

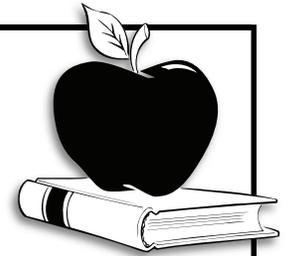
CLASS TIME: one class period

VOCABULARY: flyways

MATERIALS: copies of the Americas map included in this activity; colored pencils

COMMON CORE STANDARDS: mathematics 5.MD

TEACHER'S GUIDE



ACTIVITY

A Round Trip Ticket

OVERVIEW

Students plan a migration route for a Neotropical migrant to learn about migration.

CONCEPTS

- Some birds migrate to meet their habitat needs.
- Migratory birds depend on habitat in Latin America, the Midwest and along flyways.

OBJECTIVES

Students will be able to: 1) describe the possible migration patterns of their Neotropical migrant; and 2) generalize about the migration patterns of other Neotropical migrants.

KEY POINTS

- There are several key migration routes for Neotropical migratory birds.
- Maintaining suitable habitat all along these migratory routes is an important component of bird conservation.

TEACHER BACKGROUND

Why would a bird migrate more than 2,000 miles to Illinois each spring? During the trip the bird faces a myriad of natural and humanmade hazards—storms, predators, aerial obstructions, pollution—that endanger its life. A successful trip requires an enormous amount of precious energy. Add to that the energy resources (food) and habitat resources (such as shelter and nesting materials) needed to find and defend a new territory, build a nest and raise young. And then, after spending only a couple of months here, the bird repeats its long and hazardous journey to return to Latin America! Most of the birds that winter in Latin America and migrate to Illinois undertake this journey to and from North America every year. We often speak of these birds as "our" birds. In fact, they spend less than one-third of every year in Illinois and the rest of their time is spent in migration or the tropics.

The benefits birds receive by leaving the tropics to breed more than 2,000 miles away in Illinois must more than

compensate for the energy expenditure and risks associated with migration. The reasons for this regular, seasonal migration are varied but can be summarized as follows: birds have adapted to seek out suitable environments during each part of the year. Latin America may provide much of what a bird needs to breed, but resources and habitat are better and more numerous in Illinois. Additionally, fewer competitors and predators in northern breeding grounds make it more suitable than the tropics for nesting.

The overriding reason for migrating south in the fall is the climate and its effect on a bird's ability to obtain food. Many bird species avoid the long, cold winter in the north, where food is scarce and daylight hours necessary to find food are limited. Some bird species such as northern cardinals (*Cardinalis cardinalis*) and chickadees (*Poecile* spp.) are adapted to our northern winters, but most songbirds make the long journey south to points such as Mexico or South America where winters are comparatively mild. Warmer temperatures reduce a bird's food demands because it is less costly to maintain body temperature in the tropics. Also, tropical food resources such as plants and insects are more plentiful and accessible during the winter.

While overwintering without the pressure of obtaining breeding territories and extra resources required for reproducing, migratory bird species can reside in the smaller geographic area of the tropics. However, during breeding season, species have greater energy and territorial demands. Males expend energy finding and defending a territory to provide those resources. Mating pairs need materials and energy to build a nest. The female needs extra food resources necessary for developing eggs. And the pair, together or individually, must have enough food for their young. Although areas in the tropics may provide the food resources birds need to successfully breed, there is not enough for all bird species to do the same. Since places like Illinois become hospitable and produce plentiful resources in the warmer months, many species spread out over a

larger geographic area and come here to reproduce, giving them a greater chance of finding and obtaining the resources needed for reproductive success.

Many migratory birds don't take a straight route. They follow land patterns for navigation and stay close to resources. There is very little data on the exact migration routes of most birds. We don't know the exact route many Neotropical migrants take, or if they take the same route flying south as north. Some species migrate at night. Not much is known about the speed of flight of most species during migration. One study suggests that ovenbirds travel at approximately 64 km per hour. Not all migratory birds that nest in forests spend the winter in forests, but the ovenbird does.

A bird migrating from Canada across the United States to Central America might hear three human languages. Here are some basic words in each language.

English	Spanish	French
bird	ave or pájaro	oiseau
forest	selva or bosque	forêt
tree	arbol	arbre
friends	amigos	amis

PROCEDURE

1. Distribute a copy of the map and colored pencils to each student.
2. Ask students what they remember about Neotropical migrants and their migration. Ask students why these birds spend their breeding season in North America, including Illinois, and winter in Latin America. On a map, point out the generalized breeding and winter ranges of the species.
3. Have each student select a Neotropical migrant and on the map draw its breeding range with one color and its wintering range in another. You may want to allow students to use Appendix A to gather Neotropical migrant information.
4. Have the class plan a travel route for a species that breeds in Illinois and winters in Latin America. Instruct the students to estimate the distance their bird travels via this route, using a class map with a mileage scale. Assume this species can fly at 64 kilometers per hour (40 miles/hour), ask students to calculate the amount of time a bird must spend in flight during one year's migration.
5. Have some students share the route they have determined and explain why they chose that route.
6. Have students list the states and nations through

which their migrating bird passes. Using the range maps of the species, identify the different languages that might be spoken in various countries. In these languages, what is the word for bird, forest, tree and friend?

7. Have students calculate how long it would take a person to travel the distance their bird travels by walking (4.9 km/hour or 3 miles/hour) or by car (105 km/hour or 65 miles/hour).
8. Emphasize the points that many migratory birds travel a long distance and that there are several key migration routes. Maintaining these migration routes for the birds is an important part of any Neotropical migratory bird conservation plan.

DISCUSSION

1. What is the shortest route? Is this the easiest route, or does it require long flights over water? What do birds need along their migration route? Do you think each species uses the same route during the spring and fall migration? Why or why not?

EXTENSIONS

1. Use information gathered from library research to do this activity with a number of species of migrants. Compare the ranges and migration patterns of these species.
2. Paint or use chalk to make a scale map of North and Latin America on a large parking lot or paved playground area. Walk along the migration routes of the birds. Use the map to demonstrate locations of Illinois, Latin American countries and migratory flyways to elementary school children or others.



