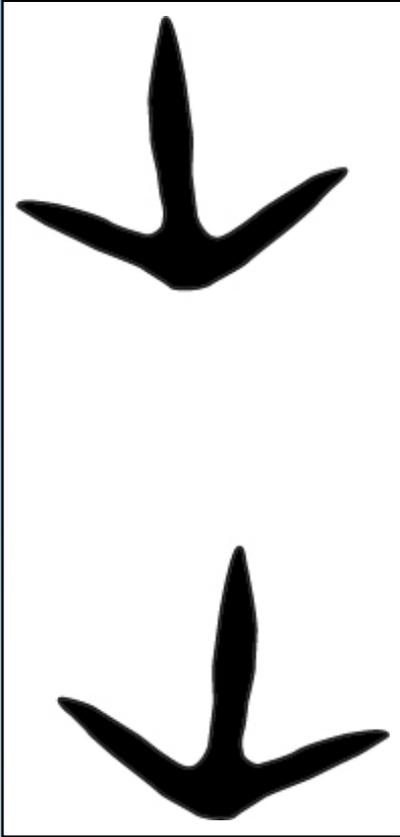




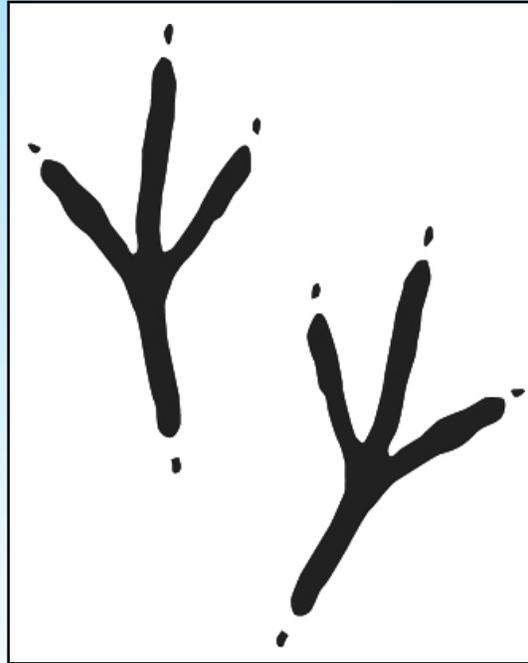
Massive Migrations

Bird Tracks

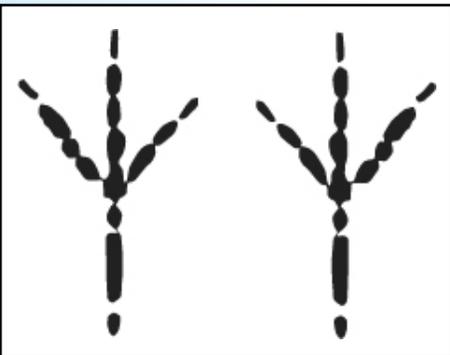
Note: Tracks are not to scale



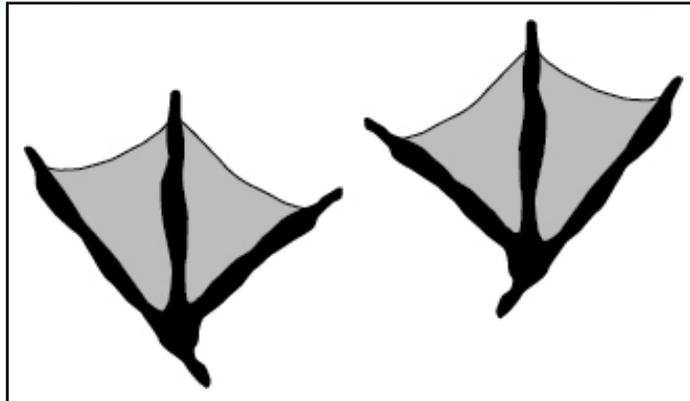
Sandhill Crane



Golden Eagle



Sparrow



Mallard Duck