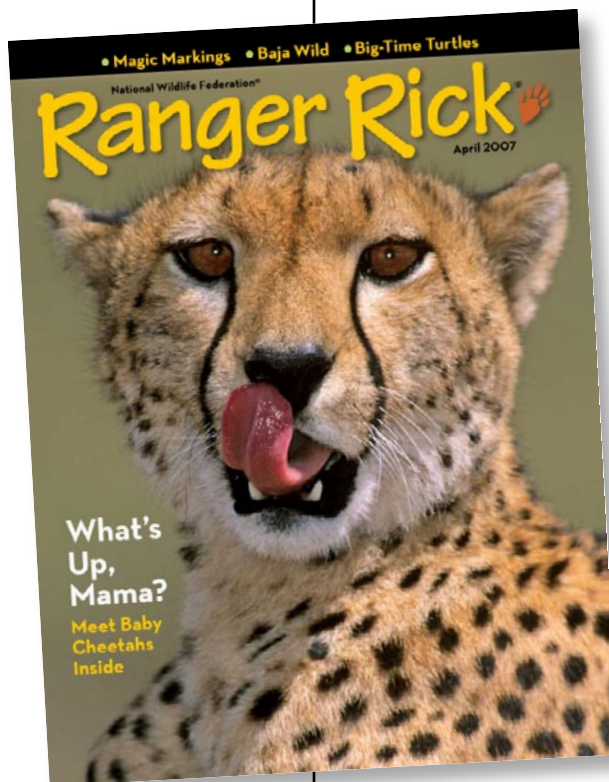


APRIL 2007

Ranger Rick®



EDUCATOR'S GUIDE



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





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Writer/Editor: Kate Hofmann

Contributing Editors: Ellen Lambeth and Mary Dalheim

Designer: Jeffrey Hutman

NWF Executive Staff

Larry J. Schweiger, *President and Chief Executive Officer*

Jaime Berman Matyas, *Executive Vice President and
Chief Operating Officer*

Education Leadership Staff

Mary Dalheim, *Editorial Director, Children's Publications*

Kevin Coyle, *Vice President, Education*

**For more information on NWF's education programs,
visit www.nwf.org/outside**

**For more information about this guide, or to offer
comments, email Kate Hofmann at chofmann@nwf.org**

National Wildlife Federation

11100 Wildlife Center Drive

Reston, VA 20190

1-800-822-9919

info@nwf.org

www.nwf.org



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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.

Subscribe to *Ranger Rick*!
Special rate classroom subscriptions available.
Details at www.nwf.org/rangerrick

Stripes & Spots

pages 6-11

1



Learning Links:

Many animals depend on their stripes or spots for survival. These patterns, often known as deceptive coloration, work in a variety of ways to help an animal escape from a predator or sneak up on its prey.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- Name some animals that have stripes.
- Name some animals that have spots.
- How do you think stripes and spots help them?

Comprehension Check:

- How do black and white stripes help zebras protect themselves?
- What's so "dazzling" about the dots on a clown triggerfish?
- How do stripes help a tiger to hunt?
- How do spots on a fawn's coat help keep it safe?
- What animal uses its striped tail to "lead the way"?
- What animal uses spots on its ears to "lead the way"?
- What do the stripes on a shield bug's back tell hungry birds?

- What happens to the blue-ringed octopus when an enemy threatens it?

- What two animals in the story use "eyespots" to trick their enemies?

Critical and Creative Thinking Connections:

- No two zebras have the very same pattern of stripes. Nor do any two tigers. How might this be helpful?
- How do a ringtail's stripes act like a barber's pole?
- How do a serval's ear spots act like a car's tail lights?
- Why do you suppose fawns outgrow their spots?
- If you were a fish living with a school of other fish just like you, would you rather have stripes or spots? Why?

RESOURCES

Animal Disguises by Belinda Weber (Kingfisher, 2004). Learn more about how animals use their markings and behavior to fool predators and prey.

Lots and Lots of Zebra Stripes: Patterns in Nature by Stephen R. Swinburne (Boyd's Mill Press, 1999). See how an animal's stripes, spots, or other markings can make the outline of the animal's body hard to identify.

➤ www.nhptv.org/natureworks/nwep2a.htm Look here for a thorough description of the two main types of deceptive coloration: camouflage and mimicry.

ACTIVITY IDEAS

Animal Grid

As your students read "Stripes and Spots," have them complete the [Animal Grid student page](#) to help them organize the important concepts in the story. Encourage them to refer to their completed grids as you ask them the questions listed under Comprehension Check on the previous page.

TIME:

30 Minutes

MATERIALS:

[Animal Grid student page](#)

Seeing Spots

Gather an assortment of old clothing in a variety of colors and patterns. Take students to a wooded area and play a variation of hide-and-seek. One student (the predator) stands still in a central location with his or her eyes closed and counts to 30. The other students scatter to find hiding places. IMPORTANT: They must be able to see the predator while hiding! The predator, remaining in one place but pivoting to see in all directions, then points to students as he or she spots them. Each spotted player must come out of hiding, and the last one becomes the next predator. Play a round or two and then hand out the articles of clothing. After several more rounds, discuss what effect the clothing had. Was it easier to spot players in bright clothing? Did certain other colors or patterns help players blend in and hide better? Relate the results to the concepts in "Stripes and Spots."

TIME:

30 Minutes

MATERIALS:

Old clothes with a variety of colors and patterns

Color Me Safe

Some butterflies protect themselves with camouflage colors or patterns that help them blend in with their surroundings. Some protect themselves by pretending to be something they're not. For instance, they might have eyespots that make them appear larger and scarier than they really are. Take students for a walk in a nearby garden, meadow, or open woodland. After you've given students time to study the habitat, challenge them to design a butterfly whose "looks" would help protect it in these surroundings. Let the [Color Me Safe student page](#) walk them through the process.

TIME:

45 Minutes or more

MATERIALS:

[Color Me Safe student page](#)
Pencils, colored pencils, crayons, and/or markers

Once Upon a Stripe

Science has many good explanations for animals' stripes and spots. But you can also find many entertaining explanations in fiction! Read one or two of the following tales (or similar ones) to your students.

■ "How Fawn Got Its Spots" from *Native American Animal Stories* by Joseph Bruchac, Michael J. Caduto, and John Kahionhes Fadden (Golden, 1992).

■ "How Tigers Got Their Stripes" from *How & Why Stories: World Tales Kids Can Read & Tell* by Martha Hamilton and Mitch Weiss (August House Publishers, 1999).

Explain that these are *pourquoi* (pooh-KWAH) tales, folktales that explain how or why something in nature came to be. Unlike the story they read *Ranger Rick*, these stories are not based on scientific facts or observations. The tales come from the vivid imaginations of people all over the world. Invite students to write their own *pourquoi* tale about how one of the animals in the *Ranger Rick* story got its stripes or spots. Collect the tales and bind them into a class book or have students perform them as skits.

TIME:

60 Minutes or more

MATERIALS:

Pourquoi tales about animals with stripes or spots
Paper and pencils



Animal Grid

As you read “Stripes and Spots” in Ranger Rick, fill in the chart below.
The first one is done for you as an example.

Animal	Decription of Stripes/Spots	How They Help the Animal to Survive
Zebra	<i>Black and white stripes on entire body</i>	<i>When a herd of zebras runs away from a predator, the swirl of stripes makes it hard to pick out an individual from the crowd.</i>
Clown triggerfish		
Bengal tiger		
White-tailed deer fawn		
Ring-tailed lemur		
Serval		
European shield bug		
Blue-ringed octopus		
Hawk moth caterpillar		
Twin-spot		



1. Go for a walk in a garden, meadow, or open woodland. Pick a spot that you think a butterfly would like.

*** Describe your spot below.**

*** Why would a butterfly like to hang out here?**

*** How might a butterfly protect itself from predators in this spot?**

2. On the back of this paper, draw a butterfly shape.

3. Now give your butterfly its own special “look.” Use crayons or markers to add colors, patterns, or shapes that will help it stay safe in your spot.

4. How will your butterfly’s “look” help protect it from its predators?

Ranger Rick's Adventures and BioBlitz

pages 20-25

2



Learning Links:

A BioBlitz is a fun event where people count as many species as they can in a set amount of time. Not only is it good practice for strengthening scientific observation and classification skills, it's also a great way to contribute to knowledge about the biodiversity of a place.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- Think about your backyard, schoolyard, or a neighborhood park. How many different species of plants and animals do you think might live there?
- Would you want to try to count them?

Comprehension Check:

- What is a BioBlitz?
- Why did Ranger Rick and his friends hold one in Deep Green Wood?
- How many species did Sammy and Boomer find?
- Where was the BioBlitz that Amy and her family participated in?
- What are herps?

- Why is Amy on the Herp Team?
- How many different kinds of herps did the Herp Team find?
- How many different kinds of wildlife did all the teams together find?

Critical and Creative Thinking Connections:

- "BioBlitz" is a new word made of two old words. Look up "bio" and "blitz." How do the two together add up to the new meaning?
- Why is a BioBlitz a good example of cooperation?
- Would you like to help with a BioBlitz in your area? What team would you want to be on? Explain.

RESOURCES

Tree of Life: The Incredible Biodiversity of Life on Earth by Rochelle Strauss (Kids Can Press, 2004). This book is an intriguing and thorough introduction to the concept of biodiversity.

Strange New Species: Astonishing Discoveries of Life on Earth by Elin Kelsey (Maple Tree Press, 2005). Scientists continue to discover new species every year. Meet some of the newest "arrivals" and see scientists at work in this interesting book.

➤ www.nature.org/wherewework/northamerica/states/maryland/news/news1981.html Visit the Nature Conservancy's Web site to read all about the Potomac Gorge BioBlitz, including exciting species discoveries and other highlights.

ACTIVITY IDEAS

On Location in Deep Green Wood

This month in "Ranger Rick's Adventures," students read about a BioBlitz in Deep Green Wood. Ask students to imagine that they were there with Ranger Rick and the rest of the crew. Have them write an account of the day using one of the following formats:

■ **Journal Entry.** Imagine you were one of the participants who spent the day counting species in the BioBlitz. Write a journal entry about your adventure and describe some of the animals and plants you spotted.

■ **News Story.** Imagine you are a reporter who was assigned to cover the Deep Green Wood BioBlitz. Write a newspaper article or a radio or television news segment about the event.

TIME:

30 Minutes

MATERIALS:

Paper and pencils

Biodiversity Basics

Biodiversity describes the great variety of living things on Earth. Mind-boggling numbers of species inhabit the ecosystems of our planet, and a BioBlitz can hint at the depth of biodiversity in just one small area. Explore the concept of biodiversity with students. What is the estimated number of species on Earth today? How many more do scientists think may yet be undiscovered? How many new species have been discovered in the last year? Decade? Century? Where are the "biodiversity hot spots" around the world? What makes these places special? What are some of the unusual or rare species in your own area? Why is biodiversity important? A good way to start is to visit the Web sites of the The Biodiversity Project at www.biodiversityproject.org/biodiversity.htm and Conservation International at www.biodiversityhotspots.org/xp/Hotspots/.

TIME:

Variable

MATERIALS:

Library/Internet access to investigate biodiversity

Watch Wildlife

Does a BioBlitz sound like fun? Hone your wildlife-watching skills with the National Wildlife Watch. This special event is part of National Wildlife Week, April 21-29, 2007. Visit www.nwf.org/nationalwildlifeweek to download a list of wildlife and natural phenomena to observe and then post your findings on the Web site. If you still want more, maybe you'd like to take on a full BioBlitz. If so, plan and conduct one in your yard, schoolyard, or a nearby park. Or join one that's already planned near you. You can find tips and more information at www.nwf.org/rangerrick.

TIME:

Variable

MATERIALS:

See Web links for details

Awww-some Cheetahs!

pages 26-30

3



Learning Links:

Cheetahs are well known for their speed and agility as hunters. Less well known are the many challenges these cats face to reach adulthood—and how few of them survive.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- When you think of a cheetah, what comes to mind first?
- What else do you know about cheetahs? What would you like to know?

Comprehension Check:

- What part of a cheetah's life does this story focus on?
- Describe a five-day-old cheetah cub.
- Why does a cheetah mother have a hard job?
- What are some of the dangers for baby cheetahs?
- What are three "tricks" that help protect the cubs?
- How long do cheetah cubs stay with their mom?

Critical and Creative Thinking Connections:

- Look carefully at the photos throughout this story. How do the cubs change as they grow older?
- How is a baby cheetah similar to a baby human? How is it different?
- Do you think a cheetah mother or a human mother has a harder job? Why?
- What are cheetahs famous for? Do you see them differently after reading this story?
- What did you learn in this story that helps to explain why cheetahs are endangered?

RESOURCES

The Cheetah: Fast as Lightning by Christine Denis-Huot (Charlesbridge Publishing, 2004). Get a close-up look at the speedy cheetah in this useful book.

Cheetahs by Ann O. Squire (Children's Press, 2005). Delve further into the biology and conservation status of the one-and-only cheetah.

- www.kidsplanet.org/factsheets/cheetah.html Here's a cheetah fact sheet for kids from Defenders of Wildlife's Kids Planet.
- www.cheetahspot.com Lots of useful cheetah data can be found at this Web site.
- www.cheetah.org/?nd=43 For more facts, check out this fact sheet and the other useful information at the Web site of the Cheetah Conservation Fund.
- www.pbs.org/wnet/nature/cheetahs/ Web content complementing the PBS special "Cheetahs in a Hot Spot" adds more depth to a study of cheetahs.

ACTIVITY IDEAS

Cheetah Chart

After students read “Awww-some Cheetahs,” have them create a chart where they record cheetahs’ “vital signs.” They could simply use information in the story to gather facts about cheetah mothers and babies. Or they could research some of the many other fascinating aspects of cheetah biology using the books and Web sites listed in the Resources section. Before they begin, model how to create an effective chart or another graphic organizer (such as a concept map) to organize the information.

TIME:

30 Minutes

MATERIALS:

Paper and pencils
Library/Internet
access to research
cheetahs

Hot Spots

In “Stripes and Spots,” students learn how animals’ patterns can help them avoid predators and sneak up on prey. Ask them to apply this information to what they observe about cheetahs. How might a cheetah’s color and pattern help it survive? How do baby and adult cheetahs differ in appearance, and what purpose might these differences serve? Have students write their answers in a science or reading journal or discuss their thoughts with a partner. Encourage them to use evidence from both stories to support their conclusions.

TIME:

15 Minutes

MATERIALS:

Paper and pencils

Bad News/Good News

Why are speedy cheetahs having such a hard time in the race for survival? Investigate with students some of the factors that have contributed to cheetahs’ endangered status and some of the ways people are helping, starting with the information at www.nwf.org/rangerrick. You could structure your investigation by dividing students into small groups and having each group investigate one of the following questions:

- What is the current status of the cheetah population?
- Why are cheetahs in trouble?
- How have people’s actions contributed to this decline?
- How are people helping cheetahs make a comeback?

Then bring the group back together and have each group report on their findings to assemble the big picture of cheetah conservation.

TIME:

60 Minutes

MATERIALS:

Library/Internet access
to research cheetah
conservation topics

Marketing to Moms

Mother cheetahs have a tough job. Invite students to discuss some of these challenges. Then ask them to invent a product or service that would make a cheetah mom’s life easier and create an advertisement promoting it. Perhaps it is day care for the babies while Mom hunts; perhaps it is a special carrying case for moving all her cubs at once. Explain to students that whatever they are offering, they need to come up with a compelling way to “sell” it to a cheetah audience. Use the [Cheetah Challenge student page](#) to guide them through the process. Then have students present their ads to the group. Allow time for questions and a critique of each pitch’s most successful attributes and areas for improvement.

TIME:

60 Minutes or more

MATERIALS:

Cheetah Challenge
student page
Art supplies
Optional: Audio or
video recorder



Cheetah Challenge

A mother cheetah has a hard job. Can you think of a way to make her job easier?

1. What are some challenges a mother cheetah faces?

2. Invent a product or service that would make it easier for a mother cheetah to take care of herself and her cubs. Describe your idea here.

3. How could you “sell” your idea to a mother cheetah? List some arguments you could use to persuade her to use it.

4. Now write an advertisement for your product or service. It could be a brochure, a newspaper ad, or a radio or TV commercial. Remember, you want to convince a cheetah mom that she needs this! Describe what you are offering and how it will help her.

Gentle Giants

pages 32-37

4



Learning Links:

The giant tortoises of the Galapagos Islands are fascinating creatures at home in an enchanted land. Habitat destruction has diminished their numbers, but they are holding on—with help from hard-working humans.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- Have you ever heard of the Galapagos Islands?
- If so, what do you know about this place?

Comprehension Check:

- In what part of the world do the giant tortoises in this story live?
- Describe the place where the largest group of them lives.
- There are two seasons in the Galapagos. What are they?
- What are some of the natural problems the tortoises face? How do they solve them?
- What are some human-caused problems they face?
- What are people doing to help?

Critical and Creative Thinking Connections:

- Why do you think this story is called “Gentle Giants”?
- Who is Lonesome George? How does his name describe his situation?
- When people settled in the Galapagos and brought animals such as pigs, goats, dogs, and cats with them, these animals probably seemed very “normal” and harmless. Why did they cause so much trouble for the native animals on the islands? Why do you think they don’t cause nearly as much trouble in other places?

RESOURCES

Lonesome George the Giant Tortoise by Francine Jacobs (Walker Books, 2003). Meet Lonesome George and learn the story behind this conservation icon.

We’re Sailing to Galapagos by Laurie Krebs (Barefoot Books, 2005). Set sail on a journey in rhyme through the island chain where you’ll meet many of the Galapagos Islands’ unique animals.

➤ www.kidsplanet.org/factsheets/tortoise.html Defenders of Wildlife’s Kids Planet has a fact sheet on the Galapagos Tortoise.

➤ www.sandiegozoo.org/animalbytes/t-galapagos_tortoise.html Check out more facts and photos of the Galapagos tortoise from the San Diego Zoo.

➤ www.gct.org/tortoise.html Visit this Web site for a “guided tour” of the Galapagos. You can learn more about the tortoises and also check out a map of the islands and read about their other interesting inhabitants.

➤ <http://pubs.nsta.org/galapagos/> The Galapagos Education Site from National Science Teachers Association includes a great guide to the islands as well as activities for in-class investigation.

ACTIVITY IDEAS

Letters to the Editor

A Galapagos tortoise sees a lot in its long lifetime. And it just might have an opinion about the changes, both good and bad, that have occurred in its habitat since people arrived. Have students assume the voice of a tortoise to write a "letter to the editor" expressing some of these opinions. To help students get started, share some examples of letters to the editor from your local newspaper. Then discuss questions such as: What might the tortoises be pleased about? What might they have complaints about? What might they suggest as ways to fix these problems? Compile the students' letters into a class publication designed to resemble a Galapagos Islands newspaper.

TIME:

30 minutes

MATERIALS:

**Paper and pencils
or
Computer access**

Turtle Safari

Spring is a good time to see reptiles and amphibians in ponds and wetlands where you live. Though you may not find any "giants" like the ones in this story, you very well may find turtles, frogs, toads, and salamanders aplenty. Put on your mud boots, grab a field guide or just your best observer's eyes, and take students on safari!

TIME:

45 Minutes

MATERIALS:

**Shoes and clothing for
an outdoor walk**

Galapa-Game

Have students create a game that will help players learn about the lives of Galapagos tortoises. Start by making a list of all the good and bad things that can happen to the tortoises. Then encourage groups of students to be creative in designing a game based on these ups and downs. Here are two options:

■ **Board Game.** Students could design and illustrate a game board and make tortoise-shaped game pieces from cardboard or polymer clay. Players then roll dice or draw instruction cards to advance along the path to the finish line.

■ **Active Game.** Students themselves could become the tortoises, moving across a playing field from the "wet season" to the "dry season" while collecting tokens representing their needs and trying to avoid pitfalls.

TIME:

Variable

MATERIALS:

**For a board game:
Cardboard
Paper
Crayons or markers
Scissors**
**For an active game:
Cones
Poker chips or other
tokens**

Island Time

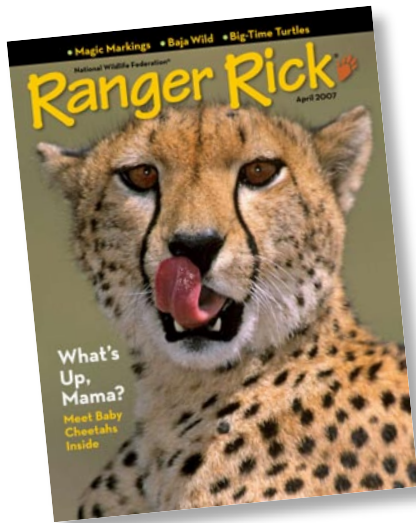
Engage students in a comparison between the Galapagos Islands and the Hawaiian Islands. Both island chains have formed on volcanic "hot spots" far from any mainland. Both are home to many unique native species, and both have suffered a great deal of damage due to the introduction of non-native species. Make "before" and "after" drawings or charts to show the effects of colonization on the native species, and explore how people are working to restore the balance in both of these unusual ecosystems.

TIME:

60 Minutes or more

MATERIALS:

**Library/Internet access
Big sheets of chart or
drawing paper**



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.

A WEEK TO GO WILD

National Wildlife Week is coming up on April 21-29, 2007. It's a great time to celebrate wildlife! Make a difference with a community service project or get involved in a fun family wildlife observation. Find out more at www.nwf.org/nationalwildlifeweek.

CAN YOU SPOT THOSE STRIPES AND SPOTS?

Read about how animals' patterns help them hide in "Stripes and Spots" (pages 6-11). Then try it for yourselves! Check your closets for patterned clothing. Choose your attire, then head outside for a game of hide-and-seek. After a few rounds, regroup to discuss which patterns were most effective against different kinds of backgrounds.

CATERPILLAR CREW

Feeling crafty? Create a cast of caterpillar puppets using the instructions in "Crafty Caterpillars" on pages 12-13. Find out more about the two kinds of caterpillars shown, or find photos and information about other caterpillars common in your area. Then stage a puppet show!

TRAVEL TREASURES

In "Baja Adventure" on pages 16-19, Tati and her family visited a place teeming with interesting wildlife. Has your family taken a trip to a wild place? What "treasures" did you find there? Get out your photo album or just reminisce about a memorable trip. You could even plan a travelogue evening with another family and take turns sharing interesting tales from your travels.

BACKYARD BIOBLITZ

In this month's *Ranger Rick*, you read about a BioBlitz in Deep Green Wood (pages 20-23) and in the Potomac River Gorge (pages 24-25). How about conducting one in your own backyard or a nearby park? Gather up field guides, notebooks, and maybe a magnifying glass or a set of binoculars. Then work as a team to see how many different species you can count.

SAYS YOU

What do you think is going on in "Say What?" on page 43? Think of some funny things that this elephant could be saying and send your ideas to *Ranger Rick*.

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

NATIONAL EDUCATION STANDARDS

NATIONAL SCIENCE EDUCATION STANDARDS

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

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