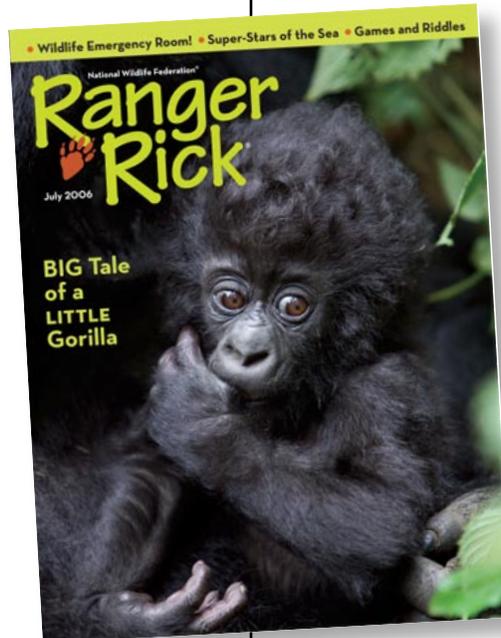


JULY 2006

National Wildlife Federation®
**Ranger
Rick**®

EDUCATOR'S
GUIDE



This guide is designed to complement the July 2006 issue of National Wildlife Federation's *Ranger Rick*® magazine.





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***The Ranger Rick Educator's Guide is published monthly by the National
Wildlife Federation as a complement to Ranger Rick® magazine.***

***It is available online, free of charge, in PDF format. To access the guide, go to
www.nwf.org/rrguide***

***To subscribe to Ranger Rick® and find other fun stuff for kids, visit
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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/backyardwildlifehabitat. 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:

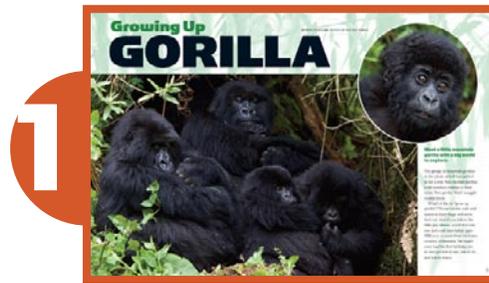
- **Learning Links.** A summary of concepts presented in the article.
- **Discussion Questions and Writing Prompts.** Entry points to engage students in discussion or writing to develop literacy and thinking skills.
- **Resources.** Web sites and books where you can find further information.
- **Activity 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

Growing Up Gorilla

pages 4-13



Learning Links:

The parallels between growing up gorilla and growing up human present interesting possibilities for discussion. The critically endangered status of mountain gorillas, and the complex human situation it stems from, offers another angle for investigation and discussion.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- How would you describe King Kong and other gorillas in the movies?
- Look at the cover of *Ranger Rick* for this month. Would you use different words to describe this gorilla?

Comprehension Check:

- On what continent do mountain gorillas live? In what three countries?
- Describe the habitat where mountain gorillas live.
- How long will Gahiji stay with his mother?
- What is a silverback? What's his role?
- What do gorillas eat? Are they herbivores, omnivores, or carnivores?

- Why are mountain gorillas in trouble today?
- How are people helping them?

Critical and Creative Thinking Connections:

- How is Gahiji's life similar to a human baby's? How is it different?
- Young gorillas are playful, just like human kids. Imagine a baby gorilla arriving at your house to play. What would you do?
- Who grows up faster, a gorilla or a human? When fully grown, who weighs more, a gorilla or a human?
- People are working hard to save the mountain gorillas, but they are still very endangered. What do you think should be done?

RESOURCES

Mountain Gorillas by Karen Kane (Lerner Publications, 2001). Find more details about the lives of mountain gorillas in this accessible book.

Gorilla Walk by Ted and Betsy Lewin (Lothrop, Lee & Shepard Books, 1999). Journey to the mountains with this team of author-illustrators, encounter the gorillas through lush watercolors, and appreciate the details of the experience through fun sketches.

Koko-Love! Conversations with a Signing Gorilla by Francine Patterson (Gorilla Foundation, 1999). The story of Koko, the gorilla who learned sign language and forever changed our perception of the line that divides humans from other animals.

gorillafund.org/OO5_gorilla_frmset.html Check here for lots of facts about mountain gorillas from the Dian Fossey Gorilla Fund.

www.cotf.edu/ete/modules/mgorilla/mgorilla.html This "Exploring the Environment" module on mountain gorillas delves into the many factors that affect their survival.

ACTIVITY IDEAS

Gorilla Puppet Theater

As a group, discuss what students learned about daily life for mountain gorillas in "Growing Up Gorilla." To learn more about gorillas' daily activities, spend some time exploring the books and Web sites listed in the Resources section. Then have students make puppets of Gahiji and the other members of his family group and act out scenes from the gorillas' day. These might include waking up, feeding, grooming, playing, encountering another group of gorillas or a group of tourists, and settling in for the night. Have students put on their puppet shows for each other or for another class.

TIME:**60 Minutes****MATERIALS:****Puppet-making supplies, such as construction paper, craft sticks, old socks, paper bags**

Visit the Virungas

Congratulations! You've won a free trip (via Imagination Airlines) to visit the mountain gorillas. Prepare your students for their journey by reading about some other ecotourists' adventures. *Gorilla Walk* (see Resources) is a good starting place. Discuss where you'll go, what you're likely to encounter when you arrive, and how students might feel about seeing gorillas face-to-face. Then have them write a series of journal entries describing their adventures. Encourage them to use rich sensory details to evoke the sights, sounds, and smells of the gorillas' habitat and to imagine their own reactions to the experience.

TIME:**60 Minutes****MATERIALS:****Library/Internet access for research
Paper and pencils**

Mountain Gorilla Menu

Prepare a gorilla feast. Serve celery, bamboo shoots, leafy vegetables, edible flowers, etc. (You can skip the insects if you like—they make up only a small part of gorillas' largely herbivorous diet.) Have students create a menu listing the day's "specials." Weigh samples of the food and calculate how much you'd need to make 50 pounds—the amount of vegetation one full-grown male mountain gorilla can eat in just one day!

TIME:**30 Minutes****MATERIALS:****Assortment of gorilla foods
Paper and pencils
Scale**

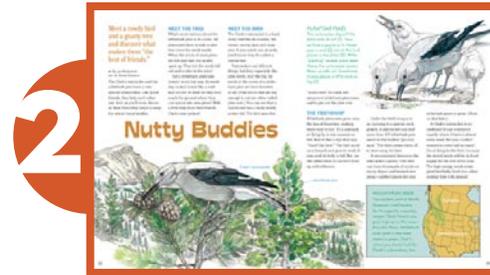
Problems and Solutions

Investigate the complex situation that affects mountain gorilla survival at www.cotf.edu/ete/modules/mgorilla/mgorilla.html. Share this information (designed for grades 7-12) in a way that is appropriate for your students' grade level. Then have students discuss solutions that could improve the situation for everyone. Got ideas you'd like to share? Send them to *Ranger Rick*, 11100 Wildlife Center Drive, Reston, VA 20190. For a more involved activity, have students take on the roles of a variety of people involved in the situation, such as researchers, refugees, poachers, park rangers, and ecotourists. Some students could also speak for the gorillas themselves. Give each representative a chance to speak, and then negotiate potential compromises.

TIME:**60 Minutes****MATERIALS:****Internet Access**

Nutty Buddies

pages 18-20



Learning Links:

The “friendship” between the Clark’s nutcracker and the whitebark pine is a symbiotic relationship that plays an essential role in keeping an entire ecosystem intact. You can use “Nutty Buddies” as a context to discuss this important ecological concept.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- What makes a good friend?
- How do you and your friends help each other?

Comprehension Check:

- Who are the “buddies” in this story?
- How does the whitebark pine help the Clark’s nutcracker?
- How does the Clark’s nutcracker help the whitebark pine?
- Describe the habitat where a whitebark pine grows best.
- What other animals benefit from the “friendship” between the bird and the tree?

Critical and Creative Thinking Connections:

- A Clark’s nutcracker has a bill like a Swiss Army knife—all kinds of tools in one package. Describe the many ways a nutcracker uses its bill. What kinds of tools might people use to do the same jobs?
- How is the Clark’s nutcracker adapted to eating pine nuts?
- Predict what would happen if the Clark’s nutcracker disappeared.
- Predict what would happen if the whitebark pine disappeared.

RESOURCES

Made for Each Other: A Symbiosis of Birds and Pines by Ronald Lanner (Oxford University Press, 1996). If the *Ranger Rick* story left you hungry for more details, this thorough resource (written for adults) is definitely the place to find them.

Weird Friends by Jose Aruego and Ariane Dewey (Harcourt, 2002). Nature is full of “friendships” like the one between nutcrackers and whitebark pines. Meet many more animal pairs who help each other in interesting—and sometimes very odd—ways.

birds.cornell.edu/AllAboutBirds/BirdGuide/Clarks_Nutcracker.html Get facts, photos, range maps, and even listen to the calls of the Clark’s nutcracker at the Cornell Lab of Ornithology’s Web site.

fwp.mt.gov/mtoutdoors/HTML/Articles/Portraits/nutcracker.htm Montana Outdoors offers more details about the relationship between nutcrackers and pines.

lewis-clark.org/content/content-channel.asp?ChannelID=306 Check out the “Discovering Lewis and Clark” Web site to learn more about Clark’s encounter 200 years ago with the nutcrackers that bear his name.

whitebarkfound.org The Whitebark Pine Ecosystem Foundation is working to study and protect the whitebark pine. Read about their work here.

ACTIVITY IDEAS

Buddy Map

Make a concept map showing the relationships in the whitebark pine ecosystem. On the [Nutty Buddies student page](#) are two bubbles, one for the whitebark pine and one for the Clark's nutcracker. Explain and model how to draw lines to and from each, adding additional bubbles as needed, to form a map showing the major concepts in "Nutty Buddies."

TIME:

15 Minutes

MATERIALS:

[Nutty Buddies student page](#)

Helpers and Harmers

Symbiosis is a term from ecology that means "living together." Two species can interact in several different ways. When both benefit (such as the Clark's nutcracker and the whitebark pine), it's called *mutualism*. When one benefits and the other suffers, it's called *parasitism*—and that's the relationship between the whitebark pine and a fungus called white pine blister rust that's endangering it. Learn more about this problem at the Web site of the Whitebark Pine Ecosystem Foundation, whitebarkfound.org/Logo.htm. Then discuss with students the implications of these relationships. What would happen if either of the "friends" disappeared? How does blister rust affect the pine? What effect might this have on the Clark's nutcracker and the other animals in the ecosystem? Have students use their answers to these questions to write a series of cause and effect statements.

TIME:

30 Minutes

PREPARATION:

Internet access
Paper and pencils

Bird Brains

A Clark's nutcracker buries thousands of pine nuts each year. When it returns months later to retrieve them, the bird remembers just where to look. Could you do that? In an outdoor space, distribute 20 sunflower seeds to each student. Establish boundaries and set them loose to cache each of their seeds in a different location. Several hours later, return to the same place and challenge students to find all of their seeds. After a few minutes, discuss the results. Would they make good nutcrackers, or would they go hungry? Explain that the birds cache thousands of nuts over miles of territory and remember the location up to nine months later. That's one brainy bird!

TIME:

Two 15-Minute sessions

MATERIALS:

Sunflower seeds
(20 per student)

Discovery Hike

The Clark's nutcracker is named for William Clark of the Lewis and Clark expedition. These explorers observed, drew, and made notes about many new plants and animals as they traveled across the United States to the Pacific Ocean 200 years ago. You can read about their discoveries at lewis-clark.org/content/content-channel.asp?ChannelID=306. Then take a walk around your neighborhood and pretend to be the first people to see the plants and animals there. As you look with fresh eyes, make notes and drawings. You can even name your finds if you like—after all, you've just discovered them! Share your notes with others when you return. Do they recognize the animals and plants you described?

TIME:

30-Minutes

MATERIALS:

Paper and pencils

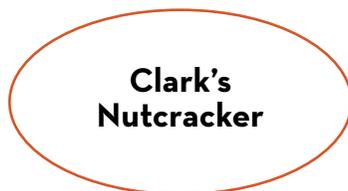
NUTTY BUDDIES

1. How does the whitebark pine help the Clark's nutcracker?

2. How does the Clark's nutcracker help the whitebark pine?

3. What other animals are helped by this friendship?

4. Draw a concept map that shows these relationships.



Wildlife ER

pages 22-26



Learning Links:

Wildlife rehabilitation is difficult but important work. This story portrays dedicated, hard-working staff, the variety of animals they help, and even a few happy endings.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- Have you ever found a sick, injured, or orphaned wild animal?
- If so, what did you do? Do you think you made the right decision?

Comprehension Check:

- What does the staff at the Wildlife Center of Virginia do?
- How do the Center's patients change with the seasons?
- What happens to animals that can't be released back to the wild?
- What special equipment does the staff at the Center use to help heal the animals?

Critical and Creative Thinking Connections:

- In this story, the Center's chief vet explained that all their services are free: Wild animals don't have money to pay doctor bills! But the Center can't do its work without money. How do you think they raise the funds they need to buy the equipment and medicines, feed the animals, pay the staff, and so on?
- List some ways that animals become injured. Which injuries can be caused by people? Which ones have other causes?
- Do you think humans have a responsibility to take care of wild animals as the Wildlife Center is doing? Why or why not?
- Can you think of anything people could do to keep so many animals from needing to visit the Center in the first place?
- Would you want to work or volunteer at a place like this? Why or why not?

RESOURCES

In Good Hands: Behind the Scenes at a Center for Orphaned and Injured Birds by Stephen Swinburne (Sierra Club Books, 1998). Take a tour of the Vermont Raptor Center, where you'll experience the birds and their care through the eyes of a 16-year-old volunteer at the center.

Healers of the Wild by Shannon Jacobs (Coyote Moon Press, 1998). This useful guide will help you decide what to do if you find a wild animal that may need care.

ER Vets: Life in an Animal Emergency Room by Donna Jackson (Houghton Mifflin, 2005). A behind-the-scenes look at how veterinarians handle animal emergencies. Just the thing for aspiring vets!

www.wildlifecenter.org/rescue The Wildlife Center of Virginia provides a handy key to help you decide what to do if you find a wild animal that seems to need help.

tc.umn.edu/~devo0028 The Wildlife Rehabilitation Information Directory provides answers to questions about injured and orphaned wild animals and includes a state-by-state directory of licensed rehabilitators.

ACTIVITY IDEAS

Rescue Episode

Have students choose one of the “cases” in this story and imagine a sequence of events that could have led up to its stay at the Center. On the [Wildlife ER student page](#), they can list these events and also use details from the story to fill in the events that took place during its stay. Then ask them to plan scenes for an episode of a new “Wildlife ER” TV drama about this particular emergency and the rescue that followed.

TIME:**30 Minutes****MATERIALS:**[Wildlife ER student page](#)

Cause and Effect

The Wildlife Center of Virginia sees 2,300 animals each year. That’s a lot of cases to pass through one facility! Review the causes of the animals’ injuries described in the story. Which ones are caused by humans, either directly or indirectly? Have a brainstorming discussion about things people could do to prevent so many animals from needing treatment in the first place. Then see if you can put at least one of these ideas into practice.

TIME:**30 Minutes****MATERIALS:****Paper and pencils**

Learning the Trade

Are your students interested in learning more about wildlife rehabilitation? Invite them to investigate this career. Find out about what kind of education and training a person needs to work as a wildlife rehabilitator. Look up the location of the nearest facility and inquire about its staff and what kinds of animals they work with. Contact a rehabilitation center in your area and ask if they give educational programs or offer tours of the facility. Or invite one of the staff members to talk to your students about his or her job and perhaps even bring along a “patient” for observation and discussion.

TIME:**60 Minutes****MATERIALS:****Library/Internet access for research**

Help Is on the Way

Explore the Web site of the Wildlife Center of Virginia (www.wildlifecenter.org/rescue) to find out what to do if you find an injured or orphaned animal. Then have students act out various scenarios. One student can play the role of someone who has called the Center with an apparent animal emergency. Another can act as a Center staff member, asking questions to find out the details of the emergency. The rest of the group can offer opinions on the right advice to give the caller. As an extension, you could have students make posters or pamphlets explaining the best course of action for a variety of situations relevant to your local area and then distribute them at a library, community center, or nature center.

TIME:**60 Minutes or more****MATERIALS:****Paper and pencils
Art supplies**

Student Page

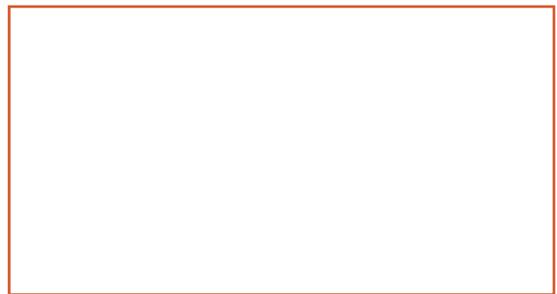
WILDLIFE ER

1. Choose one of the animals in “Wildlife ER” and describe what might have happened just before it came to the Wildlife Center.

2. Then describe what happened during its stay at the Center.

3. Now use your ideas to plan an episode of a new TV show called “Wildlife ER.” In each of the boxes below, draw a scene for the show and describe the action taking place.









Beastly Beauties

pages 32-37

4



Learning Links:

Sea stars are beautiful, of course. But they're also predators and scavengers with an important role in their ocean-bottom habitat. And their eating habits are unusual indeed!

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- Have you ever seen or touched a living sea star?
- If so, what do you remember about it?

Comprehension Check:

- This story advises you not to be fooled by sea stars' good looks. "Many of these beauties act like little beasts!" the author writes. Give three examples from the story that support this statement.
- Describe the unusual way a sea star digests its food.
- How does a sea star use its tube feet?
- What do sea stars eat?
- What eats them?
- What special trick do sea stars have for surviving an encounter with a predator?

Critical and Creative Thinking Connections:

- Sometimes these animals are called "starfish," but "sea stars" is more correct. Why?
- Do you know of any other animals that can regenerate body parts? (*lizards can regenerate tails; salamanders regenerate tails, limbs, and eyes; crabs regenerate legs, etc.*)
- Humans can't regenerate body parts. What do doctors do for people who lose limbs or need a new organ?
- What if people could regenerate missing body parts just as sea stars can? Do you think this would be a good idea?

RESOURCES

Seashells, Crabs, and Sea Stars by Christiane Kump Tebbits (Northword Press, 1999). Sea stars and other creatures shine in this take-along guide for exploring the seashore.

animaldiversity.ummz.umich.edu/site/accounts/information/Echinodermata.html Learn more about sea stars and their relatives at the University of Michigan Museum of Zoology's Animal Diversity Web.

ACTIVITY IDEAS

Seeing Stars

Can you imagine seeing like a sea star—with an eye at the end of each arm that can only distinguish light and dark? Have students cover their eyes with a thin blindfold (such as a bandana) so that they can distinguish light from dark but can't make out shapes or colors. Then have them explore what they can and can't do with this type of vision. For a more active version, head out to an open playing field. Divide students into groups of at least five to form "stars." (To create the stars, have students stand in a circle and each put one hand into the center to grasp the wrist of the person on his or her right.) Challenge the stars, with each "arm" blindfolded, to navigate their way from one point to another. Can they use clues such as the location of the sun or the shade of a building to stay oriented? When they become adept, engage the stars in a round of tag!

TIME:**15 Minutes****MATERIALS:****Thin blindfold for each student****Before and After Pictures**

Look at the photos in this story with students. Discuss what you see happening and ask them to make predictions about what might have happened before and after the photo was taken. Then have each student choose one of the photos and write a comic strip about the scene and the events surrounding it.

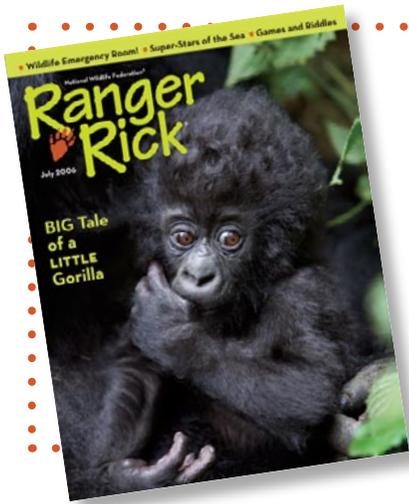
TIME:**30 Minutes****MATERIALS:****Paper and pencils
Colored pencils,
crayons, or markers****Super Star Art**

Beastly or not, sea stars are beautiful. Have students use the photos for inspiration as they make their own sea star art. They could cut sponges or potatoes into star shapes and make colorful prints. Or they could make cutouts from paper, cardboard, or craft foam and paint them with patterns and colors from the photos. When the stars are complete, turn a window into an undersea scene by sticking the stars onto it and then using window paints to add background and other sea creatures.

TIME:**60 Minutes****MATERIALS:****Art supplies such as
tempera paints,
brushes, and paper
Window paints****Stars of the Show**

Do you have a local aquarium? Does it have sea stars? If so, visit and see these amazing animals up close! Some aquariums may even have a touch tank where you can feel their grasping arms and tube feet for yourselves. Discuss what you learned about sea star behavior in the *Ranger Rick* story and ask students to make observations as they watch the aquarium residents in action.

TIME:**Several Hours****PREPARATION:****Arrange an
aquarium visit**



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. Extend the learning and fun at home with these engaging family activities. Enjoy!*

PARK PLAY

In “Ranger Rick’s Adventures” on [pages 15-17](#), Rick, Scarlett, and Boomer visit Shenandoah National Park. Which national park is nearest to you? Have you ever been there? Find out in a book or on the Internet what plants, animals, and other natural wonders you could see there. Then plan a visit!

CAN I HELP YOU?

Would you know what to do if you found a wild animal that seemed to need help? You read about wildlife rehabilitation in “Wildlife ER” on [pages 22-26](#). Now test your knowledge by taking the quiz on the *Ranger Rick* Web site, www.nwf.org/rangerrick.

WE LIKE LICHEN

In “What on Earth?” on [page 27](#), you met one of the world’s weirdest living things. We’re pretty sure you’ll take a likin’ to lichen if you take a close look. Go on a walk around your neighborhood and see how many kinds and colors you can find.

PLAYING BY THE RULES

“Play Fair” on [pages 30-31](#) describes some of the rules animals follow when they play. Have you ever seen a pet dog or cat follow one of these rules? Watch some animals at play and see if you can tell what’s going on. After watching carefully, do you notice any other “rules” they seem to be following?

STARS OF THE SHOW

You met some beautiful sea stars in “Beastly Beauties” on [pages 32-37](#). Would you like to see them up close? Find out if an aquarium near you keeps sea stars. If so, go check them out. If there’s a touch tank, you might even be able to feel those grasping arms and tube feet yourselves!

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

