

# It's for the Birds

## AFTER 1: Mapping Migration

To use **After** your visit to expand on the migration game conducted at Blandy. Brings in map reading skills, mathematics, and social studies to deepen understanding of migrations.

**Investigative Question:** What species of bird migrate? How far do they migrate?

**Objectives:** Using maps and measuring tools, students will track the migration of a particular bird species to determine the approximate distance of its migration in terms of months, weeks, days. Students understand that many species of birds migrate, and migration routes differ among species.

- ~ **Knowledge:** Students learn that many types of birds migrate to a variety of places depending on adaptations and needs. Students will learn migratory routes of a specific species in relation to a map of North and South America.
- ~ **Skills:** Students use non-standard and standard forms of measurement to calculate a migration route on the map to the nearest foot, yard, and meter. Students will use math skills to find equivalent periods of time for migration. (Hours into days; days into months).
- ~ **Values:** Students gain an appreciation for the distance of migratory paths as well as the difficulty of migrating, in North and South America.

### VA SOL addressed:

Mathematics (2016): 2.11, 3.9, 3.12, 4.7, 5.2, 5.8, 5.10  
Science (2018): 2.1, 2.5, 2.7; 3.1, 3.4, 3.5, 3.8; 4.1, 4.3, 4.8  
Social Studies (2015): 2.6, 3.6, VS.2

**Note to Educator: Because of the wide range of grade levels and learners, there are various extensions and further options for each particular grade level. Adjust this lesson to fit your needs!**

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### Materials:

- Migration Info Cards
- Wet erase markers and wet wipes
- Colored string/yarn (5 different colors, one for each bird route)
- Measuring devices (meter tape, meter stick, or rulers)
- Large, laminated map (Sample Map for Mapping Migration)- as large as you can make them for groups of 4-5 students
- Conversion Sheet for Mapping Migration

### Instructional Strategy

1. Students refer to the Migration Info Cards from the migration game for this activity.
2. Recap the bird migration game and discuss migration. Look at the large, laminated map of North and South America. Ask students: What is this a map of? What do you see on the map? Check: does the map have all the features it should?
3. In groups, students reread the information for their bird and its migration route.
4. Instruct each group to draw their bird's migratory path on the laminated map. Each bird has a corresponding color.



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5. Next, estimate the distance of their bird's migratory route by using context clues (using a map scale or distance from east coast to west coast and the conversion sheet).
6. Ask: What are some ways we can determine the distance of the migration route?
7. Distribute colored string to groups. Place the string over their bird's migratory path on the large, laminated map. Students should look at the scale (1 in: 205 miles) provided on the map to determine the approximate distance of their migratory route. 1 inch on the map = 205 miles (1:205). If the measurement of the route is 4 inches, then the distance of that bird's route is 820 miles.
8. Distribute the rulers to groups and then ask each group to calculate the distance traveled using the scale provided on the map. Round up or down as needed.
- a. If time allows, students can convert the final measurement from English standard to the metric system (kilometers). The large, laminated map has a meter scale for help. It may help to round down the conversion from 1 inch= 205 miles to 1 inch = 200 miles.
9. Ask students which form of measurement is easier (the string estimate or ruler measurement)? Which is more accurate?
10. With the information given on each of the bird information sheets, students can convert their bird's total length of migration into equivalent time periods: days, months, hours (ex. 15 days= ½ month, 2 months = 60 days). This may be total migration or a portion of their bird's migratory route.
11. Questions to extend the investigation
  - **Where did your bird frequently visit?**
  - **Did your bird migrate to the same locations every year? If so why?**
  - **What do the birds need to survive?**
  - **What characteristics in the landscape was your bird searching for?**

## Extensions

- Create a legend on the laminated map.
- Analyze and compare the migratory patterns and distances of each species of bird.
- Research migration flyways (flight used in bird migration) <https://www.birdlife.org/migratory-birds/>
- Students explore different locations of their bird's migration and make a prediction as to why birds stopped at specific locations. Research different areas of the migration route.
- Create a large number line/migration line down a hallway at school. Online resources are available to track a current bird's migration by The Center for Conservation of Biology and Wildlife tracking. <http://www.cbbirds.org/what-we-do/research/bird-migration/>
- **Engineering and Technology-** Students can use technology to research satellite transmitters and their specific use of tracking. Use engineering design principles to build/design a transmitter model. In what ways can the original transmitters be improved?
- **Higher Level Thinking Extension/ Abstract thinking –** Students find their bird migratory path on a globe. How is the path different once you take into account the sphere that is Earth? Does a bird fly in a straight line? How does bird flight speeds and distances compare to airplane speeds and distances?

