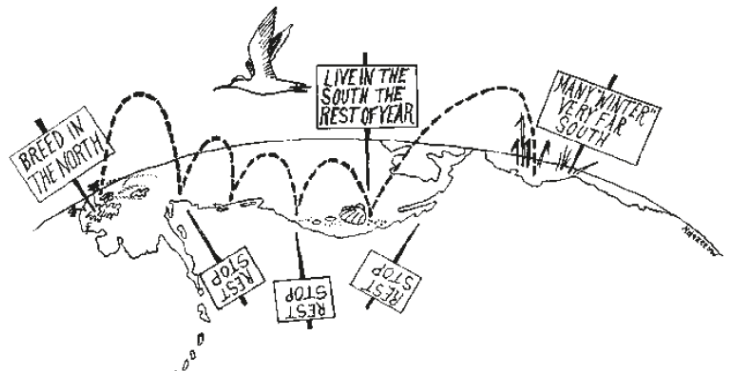


Migration Mania



Learning Objectives

Students will use prior knowledge and their experiences during a kinesthetic game to make predictions and construct explanations for why shorebirds migrate, and to identify what shorebirds might need during migration.

Students will identify patterns in the timing and geography of shorebird migrations, and use storytelling to communicate scientific information about migration to their peers.

Activity 1: Know-Wonder-Learn about Migration

Time: 10-15 min

Materials:

Provided: none

From your Classroom: Large paper, whiteboard or chalkboard

Create a K-W-L chart on large paper or on the classroom whiteboard or chalkboard. Write 'Migration' at the top.

Ask students "What do you **KNOW** about migration?" Write their ideas in the 'Know' section of the chart, OR give each student a sticky note and have them add what they know to the chart themselves.

Ask students "What do you **WONDER** about migration?" Record their questions in the 'Wonder' section of the chart using sticky notes or by writing them there yourself, then set it aside. Return to the chart at the end of the lesson

** This K-W-L brainstorm could also be done in a discussion format with the teacher writing down student ideas in the chart. Adapt terminology as needed for the age of students.*

Activity 2: Migration Headache

**Adapted from Explore the World with Shorebirds! -*

Educator's Guide for the Shorebird Sister Schools Program

Time: 40 min | **Student Level:** Grades 3-8

Materials:

Provided: Migration Headache Habitat Scenario Cards (Activity Sheet 2.1) Migration Headache Diagram (Activity Sheet 2.2)

From your Classroom: Paper plates

Preparation: Select a large area to play - a field, gymnasium, hallway, or if necessary a classroom with desks and chairs moved out of the way. Place an equal number of 'bases' (paper plates) in each of three areas (See Migration Headache Diagram: Activity Sheet 2.2): 'Wintering Habitat' and 'Nesting Habitat' at either end of the space, and 'Stopover Habitat' in the middle. Each base should have a big X on one side drawn with marker - arrange the bases with the 'X' hidden to start. At the start of the activity, there should be enough bases in each habitat to accommodate all of your students if they stand two students per base. Shuffle the Migration Headache Habitat Scenario Cards (Activity Sheet 2.1).

Engage: Tell students that they are shorebirds! They have been eating and getting fat all winter, and now they are trying to migrate from the Wintering Habitat to the Nesting Habitat. The bases (paper plates) represent good shorebird habitat such as wetlands, beaches, or grasslands. Students should immediately go to the Wintering Habitat and find a safe habitat! This means they must stand with one foot on a base - no more than two students per base. All students should find a base at this point.



Explore:

1. Tell students they have a long way to migrate, so they will first have to stop and rest in a stopover site. Explain that any time they cannot find a base, their bird 'dies' and has to wait on the sidelines to rejoin the game as a fledgling. Tell them the time is now - they should fly to the stopover site and find a base to rest in! All students should find a base - explain that it's been a good year and there was no habitat loss in the stopover site.
2. Turn over 3-4 plates in the nesting habitat. Tell the students that there has been heavy rain that flooded many of the nest sites! When they migrate this time, some students will not be able to find a base and will be 'out'. Have these students line up to the side of the Nesting Ground so they can re-enter as fledglings when more habitat is available.
3. It's time now to head back to the wintering ground, but once again, they will need to find a safe stopover site. Draw a Migration Headache Habitat Scenario Card, read the prompt, and follow the directions to add or subtract bases (plates) from the stopover site. Have the 'fledgling' students line up on the side of the nesting habitat. On your mark, all students run to the stopover site and try to find a safe resting place (remember, only two students per base). Mobility impaired students can be accommodated with a head start, or by moving them to the next stage ahead of time. Students who do not find a base 'die' and must move to the sidelines - they'll get another chance to rejoin after the next round of nesting.
4. Draw another Migration Headache Habitat Scenario Card, read the prompt, and follow the directions to add or subtract bases from the wintering grounds. On your mark, students run to the wintering ground. Students who do not find a base must move to the sidelines.
5. Repeat step 4 to move from the wintering grounds back to the stopover site, then back to the nesting ground.
6. Once on the nesting ground, repeat step 3 to allow students on the sidelines to re-enter, then continue until you have gotten through all of the Migration Headache Habitat Scenario Cards. Depending on the order in which the Migration Headache Habitat Scenario Cards are drawn, it's possible that at some point all the bases in a particular location will be removed. For younger students, teachers may wish to manipulate so that this does not happen.



Discuss: In full class or small groups discuss why shorebirds migrate and what habitat requirements they have throughout their life cycle.

- Why do shorebirds migrate? Write down at least three reasons.
- What do shorebirds need during migration? Write down at least three needs.

Modification for younger students: brainstorm these as a large group and then draw pictures to represent the needs. For example, a student might draw a picture of a bird eating a crab or worm to represent that shorebirds need food along their migration route.

Activity 3: Shorebird Needs & Migration Map

Time: 50 min | **Student Level:** Grades 3-8

Materials:

Provided: Shorebird Cards, Western Hemisphere Map (Activity Sheet 2.3), Shorebird Migration Maps (Activity Sheet 2.4), Online map resource

From your Classroom: Pins and yarn (if using a printed map), sticky notes



Engage*: In full class or small group, discuss why shorebirds migrate and what habitat requirements they have throughout their life cycle.

- Why were the shorebirds migrating? Write down at least three reasons.
- What are three things shorebirds need during migration? Write these down as well.

Modification for younger students: Brainstorm these as a large group and then draw pictures to represent the needs. For example, a student might draw a picture of a bird eating a crab or worm to represent that shorebirds need food along their migration route.

**Duplicates the Discuss piece from Activity 2 - skip to Explore if you have already completed.*




Explore: Project or pin up the large format map of the Western Hemisphere.

1. Assign each group of students a Shorebird Card and Shorebird Migration Map.
2. Students should use markers or pins and yarn to add the Shorebird Migration Map of their shorebird to the map.



3. Tell students to write the migration reasons (from the 'Engage' step) on sticky notes and add them to the large map next to the nesting and wintering grounds. *Example: Students come up with "food" as a reason to migrate. Students could place a sticky note in the wintering ground that says "lots of food in winter", and one in the nesting ground that says "not enough food in winter". Other reasons might include temperature, predation risk, competition for nesting territories, daylight hours, etc.*
4. Next, have students use sticky notes or markers to add habitat needs along the migration route. *Example: Students might identify that birds need water along their route. They could add 'water' on a sticky note.*

 **Discuss:** Each group of students presents their migration route to the class, explaining the migration needs and reasons for migration for their shorebird.

Activity 4: Precarious Paths


*Adapted from *Explore the World with Shorebirds! - Educator's Guide for the Shorebird Sister Schools Program*

Time: 15 min | Student Level: Grades 3-8

Materials:

Provided: Precarious Paths Cards (Activity Sheet 2.6 and 2.7), Flyways Map (Activity Sheet 2.5), Online map resource, Shorebird Migration Map (Activity Sheet 2.4), Shorebird Cards, Precarious Paths Teacher Key (Activity Sheet 2.9 and 2.10), Precarious Paths Dates (Activity Sheet 2.8)


From your Classroom: No supplies needed.

 **Engage:** Divide students into small groups, give each group a Shorebird Card for one of the Precarious Paths species (Buff-Breasted Sandpiper, Ruddy Turnstone, Red Knot, or Western Sandpiper) and a Flyways Map (Activity Sheet 2.5). Students should work together to figure out the flyway that their shorebird uses, and highlight it on the map.

 **Explore:**

1. Each group should get the set of Precarious Paths Cards (Activity Sheet 2.6 or 2.7) for their shorebird, shuffled into random order. Use the 'younger students' cards for grades 3-5, and the 'older students' cards for grades 6-8.

2. Students should work together to put the cards in order and assemble the migration story. Students should mark each location on their map with a Precarious Paths Dates (Activity Sheet 2.8).
3. Students use the cards to tell the migration story of their bird to the class, using the projected version of the Flyways Map (Activity Sheet 2.5) to indicate where each part of the story takes place.

 **Discuss:** After students present their migration stories to the class discuss these prompts:

- How important is timing for migration? What would happen if a bird arrived at a destination too early or too late? Prompt students to come up with an example from one of the migration stories.
- **For older students:** How do you think climate change could affect migration timing?
- Is storytelling a good way to share scientific information? What are the pros and cons of using stories like these for learning?

Activity 5: Know-Wonder-Learn about Migration, *revisited*

Time: 15 min

Revisit the Know-Wonder-Learn chart created at the beginning of the lesson. Students should work in pairs to brainstorm things they have learned about migration to add to the chart. Have them share by adding sticky notes, or by writing their responses onto the chart. Follow up on their 'wonder' items to see if we can now answer some of their questions.

Cultural Connections: To highlight the role of storytelling in traditional ecological knowledge, stimulate storytelling around the importance of birds returning from migration, the significance of the seasons and changing weather. "[A Year in the Life of a Red Knot](#)" is a comic book that's been translated in 8 languages, including in Cree (3 dialects) and Innu. It tells the story of Rufus, a Red Knot traveling from the Canadian Arctic to the tip of South America and back and its adventures. Discussions can also include how the migratory birds are connected to the indigenous way of life in your region (e.g. egg, down and bird harvesting).

