

January-
February 2002
Teacher's Guide
Vol. 1 No. 4

"FOR THE INCREASE
AND DIFFUSION OF
GEOGRAPHIC KNOWLEDGE."

NATIONAL GEOGRAPHIC for Kids!



Dear Educator:

The adventure doesn't end on paper! Go online at www.nationalgeographic.com/ngforkids and you'll find information and activities that supplement and enhance each issue of NATIONAL GEOGRAPHIC FOR KIDS (NGK).

For example, the cover story of this month's magazine, **Jumping Into Science** (pages 4-9), gives students the inside scoop on what a champion ski jumper needs to know about gravity, friction, drag, and lift. After kids have read the article, you can direct them to an online Sports Talk game where they will leap all types of sports-vocabulary hurdles.

In **Meet the Parents** (pages 14-17), young readers learn how emperor penguins raise their young in temperatures that can plunge to minus 76°F. The online edition of NGK links students to live cameras on Antarctica so kids can view emperor penguins in action.

A great extension activity for the **Going for the Green** article on trees (page 23) is an online scavenger hunt called Explore the Fantastic Forest.

E-postcards of winter athletes and stately penguins encourage students to share their newly acquired knowledge with friends and family. An online cartoon recounts the history of the Olympics. And an electronic opinion poll asks students whether they think male athletes get better media coverage than female athletes.

Our online edition is for educators too. A special teacher's section features a downloadable teacher's guide, links to other educational resources, and drawings for free materials.

If you haven't visited www.nationalgeographic.com/ngforkids, we hope you'll make it a New Year's resolution to do so!

Sincerely,

Mary Dalheim
Editor, NATIONAL GEOGRAPHIC FOR KIDS

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NATIONAL GEOGRAPHIC SOCIETY
brought to you in cooperation with the
**INTERNATIONAL PAPER
COMPANY FOUNDATION**
AND NATIONAL GEOGRAPHIC SOCIETY
EDUCATION FOUNDATION

Jumping Into Science

Background

Ski jumping is a heady blend of speed, nerve, style—and science. In just a few dangerous seconds, a jumper interacts with key physical forces: gravity, friction, drag, and lift.

Your students probably know how gravity works. Friction and drag both reduce the speed of moving objects or people. Then there's lift, a subject nearly as daunting as ski jumping itself.

Traditional explanations of lift—still common in textbooks—stress “Bernoulli’s principle.” An 18th-century Swiss mathematician-scientist, Daniel Bernoulli concluded that air exerts less pressure as it moves faster. With that in mind, airplane designers often create wings whose curved tops force air to speed up as it moves above the plane. As a result, the air below the wing exerts upward pressure, helping the plane stay aloft.

Some scientists find that explanation inadequate. Acrobatic and military planes, they point out, sometimes fly upside down. That would be impossible if lift depended solely on wing shape. And pressure differences aren't always dramatic enough to buoy a sparrow, much less a 747.

A key piece of the puzzle, say many scientists, lies in the work of Sir Isaac Newton. His third law of motion states that for every action there is an equal and opposite reaction. In ski jumping, the pertinent action is using one's body and skis to force air downward. The air's reaction, namely pushing upward, helps the athlete achieve lift.

Discussion Questions

- Would any of you like to be a ski jumper? Why or why not? *(Answers will vary.)*
- What are the four steps of a ski jump? *(Sliding downhill, leaping into the air, “flying,” and landing)*
- Name some scientific topics you'd need to understand if you were a ski jumper. *(Possible answers: gravity, friction, drag, lift, aerodynamics)*
- How does gravity help ski jumpers? *(When they're on the giant slide, it pulls them downhill.)*
- How does gravity hinder ski jumpers? *(When they're in the air, it pulls them to the ground.)*
- Why do ski jumpers crouch down while sliding downhill? *(To make their bodies seem smaller)*



- Why do ski jumpers want their bodies to seem smaller? *(To lessen the amount of air they have to push out of the way. Doing so reduces drag and helps jumpers go faster.)*
- What is lift? *(An upward air force that helps a ski jumper fight gravity)*
- The author says “scientists are still sorting out the details” about lift. How could our class learn more about this debate? *(Possible answers: Search the Web, look at science magazines in the library, use the library catalog to find the latest books on the subject, visit the local science museum, talk to physics teachers at a nearby college or high school.)*



Web Links

Jump into these resources and more at www.nationalgeographic.com/ngforkids/articles.

Salt Lake 2002: Explore the Winter Olympics' official website.

Sports Talk Game: Leap vocabulary hurdles to get the Olympic torch to Utah.

Ski Jumping Central: Find a variety of links.

Quick Flick: Watch a lively cartoon about Olympic history.

Answers

“Need a Lift?” page 9
faster, below, lift

Putting Women in the Picture

Background

During the last several years, sports writer Jane Gottesman has collected action shots of female athletes. She recently compiled the photos into a book and exhibit called *Game Face: What Does a Female Athlete Look Like?* The exhibit is currently at the University of Utah in Salt Lake City, just down the road from the Winter Olympics (which begin February 8). The exhibit will travel to 14 other cities around the United States through 2006.

The photographs in "Putting Women in the Picture" are similar action shots of female athletes. The text tells how the media are beginning to trade glamour shots of female athletes for images of them in competition and play. The article also traces the growing participation of women in the Winter Olympics.

Discussion Questions

- What is the name of this article? (*"Putting Women in the Picture"*)
- How is the "Game Face" project trying to "put women in the picture"? (*By showing them in action as athletes*)
- Do the photographs in this article "put women in the picture"? (*Yes.*)
- Starting on page 10, can you identify the sports these women are performing? (*Pages 10-11: figure skating; page 12: downhill ski racing, ice hockey; page 13: skeleton, snowboarding*)
- Find the photo of Sonja Henie. What sport did she enter in the Winter Olympics? (*Figure skating*)
- How did Henie affect women's figure skating? (*Competitors began to put figure skating moves together and perform them to music; they shortened their skating skirts so they could better perform jumps and spins.*)
- How did Henie affect women's sports in general? (*Her athletic, artistic style helped change people's minds about what female athletes could do.*)
- How have opinions about women's sports changed since the first Winter Olympics? (*Many people used to believe sports were unhealthy for women and that women shouldn't compete.*)



Most no longer think so. More people take women's sports more seriously now.)

- How are these new opinions changing the way newspapers, magazines, radio, and TV cover women's sports? (*Answers include: Coverage is increasing; more photos show women competing or in action.*)
- Look at the diagram on pages 12-13. How many men participated in the Winter Olympics in 1924? (*281*) How many women participated? (*13*)
- How many men are expected to participate in the 2002 Winter Olympics? (*1,300*) How many women will participate? (*1,000*)
- How many more women are competing in 2002 than competed in 1924? (*987*)
- Which female athletes on the U.S. team show promise for 2002? (*Answers include: the women's hockey team, figure skater Michelle Kwan.*)

Free Resource

See information box on page TG 7.




































Web Links








Zoom into these Web resources at www.nationalgeographic.com/ngforkids/articles.

Home Viewing: Visit the "Game Face" exhibit.
Exhibit Schedule: Find out when "Game Face" will be coming to the location nearest you.

NATIONAL GEOGRAPHIC *for* Kids!

ARTICLE/ DEPARTMENT	Reading	Writing	Science	Social Studies	CONTENT OVERVIEW <ul style="list-style-type: none">  Literacy Skills  Topics
 <p>Teaching Unit "Jumping Into Science" pp. 4-9 ■ Feature Article ■ Hands-on Science</p>	■		■	■	<ul style="list-style-type: none">  Reading for information  Developing vocabulary  Thinking sequentially  Winter Olympics  Friction, gravity, drag, lift
 <p>Feature Article "Putting Women in the Picture" pp. 10-13</p>	■			■	<ul style="list-style-type: none">  Reading for information  Developing vocabulary  Looking critically at images  History of women in sports  Winter Olympics
 <p>Feature Article "Meet the Parents" pp. 14-17</p>	■		■	■	<ul style="list-style-type: none">  Reading for information  Developing vocabulary  Penguin adaptations  Penguin life cycle  Antarctic environment
 <p>Teaching Unit "Antarctica" pp. 18-22 ■ Map of the Month ■ World View ■ Writing Workshop</p>	■	■	■	■	<ul style="list-style-type: none">  Reading for information  Reading maps  Writing paragraphs  Landforms, climate, and wildlife of the North and South Poles
 <p>Kid Power "Going for the Green" p. 23</p>	■		■	■	<ul style="list-style-type: none">  Reading for information  Trees  Utah vegetation
 <p>Photo Finish "Groundhog-Wild About Veggies" p. 24</p>	■		■	■	<ul style="list-style-type: none">  Developing visual literacy  Groundhog's diet  Groundhog Day

Issue at a Glance

DIRECTED ACTIVITY	SMALL GROUP ACTIVITY	INDEPENDENT ACTIVITY
<ul style="list-style-type: none"> ■ Read the article. ■ Discuss the questions on p. TG 2. <p>60 minutes</p> 	<ul style="list-style-type: none"> ■ Have student pairs conduct the science experiment "Need a Lift?" p. 9. <p>20 minutes</p> 	<ul style="list-style-type: none"> ■ Get a sports vocabulary workout at www.nationalgeographic.com/ngforkids/games. ■ View an online cartoon about the Games at www.nationalgeographic.com/ngforkids/quickflicks.
<ul style="list-style-type: none"> ■ Read the article. ■ Discuss the questions on p. TG 3. <p>60 minutes</p> 	<ul style="list-style-type: none"> ■ Divide students into groups. Have each group choose a women's 2002 Winter Olympic sport to follow and report on to the class. <p>Ongoing</p>	<ul style="list-style-type: none"> ■ See the "Game Face" photo exhibit of women athletes at www.nationalgeographic.com/ngforkids/articles.
<ul style="list-style-type: none"> ■ Read the article. ■ Discuss the questions on p. TG 6. <p>60 minutes</p> 		<ul style="list-style-type: none"> ■ Visit emperor penguins in Antarctica at www.nationalgeographic.com/ngforkids/articles.
<ul style="list-style-type: none"> ■ Review and discuss the map on pp. 18-19. <p>15 minutes</p> 	<ul style="list-style-type: none"> ■ Have a group of students periodically update the class on the Arctic adventures of the Jason Project at www.nationalgeographic.com/ngforkids/links. 	<ul style="list-style-type: none"> ■ Complete the "Poles Apart" activity, pp. 20-21. ■ Complete the "Write a Paragraph" activity, p. 22.
<ul style="list-style-type: none"> ■ Read and discuss the article on p. 23. ■ Display, read, and discuss the poster insert "A Well-Managed Forest." <p>30 minutes</p> 		<ul style="list-style-type: none"> ■ Learn more about Utah's Tree-cology program at www.nationalgeographic.com/ngforkids/links.
<ul style="list-style-type: none"> ■ Read and discuss the article on p. 24. <p>10 minutes</p> 		

Meet the Parents

Background

Emperor penguins, largest of the 17 penguin species, live in Antarctica. In March, when autumn begins in the Southern Hemisphere, emperor penguins leave the ocean and trek across miles of sea ice to reach the coast. There they gather in rookeries, or breeding colonies, where they mate.

About six weeks later, the female lays an egg and then leaves to find food. The male emperor incubates the egg alone. He balances it on his feet to protect it from the icy ground and covers it with his brood pouch, a flap of skin between his legs. For about 65 days he hardly moves, shuffling around the rookery with the egg perched on his feet. He endures temperatures of minus 76°F and winds of more than 100 miles per hour. For extra warmth, he huddles with other males. During this time he eats nothing, surviving solely on the body fat he stored over the summer.

The female returns when the egg hatches, and the male leaves to feed. The mother regurgitates fish for the chick and keeps the youngster warm in her brood pouch. Soon the male returns, and the parents take turns baby-sitting and seeking food. When the chicks are about seven weeks old, they gather in crèches, which are a little like day-care centers. A few adults watch the chicks, while the other parents hunt for food.

By December, the beginning of summer, the chicks are old enough to fend for themselves. They learn to live on their own during the few warm months of the year when food is most plentiful, increasing their chances of survival.

Discussion Questions

- Where do emperor penguins live? (*Antarctica*)
- How are emperor penguin parents different from other penguin parents? (*Answers include: They breed in the winter; the father incubates the egg alone; the fathers huddle close together for warmth while incubating their eggs.*)
- How does the emperor dad incubate the egg? (*He perches the egg on his feet and keeps it warm under his brood pouch.*)
- What makes the father's job of incubating the egg so difficult? (*Answers include: The temperature may drop to minus 76°F; the wind may blow more than 100 miles per hour; it's dark all the time; the father can't move very much because the egg is on his feet; he doesn't eat.*)
- What do emperor penguins eat? (*Fish, squid, and krill*)



- How do emperor penguin parents feed their chick? (*Both mother and father regurgitate food into the chick's mouth.*)
- How is a crèche like a human day-care center? (*A few adults watch over the youngsters while the parents go to "work," searching for food.*)
- What would make another good title for this article? Why? (*Answers will vary.*)



Web Links

Visit www.nationalgeographic.com/ngforkids/articles for links to these cool websites about emperor penguins.

Emperors Rule: Enjoy audio and video clips, plus fast facts about emperor penguins.

Penguins in Action: Listen to emperor penguins bicker and watch them migrate to their breeding grounds.

Out-of-Towners: Check out the world's only successful emperor penguin breeding colony outside of Antarctica.

Super Dads: Male emperor penguins aren't the only fabulous fathers. Find out about other awesome animal dads.

Beyond the Royal Family: Emperors are just part of the penguin picture. Learn about other species and become a penguin expert.

Also in This Issue

PAGES 20-21

Poles Apart

1. South Pole, 2. South Pole, 3. North Pole, 4. South Pole, 5. North Pole, 6. Either Pole, 7. Either Pole, 8. Either Pole

Web Link

Live From the Ice! Every year a team of students, teachers, and scientists sets off on an adventure sponsored by the JASON Project. From January 28 to February 8, the 2002 team will be filing daily online reports from Alaska. Join the group as it braves the elements to learn more about this year's project topic: "Frozen Worlds." Go to www.nationalgeographic.com/ngforkids/adventures.

PAGE 23

Going for the Green

Poster Resource

Teach students more about forest management by displaying the "Helping Our Forests Be the Best They Can Be" poster inserted in this Teacher's Guide.

Web Link

Branch Out. Learn more about Utah's Tree-cology program at www.nationalgeographic.com/ngforkids/links.

Free Resource

Put on Your Game Face: MassMutual Financial Group, the corporate sponsor of the Game Face project (see pages 10-13 of the student magazine), is offering a free educational resource packet to the first 250 teachers who request one. To be eligible, you must teach students ages 10 to 13.

The packet includes a teacher's guide and eight class sets of task cards. The cards use the photographs and stories in the Game Face project to explore issues of character education, body image, and self-esteem. The materials correlate to skills in physical education, health, social studies, language arts, art education, and media studies.

Send a request to gameface@massmutual.com or Game Face B308, MassMutual Financial Group, 1295 State Street, Springfield, MA 01111-0001 by March 1, 2002. Include your name, address, grade taught, and class size. Materials will be delivered in late March or early April.

Review Answers: Valentine Message (TG 8)

1. Olympics, 2. brood pouch, 3. regurgitate, 4. lift, 5. incubate, 6. medal, 7. gravity, 8. hockey, 9. Antarctica

Riddle Answer: *You rule my heart!*

NATIONAL
GEOGRAPHIC
for
kids!



COMING UP

March Issue:

Super Crocodile • Mars • Sneakers

Ferguson/Judge Memorial Fund

The attacks of September 11 took a personal toll on the National Geographic Society. Two cherished colleagues, Ann Judge and Joe Ferguson, were aboard the plane that crashed into the Pentagon.

National Geographic has established a fund to honor and celebrate Ann and Joe's extraordinary commitment to the Society's mission of education, exploration, research, and conservation. The Ferguson/Judge Memorial Fund will support geography education, including continued opportunities for students and teachers to learn about and interact with the natural world. Gifts of all sizes are welcome and are tax deductible to the extent allowed by law.

Please send a check, made out to the National Geographic Society, with a note indicating the Ferguson/Judge Fund to:

**National Geographic Society
Development Office
1145 17th Street NW
Washington, D.C. 20036**

To make a gift with a credit card please call
Lois Wood at 202-828-6684 or
1-800-373-1717 (outside metro D.C.).

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Name: _____

Valentine Message

Use what you learned in the most recent issue of NATIONAL GEOGRAPHIC FOR KIDS to provide words for the following definitions. The letters in the starred boxes will complete the riddle below.



1. World Games

		*					
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2. Flap that protects a penguin egg

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	*	*	
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3. Bring back up

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4. An upward force that works against gravity

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5. To warm an egg

							*
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6. Olympic award

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7. Force that draws things toward Earth

							*
--	--	--	--	--	--	--	---

8. Team ice sport

*				*	
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9. Coldest continent

*				*	*			
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Question

What did the emperor penguin say to his beloved?

Answer:

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NATIONAL GEOGRAPHIC FOR KIDS

JANUARY-FEBRUARY 2002 - SCAVENGER HUNT ANSWER KEY

STUDENT FORM:

www.nationalgeographic.com/ngforkids/adventures

SOURCE FOR ANSWERS: www.nationalgeographic.com/eye/forest/

<p>1. How are wild turkeys different from those grown on farms?</p> <p>Wild turkeys are slimmer, tougher, and faster.</p>	<p>6. What do salamanders eat?</p> <p>Salamanders eat earthworms and insects. They even devour smaller salamanders.</p>
<p>2. What do screech owls eat?</p> <p>Screech owls eat mice, frogs, and other small animals.</p>	<p>7. Winnie the Pooh loves honey. Do real bears like it too?</p> <p>Yes, they do.</p>
<p>3. How did running buffalo clover get its name?</p> <p>According to legend, clover seeds got caught in the shaggy coats of migrating buffalo.</p>	<p>8. What does an opossum do if a fox comes too close?</p> <p>The opossum pretends to be dead.</p>
<p>4. What animals snack on milkweed nectar?</p> <p>Bees, ants, and butterflies snack on milkweed nectar.</p>	<p>9. How do bats help humans?</p> <p>Bats help humans by eating lots of insects.</p>
<p>5. What's another name for a woodchuck?</p> <p>Woodchucks are also known as groundhogs and marmots.</p>	<p>10. What animals might nest in a snag?</p> <p>Raccoons often nest in snags (tree ruins). So do owls and dozens of other birds.</p>