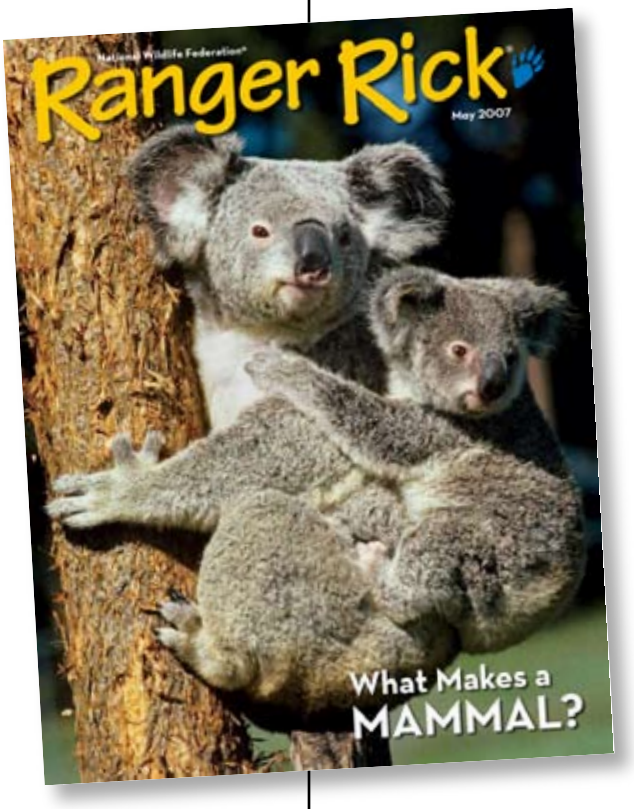
MAY 2007

Ranger Rick®

EDUCATOR'S GUIDE



This guide is designed to complement the May 2007 issue of National Wildlife Federation's *Ranger Rick*® magazine.

NATIONAL WILDLIFE FEDERATION™

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Introduction

Welcome to the *Ranger Rick Educator's Guide!*

This guide provides you with educational activities to bring **National Wildlife Federation's** *Ranger Rick*® magazine alive in the classroom and beyond. Using *Ranger Rick* feature articles as an entry point, this guide engages students ages 7-12 in exploring the natural world to build literacy, critical and creative thinking skills, and understanding across the disciplines. Activities are correlated with the National Education Standards for science and language arts, and are designed to assist you in meeting required curriculum objectives.

Can we have class outside today?

Find out how you can say "Yes!" at **www.nwf.org/backyard**. The outdoor environment offers excellent opportunities for active, hands-on, interdisciplinary learning. You can enhance the learning experience by creating your own habitat site. Revitalize an entire schoolyard, a garden, or even a rooftop, windowsill, or balcony by creating an outdoor classroom and sanctuary for birds, butterflies, and other wildlife.

How To Use This Guide

Each section of the guide is matched with a specific *Ranger Rick* feature. After you read through the magazine, choose the stories and activities that complement your curriculum and that will interest your students. Sections include:

- ***Learning Links.*** A summary of concepts presented in the article.
- ***Discussion Questions and Writing Prompts.*** Entry points to engage students in discussion or writing to develop literacy and thinking skills.
- ***Resources.*** Web sites and books where you can find further information.
- ***Activity Ideas.*** Quick investigations and extended projects to complement article topics.
- ***Student Pages.*** Ready-to-copy activity sheets for students.

We have also provided a ***Family Fun*** activities page for you to copy and send home with students.

How Do You Know It's a Mammal?

pages 6-11

1

Learning Links:

All mammals from bats to dolphins to humans share a number of traits that make them different from other creatures. These traits include hair, mothers who nurse, long childhoods, and high-level thinking skills.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- How are a bat, a sea lion, and an elephant alike?
- How are these three animals like you?

Comprehension Check:

- How many kinds of mammals live on Earth?
- What is the smallest mammal?
- What is the largest mammal?
- Where do mammals live?
- How does hair help mammals?
- What kind of hair does a snow monkey have? What about a lion? A porcupine?
- How does a female manatee nurse her young? How about a cow? A human?
- Which group of animals is the smartest—reptiles, mammals, or fish?
- What's so smart about the chimp on page 7?
- How do most mammals take care of their young?
- How is that different from what most insects do?
- What kind of mammal takes care of its young longer than any other?
- How are all mammals alike?
- What are some differences among mammals?

Critical and Creative Thinking Connections:

- What does the word diverse mean?
- Why is diverse a good word to describe the group of animals we call mammals?
- Why do you think mammals are so diverse?
- Mammals have hair. What kinds of body coverings do other animals have?
- What might be some advantages and disadvantages of these body coverings?

RESOURCES

Mammalabilia by Douglas Florian (Voyager Books, 2004). Twenty-one whimsical poems and accompanying illustrations celebrate different mammals, big and small.

National Geographic Book of Mammals (National Geographic Society, 1998). Illustrated with nearly 1,000 top-notch wildlife photos, this child-friendly encyclopedia provides information on the physical characteristics, habitats, and behavior of more than 500 mammals.

www.bbc.co.uk/nature/animals/mammals/challenges Five online games explore the physical characteristics, social behavior, and survival skills of various mammals.

ACTIVITY IDEAS

What Is a Mammal?

Ask students to make a concept map showing the characteristics of mammals as they read "How Do You Know It's a Mammal?" Have them start by placing a circle labeled "mammal" in the center of a page. Then ask them to add more circles containing traits unique to mammals. They can also include examples of different kinds of mammals. Once everyone has completed the assignment, have one student use his or her map to describe to the class what makes a mammal. Encourage other students to build on this explanation. Then ask them to relate what they learned in the article to what they know about humans.

TIME:
60 Minutes
MATERIALS:
Paper and pencils

Design a Mammal

After discussing the comprehension questions listed on the previous page, ask students to design a totally new mammal. The **Design-A-Mammal student page** will walk them through the process. Provide an opportunity for students to share these new mammals with the group, and have them explain which characteristics indicate that the animal is, in fact, a mammal.

TIME:
30-45 Minutes
MATERIALS:
Design-A-Mammal student page

Ode to a Mammal

Show *Mammalabilia* to the class and explain that this is a book of poems about mammals. Read several poems aloud. Then invite students to use the poems as inspiration for writing their own mammal poems. If they have completed the **Design a Mammal student page**, they could write about the mammal they designed. For tips on teaching children to write poetry, refer to *Wishes, Lies, and Dreams* by Kenneth Koch (Harper Paperbacks, 2000).

TIME:
30-45 Minutes
MATERIALS:
Mammalabilia by Douglas Florian
Paper and pencils

Ask the Pro

If there's a zoo or university near you, arrange for a mammal keeper or specialist to visit your group. Before the visit, have students create a list of questions. For example: What kind of work do you do with mammals? Why did you choose to work with mammals? Do you have a favorite mammal? If so, what is special about it? Perhaps the expert could bring a live mammal or study skin to illustrate mammal characteristics.

TIME:
60 Minutes
PREPARATION:
Arrange a presentation by a mammal expert

Be a Mammal Detective

Wild mammals can be hard to find. Most are shy and will flee if they sense danger. Many don't even come out until nightfall. But on a daytime hike in a wild area, you can identify their "secret" presence by looking for signs. Burrow entrances near dirt mounds, tree bases, and large rocks may be the homes of groundhogs, ground squirrels, or foxes. Worn paths through forests and fields could be deer trails. Gnawed trees are signs that beavers live nearby. Claw marks on a tree trunk may have been made by a bear. Identify scat or tracks you find in a field guide such as *The National Audubon Society's First Field Guide: Mammals* by John Grassy and Chuck Keene (Scholastic 1998).

TIME:
60 Minutes
MATERIALS:
Access to a wild area
Mammals field guide

Design a Mammal

Directions: Use what you have learned about mammals to design a totally new mammal.
Follow these steps: 1. Complete the chart below. 2. Draw your mammal on the back of this sheet.

What is your mammal's name?	
What does it look like?	
Where does it live?	
What does it eat?	
What kind of hair does it have?	
How did its parent(s) take care of it when it was young?	
Describe one smart thing this mammal can do.	

Snake Tricks
pages 17-23

2

Learning Links:
Snakes have many tricks for protecting themselves. But the first one you may think of—a venomous bite—is often their last resort. Snakes come well equipped with a variety of ways to avoid danger, from bluffing to camouflage to warning signs.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:
- What are some ways that animals defend themselves from predators?
- Why would a snake need to protect itself? How might it do so?

Comprehension Check:
- What are some predators that eat snakes?
- Why is "playing dead" a useful defense?
- How else can a snake bluff its way out of trouble?
- What are three ways that snakes' looks can protect them? Name some snakes that use these techniques.
- What does a snake's gaping mouth mean?
- Why does a snake attack?

Critical and Creative Thinking Connections:
- How do you feel about snakes? Did your opinion about snakes change in any way after reading this story? If so, how?
- The snakes in this story use four different kinds of defenses: bluffing, hiding, warning, and attacking. Name other animals that use each one of these techniques to avoid danger, and describe how the animals use the techniques.
- Do you think snakes *want* to attack people? Why or why not?
- If you see a snake in the wild, what signs should you look for to play it safe?

RESOURCES

Snakes by Seymour Simon (HarperTrophy, 1994). Both the photos and the text in this book reveal more interesting characteristics of snakes.

www.whozoo.org/herps/snakes/snakes.htm Check out fun snake photos and fascinating snake information at this Web site about the snakes of the Fort Worth Zoo.

www.sandiegozoo.org/kids/craft_snake_mobile.html Look here for instructions to make a fun snake mobile. Students could decorate their snakes using some of the camouflage or warning patterns shown in the *Ranger Rick* story.

ACTIVITY IDEAS

Snakes on Stage

Have students make snake puppets. Provide them with old socks and felt scraps to construct the puppets. Suggest that they use the photos in the story as models. When their puppets are complete, ask students to turn some of the scenarios from the story into short puppet shows. Test their comprehension of the concepts in the story by asking them questions about the scenarios after they perform them.

TIME:
60 Minutes
MATERIALS:
Old socks
Felt scraps
Scissors and glue

Playing Defense

Lots of animals need to defend themselves from predators and other dangers. Here is a group activity to compare and categorize these strategies. Divide students into small groups named for one type of animal, such as Mammals, Birds, Insects, Reptiles, Amphibians, Fish, Insects. Then have each group discuss or research defense strategies used by the animals in their category. Have them write each strategy on a separate strip of paper. Then reassemble the larger group and challenge them to sort the examples into major categories of defenses. Designate a place for each category on the wall and have groups tape their examples in the appropriate section. Under "Camouflage," students might add "Toad blends in with brown leaves on the ground" and "Snowshoe hare turns white in winter to match snow." The categories may change, combine, or split as examples are added. For instance, students may create a camouflage subcategory for animals that change color seasonally and place the snowshoe hare example there. Students should end up with a long list of strategies. You could extend the activity by encouraging them to continue adding examples as they learn about other animals in future reading.

TIME:
60 Minutes or more
MATERIALS:
Scrap paper cut into strips
Pencils or pens
Tape
Wall space

Just Bluffin'

Some snakes use a bluff to avoid danger. Ask students if they have ever tried to trick their way out of a bad situation. Did it work? Why or why not? Discuss their ideas and then have each student write a story based on one of the situations (their own, someone else's, or a fictional version). They can start by creating an outline using the following questions: What was the bad situation? Who was involved? What did each side want or not want to happen? What was the threat? What was the trick? What was the outcome?

TIME:
60 Minutes
MATERIALS:
Paper and pencils

In Defense of Snakes

Many people are afraid of snakes. Usually this is an emotional reaction rather than a rational one. Ask students to make a list of what makes snakes scary. Then analyze each item on the list. Is it *really* scary? Is it something that benefits the snake in some way? Can it hurt people in some way? Is the fear rational or irrational? Discuss the meaning of these terms. If possible, arrange for students to meet a live snake and encourage them to ask questions to find out more about it. After the encounter, ask them to revisit the list they made earlier and discuss how their feelings may have changed.

TIME:
45 Minutes
MATERIALS:
Paper and pencils
Live snake (optional)

A Week in the Wild

pages 24-29

3

Learning Links:

With just the right combination of an inspirational setting, physical challenges, social support, and opportunities for personal growth, an experience can lead to life-changing outcomes. Wilderness adventures such as this one certainly have that potential.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- Have you ever been on a camping or hiking trip?
- If so, what were the best parts? If not, what do you think you would enjoy?

Comprehension Check:

- What did the kids in this story do?
- How many kids were in the group? How many adults?
- Where did the trip take place? Describe the surroundings.
- Had the kids been on a trip like this one before?
- What were some of the campers' responsibilities?
- What made the trip hard?
- What made it fun?
- What was "circle time"? Why was it helpful?

Critical and Creative Thinking Connections:

- Have you ever been part of a group that started out strangers and became a real team? How did it happen? How did it feel?
- Give some examples of how this group of kids worked together as a team.
- How can an experience make someone feel like a different person?
- What do you think it was about these kids' experiences that might have made them feel that way?
- Do you think you would like to go on a trip like this one? Why or why not?

RESOURCES

When We Go Camping by Margriet Ruurs (Tundra Books, 2004). Experience the sights, sounds, and smells of a family camping trip in this picture book.

Kids Camp! Activities for the Backyard or Wilderness by Laurie Carlson (Chicago Review Press, 1995). Get ready for your own camping adventures with this book of projects and activities.

ACTIVITY IDEAS

A "New" Person

TIME:
30 Minutes
MATERIALS:
Paper and pencils

This story begins with the statement, "Sometimes a trek in the wilderness can be so amazing that you return home feeling like a different person." Ask students what they think this means. How could an experience make someone feel like a different person? What was it about the experience in the story that might have made these kids feel that way? Has this ever happened to any of your students? If so, invite them to write about it or discuss it with a partner. If not, ask them to think of something they've always wanted to do and describe how it might change their lives or make them feel different from before.

Wild Time

TIME:
60 Minutes or more
MATERIALS:
Journals
Pencils

When they weren't hiking or pitching in with daily chores, the campers in this story could relax and just enjoy their surroundings—play in the waves, climb on the rocks, and spend time listening and thinking as they wrote in their journals. Although the nearest national park may be far away, you can still find wonderful natural places to enjoy. Take students to a spot where they can be similarly immersed in nature: a schoolyard habitat, a park, a garden, a shore, or a nearby wild area. Give them a chance to explore and play. Then ask them to spend some quiet solo time absorbing the sights, sounds, and smells around them. To capture their experience of the place, have them write or draw in a journal. Conclude with a "circle time" of your own. Invite students to share some of their observations with the group and reflect on how they felt about being in this place.

Camp Out!

TIME:
Variable
MATERIALS:
Basic camping gear
Resources about nocturnal animals, stars, etc.

You could plan a camping trip to a faraway wilderness area—or you could have one right outside the door! The Great American Backyard Campout is coming up on June 23, 2007. This national event is a chance for families and groups all over the country to simultaneously camp out in their yards or other local settings. It's a great opportunity for students to experience the natural world at night (perhaps for the first time), learn some new skills, and have a lot of fun. If you'd like to organize a campout for your class and their families, or for a smaller group of kids, visit www.nwf.org/campout to register your site and find tips and resources. Choosing a site; gathering equipment; preparing recipes and ingredients for outdoor meals; and learning about nocturnal wildlife, astronomy, and other night phenomena all offer great educational connections.

Here Come the Horseshoes

pages 31-37

4

Learning Links:

Horseshoe crabs are "living fossils" that have remained unchanged for millions of years. Their adaptations continue to serve them well. Meanwhile, the crabs' eggs form the base of a food web that sustains vulnerable populations of migrating shorebirds.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- What do you imagine when you think of a prehistoric creature?
- Have you ever seen a horseshoe crab? If so, describe all the details you remember.

Comprehension Check:

- When and where do the horseshoe crabs in this story come ashore? Describe the scene.
- Why is the name "horseshoe crab" not quite right?
- Why are they sometimes called "living fossils"?
- How does a horseshoe crab use its tail? Its legs?
- How many eggs can a female horseshoe crab lay? Does she lay them all at once?
- How long does it take for a baby horseshoe crab to grow up?
- Why don't the "extra" crab eggs go to waste?
- Why do red knots depend on horseshoe crabs?
- Why are the red knots in trouble?

Critical and Creative Thinking Connections:

- Look at the map on page 32. Do horseshoe crabs live near you?
- Why does this story focus on the crabs in Delaware Bay instead of one of the other places where they live?
- Predict what would happen to red knots if all the horseshoe crabs disappeared. Predict what would happen to horseshoe crabs if red knots became extinct.
- What do you think people should do to try to stop the decline of horseshoe crabs and red knots?

RESOURCES

Horseshoe Crabs and Shorebirds: The Story of a Food Web by Victoria Crenson (Marshall Cavendish, 2003). Explore more of the connections between horseshoe crabs, shorebirds, and other creatures in this nicely-illustrated book.

Red Knot: A Shorebird's Incredible Journey by Nancy Carol Willis (Birdsong Books, 2006). Follow a single red knot as she migrates from the tip of South America to her Arctic nesting grounds, making an important stop at Delaware Bay.

www.horseshoecrab.org Explore this Web site for lots more interesting information about horseshoe crabs and their importance.

www.ocean.udel.edu/horseshoecrab Here's another good source of information, including more about the connection between the crabs and shorebirds.

ACTIVITY IDEAS

Postcards from the Shore

TIME:
30 minutes
MATERIALS:
Postcards from the Shore student page

Both the horseshoe crab and the red knot have interesting life cycles and impressive migrations. Use the **Postcards from the Shore student page** to have students write a postcard from each of these creatures describing their journeys. Encourage students to imagine the daily life of the animal, its surroundings, its interactions with other animals, and the challenges it faces. Share *Red Knot* by Nancy Carol Willis (see resources on previous page) with students to get them thinking about the stories these animals might tell.

Food Webs

TIME:
60 Minutes
MATERIALS:
Paper and pencils

There's nothing like seeing an animal full size and in living color to bring all the concepts in a story to life. If you live near the Atlantic coast, go looking for horseshoe crabs! Send students on a search for evidence of the food web in action. Do they see crabs? Crab eggs? Birds? Other animals that could eat or be eaten by them? If looking for horseshoe crabs isn't an option, you could go to any shore—or any wild place at all—and look for signs of other food webs. Have students record their observations and then try to construct a food web diagram that shows the connections between animals based on what they eat.

Do the Math

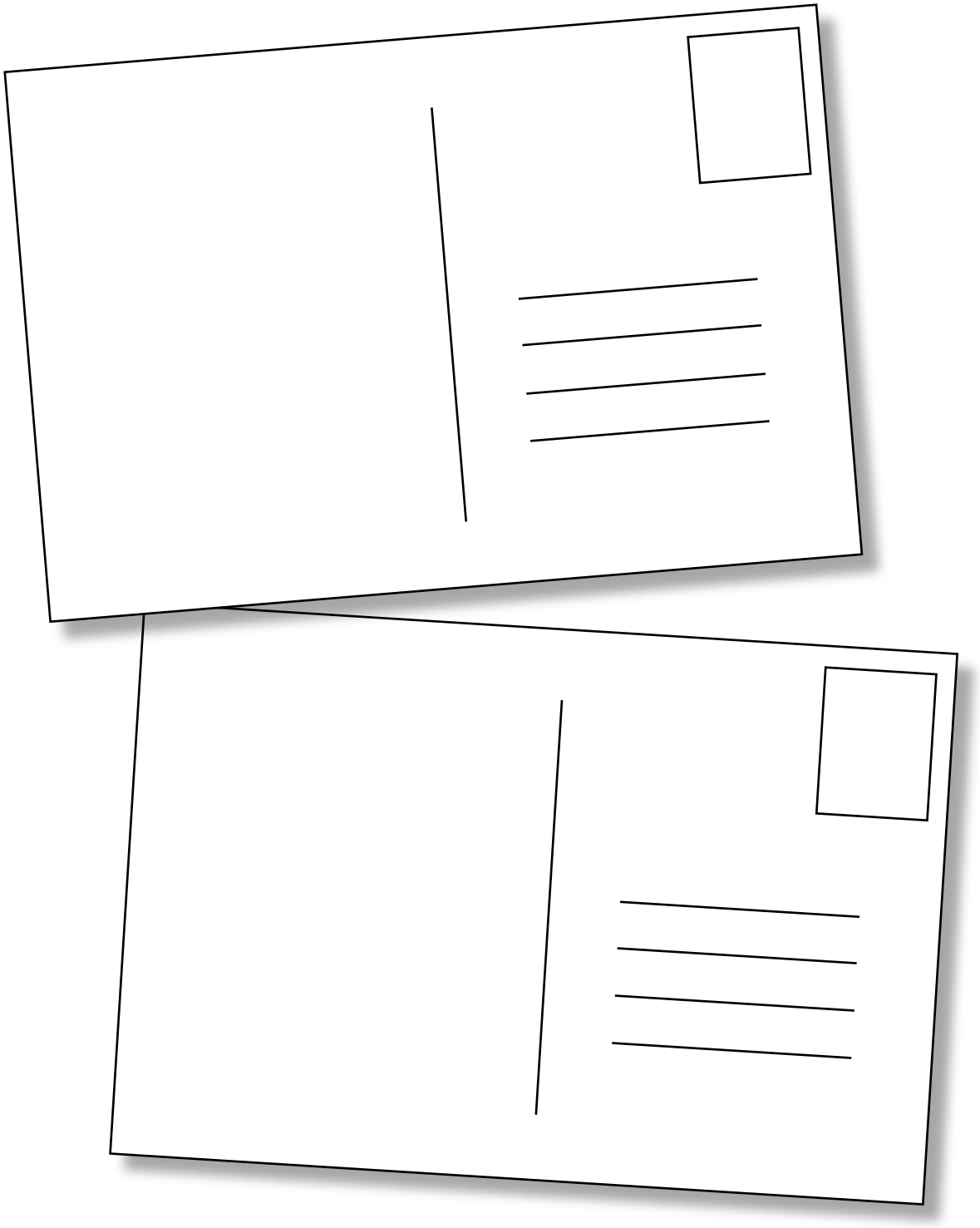
TIME:
30 Minutes
MATERIALS:
Paper and pencils

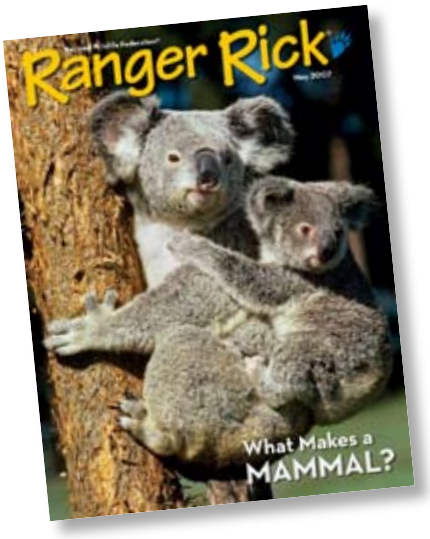
There are some mind-boggling numbers in this story, from the number of years horseshoe crabs have been on Earth to the number of eggs they lay to the number of miles a red knot migrates. Use these numbers to create some math problems for students, such as:

- If there are 10 horseshoe crabs on the beach, how many eyes are there? Legs? (100 of each) If four go back to the sea, how many legs are there now? (60)
- If it takes a female horseshoe crab four nights to lay 80,000 eggs and she lays the same number each night, how many does she lay the first night? (20,000)
- It takes 9 or 10 years for horseshoe crabs to become adults. When are the babies hatched this spring due to come ashore as adults? (2016 or 2017)
- How far is a red knot's yearly round trip journey? (14,000 miles or 22,400 km)

Postcards from the Shore

Horseshoe crabs and red knots both take a trip to Delaware Bay each year. What do you think they might want to say when they arrive? Use your ideas to fill in the postcards below—one from a horseshoe crab and one from a red knot.





Ranger Rick

Family Fun!

Dear Parent or Guardian,
Your child is reading* Ranger Rick *magazine in class. Each month, amazing photos, feature articles, and activities bring nature, wildlife, and conservation to life. You can extend the learning and fun at home with these engaging family activities.

PLAY WITH THE WIND

Spring is a windy time of year in many places. On page 5 of this month's *Ranger Rick*, you'll find instructions for making a "Fly-Away Ladybug" windsock. Make one yourselves—and then hang it up and watch the wind blow!

MAMMAL MASTERS

After you read "How Do You Know It's a Mammal?" on pages 6-11, quiz yourselves on the four main characteristics that make a mammal. Then play the Mammal Challenge. The object is to name as many mammals as you can. Sit in a circle and take turns saying the name of any kind of mammal. As long as you can name a new mammal when it's your turn, you remain in the circle. When you can't, you're out. The last person left in the circle is the Mammal Master.

BIRD SEARCH

In this month's "Fun on the Run" games on pages 39-42, you'll meet lots of birds—some real, some not. This is the perfect time of year to meet many real birds right outside your door, too! Go on an outdoor bird search. How many different songs can you hear? How many different birds do you see?

WHO'S THE FINE SWINE?

Check out that puzzling pig in "Who Am I?" on page 43. Put on your detective hats and see if you can discover its identity. Then send in your answer to *Ranger Rick*.

THE WILD NEARBY

In "A Week in the Wild" on pages 24-29, you read about some kids who had a real wilderness adventure. But you don't have to go so far to have some fun times outside yourself. The National Wildlife Federation's Green Hour program is a great resource for families looking for outdoor activities. Check it out at **www.greenhour.org**. Want to plan a campout of your own? Get ready for the Great American Backyard Campout, coming up on June 23, 2007! Visit **www.nwf.org/campout** for all you need to know to join the fun.

For more interactive family fun, be sure to visit www.nwf.org/kids.

NATIONAL EDUCATION STANDARDS

NATIONAL SCIENCE EDUCATION STANDARDS

		Mammals 1	Snake Tricks 2	Week in the Wild 3	Horseshoe Crabs 4
Science as Inquiry					
K-8	Abilities necessary to do scientific inquiry	■		■	
K-8	Understandings about scientific inquiry	■		■	
Life Science					
K-4	Characteristics of organisms	■	■		■
K-4	Life cycles of organisms	■			■
K-4	Organisms and environments		■		■
5-8	Structure and function in living systems	■			
5-8	Reproduction and heredity				■
5-8	Regulation and behavior	■	■		
5-8	Populations and ecosystems				■
5-8	Diversity and adaptations of organisms	■	■		■
Earth & Space Science					
K-4	Properties of Earth materials				■
K-4	Objects in the sky				■
K-4	Changes in earth and sky				■
5-8	Structure of the Earth system				
5-8	Earth's history				■
5-8	Earth in the solar system				■
Science & Technology					
K-4	Abilities to distinguish between natural and human objects			■	
K-8	Abilities of technological design				
K-8	Understanding about science and technology				
Science in Personal and Social Perspectives					
K-8	Personal health	■		■	
K-4	Characteristics and changes in populations				
K-4	Types of resources			■	■
K-4	Changes in environments				■
K-4	Science and technology in local challenges				
5-8	Populations, resources, and environments				
5-8	Natural Hazards		■		
5-8	Risks and benefits		■		
5-8	Science and technology in society				■
History and Nature of Science					
K-8	Science as a human endeavor				■
5-8	Nature of science				■
5-8	History of science				

ENGLISH LANGUAGE ARTS

1	Reading for perspective	■	■	■	■
2	Understanding the human experience	■		■	■
3	Evaluation strategies	■	■	■	■
4	Communications skills	■	■	■	■
5	Communications strategies	■	■		■
6	Applying knowledge		■		■
7	Evaluating data				
8	Developing research skills				
9	Understanding and respecting diversity				
10	Developing English competency	■	■	■	■
11	Participating in literary communities	■	■	■	■
12	Using language for oneself	■			