Tips from the Author

I hope you will discover something new and exciting each time you read my book. Going Home, The Mystery of Animal Migration offers many opportunities for extended activities. Here are a few ideas.

Find their route

Go to www.dawnpub.com and click on "Educator Tools." Then look for the cover of this book. There you will be able to download the map on pages 25-26 without the animals' migration routes. Can you track their migrations? (Note: Primary Grade Teachers may want to put in dotted lines to give their students a head start.)

Loggerhead turtle: If migrating to a beach in the U.S., they would swim from somewhere in the North Atlantic Ocean to beaches from Virginia to Florida or on the Gulf coast west to Texas. The largest numbers go to south Florida.

Monarch butterfly: between Mexico and almost anywhere in the U.S. or Canada except the far north.

Manatee: between rivers or lagoons in Florida and coastal waters in the Atlantic as far north as Virginia.

Ruby-throated hummingbird: between Central America and anywhere on the east coast or Midwest, including southern Canada.

California gray whale: between Baja California, Mexico and the Bering Sea.

Canada goose: between southern U.S. and northern U.S. and Canada.

Pacific salmon: between somewhere in the North Pacific Ocean and a river or stream on the west coast of the U.S. or Canada.

Caribou: between north central Alaska and Canada and the tundra near the Arctic coast.

Emperor penguin: between coastal Antarctica and nesting grounds about 50 miles inland.

Arctic tern: between Antarctica and the Arctic, usually flying over the oceans.

Draw Your Own Map

Draw your own map and plot other animals that migrate. See the "enchanted learning" website for a list of migrating animals.

Reader's Theater

Teachers can use this book for a reader's theater to develop fluency and enhance comprehension. Ask students to choose one of the animals and pretend they are that animal. Think about how each animal might stand or move, and how to read the verse. For example, read manatee slowly and hummingbird quickly. Students can recite the first and last verse of this story in unison. As background music, you may want to use Antonin Dvorak's Symphony No. 9 (the "New World" symphony). The tune of the largo movement fits the words to "Going Home." For more information on reader's theater see: http://www.readwritethink.org/lessons/lesson_view.asp?id=172

Construct an Attribute Chart

Draw a grid of facts about the migrating animals in this book. On the top horizontal sections of the grid enter category headings such as how the animal traveled (land, air or sea), reason for travel, length of trip or any other facts students have gathered from the book. On the left-hand section of the grid write the names of the ten migrating animals. Fill in the gird spaces for each animal.

Bookmarks

You can download reproducible bookmarks of the animals in this book. Click on the "Educator Tools" button at www.dawnpub.com.

Who Am I?

Ask students to choose one of the creatures in this book and write two sentences describing the animal, but not mentioning which one it is. For example: I have the longest migration route of any mammal in the world. I breathe air through a blowhole. Who am I?

Write Your Own Story

Many animals migrate and offer wonderful opportunities for creative writing. Choose an animal not mentioned in this book, find out about it, then write about it. I wrote "The Wonder of It All" as an example. Your character will have its own unique story and you can tell it in the way you like best. Have fun with your own creation about an animal that is "going home." I would love to hear from teachers and parents on ways you have used this book. www.MarianneBerkes.com

The Wonder of It All

(An example of creative non-fiction by Marianne Berkes)

On a moonlit beach, a baby sea turtle frantically climbed out of a nest filled with broken eggshells and down a sandy slope toward the sea. She got out just before a creature with a black mask, searching for an evening meal, started slurping up the egg yolks that the newborns had left behind.

She scrambled to the water's edge with her many siblings. Hungry crabs crawled after some of the hatchlings, while others were devoured by squawking sea gulls, but luckily the loggerhead turtle in this story made it into the ocean.

She splashed in a frenzy for several days in an ocean swarming with sharks, bluefish, and other hungry predators. Finally she found a huge patch of drifting sargasso seaweed and there she hid. She found tiny shrimp and other seafood in the floating camouflage and she grew bigger and stronger. After a while the seaweed didn't hide her anymore. She was heavier than most humans—over 250 pounds and almost 3 feet long. It was time to explore!

Now a young adult, the loggerhead turtle floated over colorful coral reefs filled with an abundance of sea life. She paddled thousands of miles in the wide and often treacherous Atlantic Ocean, past the Azore Islands, and past the Canary Islands, in a vast clockwise circle. She wandered in the sea for many years, finding plenty of crabs and mollusks to eat. But she was always on the lookout for sharks and other large fish that would devour her.

One day, far out in the Atlantic, she mated with a male loggerhead. Soon, she knew, it would be time to swim back to the beach of her birth twenty years ago. How would she find her way? Somehow she knew it was a journey she had to make.

Instinctively this great "nomad of the sea" found her beach. Graceful and buoyant in water, she now dragged herself ashore with her flippers. Crawling up the beach, she rotated her bulky body to move the sand.

She dug a deep chamber and dropped over a hundred ping-pong-ball-shaped eggs into her nest. Then with her rear flippers she pushed sand over the chamber and packed the sand to cover the eggs. With her front flippers she threw sand in all directions to disguise the nest.

When her work was done, Mama Loggerhead pulled her heavy body around and slowly crawled down to the water's edge. Then, in the moonlight, she paddled out to the welcoming arms of the sea.

GOING HOME,
THE MYSTERY OF ANIMAL MIGRATION

Readers' Theater

CAST OF CHARACTERS

NARRATOR

LOGGERHEAD TURTLE

MONARCH BUTTERFLY

MANATEE

HUMMINGBIRD

PACIFIC SALMON

CANADA GOOSE

CALIFORNIA GRAY WHALE

CARIBOU

ARCTIC TERN

EMPEROR PENGUIN

THE SCRIPT

NARRATOR: By land, sea and air, many animals migrate "home." Twice a year they make their way, sometimes over very long distances. They have no maps. They may skip many meals. Why do they do it, and how do they find their way?

ALL (except for Narrator)
Going home, going home,
We feel the urge to go.
It's time for us to travel on,
It's something we just *know.*

Many of us look for food,
Others find a mate.
And when the weather starts to change,
There is no time to wait.

LOGGERHEAD TURTLE:
Going home, going home,
Where I need to be.
Somehow I will paddle on,
Swimming endlessly.

From the ocean I will crawl,
Up onto the shore.
Laying eggs on a beach
Where I've been before.

NARRATOR:

Loggerhead turtles *hatch from eggs that the mother buries on a sandy beach. They scurry into the ocean where they live for many years. When the female is ready to lay eggs, she usually swims back to the same beach where she was born.*

MONARCH BUTTERFLY:

Going home, going home,
Dancing in the sky.
Waking from our winter sleep,
It's time for us to fly.

We rested in our "family tree,"
Filling every space.
But now it's time to travel on
And find another place.

NARRATOR:

Monarch butterflies *migrate south to keep warm when winter approaches. They rest closely together in a semi-dormant state, often on the very same trees their ancestors occupied the year before. In spring, they fly north.*

MANATEE:

Going home, going home,
I can find my way.
Navigating toward the coast
Where I used to stay.

When it was cold I had to move.
I floated near the shore,
Until I found a warm lagoon
Where I could eat some more.

NARRATOR:

Manatees *migrate as water temperatures change. If the water is too cold, they will die. They often follow the same routes that their parents did, chewing on vegetation along the way.*

HUMMINGBIRD:

Going home, going home,
I feel the time is near.
I'm heading where I lay my eggs,
I do it every year.

I need to cross the wide blue sea
And then I'll eat my fill.
Rapidly I beat my wings
And use my slender bill.

NARRATOR:

Ruby-throated hummingbirds *traveling between their winter and summer homes make an amazing non-stop crossing over the Gulf Mexico. When they reach land, they eagerly drink the sweet nectar from flowers for the energy they need to continue their journey.*

PACIFIC SALMON:

Going home, going home,
Swimming wild and free,
To rivers that are cool and clear,
From the salty sea.

I leap! I splash! I charge upstream!
Swimming on and on.
I have to reach my place of birth—
It's where I go to spawn.

NARRATOR:

Pacific salmon *lay eggs in fresh water streams. The tiny fish swim toward the salty ocean, where they live for a few years until fully grown. Then they find the same river, and battle their way upstream to their place of birth, to lay their eggs (spawn).*

CANADA GOOSE:

Going home, going home,
Looking down below.
The season's here, the path is clear,
And we're all set to go.

Honking high in the sky
Flying in a "V."
We soar together in a flock,
Saving energy.

NARRATOR:

Canada geese *fly together in a V formation which creates a current of air that makes it easier for them to fly. They "honk" loudly to each other—kind of like a buddy system. That way they keep track of each other without looking around.*

CALIFORNIA GRAY WHALE:

Going home, going home,
Moving on our way,
Heading for some icy seas
From a nice warm bay.

Our babies swim beside us,
Staying close to shore,
Traveling up the coastline
Five thousand miles or more!

NARRATOR:

California gray whales *spend the winter near California and northern Mexico. In spring they start the long journey to cold northern waters where there is plenty to eat. The mothers stay close to the coast to protect their babies from killer whales.*

CARIBOU:

Going home, going home,
Listen to the sounds!
Our thundering herd is setting out
To our vast calving grounds.

The journey spans two thousand miles,
But we were born to run!
We're on the treeless tundra now
And feel the Arctic sun.

NARRATOR:

Caribou *gather in huge herds in winter in evergreen forests, where there is some protection from the cold. In spring they move northward to the tundra to feed on lichens and other low-growing plants and to give birth to their young.*

ARCTIC TERN:

Going home, going home,
I have the longest way.
I travel all around the globe
To see the light of day!

I'm always moving north and south.
I really love to fly.
I nest up in the Arctic,
And dive for food supply.

NARRATOR:

The Arctic tern *is the world's champion migrator. It travels over 20,000 miles every year to live in sunshine. In June and July it enjoys almost constant sunshine in the Arctic summer; in December and January almost constant sunshine in the Antarctic summer.*

EMPEROR PENGUIN:
Going home, going home,
I never use the sky.
I flap my wings in water—
And that is how I "fly!"

My mate will keep our baby warm
While I feed in the sea.
And then I'll waddle miles on ice
To find my family.

NARRATOR:

Emperor penguins *"fly" through the water, propelled by their flippers. They live mostly in water, but in winter migrate inland onto ice, where the female lays a single egg. Then she goes back to the ocean to feed, while the egg is kept warm by the male.*

ALL (except for Narrator)
Going home, going home,
By land, by sky, by sea.
Our journey back from "here" to 'there"
Is still a mystery.

We *have* to move from place to place—
You know the reasons now.
Our genius is to know the way,
And yours to wonder, "HOW"?

ALL: The end.

Going Home, the Mystery of Animal Migration,
by Marianne Berkes, Illustrated by Jennifer DiRubbio
Dawn Publications, 2010
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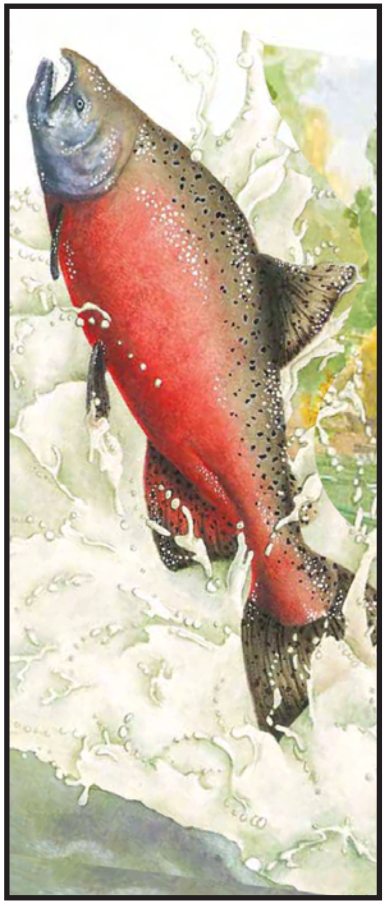
Hardcover $16.95 – ISBN:978-1-58469-126-6



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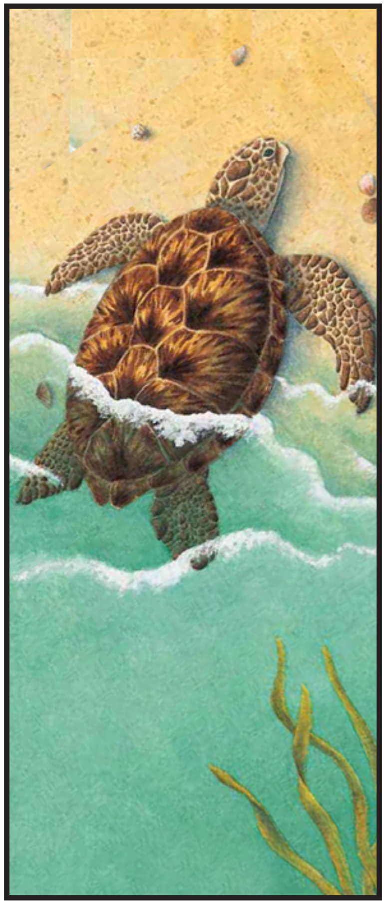

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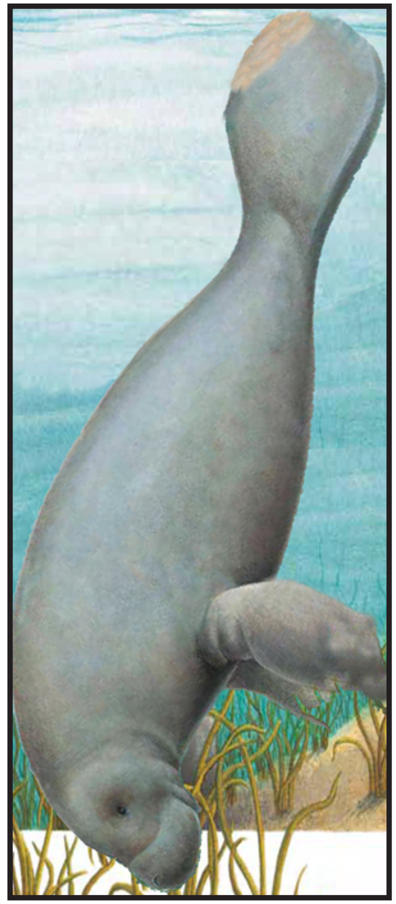

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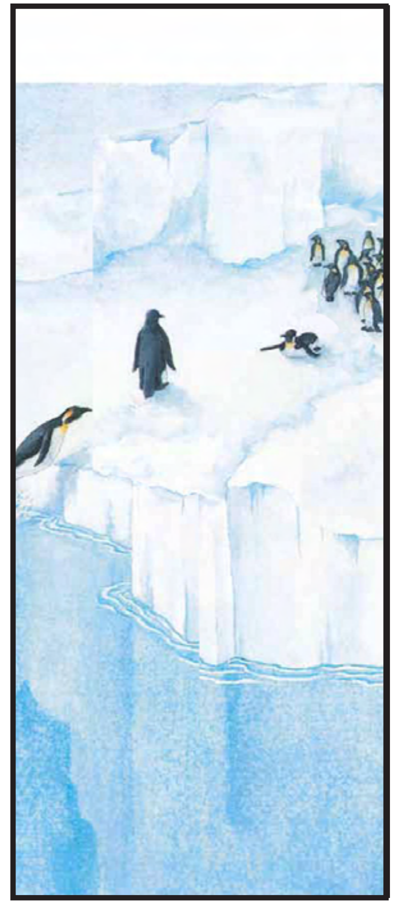

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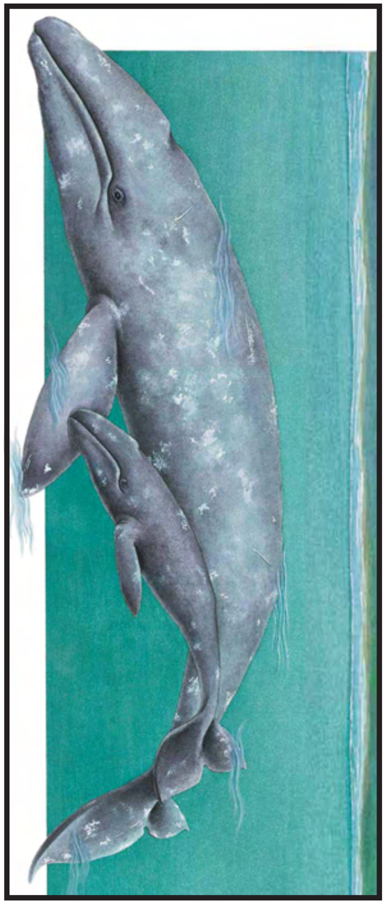

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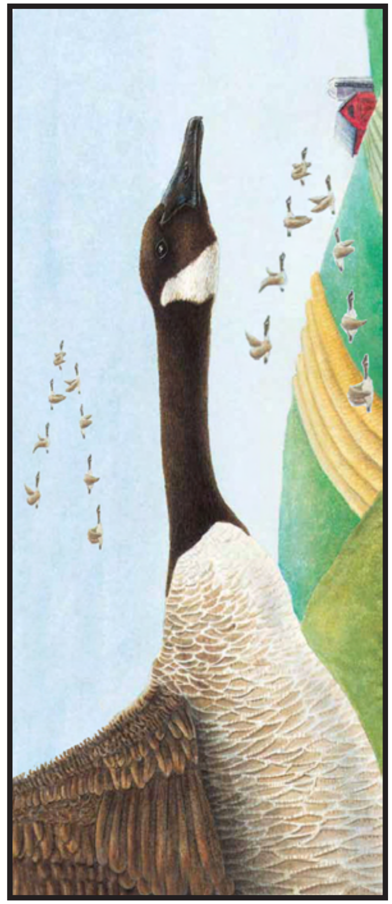

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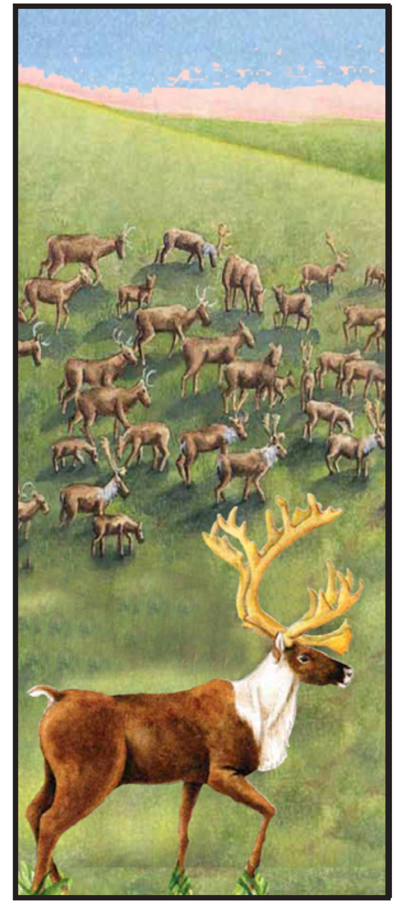

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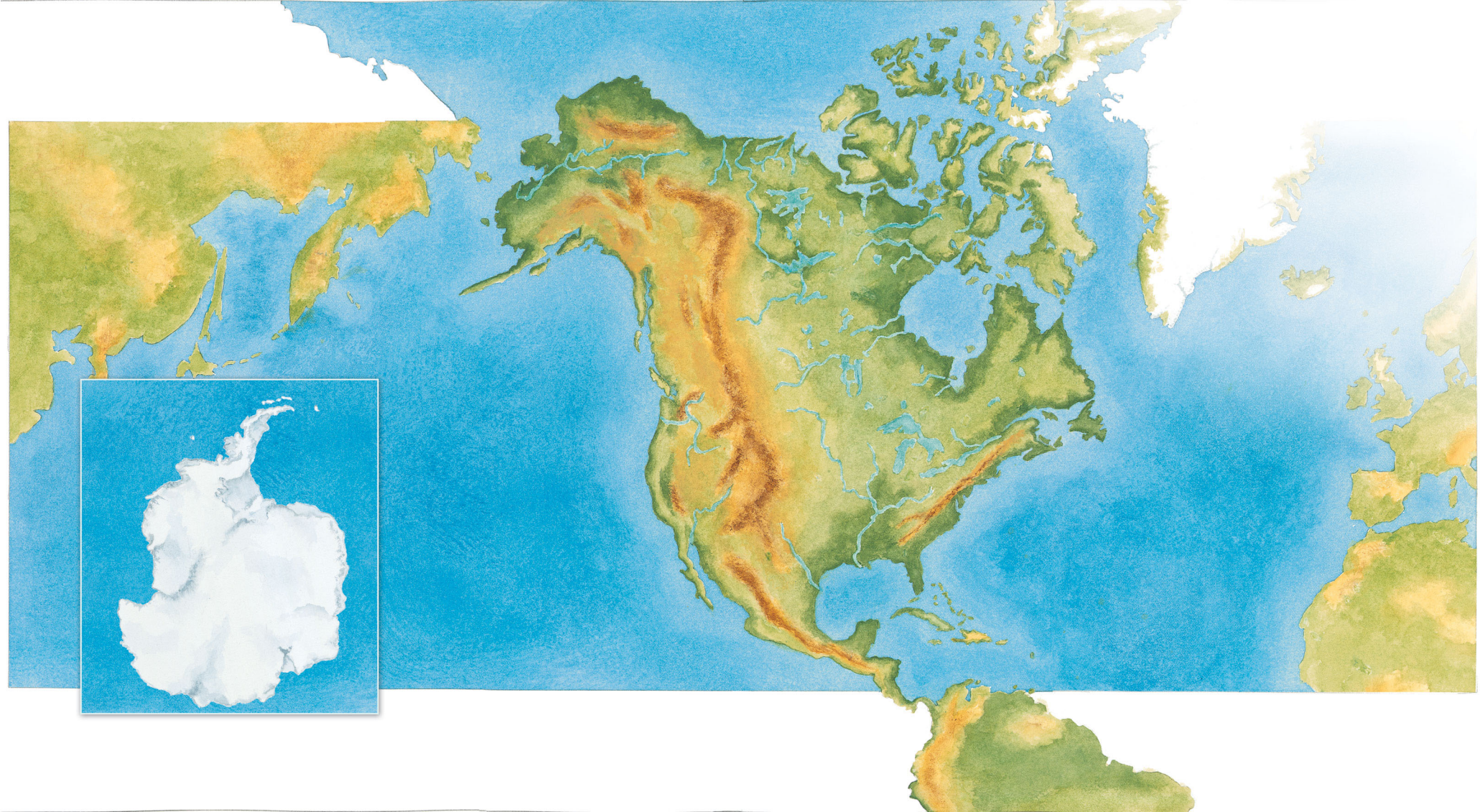

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The Mystery of Migration

By Emily Morgan and Karen Ansberry

The migration patterns of animals have long been a source of wonder and awe. From the 6-mile journey of the army ants in the rain forests of Costa Rica, to the 20,000-mile journey of the sperm whale through the world's oceans, we are fascinated by these animals' ability to recognize when it's time to leave and where to go. The lessons in this month's column explore what we know about animal migration and what still remains a mystery.

This Month's Trade Books

Going Home: The Mystery of Animal Migration

Written by Marianne Berkes.
Illustrated by Jennifer DiRubbio.
Dawn Publications. 2010.
ISBN 978-1-58469-1273.
Grades K–4

Synopsis

This beautifully illustrated book uses rhyming verse to tell of the migration of 10 different animals. Insets and end matter contain specific information about the animals and what is known about their migration patterns.

Great Migrations
Written by Elizabeth Carney.
National Geographic. 2010.
ISBN 978-1-4263-0700-3.
Grades 5–6

Synopsis

Based on the National Geographic Channel's special *Great Migrations,* this book features eight very different animals with one thing in common, they migrate.

Curricular Connections

The *National Science Education Standards* suggest that in grades K–4, students should learn that an animal's patterns of behavior are related to that animal's environment and that when the environment changes, some animals stay and survive, some die, and some migrate. In the K–4 lesson, students learn through a read-aloud about 10 different animals that migrate, map their migration routes, and discuss reasons for migration. It is important for students to know that not all animals migrate, that there are other ways animals deal with changes in the environment. So in this lesson, students research how local animals respond to the changing seasons. Students in grades 5–8 go more in depth into the study of behavioral adaptations by addressing migration as a response to internal or environmental stimuli. In the lesson for grades 5–6, groups of students choose an animal from *Great Migrations*, research the migration patterns of that animal, share their findings, and discuss the internal cues and external cues that animals use to determine when it is time to migrate. Then, students join with another group to create a Venn diagram comparing and contrasting two migrating species. Both lessons end with a discussion of what is known about migration and what still remains a mystery.

Karen Ansberry (karen@pictureperfectscience.com) *is a science curriculum leader at Mason City Schools in Mason, Ohio. Emily Morgan* (emily@pictureperfectscience.com) *is a consultant for Picture-Perfect Science in West Chester, Ohio. They are the authors of* Picture-Perfect Science Lessons *and* More Picture-Perfect Science Lessons, *available from NSTA Press.*

Grades K–4: Going Home

Engage

Before class, print out several sets of bookmarks with pictures of the 10 animals featured in *Going Home: The Mystery of Animal Migration,* available on the Dawn Publications website (see Internet Resources). Give each group of 3–4 students a set of bookmarks. Show students the cover of *Going Home* and read the first page aloud. Tell them that as you read the rest of the book, you are not going to show them the pictures because you would like them to infer from the text which animal you are reading about. After reading the left-hand page for each animal, ask students to hold up the bookmark with the picture of the animal they think you are reading about. Then, read the right-hand side of the page about that animal and show them the picture.

Explore

Provide each pair of students with a simple world map and several markers or colored pencils. Read the section in the back of *Going Home* titled, "Find Their Route" which describes the migration route of each of the animals featured in the book. Have students find the route of one of the animals described in the reading and show the migration path that animal takes by drawing a double arrow in one color. Repeat for each of the animals using a different-color arrow, and then have them create a key that shows what each color of arrow represents. For younger students, you may want to do this together on the overhead. When they have all the animals' migration paths on the maps, have a discussion about how the routes compare, which is the longest, or the shortest.

Explain

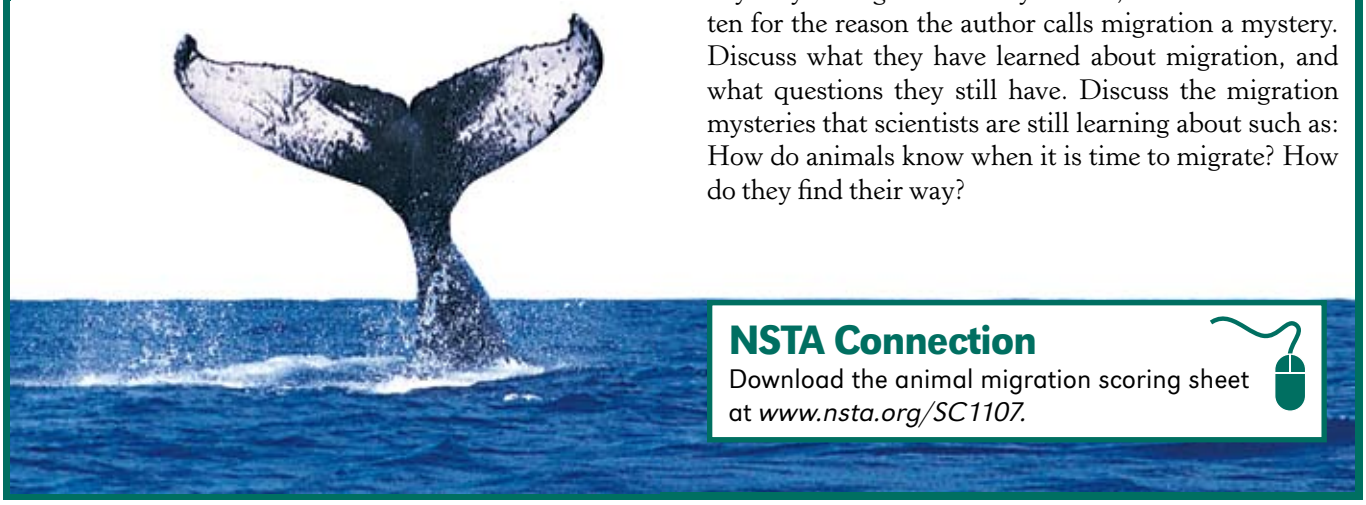
Read the section in the back of *Going Home* titled, "About the Migrating Animals," and ask the students to listen for the reasons that each animal migrates. Then, have groups of students sort the animal bookmarks by the reason for migrating (e.g., finding food, laying eggs, finding warmer temperatures). Ask, "Do any fit in more than one category?" Students will realize that some animals, like the manatees, migrate to be in warmer water and to find more food. Next, have them sort their animal bookmarks into groups based on how they travel (e.g., fly, swim, walk). Last, students can create some of their own categories for sorting the animals.

Elaborate

Ask students whether any of the animals featured in *Going Home* live any part of their lives in your area. Research the animals in your area that migrate. Your state Department of Natural Resources website might be a good place to start. It is important that students understand that not all animals migrate—some hibernate, become dormant, or have adaptations that allow them to continue to live in the same place during the changing seasons. Print out pictures of some of your local animals and have students sort them into two categories: Migrates or Does Not Migrate. Map the migrations of some local animals and discuss why they migrate.

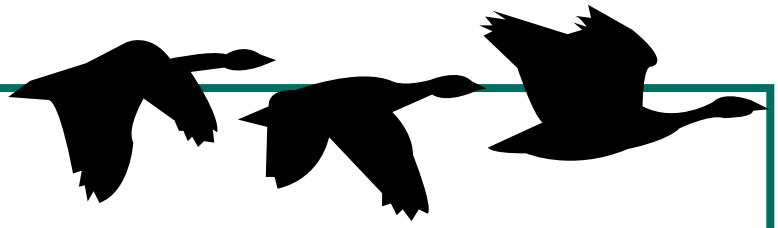
Evaluate

Read the section in the back of the book titled, "The Mystery of Migration." As you read, ask students to listen for the reason the author calls migration a mystery. Discuss what they have learned about migration, and what questions they still have. Discuss the migration mysteries that scientists are still learning about such as: How do animals know when it is time to migrate? How do they find their way?



NSTA Connection

Download the animal migration scoring sheet at *www.nsta.org/SC1107.*



Grades 5–6: Great Migrations

Engage

Make a list on the board of the following animals: Mali elephants, red crabs, monarch butterflies, jellyfish, zebras, army ants, wildebeests, and sperm whales. Then ask students what the animals might have in common. Post photos of these animals where all can see, and allow students time to turn and talk to a partner about their ideas. Have students share their ideas with the whole class, then show them the cover of *Great Migrations*. Tell them that all of those animals migrate, or make a regular journey from one place to another. Then read aloud pages 10 and 11 about *Great Migrations,* which this book is based on. Tell students that they are going to work in groups to become experts about the migration of one of the animals in the book. Read each two-page photo spread aloud, skipping the informational pages in between. You may want to leave out the name of each animal as you read and have students infer which animal is being described. After you read, have each student write his or her name and top three animal choices on a slip of paper. Use these to form research groups.

Explore

Provide each group with the animal migration scoring sheet (see NSTA Connection) and a copy of *Great Migrations* (or a laminated two-page spread of their animal). Tell them that they will be collecting a variety of information about their animal to share on a poster, but the big question they should be thinking about is "How Do They Know When to Go?" They should use the book as well as the National Geographic Great Migrations website, which contains amazing videos and additional information about animal migrations (see Internet Resources).

Explain

Have students display their posters around the classroom or in the hallway. Set up a "gallery walk" in which they circulate around the room to view the posters. Have each student write a comment and a question on a sticky note and place it on each poster. After the gallery walk, the poster groups can answer some of the questions they received. Tell students that one of the mysteries of animal migration is how the animals know when it is time to migrate. Create a t-chart labeled "External Migration Cues" in the first column and "Internal Migration Cues" in the second column. With the class, make a list of external cues that tell animals when to migrate (e.g., amount of sunlight, changing seasons, and food or water availability). Then make a list of internal cues (e.g., fat reserves, hunger, thirst, or hormonal changes). Ask students whether the animal they researched uses internal cues or external cues or both. They will find that many animals use both.

Elaborate

Next, have each group of students combine with another group to create a large Venn diagram that compares and contrasts the animals each group has been researching. This will give each group a chance to teach some of what they have learned and compare their animal's migration pattern to other animals. Post these Venn diagrams in the room.

Evaluate

Assess student learning on their posters and Venn diagrams. Last, discuss the idea that many aspects of migration remain a mystery to scientists. Ask students what they are still wondering about migration. Have each student jot down a question they have, then have each group choose the most compelling question at their table to discuss.

Internet Resources

Educator Resources

www.nationalgeographic.com/great-migrations-educator-resources

Going Home Animal Bookmarks

http://dawnpub.com/activities/GoingHomeBookmarks.pdf

Connecting to the Standards

This article relates to the following *National Science Education Standards* (NRC 1996):

Content Standards

Standard C: Life Science

Grades K–4

- Organisms and their environments

Grades 5–8

- Regulation and behavior

National Research Council (NRC). 1996. *National science education standards*. Washington, DC: National Academies Press.