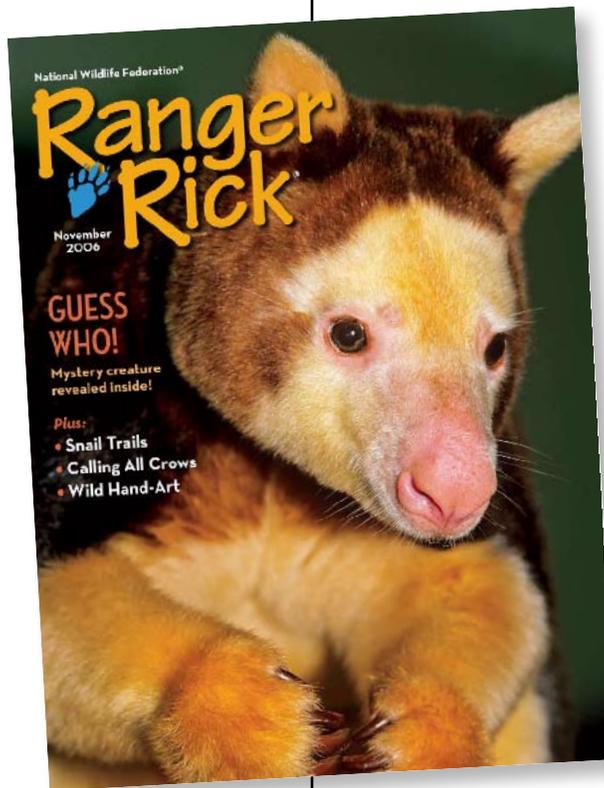


NOVEMBER 2006

Ranger Rick<sup>®</sup>



# EDUCATOR'S GUIDE



This guide is designed to complement the  
November 2006 issue of National Wildlife Federation's  
*Ranger Rick*<sup>®</sup> magazine.





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Science & Language Arts

**Writer:** Kate Hofmann

**Editors:** Ellen Lambeth and Gerry Bishop

**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**

Gerry Bishop, *Editorial Director, Children's Publications*  
Kevin Coyle, *Vice President, Education*

**For more information on NWF's education programs,  
visit [www.nwf.org/outside](http://www.nwf.org/outside)**

**For more information about this guide, or to offer  
comments, email Kate Hofmann at [chofmann@nwf.org](mailto:chofmann@nwf.org)**

**National Wildlife Federation  
11100 Wildlife Center Drive  
Reston, VA 20190**

**1-800-822-9919  
[info@nwf.org](mailto:info@nwf.org)**

**[www.nwf.org](http://www.nwf.org)**



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## Introduction

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### 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](http://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](http://www.nwf.org/rangerrick)



## Slime Time

pages 4-9

### Learning Links:

**Snails are familiar and easy to find. These characteristics make them not only fun to read about, but also excellent subjects for close-up observations and hands-on investigations.**

## DISCUSSION QUESTIONS & WRITING PROMPTS

### Pre-Reading Questions:

- Have you ever seen a snail trail?
- Describe a snail. Include as many details as you can.
- Now look at the pictures in "Slime Time" and add to your description.

### Comprehension Check:

- How does a snail move?
- Why must snails stay moist? How do they keep from drying out?
- How many tentacles does a snail have? How does it use the tentacles?
- What's unusual about how snails make more snails?
- Compare and contrast a baby snail and an adult snail.
- How does a snail eat? Does it have teeth?
- What are the two snail-eating animals mentioned in the story?

- What other animals do you think might eat snails?

### Critical and Creative Thinking Connections:

- If you wanted to find a snail in your neighborhood, where would you look? Be specific.
- What name would you give a snail if you found one?
- How is a snail's body plan different from yours?
- What is mucus? How does a snail use it?
- How do you think the life of a water snail is different from the life of a land snail?
- Have you ever eaten snails? Would you want to? Why or why not?
- Snails are known for being slow. In your own life, are there times when it's an advantage to slow down to a snail's pace? Are there other times when it's better to be "quick like a bunny"? Explain.

## RESOURCES

**Slugs and Snails** by Claire Llewellyn (Franklin Watts, 2002). This book is a place to look for lots more facts and close-up photos of snails and their slug relatives.

**Snailology** by Michael Elsohn Ross (Carolrhoda Books, 1996). Before you head outside to seek out snails, check here for ideas. Questions, observation activities, and simple experiments will engage students in hands-on science inquiry.

➤ [www.backyardnature.net/snail&sl.htm](http://www.backyardnature.net/snail&sl.htm) Get the low-down on these creeping, crawling creatures on the "Snails and Slugs" page of the Backyard Nature Web site.

## ACTIVITY IDEAS

### Snail Diary

What's it like to live a snail's life? Have students write journal entries from the perspective of a snail. Encourage them to invent a name and "personality" for their narrator, and ask them to include entries that depict the snail's life in each season. They could also illustrate the events they describe. Then give them an opportunity to share their writing with one another.

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

### Seeking Snails

Now that you've gotten a snail education in *Ranger Rick*, it's time to see some snails for yourselves! Seek out local snails (or slugs) for a closer look. Good places to search include on and under rocks or fallen logs, on tree trunks, and among moist leaves. Any snails out and about? If so, try some of the activities in "Follow the Snail Trail" on page 12. Have students record their observations on the **Snail Trails student page**. Or have them make their own hypotheses about snail behavior and design experiments to test them. *Snailology* (see Resources) has helpful ideas for student investigations. Even if the snails are all tucked in for a long winter snooze, students can observe their shells and the special "door" that protects them in winter. Emphasize the importance of treating snails gently and returning them to their homes after observing them.

**TIME:****30-60 Minutes****MATERIALS:****Clear containers for observing snails****Snail Trails student page**

### Shell Investigation

Provide students with an assortment of snail shells to compare: small ones, big ones, shells from land snails and from water snails, round ones, pointy ones, etc. Collect a variety of shells from nearby woods and beaches, ask students to bring in shells they've collected, or visit a museum or nature center with an existing display. Give students a chance to observe them carefully and note the similarities and differences. Discuss the shapes, sizes, and patterns. Then ask students to organize the shells into various classification schemes according to the similarities and differences they see.

**TIME:****30 Minutes****MATERIALS:****A collection of snail shells**

### Spirals in Nature

The spiral of a snail shell is a pattern that's repeated frequently in nature. Unfurling fern fronds, pinecones, and the arrangement of seeds on a sunflower head are a few familiar examples. Make spirals the focus of an outdoor walk and see how many different kinds you can find. Check your library for the August 2000 issue of *Ranger Rick* to read a whole story about spirals. For a math connection, relate spirals to the Fibonacci series. This series, in which each number is the sum of the previous two (0, 1, 1, 2, 3, 5, 8, 13...) describes a pattern found in many natural objects—including the spiral of snail shells. For an explanation, visit [www.mcs.surrey.ac.uk/Personal/R.Knott/Fibonacci/fibnat.html#spiral](http://www.mcs.surrey.ac.uk/Personal/R.Knott/Fibonacci/fibnat.html#spiral).

**TIME:****30 Minutes****MATERIALS:****Paper and pencils to record observations**



# Student Page

## SNAIL TRAILS

Now that you've read about snails in Ranger Rick, find one and take a close-up look at the real thing. Ask nicely if it will help with your homework!

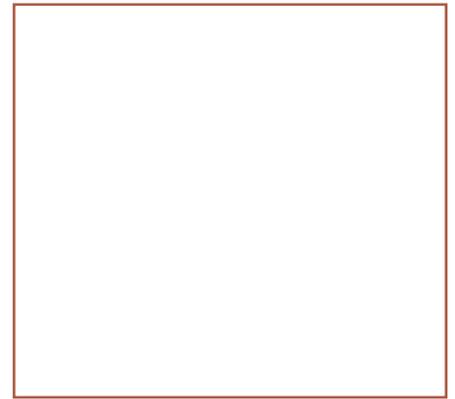
**1. Pose for a picture, please!** Draw your snail from all angles.



top view



side view



bottom view

**2. Let's go for a walk.** Place the snail on your hand and let it crawl. Describe what it feels like.

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Place the snail in a clear container and watch it move from below. Describe what you see.

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**3. Can I ask you a question?** Write down a question you have about your snail.

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Describe an experiment you could do to find the answer to your question.

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## Meet the Birdbrains

pages 14-18

### Learning Links:

**“Birdbrain” usually isn’t a compliment. But birds in the corvid family are brainy indeed. Students learn about the characteristics that distinguish corvids from other birds—and how these behaviors highlight their intelligence.**

## DISCUSSION QUESTIONS & WRITING PROMPTS

### Pre-Reading Questions:

- If someone calls you a birdbrain, what’s your reaction?
- Scientists believe that some kinds of birds are more intelligent than others. What clues do you think might point to a “high IQ”?

### Comprehension Check:

- Which birds are members of the corvid family?
- Are corvids playful? Support your answer with examples from the story.
- What are some of the clever tricks corvids use to get food?
- What’s one way that family life is similar for crows and humans?
- How are the “young adult” years of crows and ravens different?

### Critical and Creative Thinking Connections:

- Which birds in the corvid family live in your area? Which ones have you seen?
- Carrie Crow says, “It takes brains to play games.” What does she mean? Why is playing a sign of intelligence?
- Using tools is another sign of intelligence. Summarize some examples from this story of corvids using tools.
- Compare and contrast the ways birds and humans use tools.
- Now that you’ve read this story, would you say “birdbrain” is a good or bad name for this group of birds?

## RESOURCES

***Bird Brains: The Intelligence of Crows, Ravens, Magpies, and Jays*** by Candace Savage (Sierra Club Books, 1995). This book (written for adults) is an excellent resource for more facts about corvid intelligence and many interesting photos of this bird family.

➤ [www.nwf.org/rangerick](http://www.nwf.org/rangerick) Visit the Ranger Rick Web site this month for an online field guide to the corvid family.

➤ [www.birds.cornell.edu/programs/urbanbirds/ubs\\_CRCMainEN.html](http://www.birds.cornell.edu/programs/urbanbirds/ubs_CRCMainEN.html) The Cornell Lab of Ornithology’s “Crows Count” Web site is a forum for citizen observers to help scientists answer questions about corvids. Check it out to get answers to some of your own corvid questions or—better yet—to participate in the project.

## ACTIVITY IDEAS

### Corvids in Action

Ready to see some corvids in action? No matter where you live, there are almost certainly some members of this widely-distributed family nearby. Check out the corvid field guide online at [www.nwf.org/rangerrick](http://www.nwf.org/rangerrick). Then go looking. Have students record their observations, prompting them with questions such as: How many birds do you see? What are they doing? Are they alone or with others of their kind? Are they interacting with each other? With any other creatures? How? Are they making any sounds? Do you see any behaviors similar to examples in the story? After watching carefully, discuss your observations and interpretations as a group. Ask students to list some questions they'd like to investigate through further observation.

#### TIME:

**30 Minutes +**

#### MATERIALS:

Internet access

Paper and pencils to record observations

### Cultured Crows

Crows and other corvids have a long relationship with humans. They show up in the folklore of many regions, such as Aesop's fable "The Crow and the Pitcher" and the Native American legend "How Raven Stole the Sun." People even told fortunes based on the number of crows they saw in a flock. One version of this rhyme goes: *One for sorrow, two for joy, three for a girl, four for a boy, five for silver, six for gold, seven for a secret never to be told, eight for a wish, nine for a kiss, ten for a time of joyous bliss.* Enjoy some corvid literature with students, and then have them use it as inspiration to write or act out their own fables, legends, or fortune-telling rhymes.

#### TIME:

Variable

#### MATERIALS:

An assortment of corvid literature

Paper and pencils

### Counting Crows

The Cornell Lab of Ornithology's "Crows Count" project offers an excellent (and fun) way to involve students in scientific data collection. Students will strengthen their observation skills while contributing to real natural science—even in the most urban of settings. The project provides all the resources you'll need to make observations and report data. Your data will help answer specific questions about the behavior of urban corvids. Find all the details at [www.birds.cornell.edu/programs/urbanbirds/ubs\\_CRCMainEN.html](http://www.birds.cornell.edu/programs/urbanbirds/ubs_CRCMainEN.html)

#### TIME:

Variable

#### MATERIALS:

Internet access

### Brainy Humans

In this story, two corvids attempt to convince a human audience of their intelligence. Turn the tables and challenge students to prove to a *corvid* audience that *humans* are smart. Have them write a parallel version of this story in which two (or more) humans discuss things they do that illustrate their intelligence. The [Brainy Humans student page](#) will get them started. Encourage them to include the same categories as those in the *Ranger Rick* story, such as playing, getting food, using tools, and interacting with other members of the species. They could address the conversation to a generic corvid audience or directly to Carrie Crow and Riley Raven. If you have a dramatic "flock," give them a chance to read their writing aloud or perform it as a skit.

#### TIME:

**45 Minutes**

#### MATERIALS:

[Brainy Humans student page](#)



3



## Mystery in the Treetops

pages 21-29

### Learning Links:

Whoever heard of a kangaroo that lives in a tree? Students will be some of the few who have after they read this exciting tale of an expedition high into the mountains of New Guinea to study this unusual and little-known creature.

## DISCUSSION QUESTIONS & WRITING PROMPTS

### Pre-Reading Questions:

- What do you know about kangaroos?
- How about kangaroos that live in trees? Could that be true? What do you think?

### Comprehension Check:

- What is the “mystery creature” in this story?
- How long has scientist Lisa Dabek been interested in tree kangaroos?
- Where did she have to travel to see them in the wild?
- Describe the habitat where tree kangaroos live. What other things live here?
- What techniques does Lisa use to learn more about the tree kangaroos she finds?
- Are people helping or hurting tree kangaroos today?

### Critical and Creative Thinking Connections:

- What makes studying tree kangaroos in the wild difficult for scientists?
- The author and photographer of this story went along with the team of scientists in order to tell the tale. What do you think might have been some of the challenges *they* faced in getting the information and pictures?
- Would you like to visit a faraway place such as the village of Yawan? Why or why not?
- Tree kangaroos almost sound made up. What if some other ground-dwelling animals had relatives that lived in trees? (Tree rabbits? Tree deer? Tree cows?!) Describe one of these made-up animals and its adaptations for a tree-dwelling life.

## RESOURCES

**Quest for the Tree Kangaroo** by Sy Montgomery and Nic Bishop (Houghton Mifflin, 2006). Meet the tree kangaroo and the scientists who study it in this book by the same team that brought you the story in *Ranger Rick*.

**Kangaroos** by Peter Murray (Child's World, 2005). Learn more about all kinds of kangaroos and how they live in this informative book.

- [www.zoo.org/factsheets/tree\\_kangaroo/treeKangaroo.html](http://www.zoo.org/factsheets/tree_kangaroo/treeKangaroo.html) Learn more about the Matschie's tree kangaroo with this fact sheet from the Woodland Park Zoo in Seattle, where Lisa Dabek serves as the Conservation Director.

## ACTIVITY IDEAS

### 'Roo Journal

As students will have noted in this story, the tree kangaroo expedition was action-packed. Ask them to imagine that they've been chosen to go along on the next expedition to Yawan and the cloud forest camp. Have them write a journal about the trip, using the ['Roo Journal student page](#) to organize their thoughts. What would they take along? What would they see and do? What discoveries would they make? Remind them to use the details they learned in the story to help them create as accurate an account as they can.

#### TIME:

**30 Minutes**

#### MATERIALS:

['Roo Journal student page](#)

### Straight to the Source

Have students compose a letter to scientist Lisa Dabek, story author Sy Montgomery, or photographer Nic Bishop. Students can describe what they learned from reading the story and ask any questions they still have about the expedition. For more background, read *Quest for the Tree Kangaroo* (see Resources) before students write their letters. Send students' letters to Ranger Rick; 1100 Wildlife Center Drive; Reston, VA 20190, and we'll be happy to pass them along to Lisa, Sy, or Nic.

#### TIME:

**30 Minutes**

#### MATERIALS:

**Paper and pencils**

### Kangaroo Contrast

Tree kangaroos are, in fact, kangaroos—but they are unique within the family in a number of ways. Have students compare and contrast tree kangaroos with their ground-dwelling cousins. Divide the group in two and assign each half to research one of the kangaroo groups. Then bring the groups back together to share their findings with one another. Together, can they agree on the similarities and differences between tree kangaroos and other kangaroos? Have them make a Venn diagram or a chart to organize the information they synthesize.

#### TIME:

**60 Minutes**

#### MATERIALS:

**Library/Internet access for research**  
**Paper and pencils**

### Mystery Close to Home

Traveling to faraway lands is certainly one way to see new animals. But there's probably lots of wildlife right near home that you rarely see. Ask students to imagine they are scientists studying a "mystery creature" in their own area. Have them choose a native animal that they don't know much about and would like to see. (Don't forget to consider the small creatures, such as insects and spiders.) Then have them plan their own "expedition" to look for the animal. They could simply describe what they'd do—or better yet, they could even carry out the plan! In either case, they will need to do some research to be fully informed. In what habitat should they look? Where can they find that habitat nearby? What time of day is the animal most active? What would they like to learn about the animal, and how could they find answers to their questions?

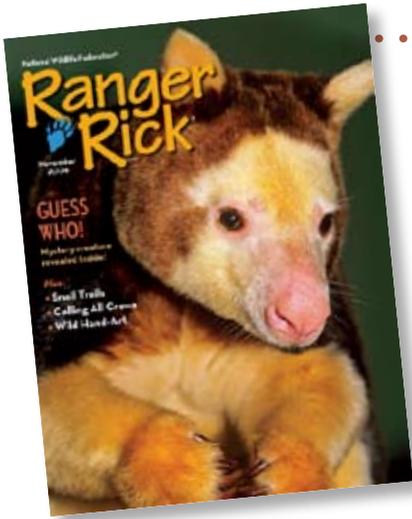
#### TIME:

**60 Minutes +**

#### MATERIALS:

**Library/Internet access for research**  
**Paper and pencils**





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

## **SEEK A SNAIL**

Seek out some snails or slugs in a wild place nearby. Can you find one out cruising? Or are they all tucked in for a winter nap? If you find one out and about, take a closer look with some of the activities in “Follow the Snail Trail” on [page 12](#).

## **WHO AM I?**

Can you figure out the identity of the mysterious animal in “Who Am I?” on [page 19](#)? Look it up and see what you can learn about it. In what countries is it found? What does it eat? How does it use those horns? Then send in your answer, of course!

## **WILD PLACES**

Lily Dong found a wild place in her city and found a way to protect it. Where are the wild places where you live? Look for some pockets of green in your neighborhood and explore them. Can you find out their story? Are they protected? Could you do something to help protect them better? (“The Buzz,” [page 33](#))

## **HAND ART**

After you admire the amazing art in “Handimals” on [pages 34-37](#), take a closer look at your own hands. What shapes can you make with them? Do any of them remind you of animals? Turn off the lights and use a flashlight to make shadow animals on the wall. Or follow the instructions on [page 38](#) to create your own hand-painted animals.

## **FALL POEMS**

Go outside and look around for signs of fall. Make a list of your finds, and then pick one you’d like to write a poem about. Go back for a closer look and take a photo or draw a picture to illustrate your poem. Make a family fall poetry album to share. (“Fall Feast,” [page 39](#))

*For more interactive family fun, be sure to visit [www.nwf.org/kids](http://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

Snail Trails  
 Bird Brains  
 Tree 'Roots

	1	2	3
Science as Inquiry	Dark	Dark	Dark
Life Science	Dark	Dark	Light
Earth & Space Science	Light	Light	Light
Science & Technology	Light	Dark	Dark
Science in Personal and Social Perspectives	Light	Dark	Light
History and Nature of Science	Dark	Dark	Dark
English Language Arts	Dark	Dark	Dark