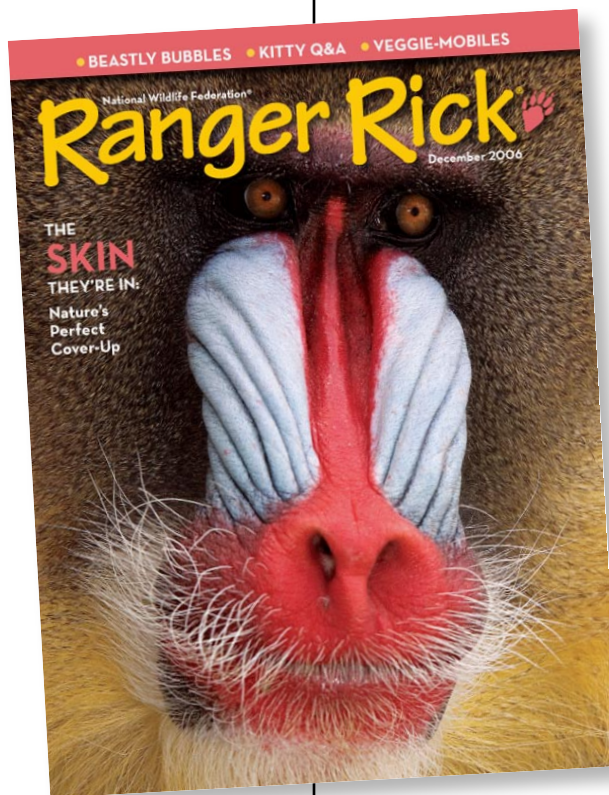


DECEMBER 2006

National Wildlife Federation®
Ranger Rick®



EDUCATOR'S GUIDE



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





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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



Bubble Power

pages 2-8

Learning Links:

Bubbles are familiar and fun for kids. They're also an important survival strategy used by certain animals—to hide from predators, sneak up on prey, breathe underwater, and protect young.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- How many different ways can you think of to make bubbles?
- Have you ever seen bubbles in nature? Where? What do you think made them?

Comprehension Check:

- How do bubbles help a spittlebug?
- How do they help a foam grasshopper? Is this the same or different from the way a spittlebug uses them?
- When does a parrotfish use bubbles? Why?
- Why does a water spider need bubbles?
- How do bubbles help baby African gray treefrogs survive?

Critical and Creative Thinking Connections:

- Describe a bubble. What makes them useful to the animals in this story?
- Which animals use bubbles to get food?
- Which animals use bubbles to keep from being eaten themselves?
- Which animals use them in some other way?
- How is a whale's bubble net like a net that people use? How is it different?
- What if you had "bubble power"? If you could make bubbles, what kind would they be? How would you use them?

RESOURCES

Pop! A Book About Bubbles by Kimberly Brubaker Bradley (Harper Trophy, 2001). Explore the science of bubbles in this simple and inviting book.

Bubbles: A Children's Museum Activity Book by Bernie Zubrowski (Little, Brown and Company, 1979). Here's a classic collection of fun experiments with soap bubbles.

➤ www.exploratorium.edu/ronh/bubbles/bubbles.html Explore bubble fun and science at this Web site from San Francisco's Exploratorium.

➤ www.sdahq.org/new1198/kids/bubbles/Welcome.html Follow the links on this page to learn more tricks for bubble fun.

ACTIVITY IDEAS

Bubbles in Nature

It may be the wrong season to see most of these bubble-makers in action. But if you take a walk to a nearby pond, lake, or stream, you just might find some other kinds of bubbles. As water rushes along, it often forms bubbles or foam—and as it freezes, bubbles are sometimes trapped in the ice. See for yourselves! Can you find bubbles made by living or nonliving things? What other observations can students make?

TIME:

30 Minutes

MATERIALS:

Warm clothes for an outdoor walk

Life with Bubbles

Ask students to imagine spending a day as one of the bubble-powered animals in this story. Which one would they choose? Why? Have them write or tell the story of what happens during this day, including the reactions of any predators or prey that encounter their bubbles. For a more dramatic version, have them act out the story as a skit or puppet show.

TIME:

45 Minutes

MATERIALS:

**Paper and pencils
Props for puppet shows or skits (optional)**

Bubble Science

Experiment with the science of bubbles. Make a batch of bubble solution—mix 1 part dish detergent to 10 parts water, and (optional) add a little glycerin or Karo® syrup for extra-strong bubbles. Let the solution sit for a day or two before using for best results. Pour it into dishes and trays, cover the tables with towels or plastic tablecloths, and challenge students to try some of the following experiments:

- Can you blow a bubble inside a bubble?
- Can you make a bubble that's not round?
- What happens if you add food coloring or tempera paint to the bubble solution?
- What makes a bubble pop?
- How can you make a really big bubble? How can you make a tiny bubble?
- Can you make an "antibubble"? (see www.antibubble.org)
- What happens if you blow bubbles outside in the cold?

See the Resources section for more information about bubble science.

Encourage students to make connections between the bubble properties they discover and what they learned about how animals use bubbles.

TIME:

60 Minutes

MATERIALS:

**Dishes and trays
Food coloring or tempera paint
Bubble-making tools:
wands, straws, wire, string, etc.
Ingredients for bubble solution: dish detergent, water, glycerin or Karo® syrup
Towels or plastic tablecloths**

Bubble-Powered Hero

"Bubble power" sounds like something a superhero might have. Invite students to create a bubble-powered hero and illustrate his or her features. What would the hero's name be? What kinds of bubbles would the hero make? How would his or her powers help the world? Encourage students to use the animal examples in the story for inspiration. They could also relate some of their heroes' adventures in one-page comic strips.

TIME:

30 Minutes

MATERIALS:

**Drawing paper
Art supplies**



Ranger Rick's Adventures: Better Bananas

pages 13-15

Learning Links:

All the foods on a supermarket's shelves have stories to tell about where they came from and how they were grown or made—but we rarely hear these stories. In their latest adventure, Ranger Rick and his friends explore two different kinds of banana farms—and students learn some important facts that will help them make more informed food choices.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- What's your favorite fruit?
- Do you know where and how it is grown?

Comprehension Check:

- When Cappy the monkey told Ranger Rick he had good news about banana farms, what did he mean?
- Boomer saw a “bad news” banana farm up close. What are three problems he found there?
- How did the “good news” banana farm solve those problems?
- How can you tell if a banana was grown in an Earth-friendly way?

Critical and Creative Thinking Connections:

- Sometimes Earth-friendly bananas cost more than the ones grown on the “bad news” farms. Why do you think this is?
- If you were buying bananas for your family, would you choose to spend the extra money to support the Earth-friendly farms? Why or why not?
- Think of some other fruits you like to eat. When you buy any of these fruits, do you have the choice of a more Earth-friendly option?

RESOURCES

Bananas! by Jacqueline Farmer (Charlesbridge, 1999). Find out more about how bananas grow and how they get to you, plus learn some fun banana jokes and songs.

➤ www.rainforest-alliance.org/banana/banana_cert.html Read about the Rainforest Alliance's Better Banana Project.

➤ Celebrate bananas with a song! Here are some fun ones:
www.songsforteaching.com/b/applesandbananas.htm
singalongwithme.com/banana/
www.boyscouttrail.com/content/song/song-614.asp

ACTIVITY IDEAS**Banana Math**

Bananas produced in Earth-friendly ways or sold under the principles of fair trade may cost a bit more than conventionally-farmed bananas—or they may not. Have students investigate what kinds of bananas are available at local supermarkets and how much they cost. Then have them calculate the cost of a single banana and a family-sized bunch of each type. Discuss the results. Is there a price difference? Students could also compare the prices of bananas with those of other kinds of fruit. If students were in charge of the family budget, would they choose to buy Earth-friendly fruits? Why or why not?

TIME:

**30 Minutes, plus
a supermarket visit**

MATERIALS:

Paper and pencils

Compare-a-Fruit

Botanically speaking, fruit is the part of a plant that develops from a flower's ovary and contains seeds. The bananas we buy at the store have been bred to have tiny, non-fertile seeds. In many other fruits, the seeds are easy to see. Bring in an assortment of fruits (familiar ones such as apples and oranges, less familiar ones such as pomegranates and star fruit, and even fruits that we generally think of as vegetables, such as tomatoes and squash). Cut them open and have students observe and draw each one. Then make comparisons about their seeds and other structures, and discuss where and how they grow and how the seeds are dispersed (by gravity, birds, mammals, wind, etc).

TIME:

30 Minutes

MATERIALS:

Variety of fruits

Knife

Paper and pencils

Earth-Friendly Farming

Invite a local farmer who practices Earth-friendly farming techniques to speak to your students. Or (better yet) arrange a visit to the farm. Before you meet with the farmer, have students make a list of questions they'd like to ask. As students come up with questions, encourage them to think about what Ranger Rick and his friends saw on the banana farms. After you hear about local farming techniques, discuss how these techniques are similar to and different from those used on the banana farms. What are the particular challenges of farming in your region and in the tropics? Conclude by brainstorming about how students and their families could help support the production of other Earth-friendly foods.

TIME:

60 Minutes +

PREPARATION:

**Arrange a visit with a
local farmer**

Banana Party

Sometimes you just need to be silly! Go bananas with a banana party. Start with a bunch of Earth-friendly bananas. Pass them out and let guests chat on their banana phones. Sing banana songs (see Resources). Tell banana jokes. Then eat them! Or make them into banana smoothies or banana bread or peanut-butter-and-banana-sandwiches. Have bunches of fun celebrating what just might be the world's most popular fruit.

TIME:

30 Minutes

MATERIALS:

Bananas



Tame Tabby ... or Not?

pages 16-19

Learning Links:

Scottish wildcats may look like the pet cats many of us have at home, but they live a wild life. This story gives students a glimpse of them, and at the same time provides opportunities to compare and contrast the lives of wild and domestic relatives.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- What do pets and wild animals have in common?
- How is a pet different from a wild animal?

Comprehension Check:

- What kind of cat is this story about?
- Where does it live?
- Does a Scottish wildcat hunt during the day or at night?
- What does it eat?
- How many babies does a Scottish wildcat mother usually have?
- How old are the kittens when they're ready to live on their own?

Critical and Creative Thinking Connections:

- Think of a pet cat you know—your own or a friend's. How is a pet cat's life similar to the lives of these wild cats? How is it different?
- What other wild cats can you name? Where do they live?
- On pages 30-32, you'll find answers to some questions about pet cats (which have wild ancestors). Which of the behaviors described here could be left from the cats' wild ancestry?

RESOURCES

Wild Cats of the World by Mel and Fiona Sunquist (University of Chicago Press, 2002). While this book is dense (it's written for adults), it will provide answers to almost any question posed by curious cat lovers.

Your Cat's Wild Cousins by Hope Ryden (Dutton, 1992). Learn about some characteristics and behaviors that house cats share with their wild relatives.

So You Think You Know About Cats? by Ronald Rosen and Francine Hornberger (Citadel Press, 2006). A resource about all things feline, written in a fun quiz format especially for cat lovers.

➤ www.scottishwildcats.co.uk/ Find out more about the Scottish wildcat at this Web site.

ACTIVITY IDEAS

Track a Cat

How do scientists learn about wild cat behavior? By observing cats for many hours! Turn students into wildlife biologists on a mission to learn more about the behavior of the domestic cat. Have students observe a cat at regular intervals (every 10 minutes for an hour or two, for example) and record its behavior at that instant. Students who have pet cats can observe their own; students who don't could partner with a cat-owner friend or observe another pet. After collecting the data, draw some conclusions about the most typical behaviors for domestic cats and make graphs showing how much time they spend on each behavior. If some students have observed other animals, compare their behaviors with those of cats.

TIME:**Several hours (at home)****MATERIALS:****Access to pet cats
Paper and pencils**

Wild Cat Q & A

After reading "Cat Q & A" on pages 30-32 (which is all about pet cats and their behaviors), have students brainstorm a list of questions they have about wild cats. As a group, agree on which questions would be most interesting to research and have students collaborate to find and write answers. Compile these to create your own "Wild Cat Q & A" story. Ask some of the class artists to add illustrations.

TIME:**60 Minutes****MATERIALS:****Library/Internet access
Paper/pencils or
computers**

Dear Tabby

The "Dear Abby" advice column is a regular feature in most newspapers. A quick read will reveal that we humans are always seeking better ways to understand and react to the behavior of our own species. An advice column to help us understand cats and their baffling behaviors could be even more useful! Have students compose "Dear Tabby" columns. Share examples from real advice columns with students, and then hand out copies of the [Dear Tabby student page](#) to get them started. Have them use examples in "Cat Q & A" or their own observations to invent questions from cat owners seeking advice and then to write replies from a cat's perspective.

TIME:**30 Minutes****MATERIALS:****Examples of "Dear
Abby" or other
advice columns
[Dear Tabby student page](#)**

Survey Says...Meow!

Discuss with students the cat behaviors described in "Cat Q & A." Have students with pet cats at home observed their cats doing these things? Ask students to choose several behaviors and create a survey for cat owners at school or in the neighborhood. For instance, they might ask: "Does your cat ever bring home dead things?" or "Does your cat climb on the keyboard when you're sitting at the computer?" Before conducting the survey, have students make predictions about how many owners will report each behavior. Just a few of them? Half? All? After students conduct the survey, have them tally the responses, calculate percentages, and make graphs indicating the results. Compare the results with their predictions.

TIME:**Several 30-Minute
sessions****MATERIALS:****Computer to type and
print surveys, Excel
program to compile
results (optional)**

 **Student Page**

DEAR TABBY

People are often puzzled by their pets. Why do they do the things they do? Why don't they do the things we want them to? Now's your chance to clear up some of that confusion. Make up two questions that cat owners might have about how to deal with their pets. Then give them some advice straight from Tabby the Cat.

Dear Tabby,

Dear Tabby,

Dear _____ ,

Dear _____ ,

-Tabby

-Tabby



Learning Links:

Our skin is an amazing organ. It gets even more interesting when compared to the very different kinds of skin worn by other animals! Students learn about skin and its many important functions in this survey of vertebrate body coverings.

DISCUSSION QUESTIONS & WRITING PROMPTS

Pre-Reading Questions:

- How does your skin help you? Name as many ways as you can.
- How are other animals' skins different from yours? Give some specific examples.

Comprehension Check:

- How long does it take for your skin to be replaced?
- What are three ways your skin protects you?
- What group of animals has true skin?
- What are three body coverings that can grow out of skin?
- Give an example of an animal that uses its skin for protection.

- Give an example of an animal that uses its skin to get something it needs.
- How can skin "talk"?

Critical and Creative Thinking Connections:

- Which of the facts on page 21 about your skin is most amazing to you? Why?
- Imagine that, like a flounder, you could change your skin color to blend perfectly with your surroundings. How would you use this talent?
- For an amphibian, what are the advantages of having thin skin? What are the disadvantages?
- You can't turn as many colors as a chameleon or puff out your throat like a balloon, but does your skin ever "talk"?

RESOURCES

Whose Skin Is This? by Lisa Morris Kee and Ken Landmark (Picture Window Books, 2002). This is a book that's a game. Start by guessing the animal attached to each illustrated skin—then read on to learn more.

Chameleons And Other Animals With Amazing Skin by Susan Labella (Children's Press, 2005). A Scholastic News Nonfiction Reader all about animal skin.

ACTIVITY IDEAS

Skin Catalog

This story invites readers to imagine they could pick out a skin as if they were shopping for new clothes. Have students create a “catalog” of skins to choose from, with photos or drawings of a swatch of each skin paired with an enticing description of its beauty and unique features. For examples of this type of writing, show students some real clothing catalogs. After they finish their descriptions, ask them which skin they’d choose to wear for a while—and why.

TIME:

30 Minutes

MATERIALS:

**Clothing catalogs
Paper and pencils
Art supplies or old magazines to cut up for photos**

Skin Swap

Invite students to imagine they could trade skin with another animal for a day. Hand out copies of the [Skin Swap student page](#). Have them choose an animal whose skin they’d like to try and explain why they chose it. Then have them write an account of what they’d do with their borrowed skin. Ask them to consider what the other animal might do with their skin during that day, too! When they finish writing, invite them to share their stories. Conclude with a discussion. What particular features of other animals’ skins do they think would be most fun or most useful to have? What do they appreciate most about their own skin, now that they’ve imagined spending a day without it?

TIME:

30 Minutes

MATERIALS:

[Skin Swap student page](#)

Skin by Category

Have students create a chart with each of the skin categories described in the story (which include defense, breathing, temperature regulation, and communication) and any others they’d like to add. Then fill in the chart with animals in the story that fit each category. Students could also research other animals to add—and don’t forget people! Discuss the many functions of skin and whether some of the animals have skin that fits into more than one category.

TIME:

30 Minutes +

MATERIALS:

Paper and pencils

Sensitive Skin

One of our skin’s most important features is its sensitivity to the world around us. Receptors transmit information to the brain about qualities such as temperature, pressure, and texture. Have students work together to investigate the sensitivity of skin. Here are some interesting things to try:

- Gather pairs of a variety of objects (smooth, rough, round, pointed, spongy, hard, etc.). Put one of each pair in a pillowcase. Have students try to find each object’s match using only their sense of touch.
- Bend a paperclip into a U-shape and gently touch the two points to a partner’s skin. Ask if he or she can feel one point or two. Try this in different places (fingertips, forehead, arm, foot, back) and see where the skin is most sensitive.
- Use one finger to “write” letters on a partner’s back. See if he or she can identify them.

Find lots more great experiments at the Neuroscience for Kids Web site:

faculty.washington.edu/chudler/chtouch.html.

TIME:

60 Minutes

MATERIALS:

**Pillowcases
Variety of objects for skin sensitivity experiments
Paper clips**



Student Page

SKIN SWAP

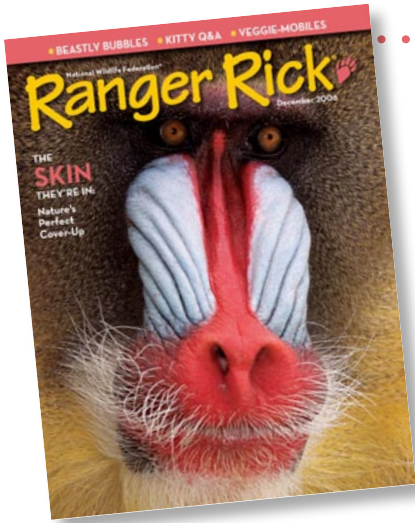
Imagine you could trade skin with another animal for a day . . .

What animal's skin would you choose? _____

Why? _____

Describe your day _____

Describe what the other animal would do with your skin. _____



National Wildlife Federation
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.*

WINNING PHOTOS

On [page 10](#), you can see the winners in the latest Ranger Rick Photo Contest. Look close and read about what made each of them a winning shot. Take a look at some of the photos in *Ranger Rick* and other magazines and see if they use those same techniques. Then look at some of your family photos. Which ones are best? Why? How could photos that aren't the best have been made better? Put those ideas to work next time you get out the camera.

KITTY MYSTERIES

Do you have a pet cat? Read the answers to the questions in "Cat Q & A" on pages 30-32. Do they explain your cat's behavior? Think of some other questions you have and see if you can find answers to them. If you have funny cat stories of your own, send them to *Ranger Rick*. (See "Whatcha Think?" on [page 9](#).)

FUN WITH FOOD

We know—you're not supposed to play with your food. But this is so much fun, who could resist? See if you can identify all the foods used in the "Fast Food" creations on [pages 34-37](#). Then enjoy your own fruits and veggies even more by turning them into art before you eat them. Can you think of other fast-food ways to get around that aren't in the story? Create figures of these and make up your own rhymes to go with them.

PLAYFUL PANCAKES

The cute kitty pancakes on [page 38](#) are just the way to fuel up for a day of winter fun. Cook up a batch, fill your plates and bellies, and then head outside to play!

WINTER WALK

Does "Moon Walk" on [page 39](#) inspire you to head out for a moonlit winter walk? You'll be glad you did! To set the mood, read *Owl Moon* by Jane Yolen and get ready to listen to the night sounds. Check your library for another old classic, *Walk When the Moon is Full* by Frances Hamerstrom, to read about one family's full year of full moon walks.

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

