Wild Kids

Marathon Migrations

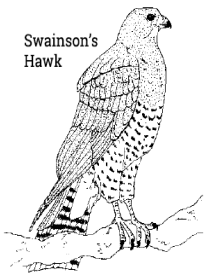
STUDENT GUIDE

The arctic tern is the world's migratory champion. Each year, this 4 ounce bird flies from the Arctic to the Antarctic, and back! This is an incredible journey of over 20,000 miles – nearly the distance of the circumference of the earth. How can birds survive these long distance migrations? Birds prepare for migration like an athlete trains for a marathon. First they tone up, increasing the size of their flight muscles. Second, they put on fat for extra fuel. Lastly, some birds molt (replace old feathers with new ones) in preparation for migration.

Another group of migratory champions are the neotropical migrants. Neotropical migrants are those who spend part of the year in the tropics of the New World. Each year, neotropical migratory birds travel from their summer homes in North America, to their winter homes in the neotropics in Mexico, Central America, and South America. Approximately 238 of the more than 500 birds found in Arizona are neotropical migrants. Migrating birds face a tough journey between their winter and summer homes. Some of the biggest threats to migratory birds are: habitat loss, pollution, and pesticides.

RAPTORS

Not all raptors migrate, but those that do, travel during the daytime when they can soar on rising warm air currents called thermals. A thermal is like an invisible rising bubble that lifts the bird up. Because thermals are present only over land, raptors travel over land. In fact, thousands of raptors are funneled through the narrow Isthmus of Panama during their annual migration to South America.

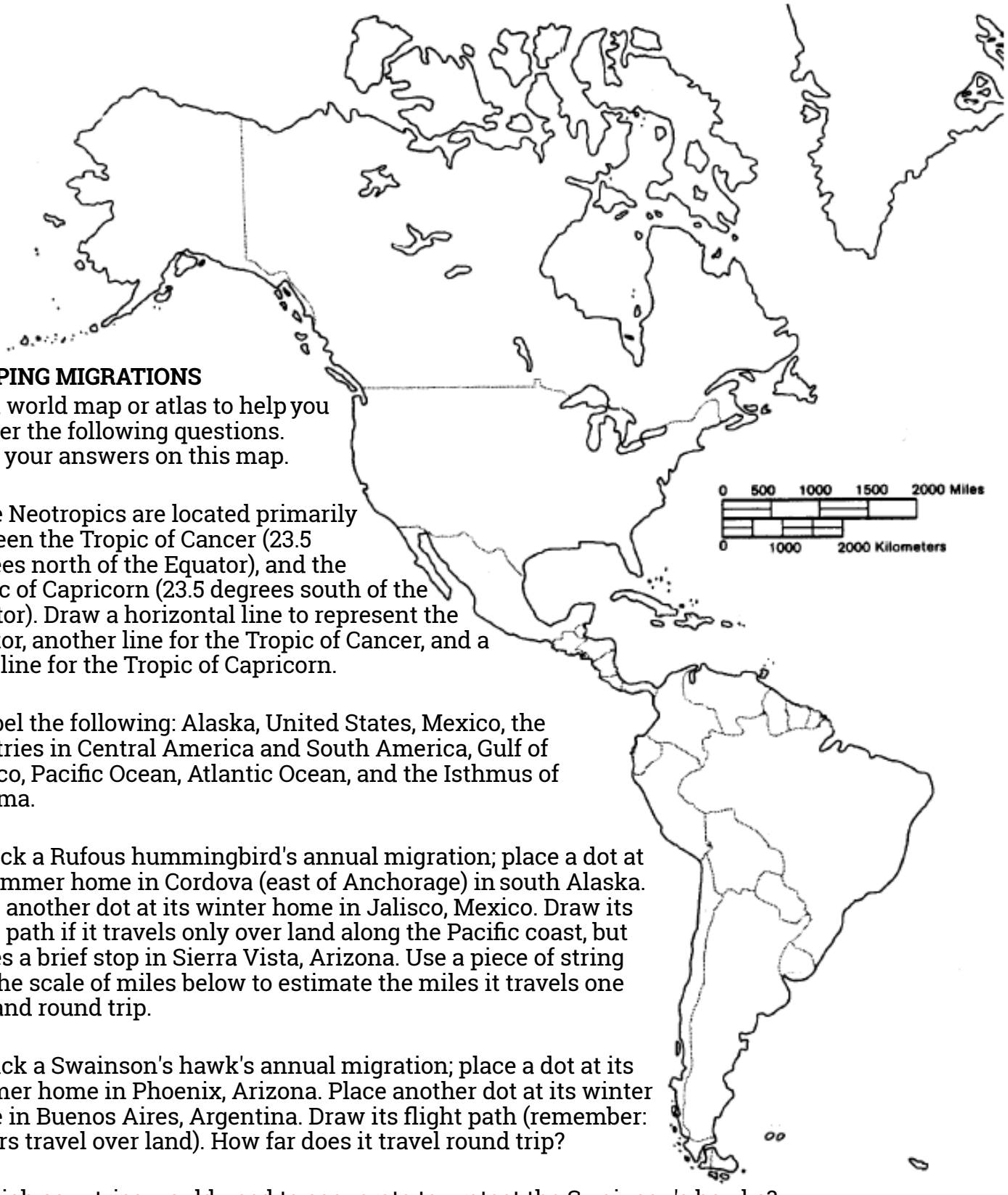


Swainson's hawks summer in Arizona. They travel in huge flocks to their wintering grounds in Northern Argentina, where they join the rest of North America's Swainson's hawks. Here, they gather near fields to feed on grasshoppers. In 1995, thousands of Swainson's hawks were found dead in their Argentina wintering grounds. Scientists believe their deaths were caused from eating insects sprayed with a pesticide that is highly toxic to wildlife. Biologists, government officials, and farmers from the U.S. and Argentina are working together to educate people on the use of alternative pesticides.

HUMMINGBIRDS

Hummingbirds weigh only a few grams, about the weight of a dime, but some may travel up to 1,000 miles during their yearly migrations. How can they do that? The answer is fat. Hummingbirds normally consume about half their weight in sugar each day. Prior to migration, they must drink even more nectar to pack on an extra gram of fat. With this extra fuel the Rubythroated hummingbird, found in the eastern U.S., can fly 500 miles nonstop over the Gulf of Mexico to its wintering grounds in Mexico.

Rufous hummingbirds make a stopover in Arizona during their migration from their summer home in Alaska, to their wintering grounds in Mexico. From July – October, Rufous hummingbirds join other hummingbirds in southeastern Arizona where they replenish their fat by feasting on the nectar from flowers. After putting on another gram of fat, they continue on their journey to Mexico, where nectar and insects are plentiful.



MAPPING MIGRATIONS

Use a world map or atlas to help you answer the following questions. Mark your answers on this map.

1. The Neotropics are located primarily between the Tropic of Cancer (23.5 degrees north of the Equator), and the Tropic of Capricorn (23.5 degrees south of the Equator). Draw a horizontal line to represent the equator, another line for the Tropic of Cancer, and a third line for the Tropic of Capricorn.

2. Label the following: Alaska, United States, Mexico, the countries in Central America and South America, Gulf of Mexico, Pacific Ocean, Atlantic Ocean, and the Isthmus of Panama.

3. Track a Rufous hummingbird's annual migration; place a dot at its summer home in Cordova (east of Anchorage) in south Alaska. Place another dot at its winter home in Jalisco, Mexico. Draw its flight path if it travels only over land along the Pacific coast, but makes a brief stop in Sierra Vista, Arizona. Use a piece of string and the scale of miles below to estimate the miles it travels one way and round trip.

4. Track a Swainson's hawk's annual migration; place a dot at its summer home in Phoenix, Arizona. Place another dot at its winter home in Buenos Aires, Argentina. Draw its flight path (remember: raptors travel over land). How far does it travel round trip?

5. Which countries would need to cooperate to protect the Swainson's hawks?

6. Compare the summer and winter habitat for each bird. How are they the same? How do they differ?

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TEACHING GUIDE

Overview

In this activity, students will read a short passage about migratory birds. Then, they will use information to map the routes of two birds known for their marathon migrations and answer some questions.

Grade
6th

AZ Science Standards
- 6.L2U3.11

Science and Engineering Practices
- Construct explanations and design solutions

Crosscutting Concepts
- Scale, Proportion and Quantity
- Systems and System Models

Suggested Procedures

1. Print the worksheet above. If possible, print it double sided.
2. Have the students read the article on the first page.
3. Ask students the following questions and discuss:
    - Why do raptors only travel over land?
    - Do hummingbirds need to fly over land like raptors? How do you know?
    - How do birds prepare for their migrations?
4. Explain that the students will now track the migration of a Swainson's hawk and a Rufous hummingbird. Inform them that they can use other maps (from books or the Internet) to help them. Give them some time to complete steps 1 through 4.
5. Ask students to share their maps. Discuss.
6. Have students answer the questions for 5 and 6. Discuss.
7. To recap, ask the following questions:
    - As a result of their long migration over multiple countries, what challenges make protection of the Swainson's hawk so difficult?
    - What solutions might the different countries implement in order to help the Swainson's hawk?