

XTRA CHEDDAR & Pretzel



TOGETHER THEY'RE
UNBEATABLE!

The Snack That Smiles Back®



 NATIONAL
GEOGRAPHIC

weird
but
true!



**CUTE
PENGUIN
POSTER!**

KIDS



**World's
Rarest
Leopard**

WHY THESE BIG CATS ARE THRIVING

\$4.99US \$6.99CAN

02>



8 88526 36821 3

PIGLETS VS. PUGS



GEMSTONES



**COOL
EGYPT
FACTS**

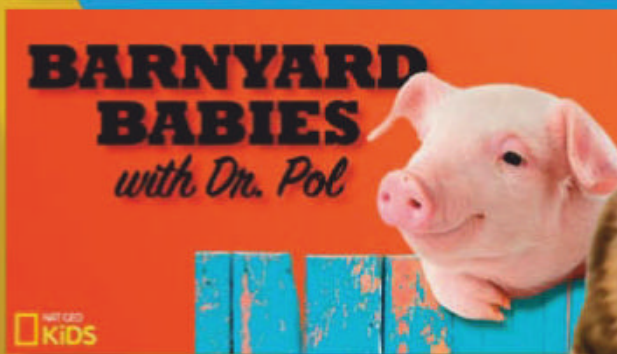
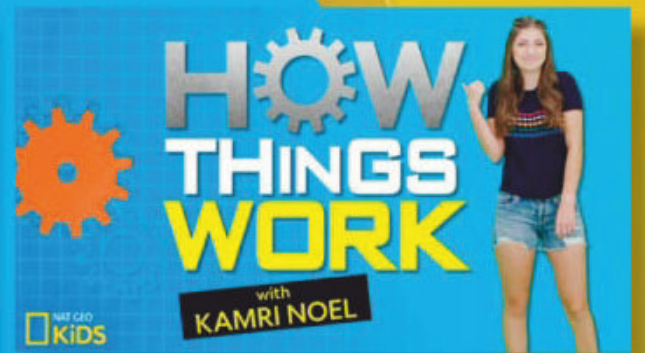


ADVERTISEMENT

COOL VIDEOS ALL THE TIME!

Check out the Nat Geo Kids
YouTube Channel.

 / natgeokids



 NAT GEO
KiDS





NATIONAL GEOGRAPHIC KIDS

**Editor in Chief and Vice President,
Kids Magazines & Digital**
Rachel Buchholz

Vice President, Visual Identity
Eva Abscher-Schantz

Design Director, Magazines Eileen O'Tousa-Crowson

Editorial Kay Boatner, *Senior Editor / Digital Producer*;
Allyson Shaw, *Associate Editor / Digital Producer*

Photo Shannon Hibberd, *Senior Photo Editor*;
Hillary Leo, *Contributing Photo Editor*

Production Sean Philpotts, *Director*

Digital Laura Goertzel, *Director*;
Tirzah Weiskotten, *Video Manager*

Administration Michelle Tyler, *Editorial Assistant*

PUBLISHED BY NATIONAL GEOGRAPHIC PARTNERS, LLC

Chief Executive Officer
Gary E. Kneel

Chairman of the Board of Directors
Peter Rice

**Executive Vice President and General Manager,
National Geographic Media**
David Miller

Senior Vice President, Kids Media, Content
Jennifer Emmett

Advertising Offices Kim Connaghan, *Vice President, Publisher*
(212) 822-7431; **Detroit** Karen Sarris (248) 368-6304;
West Coast Eric Josten (424) 292-5715

International Magazine Publishing Yulia Petrossian Boyle,
Senior Vice President; Jennifer Jones, *Business Manager*;
Rossana Stella, *Editorial Manager*

Finance Jeannette Swain, *Senior Budget Manager*;
Tammi Colleary-Loach, *Senior Manager, Rights Clearance*;
Pinar Taskin, *Contracts Manager*

Consumer Marketing John MacKethan, *Vice President and
General Manager*; Mark Viola, *Circulation Planning Director*;
Richard J. Brown, *Acquisition Director*

Market Services Tracy Hamilton Stone, *Research Manager*

Advertising Production Kristin Semeniuk, *Director*;
Julie A. Ibinson, *Manager*

Publicity Kelly Forsythe, *Publicist* (202) 912-6720

Parents, contact us online: kids@natgeo.com

NATIONAL GEOGRAPHIC KIDS (ISSN 1542-3042) is published ten times a year
by National Geographic Partners, LLC, Washington, DC 20036. For more
information contact natgeo.com/info.

Periodical postage paid at Washington, DC, and additional mailing
offices. POSTMASTER: Send address changes to NATIONAL GEOGRAPHIC
KIDS, P.O. Box 37545, Boone, IA 50037. Subscriptions: United States,
\$25.00; Canada, \$29.95; elsewhere, \$34.95; all in U.S. funds. Single copy:
United States, \$4.99; Canada, \$6.99 in Canadian funds or \$5.75 in U.S.
funds; elsewhere, \$5.99 in U.S. funds or equivalent (includes postage). In
Canada, Agreement number 1000010298, return undeliverable Canadian
addresses to NATIONAL GEOGRAPHIC KIDS, P.O. Box 819 STN Main, Markham,
Ontario L3P 9Z9.

The submission of photographs and other material to NATIONAL GEOGRAPHIC
KIDS is done at the risk of the sender; NATIONAL GEOGRAPHIC KIDS cannot
accept liability for loss or damage.

SUBSCRIBE TO NATIONAL GEOGRAPHIC KIDS! CALL TOLL FREE 1-800-647-5463

MON.-FRI., 8 A.M.-9 P.M. EST, SAT., 9 A.M.-7 P.M. EST

For a subscription to NATIONAL GEOGRAPHIC KIDS, send written requests—
including name, address, zip code, and payment in U.S. funds or equivalent—to

NATIONAL GEOGRAPHIC KIDS, P.O. BOX 37545 BOONE, IA 50037

For gift subscriptions, send giver's name and address as well as recipient's.

Copyright © 2018 National Geographic Partners, LLC. All rights reserved. Reproduction of the
whole or any part of the contents of NATIONAL GEOGRAPHIC KIDS without written permission
is prohibited. NATIONAL GEOGRAPHIC KIDS and Yellow Border: Registered Trademarks © Marcas
Registradas. Printed in the U.S.A. ISSUE 487

PRINTED ON 100% PEFC-CERTIFIED PAPER—PEFC/29-31-58—

Please recycle.



IN THIS ISSUE

12

The World's Rarest Leopard

These big cats are getting a new chance at survival.

20

Gems That Rock

Find out what your
birthstone might say
about you.



24

Piglets vs. Pugs

Is this the most
adorable showdown
ever? You decide.



26

30 Cool Things About Ancient Egypt

Unwrap these
incredible facts.



DEPARTMENTS

- 4 Weird But True!
- 5 Guinness World Records
- 6 Bet You Didn't Know!
- 7 All About Money
- 8 This or That?
- 10 Amazing Animals
- 28 Fun Stuff

**FUN
POSTER!**
PAGES 18-19

COVER: ZOONAR GMBH / ALAMY (LEOPARD); RICHARD MCMANUS / GETTY IMAGES (PENGUINS); TSEKHMISTER / SHUTTERSTOCK (PIG); AFRICA STUDIO / SHUTTERSTOCK (PUG); PJRSTUDIO / ALAMY (GARNET); PHOTODISC (SPHINX). PAGE 3: RUDI HULSHOF / GETTY IMAGES (LEOPARD); CORBIS (RUBY); TSEKHMISTER / SHUTTERSTOCK (PIG); AFRICA STUDIO / SHUTTERSTOCK (PUG); PHOTODISC (SPHINX)

A NOTE TO PARENTS

National Geographic Kids occasionally makes its member and subscriber
lists available to reputable organizations that market their products and
services through the mail. If you do not want your name and address
used in this manner, you can remove it by returning this coupon.



Do not make my name and address available to other organizations.

Please note that Nat Geo Kids will not disclose your child's name for
marketing or promotional purposes.

Please include a current
magazine label with this
coupon, and mail your
request to:

**National Geographic Kids
Customer Service**
P.O. Box 37545
Boone, IA 50037

Parents: Follow us on Twitter @NGKids and like us on Facebook.
For corrections and clarifications, go online. natgeo.com/corrections



weird but true!

Check out these
outrageous facts.

BY JEFFREY WANDEL

Grab a parent to watch
Weirdest, Bestest, Truest
for more crazy-fun facts.
[youtube.com/natgeokids](https://www.youtube.com/natgeokids)



THE OLDEST
CONTINUOUSLY
STANDING

TREE

ON EARTH IS
MORE THAN

5,000

YEARS OLD—
ABOUT THE SAME
AGE AS THE
PYRAMIDS OF

EGYPT.

YOU ARE MADE
UP OF ABOUT

10 TRILLION

CELLS.

THERE CAN BE
ABOUT AS MANY

INSECTS

IN

1 SQUARE MILE

AS THERE ARE
PEOPLE
ON THE ENTIRE

PLANET.

THE EARTH
TRAVELED
MORE THAN

5,000 MILES

IN THE PAST 5 MINUTES.

A SNAIL

would take about

220 HOURS

to crawl

1 mile nonstop.

A SAN FRANCISCO MAN USED

10,000

TOOTHPICKS

TO BUILD A 4-FOOT-LONG
REMOTE-CONTROL



THE WORLD'S FIRST

HANDHELD

CELL PHONE

COST

\$3,995.

STUDIES SHOW

THAT WHEN EVENLY
MATCHED TEAMS

COMPETE,
THE TEAM WEARING

RED

HAS A BETTER
CHANCE OF

WINNING.

THE TALLEST VOLCANO

ON



MARS

IS ABOUT
17 MILES
HIGH.

THAT'S 61 TIMES

TALLER THAN
THE 110-STORY
WILLIS TOWER
IN CHICAGO,
ILLINOIS.

THE BRIGHTEST LIGHT

ON A HOTEL
IS IN
LAS VEGAS,
NEVADA,
AND CAN BE
SEEN FROM
AIRPLANES

250 MILES AWAY.

GUINNESS WORLD RECORDS

\$169 • HOT DOG

You won't find this treat at the ballpark. The most expensive hot dog sells for \$169 at a Seattle, Washington, restaurant. Called the Juuni Ban, the foot-long hot dog is topped with high-end toppings such as Wagyu beef, shaved black truffles, caviar, and Japanese mayonnaise, all served in a brioche bun. What, no ketchup?
—Molly Marcot



FINNED MAN CONQUERS HURDLES

Think leaping over hurdles during a race is hard? Try doing it with flippers. Christopher Irmischer of Germany can run the 100-meter hurdles wearing swim fins in 14.82 seconds, the fastest on record. Not bad, considering that's only about two seconds slower than the world record *without* flippers. So why wear swim fins in the first place? Uh, we have no idea.
—B.F. Summers



GIANT HORSE

Big Jake is no ordinary horse—he's almost seven feet tall. This 2,600-pound creature holds the record for tallest living horse. Big Jake is a Belgian draft horse, a breed known for its size. What does a giant horse eat? Big Jake consumes about twice the amount of food an average-size horse would, finishing off three giant grain buckets a day. Talk about horse-power!
—Molly Marcot

**Bet You
Didn't
Know!**

8 cool facts about the human body

BY MICHELLE HARRIS

1 **Brain cells live longer than all of the other cells in your body.**

2 **Your teeth are harder than your bones.**

3 **The more you concentrate, the less you blink.**

4 **Your heart beats about 100,000 times each day.**

7 **The saliva you produce in your lifetime could fill nearly 30,000 water bottles.**

5 **Some people can hear their eyeballs moving.**

6 **It's not possible to tickle yourself.**

8 **Your foot is about the same length as the distance between your elbow and wrist.**



For more fun facts, grab a parent to watch
Things You Wanna Know! [youtube.com/natgeokids](https://www.youtube.com/natgeokids)

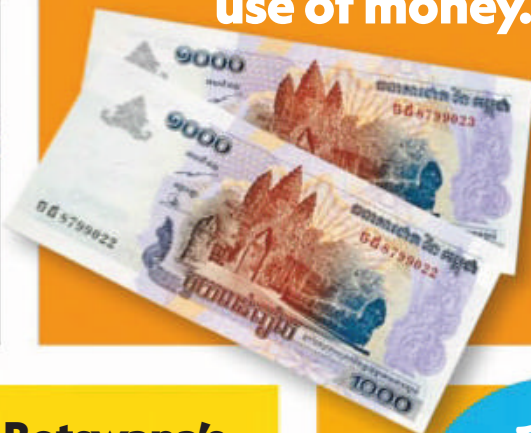
ALL ABOUT MONEY

BY KRISTIN BAIRD RATTINI

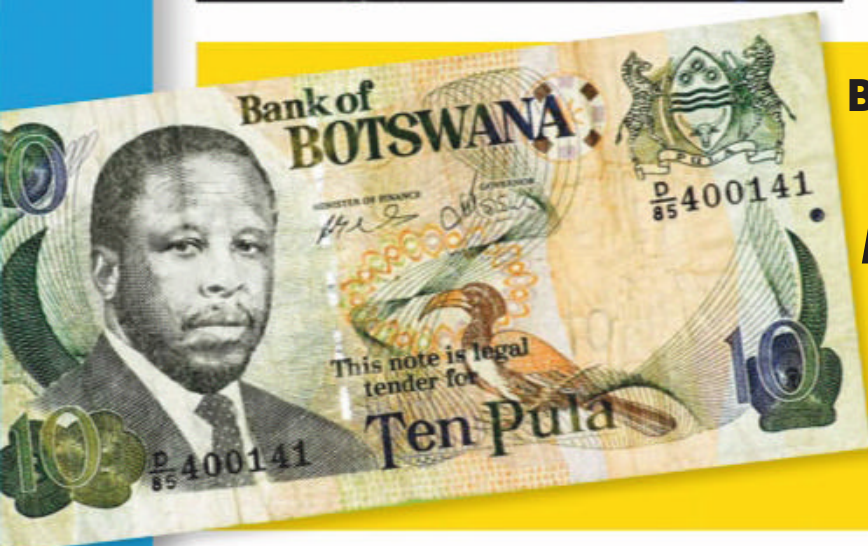


The Southern Cross constellation appears on Brazilian coins.

A Cambodian leader once **abolished** the use of money.



The Greek goddess **Athena** and her sacred **owl** appeared on coins minted over 2,000 years ago.



Botswana's currency is named **pula**, or **rain**, which is valuable in this desert nation.

THIS WILL BUY YOU A LOT OF DOG TREATS.

Belgium issued a coin featuring the cartoon hero **Tintin** and his dog, **Snowy**.



Fibers from the **abaca plant**, a close relative of the banana plant, are used in **Japanese banknotes**.



In the Netherlands in 1636, **tulips** were so valuable that some cost as much as a house.

The U.S. Bureau of Engraving and Printing uses **8.5 tons** of ink each day to print **money**.



A mint **error** added an extra hump to the bison on the **2005** Kansas state quarters.



MONEY TIP!

CLIP COUPONS FOR YOUR PARENTS. For each coupon they use, ask if they'll put the money they save into your piggy bank.

THIS or THAT?

BY JR MORTIMER
AND NANCY CASTALDO

CHOOSE THIS:

Stack
monuments
all the way to
the moon's
surface.

or

CHOOSE THAT:

Stack
hamsters
to the height
of a famous
monument.

If you
CHOOSE

THIS

You're reaching for the stars if you try to get to the moon by stacking **Eiffel Towers** on top of each other. The height of the Eiffel Tower in Paris, France, is **986 feet**. The distance from the Earth's surface to the **moon** at its closest is about **223,700 miles**. If you were to stack Eiffel Tower upon Eiffel Tower all the way to the moon, it would require more than **1.1 million monuments!** Be sure to build an elevator while you're at it.





If you CHOOSE THAT

You've got quite a balancing act if you try to stack **hamsters** to the top of the **Statue of Liberty** in New York City. The height of the monument—from base to torch—is about **151 feet**. The average height of a hamster standing on its hind legs is **six inches**. That means if you created a tower of hamsters that reached the top of Lady Liberty, you'd need **302 hamsters** in all! It would stink to be the hamster on the bottom, wouldn't it?

BONUS FACT

If you lined up 45 crocodiles tail to snout, they'd stretch as long as one side of the Great Pyramid at Giza.



CHECK
OUT
THE
BOOK!

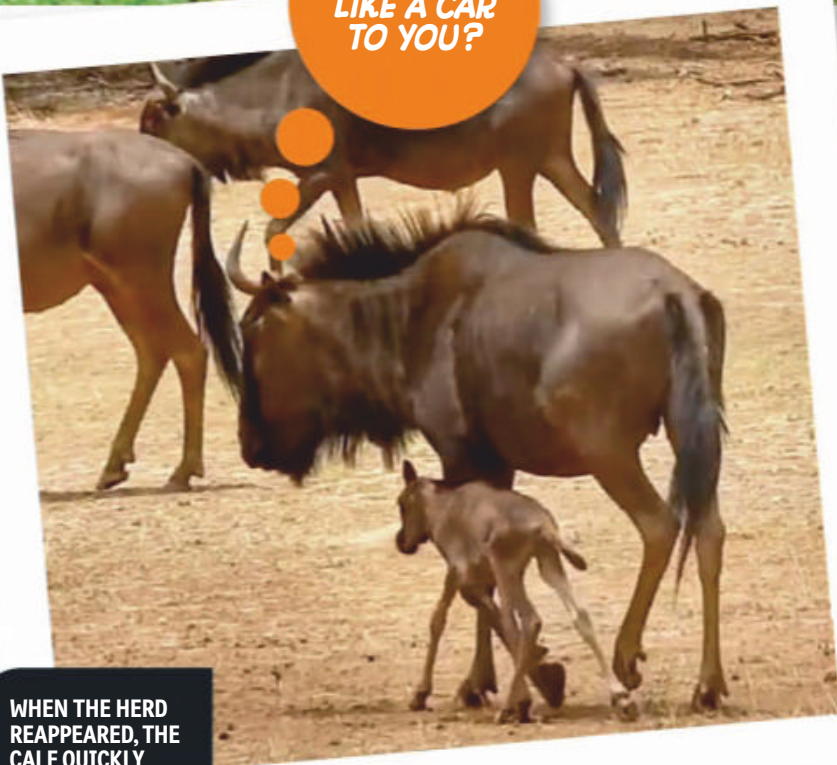
AMAZING ANIMALS

MY MOM'S GREAT, BUT SHE CAN'T DRIVE ME TO THE MALL.



A WILDEBEEST CALF THAT'S A FEW WEEKS OLD, LIKE THIS ONE, KNOWS BETTER THAN TO BOND WITH A CAR.

DO I LOOK LIKE A CAR TO YOU?



WHEN THE HERD REAPPEARED, THE CALF QUICKLY FOUND ITS REAL MOTHER.

WILDEBEEST



THE CALF RAN ALONGSIDE THE VEHICLE AND PAUSED EACH TIME THE CAR STOPPED.

Mommy Mix-up

Kgalagadi Transfrontier Park, South Africa

Watch out: Baby animal ahead! While driving through a national park, visitors spotted a newborn wildebeest racing behind a blue car. When the vehicle came to a stop, the tiny calf nuzzled a tire and even tried to drink milk from it. The youngster might've been wondering: Are you my mom?

Since the calf was probably only about a day old, the newborn likely hadn't completely bonded with its mother yet, African wildlife expert Markus Hofmeyr says. So when it was separated from its mom, the

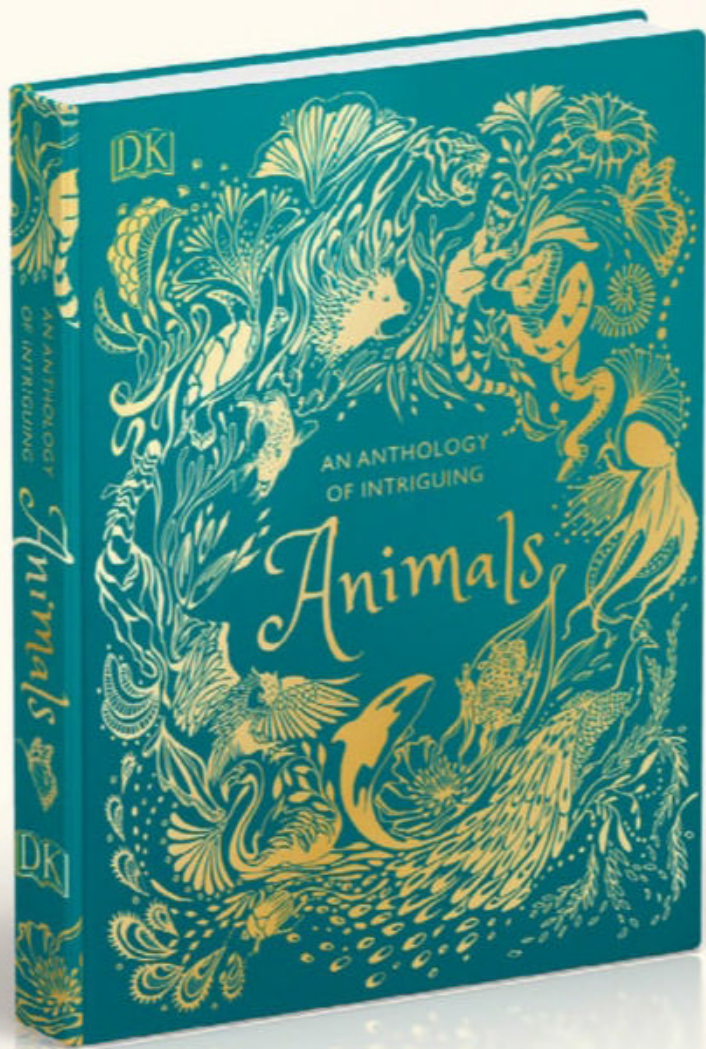
baby wildebeest had a strong instinct to follow any large moving object. The behavior keeps very young calves close to their mothers and their herd, which can protect them from predators like lions and jackals.

The calf followed the vehicle for about a half-hour until the herd reappeared. "The mother ran out to reunite with her calf," says Asma Ali, a visitor who caught the event on video. As it grows, the baby wildebeest probably won't make the same mistake again—no more calf carpool. —Kitson Jazyinka

ADVERTISEMENT



SEE YOUR Favorite Animals AS YOU'VE NEVER SEEN THEM BEFORE



From hippos and hedgehogs to lemurs and lions, you can see super cool up-close and detailed images of your favorite animals, and read amazing stories and fascinating facts about them. You may even discover some new favorite species along the way!



Scientists think some crocodiles can live more than one hundred years, and that they never stop growing—they just keep getting bigger.

Some parrotfish make a sleeping bag out of slime to spend the night in!



Every person's fingerprints are different—and every gorilla's nose print is different!

Available wherever books are sold

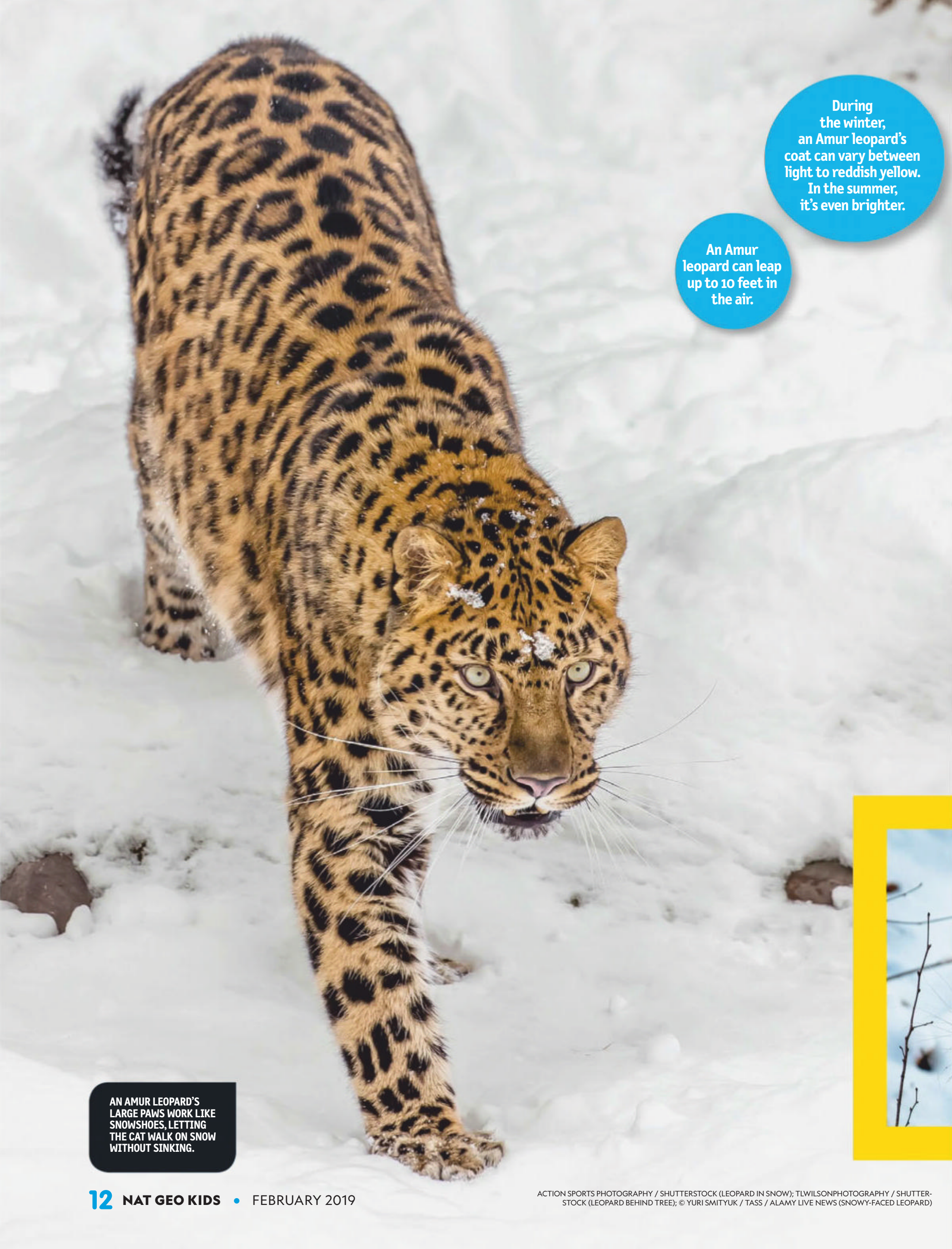


A WORLD OF IDEAS:
SEE ALL THERE IS TO KNOW

Image credit: iStockphoto.com: 35007

www.dk.com






During the winter, an Amur leopard's coat can vary between light to reddish yellow. In the summer, it's even brighter.

An Amur leopard can leap up to 10 feet in the air.

AN AMUR LEOPARD'S LARGE PAWS WORK LIKE SNOWSHOES, LETTING THE CAT WALK ON SNOW WITHOUT SINKING.






SCIENTISTS SOMETIMES CALL AMUR LEOPARDS THE “SILENT KILLER” SINCE THEY’RE SO GOOD AT SNEAKING UP ON PREY.

THE WORLD’S RAREST LEOPARD

THESE BIG CATS GET A NEW CHANCE AT SURVIVAL.

BY SCOTT ELDER



Slowly stalking down the snowy hillside, the Amur leopard watches its prey through the trees. In the clearing below, a sika deer munches on tree bark, one of its few remaining food sources during the cold Russian winter. The leopard crouches, its body so low to the ground that its belly fur brushes the snow. Suddenly it bounds and springs forward, tackling the deer from 10 feet away.

With a deadly combination of speed, strength, and stealth, the Amur leopard seems like it has everything it needs for survival. But not long ago—after decades of habitat loss and poaching—these endangered cats almost went extinct. Thanks in part to a newly established national park, however, Amur leopards are clawing their way back from the brink.

SOFT, DENSE FUR
KEEPS AMUR
LEOPARDS
WARM IN THE
BITTER COLD.

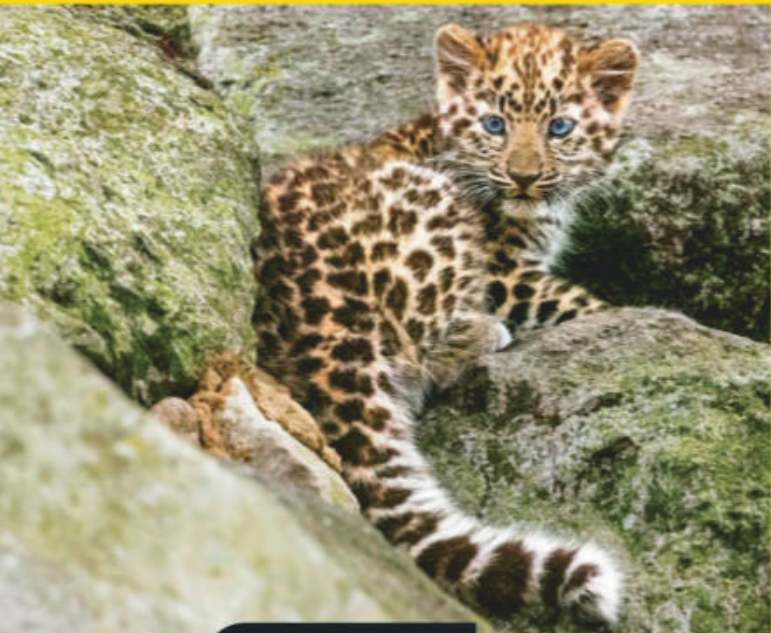
GRAB A PARENT TO WATCH OTHER BIG CATS IN ACTION.
youtube.com/natgeokids



Amur leopards are named after the Amur River, a body of water that runs along the Russian and Chinese border.



ADULT AMUR LEOPARDS ARE SOLITARY HUNTERS.



AMUR LEOPARD CUBS REMAIN WITH THEIR MOTHERS FOR ABOUT TWO YEARS.

Disappearing Act

Most people think of leopards prowling African savannas, but the spotted predators are found in many different countries and habitats. They've adjusted to life in grasslands, jungles, deserts, and freezing, hilly landscapes. It's there—along the Russian-Chinese border—that Amur leopards live, adapting to their chilly climate with bushier fur and longer legs to trudge through the deep snow.

Although Amur leopards thrive in freezing temperatures, by the late 20th century the human population moving into their habitat shrunk their California-size range by a huge 98 percent, trapping the animals in a stretch of land less than half the size of Puerto Rico. Poachers roamed the space that remained, killing the cats to sell their coats. In 2000, conservationists were stunned when a new count of Amur leopards estimated that only 30 were left in the world (though it was based on a study

done by counting tracks, which isn't the most reliable method). "These animals were going extinct," biologist Dale Miquelle says. "Some of us were afraid it was too late to save them."

Their solution? A new national park dedicated to protecting the endangered cat. But first, scientists had to convince the government that this was something worth doing—and that it could be done.

Spotting Leopards

An adult male Amur leopard treks through the snow, then stops to check out his surroundings. He surveys his territory, ready to warn other males to stay away if he encounters them.

But how much of that territory was the cat trying to protect? And how many other leopards was he protecting it from? The first step to convincing government officials to help was to show where the leopards spent their time—and what land needed protection most.

CHECK OUT OTHER ANIMALS IN THE SNOW.
natgeokids.com/february

Tracking Amur leopards is harder than it sounds. Sure, scientists could count pawprints in the snow. But tracks only tell researchers that a leopard has been there; they don't tell them for how long, or what they were up to. It's also easy to get individual cats mixed up. Plus, these cats are famous for their hiding skills. "I tried to track an Amur leopard once," says World Wildlife Fund researcher Yury Darman. "I later realized it was actually watching *me* from afar the whole time."

Scientists came up with a high-tech solution: camera traps, devices that automatically take photos and videos of passing animals. Placed along trails that the cats often used, the cameras gave scientists more information about the Amur leopards in the area. Because a leopard's spots—called rosettes—are as unique as human fingerprints, scientists could identify individual leopards

to figure out where each leopard spent most of its time.

In addition to showing which stretches of land were frequented by the leopards, the camera trap footage also revealed that their home ranges were up to twice the distance as leopards in other parts of the world. "We joke that they're tougher because they travel huge distances, often through snow, to find a meal," Miquelle says.

New Territory

This new footage helped scientists realize that Amur leopards tracked their prey for such long distances because the cold forests they live in support fewer animals like sika deer, which local people also hunted. That meant larger pieces of land needed to



A CAMERA TRAP LIKE THIS ONE CAPTURED A PHOTO OF THIS AMUR LEOPARD NEAR THE RUSSIAN BORDER.



HOW TO SPOT A LEOPARD



Snow Leopard

Mountains of Central Asia

Yes

Snow leopards have closely spaced rosettes over a very pale coat.

Thickest coat



African Leopard

Most kinds of terrain in much of Africa and Asia

No

African leopards have closely spaced rosettes over a more golden-colored coat.

Heaviest (170 pounds) and tallest (2.5 feet at shoulder)



Clouded Leopard

Forests of Southeast Asia

Yes

Clouded leopards are known for the big, cloudy-looking patches on their coats.

Biggest canine teeth relative to body size



Amur Leopard

Forests along the border of Russia's Far East and China

Yes

An Amur leopard's coat is slightly less golden-colored than an African leopard's.

Longest legs

HOME

ENDANGERED

COAT

EXTREMES



Amur leopards are sometimes called Far East leopards, Manchurian leopards, or Korean leopards.

AMUR LEOPARDS GIVE BIRTH TO ONE TO FOUR CUBS AT A TIME.



AMUR LEOPARDS OFTEN DRAG THEIR PREY UP INTO TREES BEFORE EATING.

“Leopard Tunnel” built on a stretch of busy highway so that Amur leopards and Amur tigers didn’t have to dodge speeding cars.

Before the park was established, Amur leopards quietly lived on a small sliver of land, coming out briefly to hunt before slinking away into the forests to avoid other leopards or poachers. But just a few months after the park’s creation, hidden cameras recorded leopards lingering out in the open now that they had more land to safely roam free. In one video, a young female named Berry rubs against trees and flops around like a playful house cat. In another, an adult male stretches out along a rocky slope, checking out his surroundings and occasionally stopping to clean his paws.

Bouncing Back

Not only were the Amur leopards surviving, they were thriving. After watching months of camera-trap footage, scientists were able to determine an updated population count for the cats. And the news was hopeful.

Since Land of the Leopard National Park was created in 2012, the Amur leopard population grew to 84 by 2015. “Everyone hoped for a population increase,” Miquelle says. “But nobody dreamed that we’d find 84 here.”

By 2018, a dozen new cubs had been spotted. Throughout the forest, young leopards are now crouching nearby as their mom teaches them how to hunt. They’re learning how to survive from her. And one day, some of those cubs will have babies of their own to teach.

Thanks to effective law enforcement in the park, the population is rebounding. “We see a much brighter future for our Amur leopards now,” Miquelle says.

be protected for both the leopard and its prey. Better protected prey meant more food for the leopards and their cubs.

Armed with this information, scientists approached the Russian government about coming up with a plan to protect the big cats. After proving how few leopards were left in the wild and what was needed to save them, scientists eventually persuaded officials to take action to save the world’s most

endangered big cat from extinction.

The result: Land of the Leopard National Park. The 647,400-acre refuge—about two and a half times bigger than where the leopards had been living—added newly protected areas to pre-existing reserves. New laws on hunting animals such as sika deer meant the big cats wouldn’t run out of food. Millions of dollars were spent on anti-poaching patrols and other efforts, including a



★ ANIMAL ★ SHOWDOWN

AMUR LEOPARD

VS.

AMUR TIGER



BY ALLI DICKEY

» **LIVING SIDE BY SIDE WITH** Amur leopards is another fierce predator: the Amur tiger. Which feline will claw its way to the top in this battle of the big cats?

Biggest

Amur leopards look large, but they're actually one of the smaller big cats, weighing up to 165 pounds. The **Amur tiger** weighs up to a whopping 660 pounds, tying for the title of world's heaviest big cat (alongside India's Bengal tiger).

Sneakiest

Both felines have thick coats that provide camouflage while hunting among the trees in the chilly environment. But the **Amur leopard** is nicknamed the "silent killer" by scientists. These cats can get within 10 feet of their prey before launching a sneak attack.

Strongest

An Amur leopard's biggest power comes from its jaw muscles: They're strong enough to pull up prey high into trees, where the cat can hide its meal from hungry thieves. **Amur tigers** don't need to worry about hungry thieves though—they can take out competition with just one swipe of their huge, powerful paws.

Winner

**AMUR
TIGER**

An Amur leopard might win for sneakiness, but the Amur tiger's massive size and strength help it take the crown in this showdown.

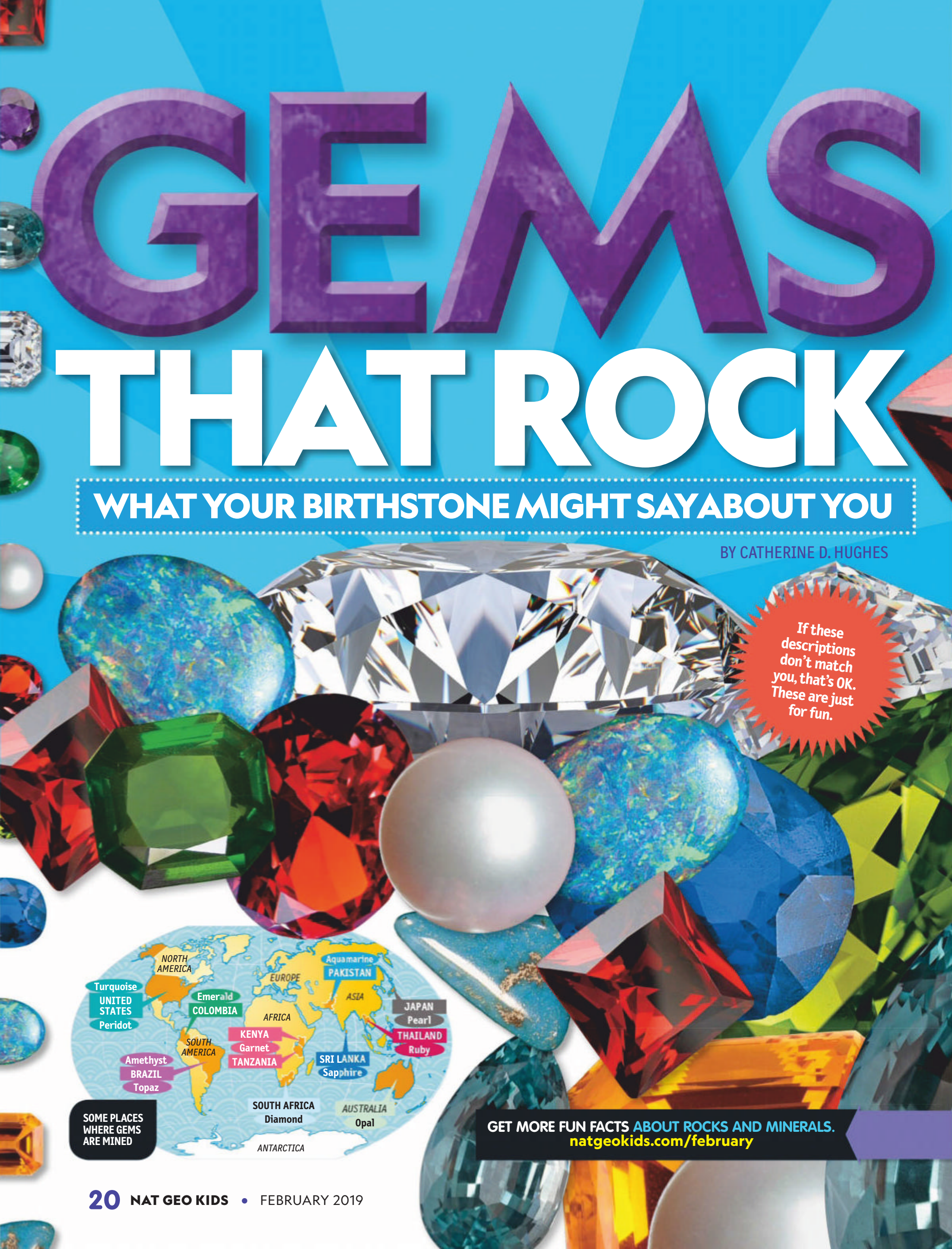
GRAB A PARENT TO WATCH MORE ANIMAL SHOWDOWNS!
youtube.com/natgeokids



King penguins live on islands north of Antarctica. To guard chicks and eggs, these birds might peck at predators 2,000 times a day.



Brown and fuzzy, king penguin chicks look so different from their parents that scientists once thought they were a separate species.



GEMS

THAT ROCK

WHAT YOUR BIRTHSTONE MIGHT SAY ABOUT YOU

BY CATHERINE D. HUGHES

If these descriptions don't match you, that's OK. These are just for fun.



SOME PLACES WHERE GEMS ARE MINED

GET MORE FUN FACTS ABOUT ROCKS AND MINERALS.
natgeokids.com/february

JANUARY

GARNET



REPRESENTS LOYALTY

No one would describe you as a flaky friend. You stick up for your BFFs if others put them down, and you're always ready to listen when a pal has a problem.

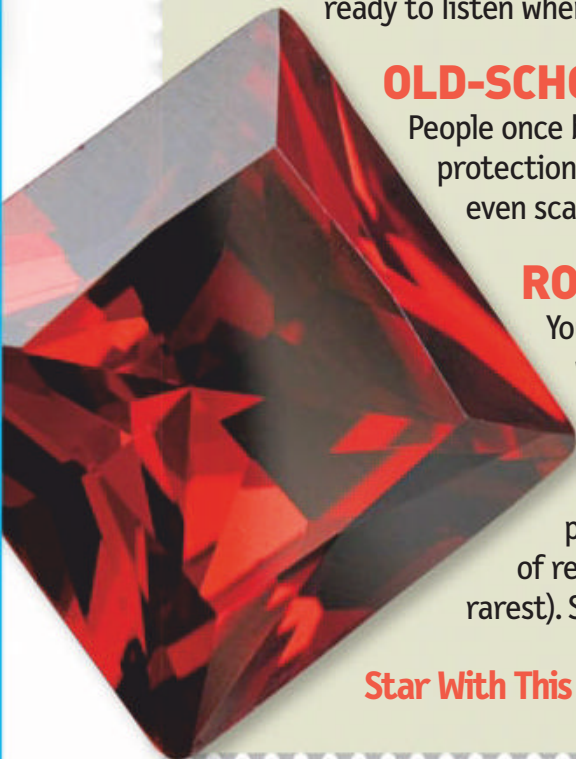
OLD-SCHOOL MYTHS

People once believed that garnets offered protection from poisons, wounds, and even scary dreams.

ROCK-SOLID FACTS

You can find garnets in streams where water has worn away rock, exposing the gems. Before they're polished, garnets look like small pebbles. They come in shades of red, black, and green (the rarest). Some are even colorless.

Star With This Stone: Grant Gustin



FEBRUARY

AMETHYST



REPRESENTS SINCERITY

Being two-faced or half-hearted isn't your thing. What you say to your friends and family is genuine and honest.

OLD-SCHOOL MYTHS

Amethysts supposedly had good powers. It was believed that they helped people stay awake and think clearly, protected against evil spells, and brought victory in battle.

ROCK-SOLID FACTS

Amethysts are found in geodes, which look like ugly rocks on the outside. Cracked open, a geode reveals sparkling raw amethyst crystals that range in color from light mauve to deep purple. At one time, you could only wear amethyst jewelry if you were royalty.

Star With This Stone: Harry Styles



MARCH

AQUAMARINE



REPRESENTS COURAGE

You stand up to bullies whether they're bothering you, your family, or your friends. You're never a coward.

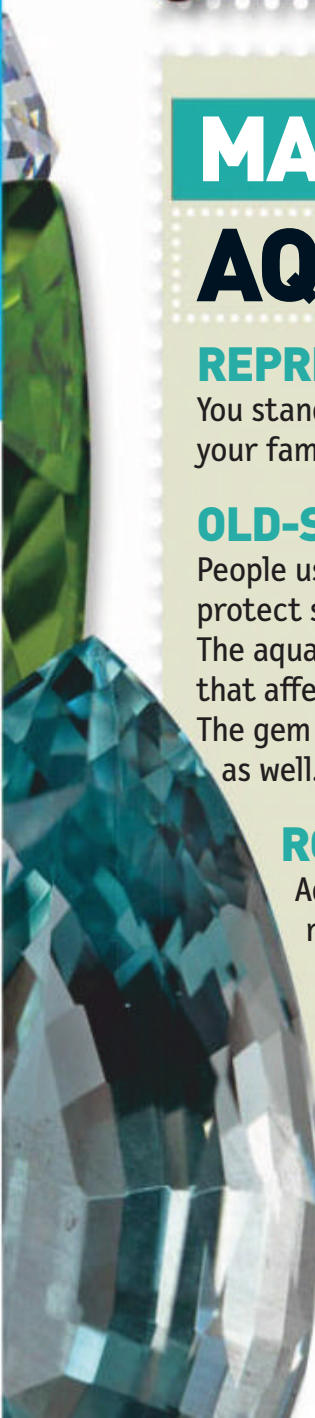
OLD-SCHOOL MYTHS

People used to believe that aquamarines could protect sailors and their ships from disasters at sea. The aquamarine was also thought to heal illnesses that affected the stomach, liver, jaws, and throat. The gem was supposedly an antidote to poison as well.

ROCK-SOLID FACTS

Aquamarines, which are a form of the mineral beryl, range from blue-green to deep blue. Naturally occurring deep-blue aquamarines are the rarest and most valuable. Some of these crystals weigh more than 250 pounds!

Star With This Stone: Camila Cabello



APRIL

DIAMOND



REPRESENTS ENDURING LOVE

You're quick to make up after arguing with someone in your family or group of friends. You don't carry grudges.

OLD-SCHOOL MYTHS

People associated the sparkle of diamonds with romance, mystery, power, greed, and magic. Many once believed that they were made by bolts of lightning.

ROCK-SOLID FACTS

Diamonds develop deep in the ground under great pressure. The gems are the crystalline form of carbon. (Another form of carbon is graphite, the lead in your pencil.) Diamonds are the hardest naturally occurring substance on Earth.

Star With This Stone: Emma Watson





MAY

EMERALD

REPRESENTS PURE LOVE

Your affection for those you love is clear. You're not embarrassed by hugs—even from your parents in front of your friends!



OLD-SCHOOL MYTHS

An emerald can melt a snake's eyes! Well, that's what people *used* to believe. They also thought these gems would relax your eyes if you looked through them. Other beliefs: Emeralds stopped bleeding, cured fevers, and kept the wearer calm. They also supposedly held powers for predicting the future.

ROCK-SOLID FACTS

Emeralds are sometimes found inside shale, a rock with a very fine grain. Like aquamarines, they're a form of the mineral beryl. These gems are light to deep green.

Star With This Stone: Dwayne Johnson

JUNE

PEARL

REPRESENTS INNOCENCE

To you, nothing's better than being a kid and having fun. You aren't in any hurry to grow up.

OLD-SCHOOL MYTHS

Pearls were thought to possess magical qualities. By law, only powerful, rich people could own and wear the gemstones. According to legend, wealthy Roman women wore pearls to bed so that when they woke in the morning, they instantly remembered how rich they were.

ROCK-SOLID FACTS

This is the only birthstone made by living creatures—oysters and other shellfish. If a grain of sand finds its way into an oyster's shell, the oyster covers the irritating grit with layers of a shiny substance its body produces over many years. Eventually the grain is encased, becoming a pearl.

Star With This Stone: Chris Pratt

JULY

RUBY

REPRESENTS CONTENTMENT

You're happy with yourself and your life. You don't feel the need to make changes.

OLD-SCHOOL MYTHS

Some people thought that rubies contained the spark of life. Many believed that the gems glowed from within and that royalty and gods used rubies to light their homes. That also meant that the stones couldn't be stolen, because they'd shine through the thieves' clothing. A ruby supposedly brought good health, cured bleeding, guarded against wickedness, and foretold bad luck.

ROCK-SOLID FACTS

Rubies are a red form of the mineral corundum. All other colors of corundum are sapphires. (See the September section.) Large gem-quality diamonds, emeralds, and sapphires are scarce, but rubies are the rarest of all.

Star With This Stone: Selena Gomez

AUGUST

PERIDOT

REPRESENTS HAPPINESS

You're happy! You never get up on the wrong side of the bed. "Grumpy" definitely doesn't describe you.

OLD-SCHOOL MYTHS

Peridots were once thought to glow in the dark. People felt that peridots could ward off anxiety, help one speak better, and improve relationships. Peridots protected anyone wearing them from evil and enchantment.

ROCK-SOLID FACTS

Peridot is the gem-quality crystal of the olivine rock. It's the only gem found in meteorites.

Star With This Stone: Shawn Mendes

SEPTEMBER

SAPPHIRE



REPRESENTS CLEAR THINKING

Look out! When you know what you want, nothing gets in your way. You are goal-oriented and strive to achieve your dreams.

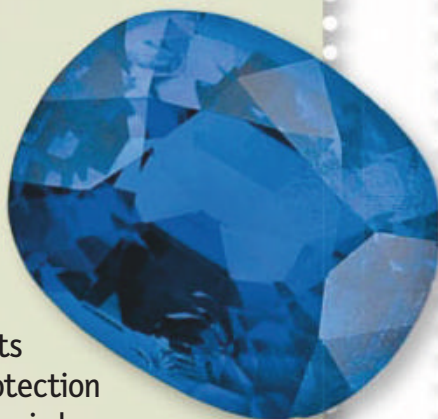
OLD-SCHOOL MYTHS

Once upon a time many people believed that a huge blue sapphire held up the Earth and gave the sky its color. Sapphires were a source of protection for travelers and brought peace and wisdom.

ROCK-SOLID FACTS

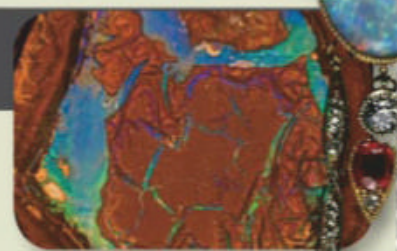
Some sapphires are pale, while others are brilliant blue. They also come in orange, green, yellow, and pink. (Take a look at July to see how sapphires are related to rubies.)

Star With This Stone: **Zendaya**



OCTOBER

OPAL



REPRESENTS HOPE

You always look at the bright side of things, seeing something good in every situation. You're never a pessimist.

OLD-SCHOOL MYTHS

Wearing an opal will make you invisible—according to legend. An opal was also believed to bring beauty, success, and happiness, as well as medicinal powers to ward off heart and kidney failure. It was once said that the opal could protect a person from lightning.

ROCK-SOLID FACTS

Opals form over millions of years where hot, mineral-rich ooze—including the mineral silica—seeps into rock cracks. Tiny spheres of silica stack up and harden to become opals. The way light bounces off the silica creates an opal's colorful shimmer.

Star With This Stone: **Rowan Blanchard**



NOVEMBER

TOPAZ



REPRESENTS FAITHFULNESS

You're devoted to those you care about. Friends and family can always count on you.

OLD-SCHOOL MYTHS

In ancient Egypt the topaz's golden glow was said to come from the sun god Ra, and the stone was supposedly a powerful amulet against harm. Other legends proclaimed that a topaz cleared people's thinking, increased strength, and warned of poisoned food or drink. It supposedly cured insomnia and asthma, and stopped bleeding.

ROCK-SOLID FACTS

Topazes come in a range of colors. Many of them are golden; some are pink, green, or colorless.

Star With This Stone: **Mackenzie Foy**



DECEMBER

TURQUOISE



REPRESENTS SUCCESS

Anything you put your mind to works out well, including moneymaking projects. "Defeat" is not in your vocabulary.

OLD-SCHOOL MYTHS

Some people believed turquoise was a love charm. If a man gave a woman turquoise jewelry, he was pledging his love for her. Many Native Americans thought turquoise could bring needed rain and ensured accurate aim while hunting. Even today in certain Native American cultures, the blue of turquoise symbolizes the sky and the green symbolizes Earth.

ROCK-SOLID FACTS

Turquoise forms where mineral-rich water seeps into rocky gaps. Over time only the minerals remain—as turquoise. The copper in turquoise gives the gem its shades of blue and green.

Star With This Stone: **Taylor Swift**





PIGLET vs. PUG

This animal sure looks ... um ... fierce? Ferocious? All right, maybe just super cute. But can pugs wipe the floor with piglets in this competition?



**MOST ADORABLE
SMACKDOWN EVER?
YOU DECIDE.**

BY JULIE BEER



Pigs have a reputation for being dirty, but that's just trash talk. They're actually very clean animals. Sure, they roll in the mud sometimes—but that doesn't mean we can't have a good, grime-free fight!

FROM
THE
PAGES
OF



Piglets

Pigs might not look like all-star athletes, but they can probably outrun *you*. Adult domestic pigs can run up to 11 miles an hour—that's faster than most humans! In fact, some county fairs in the United States have pig-racing competitions, in which oinkers speed around a track. What's a pig's motivation to be the leader of the pack? The snack at the end, of course.

**MOST
LIKELY
TO BE A
TRACK
STAR**



Pugs

Pug-racing competitions are a thing too. But these household pets lag behind their porker pals when it comes to speed, averaging closer to five miles an hour. Most pugs aren't active for long stretches of time anyhow: Unlike high-energy dog breeds such as border collies and poodles, pugs are better off with short, brisk walks.

WATCH EVEN MORE CUTE ANIMALS.
natgeokids.com/february

MANNERS?
WHAT
MANNERS?



Piglets

Pigs are sometimes called “food hogs.” No wonder: In the wild they eat everything from grass to small birds and reptiles. Domestic pigs do *some* rooting around for food, but their main meal is pig feed, which is a mix of grains. Pigs—which can weigh up to 750 pounds—eat about 2 percent of their body weight every day. That’s like you eating 50 peanut-butter-and-jelly sandwiches a day!

THIS
COMPETITION
IS
BANANAS.



Pugs

Those eyes definitely say “feed me.” The best food for pugs is dry dog chow—usually made from chicken, grain, and added vitamins and minerals. Since pugs are small dogs, a few extra snacks (even banana bites!) can add up quickly, which veterinarians say isn’t good for their health. So while pugs might love snacking, it’s wise that they don’t pig out in this food fight.

BIGGEST
SMARTY-
PANTS



Piglets

Your dog probably has no idea what it’s staring at in the mirror. But a pig might. In a 2009 study, a group of pigs located a hidden bowl of food using several mirrors. Pigs can also learn tasks, such as operating levers to get food. They’ve even been known to work together to solve problems, ranking them up near dolphins and chimps in terms of intelligence.



Pugs

It’s true: Drooling isn’t the best way to ace an IQ test. And in a ranking of pooches, pugs came in 110th out of 140 dog breeds in terms of intelligence—ouch! But the judges noted that pugs might be as smart as pigs in at least one category: learning new tricks. These natural clowns can easily be taught to shake, play dead, and even jump through Hula-Hoops... especially for a treat.

DECISION
TIME

Are you Team Piglet or Team Pug? Grab a parent and go online to cast your vote. Then find out which one of these curly-tailed cuties squeaks its way to the top. natgeokids.com/piglets-vs-pugs

1

Egyptians believed that the **Milky Way** symbolized **milk** from the **udders of a cow goddess**.

2

Experts think priests raised **crocodiles** in the **Temple of Kom Ombo** to honor the croc **god Sobek**.

3

The amount of **linen** used to **wrap a single mummy** could **cover** three-quarters of a professional **basketball court**.

4

Substances in the **black eyeliner** worn by both **men** and **women** might have helped **prevent eye infections**.

5

Some **ancient Egyptians** **shaved** their **eyebrows** after the **death** of a **pet cat**.

6

Ancient workers could **cut**

a 100-foot-tall **obelisk**—a pillar-shaped monument—from a **single block of stone**.

7

Priests often **wrapped mummy toes** individually to keep them from **breaking**.

30 Cool THINGS ABOUT

8

Cleopatra sometimes gave **emeralds** as **gifts** to **foreign officials**.

9

An **ancient sport** matched two teams in **canoes**: Players used a long pole to move the boat and **knock opponents** off their **vessel**.

10

Instead of **pillows**, many ancient Egyptians

slept on headrests **made of wood or stone**.

11

A drawing **found** in one **Egyptian tomb** shows a man walking a **mongoose** on a **leash**.

12

The **mummy-making process** took about **70 days** to **complete**.

13

A **recipe** for **toothpaste** included **ground-up eggshells**, **ox hooves**, and **volcanic rock**.

14

Egyptians **squeezed sap** from **mallow plants** and **mixed it** with **honey** and **nuts**—the world's first **marshmallow**.

15

These people worshipped over **2,000 gods** and **goddesses**.

16



Children sometimes wore **charms** in the **shape** of **fish** as **protection** against **drowning**.

20

King Tutankhamun's **tomb** held **5,000 objects**, including **six chariots**, **139 walking sticks**, and a **solid gold coffin**.

21

Some **pharaohs** wore **sandals** decorated with images of **Egypt's enemies** so the ruler could **"crush them"** as he walked.



17

BEETLE HEAD



Ancient Egyptians often depicted the **sun god Khepri** as a man with a **scarab** (a type of beetle) for a **head**.

18

The oldest known **parasols** appeared in ancient **Egypt**.



19

Egypt's oldest **pyramids**—built around **2650 B.C.**—were made of **six stepped platforms**, unlike the smoothly sloped **Pyramids at Giza**.

22

Around 1400 B.C., a **pharaoh** cleared away sand partially covering the 1,000-year-old **Sphinx** after he **dreamed** that a **god** asked him to **restore it**.

ANCIENT EGYPT

ANCIENT EGYPTIANS RULED FROM ABOUT 3100 TO 30 B.C. UNWRAP SOME FACTS ABOUT THIS AMAZING CULTURE.

BY ALLYSON SHAW



23

One person who helped discover **King Tutankhamun's tomb** died shortly after opening the **chamber**, sparking rumors of a **mummy's curse** in the 1920s.

24

The temple of **Pharaoh Ramses II** was built so that **sunlight** shines into the **inner room** two days **each year**—the estimated dates for his **birthday** and **coronation**.

25



Hatshepsut had statues created of herself with a **false beard** and **male clothing** to help people **accept her** as their **leader**.

26

A **book of spells** to help guide people to the **afterlife** includes a charm to ward off **cockroaches**.

30

About **2.3 million stone blocks**—some **weighing** about as much as two **African elephants**—make up the **Great Pyramid at Giza**.

27

The city of **Hierakonpolis** might have held the world's **first collection of animals**—sort of like an ancient **zoo**.

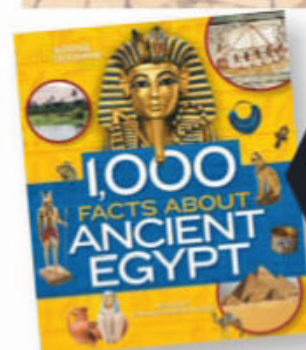
28

These **ancient people** trained **monkeys** to collect **fruit** from **fig trees**.



29

Ancient bakers sometimes **kneaded bread dough** with their **feet**.



WIN THE BOOK!
TRY ONLINE
JANUARY 8-15.
natgeokids.com/february

STUFF

PAULY s
BURGERS
NOW PLAYING!

A cartoon illustration featuring a smiling man with brown hair and a mustache (Paul McCartney) on the left. In the center is a red heart. On the right is a hamburger with lettuce, tomato, and cheese. All three elements are surrounded by radiating lines, suggesting a bright or happy scene.

LOVELY
BURGER

flowers and
Gifts

I LOVE THE EARTH INC.

YOUR PETS!

LOVE
CAFÉ AND COFFEE

PLAY

Change of Heart

Love is in the air on this city street, and it has everyone turned around. All of these small scenes are upside down or sideways. Find each small scene in the big picture. **ANSWERS ON PAGE 35**

ANSWERS ON PAGE 35

WHAT IN THE WORLD?

SEEING RED

These photos show close-up and faraway views of objects that are red. Unscramble the letters to identify what's in each picture.
ANSWERS ON PAGE 35

CHECK OUT
THE BOOK!



POER



ETCENKI



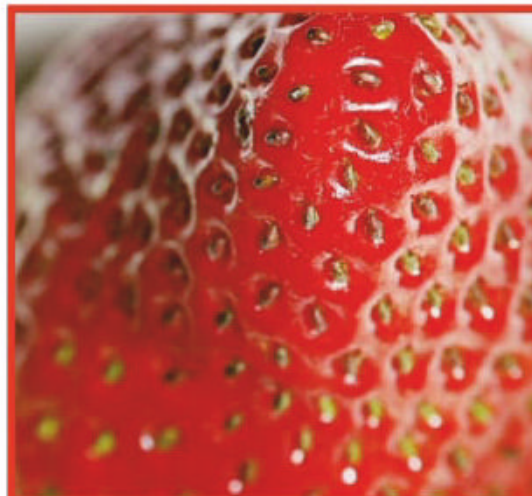
GTEAS AUNCTRI



LCIIH SEPPPR



PSOT GNSI



WYATRSEBR



ILAN HIOPLS



EULODB-RECDK
SBU



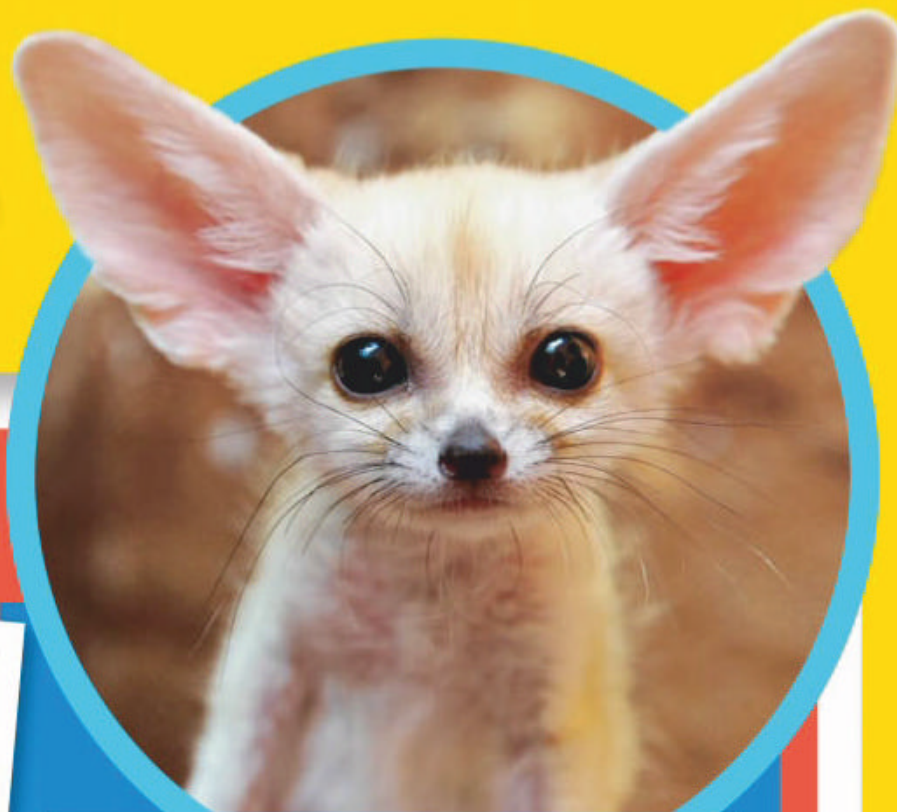
TRPGFNEIRIN

TOP ROW (LEFT TO RIGHT): THOMAS NORTH CUT / RISER / GETTY IMAGES; SIRI STAFFORD / GETTY IMAGES; ANDREY-KUZMIN / SHUTTERSTOCK. MIDDLE ROW (LEFT TO RIGHT): BRUNO MORANDI / GETTY IMAGES; IMAGE FARM; JASON / GETTY IMAGES. BOTTOM ROW (LEFT TO RIGHT): PAUL TEARLE / STOCKBYTE / GETTY IMAGES; © DBURKE / ALAMY; PETER MILLER / GETTY IMAGES.

STUMP YOUR PARENTS

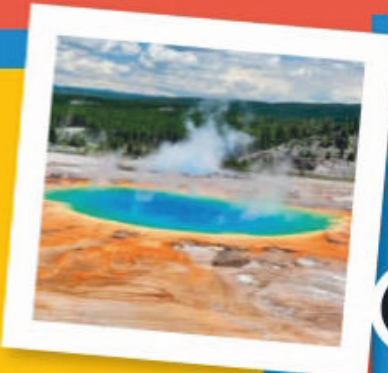
If your parents can't answer these questions,
maybe *they* should go to school instead of you!

ANSWERS ON PAGE 35



1 What heats up the water in a natural hot spring?

- A. the sun
- B. magma beneath the ground
- C. microscopic creatures
- D. steam engines



2 Bowling three strikes in a row is called a _____.

- A. turkey
- B. gutter
- C. stinker
- D. trio



3 What's the longest amount of time a person has spent riding a Ferris wheel?

- A. 1 hour 15 minutes
- B. 6 hours
- C. 30 hours 35 seconds
- D. 72 hours



4 Which character does Alice play croquet with in *Alice's Adventures in Wonderland*?

- A. Cheshire Cat
- B. Mad Hatter
- C. White Rabbit
- D. Queen of Hearts



5 The Hope Diamond is about the same size as a _____.

- A. pea
- B. walnut
- C. baseball
- D. basketball



6 In which of the following countries would you *not* find a wild fennec fox?

- A. Egypt
- B. Niger
- C. Libya
- D. Botswana

7 TOPIO is a humanoid robot designed to _____.

- A. clean your room
- B. play table tennis
- C. rescue people
- D. explore planets

8 Which of the following was *not* an original Jell-O flavor when the jiggly treat was introduced in the late 1800s?

- A. orange
- B. strawberry
- C. lime
- D. raspberry



9 About how long does a housefly live (if it doesn't get swatted)?

- A. 1 day
- B. 1 month
- C. 10 years
- D. 100 years

10 The sailfish—considered to be one of the fastest fish in the ocean—can reach speeds of _____ miles an hour.

- A. 68
- B. 78
- C. 88
- D. 98



BIG WINNER

Ask a friend to give you words to fill in the blanks in this story without showing it to him or her. Then read out loud for a laugh.

BY KAY BOATNER

PLAY MORE FUNNY FILL-IN!

natgeokids.com/ffi



I've always dreamed of being a(n) _____ on _____. I finally got my chance. Last week I went to the _____ set with _____. I couldn't believe it when the host, _____, _____ me to play. As the audience clapped their _____, I _____ past the _____ onstage to spin the _____. The first thing I landed on was a lifetime supply of _____. Then I won a(n) _____ and a(n) _____. But that's not all! I also scored a(n) _____ and a trip for _____ people to _____. I've never had so much fun. But how will I get my _____ home?



BACK TALK

1. **Fill in** the thought balloon.
2. **Cut out** the entire picture (or make a photocopy of it).
3. **Mail** it along with your name, address, phone number, and date of birth to Nat Geo Kids, Back Talk, P.O. Box 96000, Washington, DC 20090-6000. Selection for publication in a future issue will be at the discretion of Nat Geo Kids.



What do
YOU think this
frog is
thinking?



FROM THE FEBRUARY 2018 ISSUE

You could just use a toothpick.

Oona H., 11
Essex, New York

Mom said to clip your nails, not your fingers.

Weston C., 8
Ocean Isle Beach, North Carolina

I told you not to eat that rotten banana.

Hannah S., 12
De Pere, Wisconsin

I think I'll find a job other than dentist.

Logan T., 13
Meraux, Louisiana

Hm, a red throat. It looks like orangutan-itis!

Eric K., 13
Rochester, Minnesota

Hope you don't pick your nose!

Abby M., 10
McMinnville, Oregon

I said ham sandwich, not *hand* sandwich!

Oliver E., 8
Wanamassa, New Jersey

Ew! Not even the tooth fairy will take those teeth.

Kaidyn F., 10
Chicago, Illinois

EXPLORER ACADEMY

In the new book *Explorer Academy: The Nebula Secret*, 12-year-old Cruz Coronado breaks secret codes in order to fight dangerous villains and solve mysteries. Test your own skills by cracking the code on this page, then check out more about the book at ExplorerAcademy.com.

TEXT AND PUZZLE BY GARETH MOORE

THE CODE: KEYED CAESAR CIPHER

1.

The key to solving this cipher is a secret code phrase—without it, the code is unbreakable. Start by choosing a code phrase and then write that at the beginning of an alphabet table, ignoring any spaces and punctuation. For example, if your code phrase is “I LOVE CATS,” you would start your table like this:

I L O V E C A T S

2.

Next, write the alphabet in order after the phrase—but leave out any letters that are already in your secret code phrase. For example, you already have an *a* and a *c* in your secret code phrase, so the next two letters after the phrase would be *b* and *d*. Once you’ve done this for I LOVE CATS, your table looks like this:

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | L | O | V | E | C | A | T | S | B | D | F | G | H |
| J | K | M | N | P | Q | R | U | W | X | Y | Z | | |

3.

Finally, write the normal alphabet under the coded alphabet, like this:

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| I | L | O | V | E | C | A | T | S | B | D | F | G | H |
| A | B | C | D | E | F | G | H | I | J | K | L | M | N |
| J | K | M | N | P | Q | R | U | W | X | Y | Z | | |
| O | P | Q | R | S | T | U | V | W | X | Y | Z | | |

4.

So the top row contains the letters for your secret messages, and the bottom row displays the translated letters. Using this, you could write KITTIES ROCK like this:

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|--|---|---|---|---|
| D | S | Q | Q | S | E | P | | N | J | O | D |
| K | I | T | T | I | E | S | | R | O | C | K |

CRACK THIS CODE!

Using the I LOVE CATS keyed Caesar cipher, decode the message below.

ANSWER ON PAGE 35

O I Q P N R F E V J A P V N J J F

☐ ☐ ☐ ☐
☐ ☐ ☐ ☐
☐ ☐ ☐ ☐
☐ ☐ ☐ ☐
☐ ☐ ☐ ☐

BREAK MORE CODES!
ExplorerAcademy.com



CHECK
OUT
THE
BOOK!

STRAW SWITCH

Help keep the Earth healthy by ditching single-use plastic items. This month, make a paper straw to use instead of a plastic one, which is one of the top items found at beach cleanups and can hurt ocean animals that mistake them for food.

Check out special Nat Geo Kids straw patterns online! natgeokids.com/straws

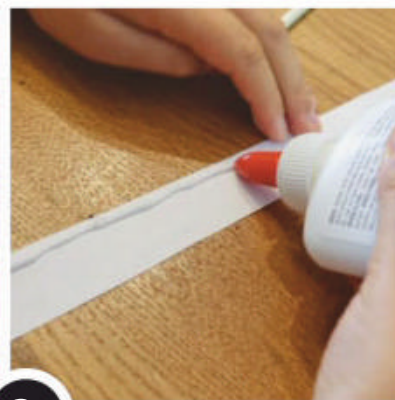
MATERIALS

- Paper
- Scissors
- Non-toxic glue
- Chopstick
- Glass jar
- Paraffin wax
- Candle warmer or large cooking pot
- Paper towel

STEPS



1 Print out the Nat Geo Kids straw pattern and cut it out, or use a piece of printer paper cut into 1.5-inch-wide strips.



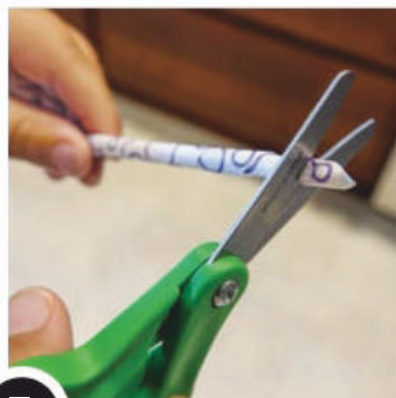
2 Add a long line of glue on the side without the pattern.



3 Place a chopstick at an angle on the back of the paper. Then roll the paper around the chopstick until it's completely covered.



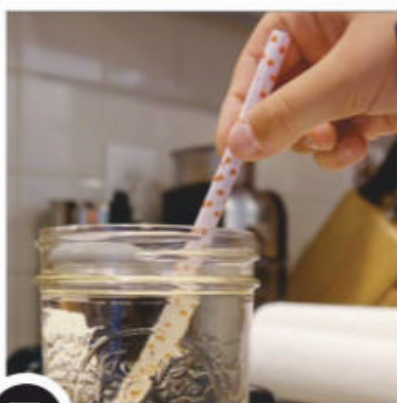
4 Wait 10 minutes for the glue to dry, then wiggle the chopstick out from inside the paper tube.



5 Cut both ends of the tube to make them even.



6 Grab a parent and put the wax in a glass jar. Melt the wax by either putting the jar on a candle warmer or in a pot of warm water on the stove.



7 Dip the paper tube into the melted wax one half at a time. (This part might get a little messy.) Then wipe the tube with a paper towel to get off any extra wax. Don't wipe too hard!

8 Let the straw dry about 10 minutes before using.



PLANET PROTECTOR TIP:

These paper straws will last only about a day. Ask your parents to purchase reusable straws made of bamboo, metal, glass, or silicone that you can use forever!

Become a straw-slaying superhero by talking to businesses like restaurants and smoothie shops about ditching plastic straws. Go online to learn how, plus get the straw pattern and take a Planet Protector pledge.

natgeokids.com/KidsVsPlastic

LAUGH OUT LOUD



"THAT LOOKS FUN!
CAN I TRY?"



"IT'S PAST YOUR BEDTIME—I DON'T WANT
TO HEAR ANOTHER PEEP OUT OF YOU."

GEMS THAT ROCK, PAGES 20: VARIOUS SMALL GEMS ALONG BORDERS, PAGES 20-23: PJRSTUDIO / ALAMY (GARNET); GREG C. GRACE / ALAMY (AMETHYST, EMERALD); RICHARD LEENEY / DORLING KINDERSLEY / GETTY IMAGES (AQUAMARINE); SPBPHOTO/ SHUTTERSTOCK (DIAMOND); VISAGE / STOCKBYTE / GETTY IMAGES (PEARL); CORBIS (ROUND RUBY); RICHARD LEENEY / DORLING KINDERSLEY / GETTY IMAGES (PERIDOT); EDWARD KARAA / DREAMSTIME (SAPPHIRE); PETER HARHOLDT / SUPERSTOCK (OPAL); THE NATURAL HISTORY MUSEUM / ALAMY (TOPAZ); ANTONY SOUTER / ALAMY (TURQUOISE).

VARIOUS BIG GEMS, PAGE 21: LIFETIMESTOCK / SHUTTERSTOCK (DIAMOND); GREG C. GRACE / ALAMY (EMERALD); PJRSTUDIO / ALAMY (GARNET); GREG C. GRACE / ALAMY (AMETHYST, EMERALD); RICHARD LEENEY / DORLING KINDERSLEY / GETTY IMAGES (AQUAMARINE); SPBPHOTO/ SHUTTERSTOCK (DIAMOND); VISAGE / STOCKBYTE / GETTY IMAGES (PEARL); CORBIS (RUBY); RICHARD LEENEY / DORLING KINDERSLEY / GETTY IMAGES (PERIDOT); EDWARD KARAA / DREAMSTIME (SAPPHIRE); PETER HARHOLDT / SUPERSTOCK (OPAL); THE NATURAL HISTORY MUSEUM / ALAMY (TOPAZ); ANTONY SOUTER / ALAMY (TURQUOISE).

PAGE 22: REPORTER / ALAMY (RAW GARNET); PJRSTUDIO / ALAMY (POLISHED GARNET, RAW AQUAMARINE); RICHARD LEENEY / DORLING KINDERSLEY / GETTY IMAGES (POLISHED AQUAMARINE); RF COMPANY / ALAMY (RAW AMETHYST); GREG C. GRACE / ALAMY (POLISHED AMETHYST); DIMAS BARRANTS / ALAMY (AMETHYST RING); ERIC NATHAN / ALAMY (RAW DIAMONDS); VSTOCK LLC / TETRA IMAGES / GETTY IMAGES (NECKLACE).

PAGES 23: GREG C. GRACE / ALAMY (POLISHED EMERALD); JAN SOCHOR / ALAMY (RAW EMERALD); HOOKER EMERALD, TIFFANY & COMPANY / NATIONAL MUSEUM OF NATURAL HISTORY, SMITHSONIAN INSTITUTION/ BRIDGEMAN IMAGES (EMERALD BROOCH); THE NATURAL HISTORY MUSEUM / ALAMY (PEARL IN OYSTER); 'THE GULF PEARL PARURE' / PRIVATE COLLECTION / © CHRISTIE'S IMAGES / BRIDGEMAN IMAGES (PEARL EARRINGS); VISAGE / STOCKBYTE / GETTY IMAGES (PEARL); BILDAGENTUR-ONLINE / TH-FOTO / ALAMY (RAW RUBY); BORISLAV MARINIC / ALAMY (RINGS); EPITAVI / SHUTTERSTOCK (RAW PERIDOT); RICHARD LEENEY / DORLING KINDERSLEY / GETTY IMAGES (POLISHED PERIDOT); BIGJOS / ISTOCK / GETTY IMAGES (RAW SAPPHIRE); EDWARD KARAA / DREAMSTIME (POLISHED SAPPHIRE); PETER HARHOLDT / SUPERSTOCK (POLISHED OPAL, NECKLACE); JOHN CANCALOSI / ALAMY (RAW OPAL); PHIL DEGGER / JACK CLARK COLLECTION / ALAMY (RAW TOPAZ); WILAWAN KHASAWONG / ALAMY (TOPAZ RING); THE NATURAL HISTORY MUSEUM / ALAMY (POLISHED TOPAZ); SHAWN HEMPEL / ALAMY (RAW TURQUOISE); AR IMAGES / ALAMY (TURQUOISE JEWELRY).

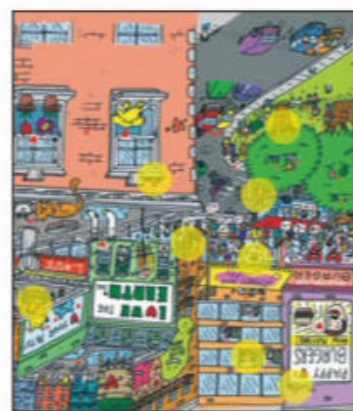


"I HATE IT
WHEN HE
HAS FRIENDS
OVER."

"What in the World?" (page 29): Top row: rope, necktie, stage curtain. Middle row: chili peppers, stop sign, strawberry. Bottom row: nail polish, double-decker bus, fingerprint.

"Stump Your Parents" (page 30): 1. B, 2. A, 3. C, 4. D, 5. B, 6. D, 7. B, 8. C, 9. B, 10. A.

"Explorer Academy" (page 33): Cats rule, dogs drool.



"Change of Heart" (page 28):

Answers