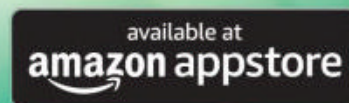
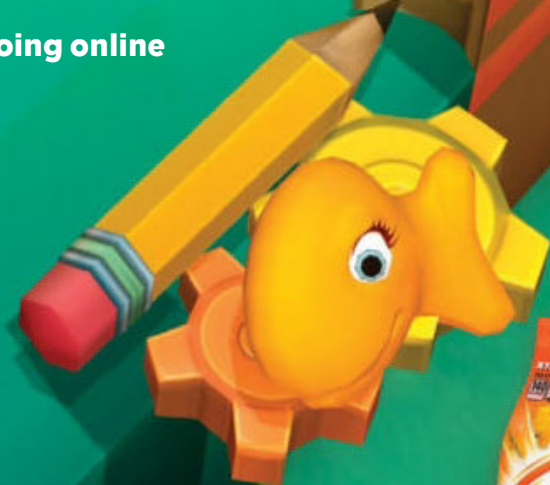


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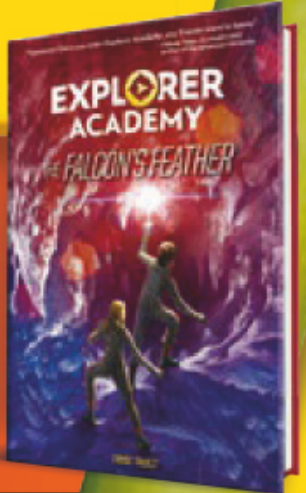
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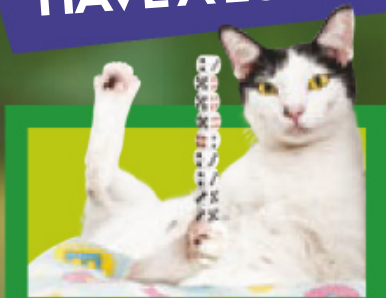
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HAVE A LOT TO SAY



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MINDEN PICTURES (GORILLA); JOCHEN
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STOCK (DOG)

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**weird
but
true!**

Check out these
outrageous facts.

BY JEFFREY WANDEL

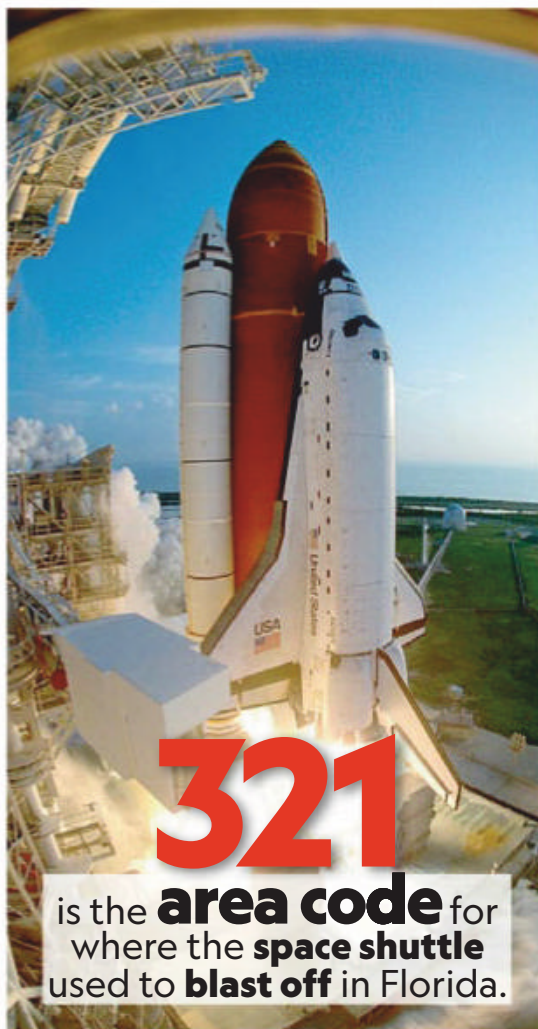
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**weird
but
true!**
fast facts

Bees can be

**GREEN,
BLUE, or
RED.**

A ball of **twine** in Kansas
weighs more than
19,000 pounds
and could stretch **halfway**
across the **United States.**



321

is the **area code** for
where the **space shuttle**
used to **blast off** in Florida.

Giraffes

have
very
high
**BLOOD
PRESSURE**
to pump
blood
up
their
**LONG
NECKS.**

The **Earth spins** so
FAST that someone
standing at the
EQUATOR



would be traveling at about
**1,000 MILES
an hour.**

**A rattlesnake's
rattle**

is made of
the same
material
as your

fingernails.



The
offspring
of a **whale** and a
dolphin is a

wholphin.



Humans

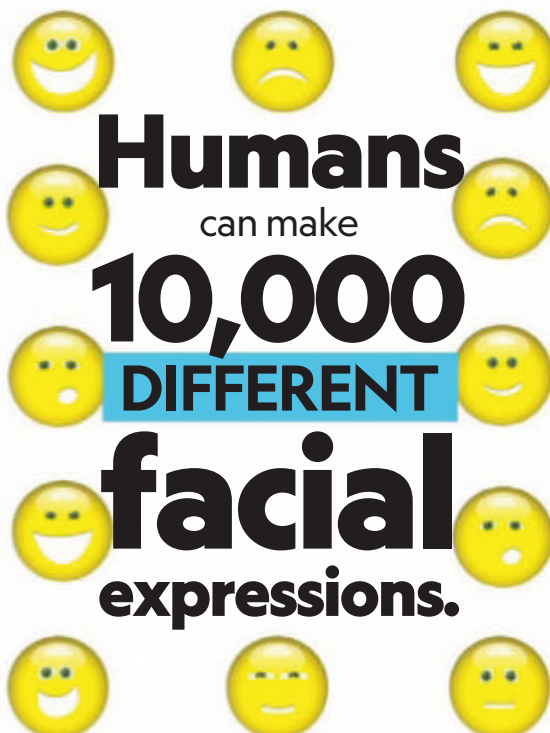
can make

10,000

DIFFERENT

facial

expressions.



The average
American

eats

about

5,000

bananas
in a lifetime.



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CHECK OUT
THIS BOOK!



INCREDIBLE ANIMAL FRIENDS

BY SARAH YOUNGSON

BABY CHEETAH GETS PET DOG

LABRADOR RETRIEVER

HEIGHT 21 to 24 inches

WEIGHT 55 to 80 pounds

ORIGIN Newfoundland,
Canada

CLAIM TO FAME With
webbed feet and strong
tails, Labs are great swim-
mers. They were first bred
to retrieve fishing nets
from the water.

FUN TO KNOW Some Labs
work with rescue teams
to save people trapped by
avalanches, floods, or other
natural disasters.

Tampa Bay, Florida

Whenever Kasi the cheetah wanted Mtani the Labrador retriever's attention, he chirped like a baby bird. Mtani responded by chasing Kasi's tail. "They absolutely loved spending time together," says zoologist Mike Boos of Busch Gardens Tampa Bay, where the friends lived.

The animals were introduced shortly after Kasi was abandoned by his mother. Caregivers brought over Mtani from an animal shelter and began supervising playdates for the pair. The duo spent most of their days cuddling, rolling around in the grass of the park's cheetah habitat, and playing tug-of-war with stuffed animal toys. They even shared a large pillow when they snoozed, with Kasi often falling asleep right on top of Mtani! If the cheetah was ever separated from his Lab friend, he chirped until the dog returned.

The buddies even traveled the country with their keepers, helping teach people about endangered animals such as cheetahs. Says Boos, "These two were meant to be friends for life."

CHEETAH

HEIGHT 24 to 36 inches

WEIGHT 75 to 145 pounds

RANGE Africa and part
of the Middle East

CLAIM TO FAME These
super-speedy cats can
go from zero to 60 miles
an hour in just three
seconds. Their 30-inch-
long tails help them stay
balanced during sprints.

FUN TO KNOW Cheetahs
need to drink only once
every three to four days.



GUINNESS WORLD RECORDS

BY ALLI DICKEY

THIS GUY ROCKS

How do you stay awake while rocking in a rocking chair for 75 hours and three minutes? If you're Suresh Joachim, who holds the record for the longest time rocking in a rocking chair, you talk to your family, play guitar, and read about golf. And you definitely *don't* listen to any lullabies!



CAT BALANCES DICE

Cat's got your tongue—er, dice? Bibi the cat holds the title for the most dice stacked on a cat's paw, balancing 10 on one paw. Bibi's owner, Siew Lian Chui, achieved the feat by carefully stacking the dice on the feline's paw while Bibi relaxed on the floor. In addition to balancing objects, the kitty can also grasp 13 playing cards with one paw. Now someone just needs to teach him how to play Go Fish.

Romania's Palace of the Parliament has 20 floors, eight of which are underground.



HEAVY PALACE

Not even Superman could lift this building. The Palace of the Parliament in Romania's capital city of Bucharest weighs ... wait for it ... over one trillion pounds. That's more than twice the weight of the Empire State Building. The structure—made of steel, bronze, marble, glass, and wood—took 13 years to build. How do you say “Whoa!” in Romanian?

**Bet You
Didn't
Know!**

5 uplifting facts about flight

BY ALLIE BENJAMIN
AND SHARON THOMPSON

1

The first nonstop **balloon flight** around the world took **19 days, 21 hours, and 55 minutes.**

2

The record for the most **parachute jumps** in 24 hours is **640.**

3

Bullfrogs have traveled into **space.**

4

Daredevil David "The Bullet" Smith has been **shot out of a cannon** more than **8,000 times.**

5

One **airline** allowed only **pets** as passengers.



CHECK
OUT
THE
BOOK!

BY *the* NUMBERS

GOT SPACE JUNK?

Although we don't see space junk in the sky, it's there. Millions of pieces of debris are floating around Earth just beyond the clouds, farther than the eye can see. Read on to find out what's up there.

FROM
THE
PAGES
OF



1965

Year astronaut Ed White lost one of his gloves during a space walk

20,000+

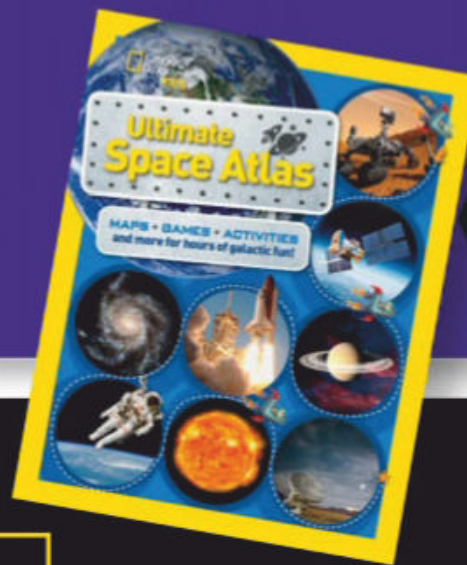
Pieces of debris larger than a softball orbiting Earth

MILLIONS

Pieces of debris that are so small they can't be tracked



BY JULIE BEER AND MICHELLE HARRIS



CHECK
OUT THIS
BOOK!



500 MILES

Distance most space junk floats
above Earth's surface



17,500 MPH


Speed that objects travel through space. At this high
speed, even the tiniest piece of junk can be a
serious hazard. Space shuttle windows have been
damaged by pieces as small as a fleck of paint!



500,000

Pieces of debris the size of
a marble or larger

9



Number of telescopes the United States Air Force
uses to track objects floating in space

AMAZING ANIMALS

NEXT
TIME I WANT
TO STAY AT A
TROPICAL
RESORT.

Polar Bear Checks In

Svalbard, Norway

What's the best part of staying at a hotel? If you're a polar bear, it's the free breakfast!

When Malin Stark arrived one morning to the Arctic hotel she manages, she heard an odd rustling sound coming from inside a storage room. Apparently a polar bear had broken in the night before and was trapped inside! The door had closed while the bear was scarfing down two bags of food scraps and some dark chocolate. "It just did what bears do—followed its nose," polar bear expert Tom Smith says.

Thinking quickly, Stark called the local government for help. But the sound of the rescue helicopter was enough to convince the bear to free itself. So it squeezed through a small window and headed back to the wild. Guess this bear won't be ordering room service.

—Alli Dickey



HELICOPTER

1

"NO NEED TO
HELP, OFFICER!
I CAN GET OUT
OF HERE BY
MYSELF."

POLAR BEAR

2

"I WISH I'D
EATEN LESS
CHOCOLATE."

3

"DON'T WORRY—
I'LL LEAVE A
GOOD HOTEL
REVIEW!"

GRAB A PARENT AND WATCH A VIDEO ABOUT A GIRAFFE HOTEL IN THE SERIES
WACKIEST PLACES AROUND THE WORLD! [natgeokids.com/youtube](https://www.natgeokids.com/youtube)

Guiding Horse

Williamston, Michigan

As she walked down the street, Mona Ramouni was accompanied by an unusual crossing guard—a mini horse named Cali. The animal let Ramouni know when they'd reached a curb by tapping her hoof three times and wouldn't move forward until it was safe for them both to cross. Ramouni is blind, and it was Cali's job to lead her everywhere a guide dog would.

The two-and-a-half-foot-tall Cali had months of training before becoming a guide horse. Then she helped Ramouni navigate busy streets, guided Ramouni to classes at her university, and stood patiently by her owner's desk during the lessons. At the grocery store, she located the aisles Ramouni needed to visit. "Cali made sure I got my favorite soda by guiding my hand to the right bottle," she says. Miniature horses are as smart as dogs, and since they live longer, they can work with their owners for many more years. They're also easy to care

for. Cali did demand one luxury: She liked getting her hooves trimmed. "Cali worked hard," Ramouni says. "She deserved the spa treatment!"
—Elisabeth Deffner



LET'S
HOOF IT
TOGETHER.

YOU
SHOULD SEE
ME WITH A
RUBIK'S
CUBE.



Octopus Unties Knots

False Bay, South Africa

This octopus must have big brains—and an even bigger appetite. The animal figured out how to untie wires holding down a canister of food so it could get the grub.

Hoping to attract and observe fish, scientists had tied a sardine-filled container to a metal pole and lowered it to the seafloor. Fish immediately swarmed the area. Then the octopus glided over. It wound its strong arms around the knots and pulled until they became loose. When one knot was too tight, the cephalopod cut it with its sharp-as-scissors beak. The octopus even had an arm to spare to fend off a catshark that was also trying to score some chow!

Once the octopus freed the container, it swam off with its prize. "We were floored," says marine biologist Lauren de Vos, whose team set up the canister and watched the heist. "But these animals are smart and skilled with their arms—and a snack is great motivation."

—Elisabeth Deffner

THE OCTOPUS
NABS ITS
TASTY SNACK.



HORSE

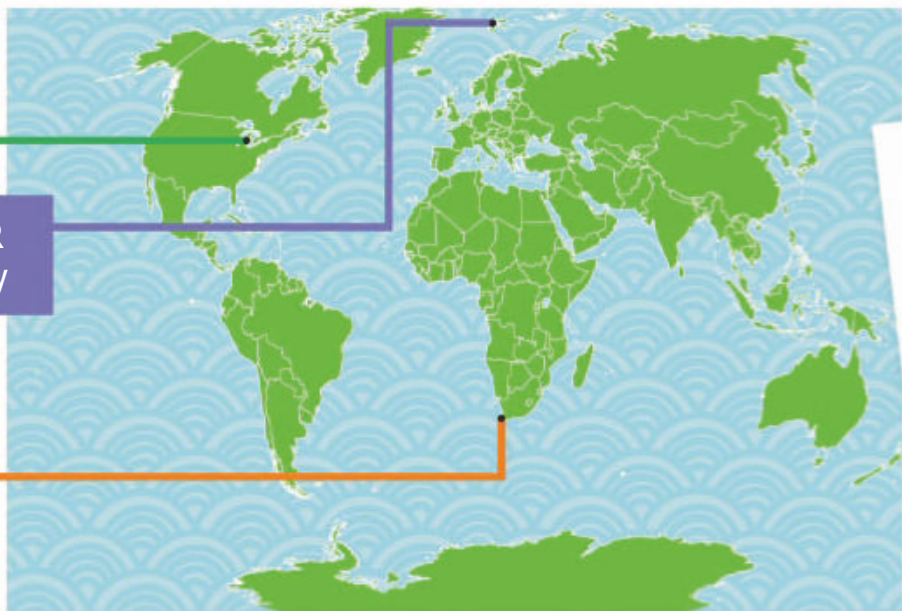
Williamston,
Michigan

POLAR BEAR

Svalbard, Norway

OCTOPUS

False Bay,
South Africa



HOW TO SPEAK GORILLA

Five surprising ways these apes communicate

BY JAMIE KIFFEL-ALCHEH

Keepers entering the gorilla enclosure at the Columbus Zoo in Ohio often hear a noise that sounds like a babbling human. But it's just Mac, a western lowland gorilla. The ape greets his caregivers by making long, low grumbling sounds, gorilla-speak for "Hi, there!" When keepers exit the area in the evening, he makes a similar sound as if to say "Good night."

Mac isn't just making noise. Gorillas like him have things to say. And if you pick up a little gorilla language, you just might understand them.

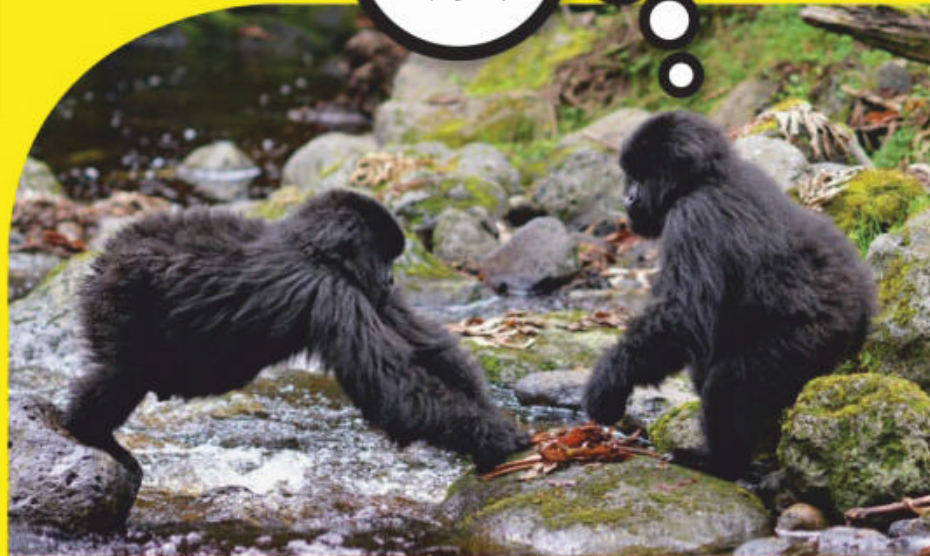
"Apes are excellent communicators," Columbus Zoo curator Audra Meinelt says. And sound isn't the only way gorillas "talk." They use movements and even body odor to get their point across. It's no wonder experts think gorillas are among the most advanced animal communicators after humans. Here are five stories to help you decide.

1 "You've Got This."

Fasha the wild mountain gorilla had gotten her foot caught in a poacher's trap in the forests of Rwanda, a country in Africa. She managed to escape but was unable to keep up with her troop (what researchers call a group of gorillas). But Icyororo the gorilla wasn't leaving her friend behind. Arms linked, they made their way from rock to rock, crossing a river together. Every few minutes Icyororo turned around and patted Fasha as if to say, "We're almost there."

When the pals reached the other side, Icyororo gave Fasha a hug. "Gorillas can encourage their loved ones," says Veronica Vecellio of the Dian Fossey Gorilla Fund. "Icyororo was telling Fasha: 'You did it!'"

YOU CAN DO THIS!





KING KONG'S
NO MATCH
FOR ME!

LOL, OK,
LIL' GUY.



A BABY MOUNTAIN GORILLA
IN RWANDA PLAYS WHILE
THE ADULTS IN THE GROUP
TAKE A BREAK FROM EATING.



WE'RE
ALMOST
THERE.

BRING IT
IN, BUDDY.

#BFFS!

A YOUNG MOUNTAIN GORILLA IN THE DEMOCRATIC REPUBLIC OF THE CONGO REACHES FOR A CAMERA.

2

“What’s In It For Me?”

Nia, a western lowland gorilla, was excited when she discovered a new “toy”—a plastic cup—had been added to her habitat at the Columbus Zoo. When zookeepers came to replace the cup with another toy, Nia wouldn’t give it up. So Nia’s keepers offered her a treat as a reward. Nia gave up the cup—and realized that things she finds in her habitat can be valuable. The next time Nia found a cup in her space, the gorilla broke it into several pieces and only gave the keepers one piece at a time ... in exchange for a treat after every piece!

Other gorillas at the zoo caught on to Nia’s trick. “They’ll hold out an item they think we might want, but not all the way,” zookeeper Heather Carpenter says. “If we try to get it, they’ll pull it back like, ‘Not so fast!’ Their actions are telling us that they’ll give us what we want—but only when we offer something *they* want.”

A WESTERN LOWLAND GORILLA GOOFS OFF IN ITS ZOO ENCLOSURE.



3 “Help!”

Anthropologist Kelly Stewart wanted to see how the wild mountain gorillas she was observing would react to her new gorilla T-shirt. But when she opened her jacket to reveal the shirt to a young female, Simba, the gorilla screamed—a sound that means “I’m scared!” in young gorilla. And *that* told the older troop members that Simba needed help. The group’s leader, Uncle Bert, barreled toward Stewart with a deep roar. Stewart quickly covered her shirt and stepped away from Simba, who stopped screaming. Uncle Bert backed off once Simba was quiet—the little gorilla was OK now that the unfamiliar “gorilla” was gone. “I never wore that T-shirt again!” Stewart says.

Gorilla purrs, coughs, and hums can mean anything from “Hello” to “Stay back!” Here’s a translation of some of their most frequently used sounds.

GORILLA TALK

A LONG, LOW GRUMBLE

TRANSLATION

“HEY, THERE.”

HOO, HOO, HOO!

“HELP! I’M LOST!”

A PURR-LIKE HUUUUUH

“I’M HAVING FUN!”

A COUGH-LIKE GRUNT

“BACK OFF!”

A SOFT UH-HUM, UH-HUM

“EVERYTHING’S GOOD.”



A WESTERN LOWLAND GORILLA AT THE DALLAS ZOO GETS A WHIFF OF SOMETHING GROSS.



4

“I’m Not Happy.”

When zookeepers at the Dallas Zoo in Texas smell a gym-sock-like odor, they know it’s time to do an extra check on the gorillas. The smell comes from the apes’ armpits, and it means they’re upset. “We have a group of adult males that get along most of the time,” says Keith Zdrojewski, curator of primates and carnivores. “But they occasionally have disagreements. We can tell when they’re upset from the smell.”

In the wild, male gorillas emit the odor as a way of saying “Back off!” to other males that threaten to take charge of their group. At the zoo, the gorillas can make a stink for other reasons too. “The smell might also mean a squirrel entered their exhibit,” Zdrojewski says. “Either way, they’re saying that something’s not quite right in the enclosure.”



5

“Follow Me.”

Kighoma the eastern lowland gorilla is the leader of his troop in the Democratic Republic of the Congo, a country in Africa. It’s easy to spot the gorilla in charge, according to Sonya Kahlenberg of the Gorilla Rehabilitation and Conservation Education Center. Adult male leaders are identified by the silver fur on their backs.

(They’re called, well, silverbacks.) And they’re often belching!

“It sounds like ‘na-oom,’ kind of like a throat clearing. It means, ‘I’m over here,’” Kahlenberg says. “And whenever Kighoma is ready to move, he’ll make that grumbling sound and the other gorillas know to follow him.”



A SILVERBACK MOUNTAIN GORILLA IN RWANDA LEADS HIS TROOP.

SAVING GORILLAS

Wild gorillas are in danger. These great apes are threatened by people who destroy their habitats to mine minerals and by poachers who kill them for meat. Here’s what you can do to protect these endangered animals.



1 Recycle your cell phone.

Most cell phones contain a mineral called coltan, which often comes from gorilla forests in Africa. “The more technology we create, the more we destroy their habitat,” says Keith Zdrojewski, curator of primates and carnivores at the Dallas Zoo. “Recycling means we can mine less.”

2 Hold on to your tech longer.

Though it’s tempting to get the latest technology when it’s released, keeping your old gadgets as long as possible means less coltan needs to be mined from gorillas’ land.

3 Write to your lawmakers.

Send a letter to your representatives and ask them to raise awareness for the Great Ape Conservation Fund, which provides money and support to great ape habitats around the world.

WATCH MORE APES IN ACTION!
natgeokids.com/march

MORE ANIMAL TALK

BY ALINE ALEXANDER NEWMAN

Can you speak squirrel? How about hippopotamus? Talking to animals isn't just for Dr. Dolittle. In fact most people can learn to do it. Reading animals' body language is one way. Another trick is to teach animals human-speak—in the form of words, symbols, sounds, or gestures.

It's usually easier to teach animals to understand us than it is to get them to say things. But sometimes the human-animal bond is so strong that something like a conversation happens. Check out four true stories about chatting with animals.

MISBEHAVE?
WHO, ME?

UNLEASHED

Harrison Forbes couldn't figure out why his dog, PJ, kept getting into fights while on walks with his mom. Whenever the 13-year-old took the American Staffordshire terrier out, the pooch would meet up with a neighbor's Rottweiler to play. But when his mom did the same thing, PJ would pick a fight with the Rottweiler. Forbes was stumped.

Then he discovered his mom was terrified of Rottweilers. Without knowing it, his mother tensed every time she met one. And PJ picked up on that fear. "A leash is like an electric power cord," says Forbes, now a radio show host. "Your feelings travel straight to the dog."

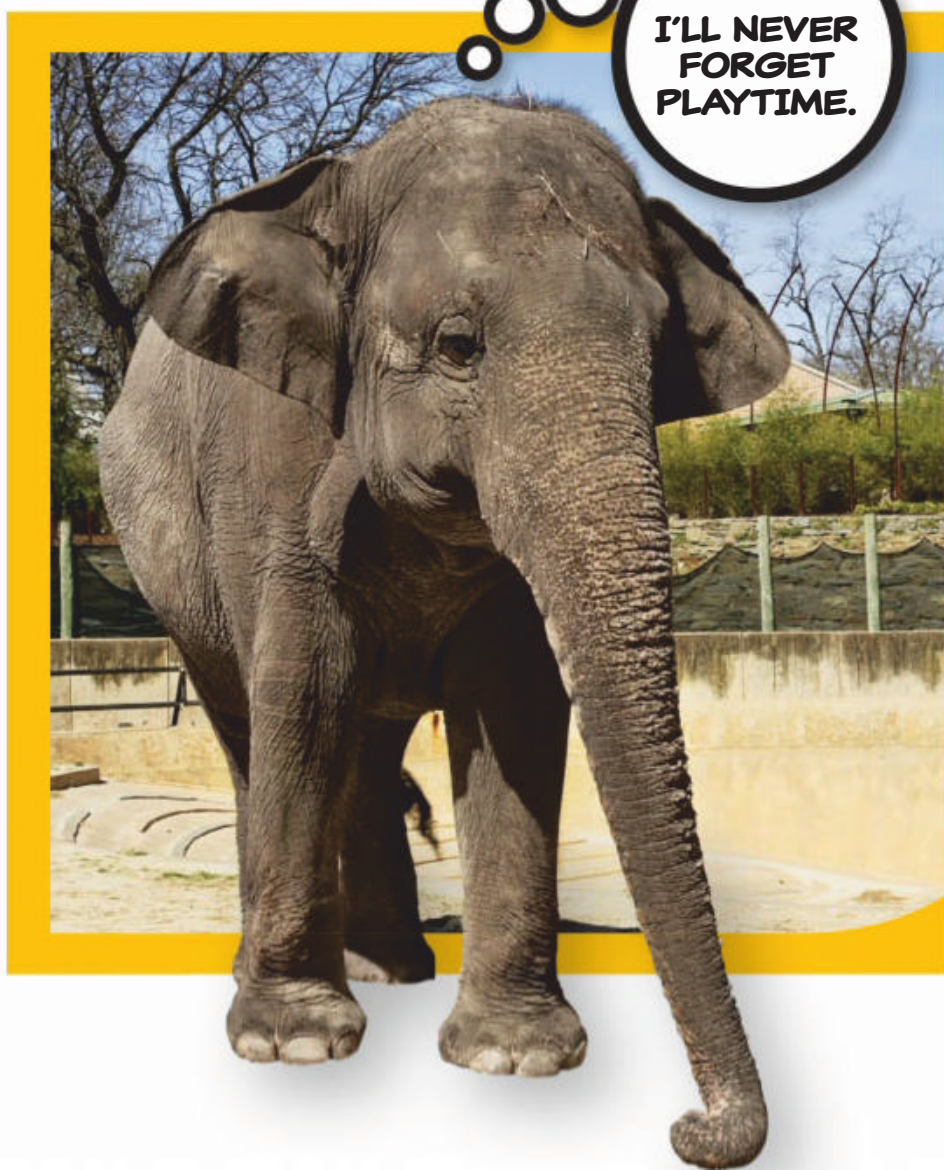
Once Forbes's mother learned to relax around the Rottweiler, PJ calmed down too. Now *that's* a good boy.



I'VE
HIT MY
STRIDE.



I'LL NEVER
FORGET
PLAYTIME.

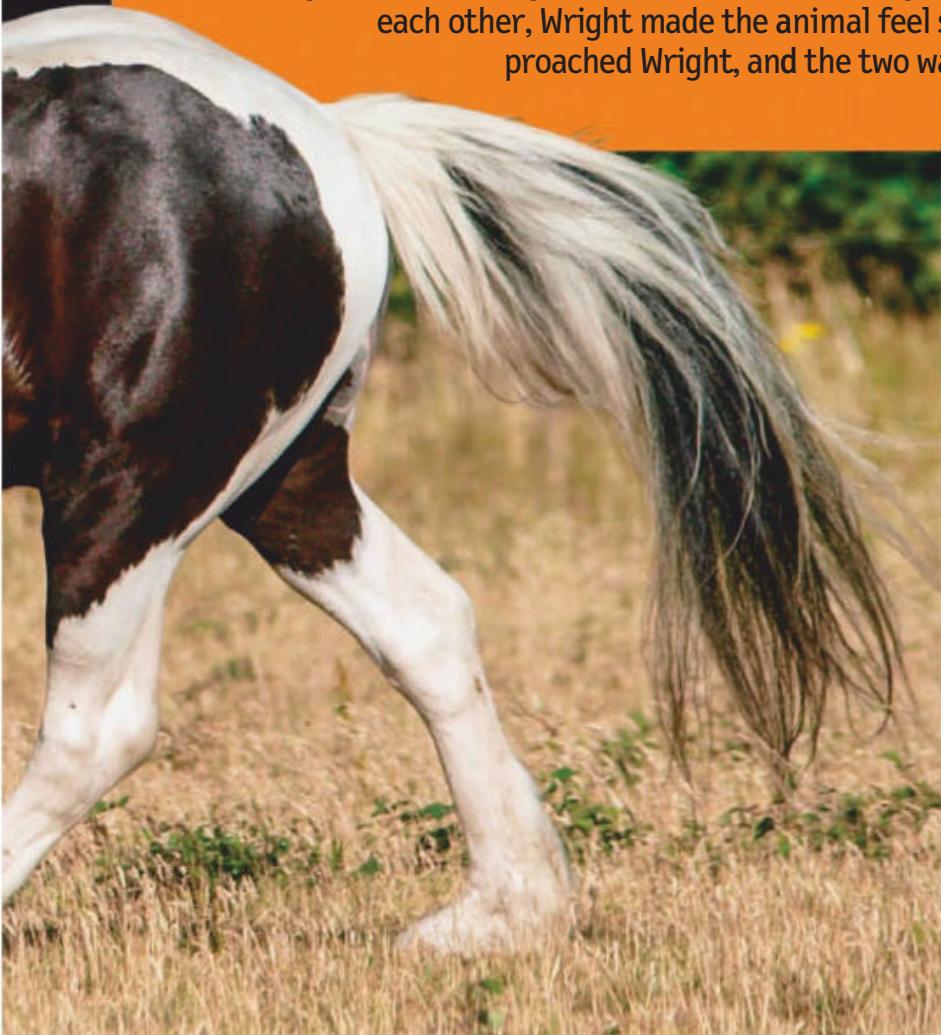


HORSING AROUND

When an upset horse charged Dennis Wright, the animal communicator knew what to do. Horses communicate with their bodies—so Wright did too.

First, he threw up his arms to mimic a rearing stallion and yelled. Spooked, the horse thundered away, and Wright moved into his spot. This made Wright the alpha horse, or leader. As the panicked horse circled, Wright didn't chase or lasso him. Instead, Wright raised one hand and turned his back, showing trust. "That horse wasn't crazy," Wright says. "He was lonely for his herd and afraid." By acting the way horses behave with each other, Wright made the animal feel safe. The horse eventually approached Wright, and the two walked away together as friends.

DID
SOMEONE
SAY "FRESH
FISH"?



TRUNK TALK

Shanthi the elephant wanted to go outside and play. But she was locked inside her enclosure. So how could she tell her keepers what she wanted?

Behavioral biologist Karen Pryor of Watertown, Massachusetts, found out when she tried to train the elephant. Shanthi cooperated at first. Then she suddenly dropped the sweet potato Pryor had given her as a reward during training and poked her trunk out through the side of her enclosure.

"She kept looking back and forth, from me to where her trunk was," Pryor says. Unsure what she wanted, Pryor and a zookeeper followed the elephant's gaze—and saw that her trunk was gripping the fist-size padlock that kept Shanthi securely in her enclosure.

"Her message was clear," Pryor says. They unlocked the door, and the playful pachyderm spread her ears and bounded out into the yard.

TREATS, PLEASE

Josephine the bottlenose dolphin liked her fish frozen. Taught to press a paddle whenever she heard a certain sound, she earned 25 treats in a row. But one day something happened. Josephine ignored 25 straight dings. She didn't flap her tail. She just stubbornly refused to participate. "I didn't know what was wrong," says Ronald J. Schusterman, a marine biologist at the University of California at Santa Cruz. Finally, he asked a student to check the fish machine. It was working fine, but ... ew! The fish were sunbaked and about as appetizing as warm ice cream.

Josephine watched as the student replaced the warm fish with frozen ones. Schusterman hit the sound button, and the dolphin zoomed right over and pressed the paddle. "It took a very bright animal to figure out how to signal that something was wrong," Schusterman says.



NATIONAL GEOGRAPHIC KIDS

Koalas sleep about 20 hours a day in their tree homes of Australia.

When awake, males let loose a loud burp-



and-snore combo to scare off rivals.

Koalas have extra-furry rumps to help cushion them on branches.



TOPHER WHITE PREPARES
TO MOUNT A LISTENING
DEVICE TO A TREE THAT
WILL HELP NAB ILLEGAL
LOGGERS ON THE GROUND.

DARE TO EXPLORE

From listening to animals to reading the stars, five Nat Geo explorers share secrets about communicating with the world.

BY C.M. TOMLIN



THE ENGINEER

Topher White attaches recycled cell phones to trees in remote rain forests around the world, hoping to pick up the sounds of illegal loggers. He describes trying to work while being swarmed by bees.

“Don’t be afraid to take things apart. Play with them, see how they work, and experiment on your own.”

“Even though the forests can be home to illegal loggers, sometimes what’s going on in the treetops is scarier than what’s on the ground. One time I was installing a phone, and bees kept landing on me. Eventually I was completely covered with them! But I had to finish the job, even if it meant getting a *lot* of bee stings.

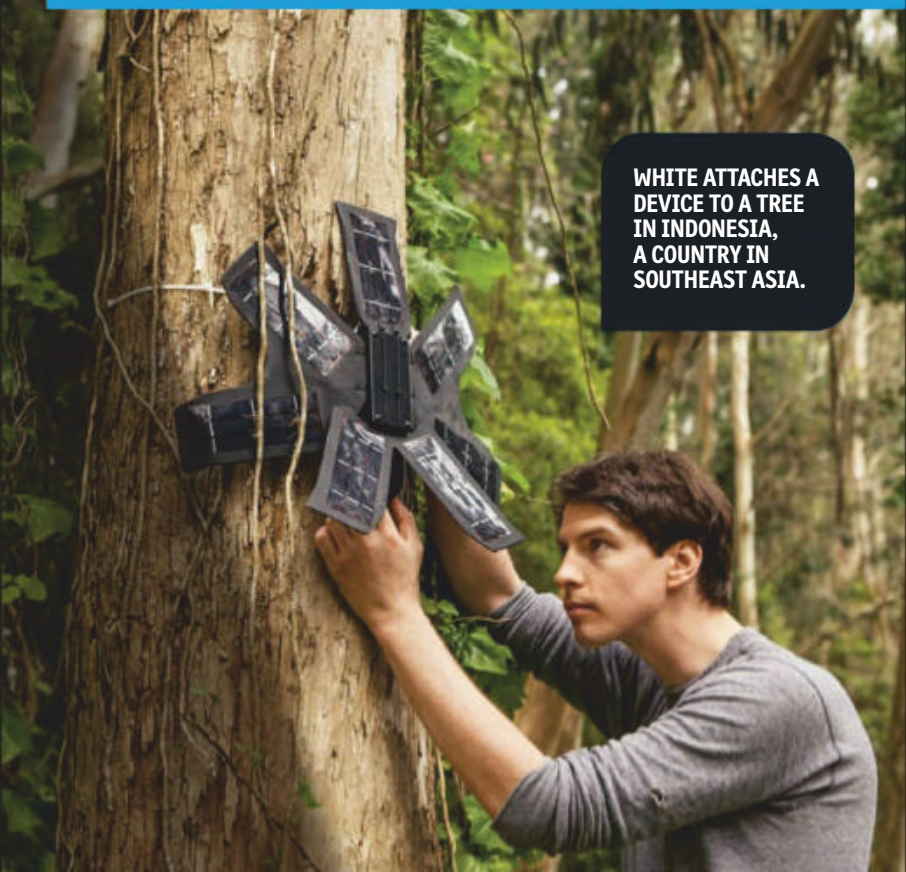
“The phones I place each have an app that turns the phone into a listening device. They capture all the sounds of the rain forest. Listening to this noise can help us pick out the sounds of things like chain saws and logging trucks. If we can pinpoint the sounds of illegal logging, we can instantly send alerts to local authorities and tribes, who are then able to stop illegal loggers on the spot. **In a way, the trees are telling us when they need help.**”

WANT TO BE AN ENGINEER?

STUDY Mathematics, physics

WATCH The documentary series *The Trials of Life*

READ *The Wild Trees* by Richard Preston



WHITE ATTACHES A DEVICE TO A TREE IN INDONESIA, A COUNTRY IN SOUTHEAST ASIA.



FROM LEFT: ASTRONOMERS HALEY FICA, MUNAZZA ALAM, AND SARA CAMNASIO STAND IN FRONT OF A 21-FOOT-WIDE TELESCOPE IN CHILE.

THE ASTRONOMER

Munazza Alam searches the sky for a planet that humans could live on one day. She discusses her hunt for what she calls the “Earth Twin.”



“I spend a lot of my nights at observatories atop mountain ranges using high-resolution telescopes that are sometimes the size of a school bus. I’m observing faraway planets outside our solar system called exoplanets. By analyzing these exoplanets, I hope to discover if any of them have atmospheres similar to Earth that people could one day survive in. You could say I’m searching for Earth’s twin.

“An ‘Earth Twin’ would be a rocky planet with temperatures that would support liquid water. We haven’t found one yet, but I do think we’re getting closer. The more we study the stars and their planets, the more we can understand what they’re like. As an astronomer, it’s my job to **keep examining the sky in the hopes that it’ll reveal new things** about our galaxy and beyond.”

“If you have a curiosity, don’t let that flame go out. Never let go of that enthusiasm, because it will inspire you forever.”

WANT TO BE AN ASTRONOMER?

STUDY Physics, astronomy

WATCH *Zathura: A Space Adventure*

READ *The Magic School Bus: Lost in the Solar System* by Joanna Cole

THE MARINE BIOLOGIST

Shane Gero spends time with the sperm whale community in the Caribbean Sea. He talks about chatty whale families and shares how they're not so different from our own.



"Once when I was on a boat in the Caribbean Sea, I needed to tag a particular sperm whale so I could study it as it swam. That meant I had to wait patiently for several hours at the front of a boat holding a long pole with a sound-recording tag attached to it. The whale finally surfaced, but I had to move fast. I quickly stuck out the pole and gently attached the device to the animal. I could now track this giant ocean mammal as it made deep dives and spoke with its family."

"We should feel an obligation to speak up on behalf of these animals, hopefully in ways that they would speak for themselves."

"The thousands of hours I've spent following sperm whales have shown me that these creatures are a lot like humans. Like us, they communicate using a type of language. Only theirs isn't spoken words—it's a pattern of clicks, kind of like Morse code. These clicks allow families to recognize each other. **When I see whale families 'talking' to each other, I'm reminded that their underwater families are a lot like ours, full of playful siblings, doting moms, and patient grandmothers.**"

WANT TO BE A MARINE BIOLOGIST?

STUDY Computer sciences, biology
WATCH *The Octonauts*
READ *Whale Boy* by Nicola Davies



SHANE GERO PHOTOGRAPHS A SPERM WHALE IN THE CARIBBEAN SEA. THESE WHALES TYPICALLY SURFACE ONLY FOR ABOUT 15 MINUTES AT A TIME.

ARI MARTINEZ EXAMINES A DYEING POISON FROG IN FRENCH GUIANA, A COUNTRY IN SOUTH AMERICA.



THE ECOLOGIST

Ari Martinez studies birds in the jungles of South and Central America to discover how they communicate. He recalls being tracked by a mysterious creature while observing a group of feathered fliers.

"If you study something for long enough, you can be an expert on it. It doesn't matter how young you are as long as you put in the time."

"We were following a flock of mixed birds through the Peruvian Amazon when we sensed that something was following us on the ground. When we turned around we'd see plants moving mysteriously, but we never saw a person or an animal. Later, a team member told me that our invisible friend was a stealthy jaguar! I'm glad I discovered that after I was safely back at camp."

"Jaguars are solitary animals, but the birds I study rely on each other to survive. They help each other out through songs or alarm calls. It's like the social network of the jungle—a macaw squawks out a call about a dangerous predator, which is then heard by a parrot, who passes on the message to the toucans, and so on. Kind of like a group text! **It's so cool to discover that different groups of animals can communicate to help each other.**"

WANT TO BE AN ECOLOGIST?

STUDY Zoology, geography
WATCH *Project Nim*
READ *One River* by Wade Davis

MARTINEZ HOLDS A TAWNY-CROWNED GREENLET IN PERU.



THE OCEANOGRAPHER

Branwen Williams dives into coral reefs to observe how these ecosystems impact people. Below, she describes an encounter with black-tipped reef sharks.

“One time while I was scuba diving in the South Pacific Ocean, I looked up to see a group of black-tipped reef sharks circling above me. It was unsettling to have one of the ocean’s top predators swimming overhead while I worked, but I needed to finish collecting coral to examine at the surface. Luckily the sharks were just curious—they don’t eat people.

“The coral I study are living organisms that grow hard, rocklike skeletons. The layers of the skeletons tell how old the coral is, sort of like the rings of a tree. By studying the changes in these layers, I can measure how the ocean environment has changed over time, from the temperature of the water to the nutrients it provides. **If we listen to what the ocean is telling us through these coral layers, we can learn stories of its past—and maybe even what to expect from its future.**”

“We must protect Earth’s oceans, not only because it’s the right thing to do, but because it’s important for our own health.”



SCIENTISTS BRANWEN WILLIAMS (LEFT) AND ERIC BRASSEUR PREPARE TO COLLECT ALGAE SAMPLES IN THE NORTH ATLANTIC OCEAN.

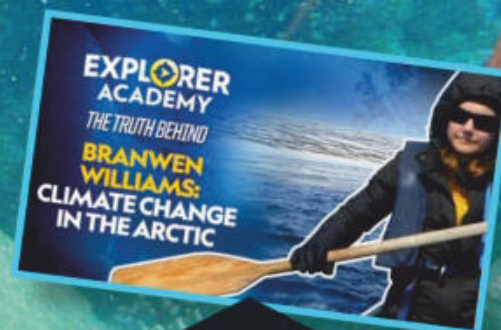
WANT TO BE AN OCEANOGRAPHER?

STUDY Mathematics, marine biology

WATCH *Blue Planet*

READ *The World Is Blue* by Sylvia Earle

WILLIAMS (RIGHT) EXTRACTS CORAL FROM A DEEP-SEA CORAL GARDEN TO TAKE TO THE SURFACE OF THE PACIFIC OCEAN.



For more stories from Branwen Williams, Munazza Alam, and other scientists, grab a parent to watch the series *Explorer Academy: The Truth Behind*.
[youtube.com/natgeokids](https://www.youtube.com/natgeokids)

FROM
THE
PAGES
OF

EXPLORER ACADEMY

THE FALCON'S FEATHER

BY TRUDI TRUEIT

Twelve-year-old Cruz Coronado is training at Explorer Academy to become an explorer. But he has more to deal with than school—like the fact that someone's out to get him.

In this excerpt from Explorer Academy: The Falcon's Feather, Cruz and his classmates are attempting to rescue a group of right whales entangled in fishing nets. Cruz is assigned to communicate with the mammals while underwater, using a helmet-like device called the Universal Cetacean Communicator (UCC) that converts human language to whale-speak and vice versa.

Cruz encounters one of the whales and urges his friends to follow—before it's too late. But it turns out the whales aren't the only creatures in danger. Cruz also finds himself fighting for his life ...





FOR A MOMENT, CRUZ COULD ONLY STARE AT THE 70-TON ANIMAL. Mesmerized by its beauty, he felt so tiny.

As he started to speak, he heard a noise that sounded like a baby elephant trumpeting. Had that come from the whale? The blue light in his UCC helmet went on. Cruz held his breath, eagerly waiting for the translation.

"Human."

Cruz heard another lonely wail, this one longer and from farther away.

"Caution," came the translation.

The whale's dark eye was moving, studying him.

"We've come to help," Cruz said. "To take off the nets."

As the UCC broadcast his message, Cruz heard a long *whoooooooooom*.

The message came back: "Help."

An entire pod of whales suddenly appeared, allowing Cruz to move between them. Surrounded by so many massive creatures, he didn't feel crowded or even scared.

There! A red buoy trailed one of the whales. It was attached to a clump of twisted nets wound several times around the whale's tail.

Cruz heard a mournful wail. As the whale's tail sank, his UCC translator spoke: "Struggle. Tired. Pain."

"I understand!" cried Cruz. "Hold on. Don't give up!"

"I'm pretty sure I've found one of the whales that's in trouble," Cruz alerted his team. "Swim through the space that I took and you'll see us. Hurry!"

... Cruz's team appears and successfully frees several of the whales from netting. The team separates again to clean up the nets ...

Cruz could no longer hear the whales, but his translator could, and it kept repeating one word: "Joy."

Tears clouded Cruz's vision. He was breathless.

"Looks good," Cruz heard his instructor's voice in his helmet. "Time to head back."

Cruz couldn't wait to get back to the ship. He was excited to tell his dad that he'd talked to whales!

Cruz's viewer was blinking. He slowed his kicks so he could read the words that had appeared: AIR PURIFICATION MALFUNCTION.

"I may have a problem," said Cruz, keeping his voice steady.

In seconds, a response came. "What's up?"

"I'm getting a warning light on my helmet."

"You're breaking up ... say again?"

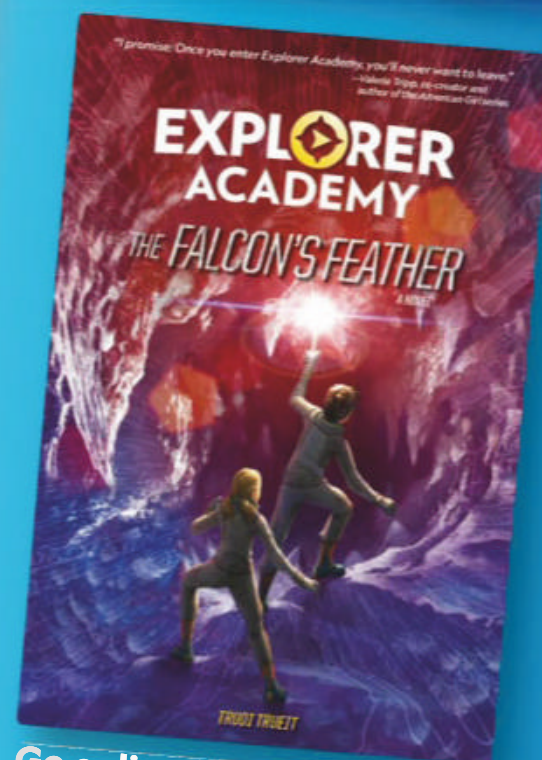
More words were flashing on his viewer: WATER SEAL BREACH. His helmet was filling with water!

Cruz went through the checklist of everything he needed to do: remove his helmet, grab the emergency regulator on his belt, put it to his mouth, and turn the valve. That would give him enough air to make it to the surface.

He reached for the first of four latches that attached his helmet to his wet suit. He unsnapped three of the clamps, but the last one wouldn't pop. He tasted salt water. Lifting his chin, Cruz used both hands to pry up the latch. It wouldn't budge.

Cruz felt light-headed. He drew one last, deep breath into his lungs. The flashing lights and warnings stopped. His helmet was dead.

Cruz knew that in a matter of seconds, he would be, too.



Go online for a sneak peek
of the first chapter.

ExplorerAcademy.com

Will Cruz make it back to
the surface to be rescued?

Check out
EXPLORER ACADEMY: THE FALCON'S FEATHER
to find out!



1 Armadillo means “little armored one” in Spanish.



2 The **Cambodian** language has the world’s largest alphabet—it contains **74 letters**.



3 Playwright **William Shakespeare** is credited with creating over **1,700 new words**, including “**eyeball**” and “**swagger**.”

4 In **Afrikaans**, a language spoken in South Africa, **chameleons** are called **verkleurmannetjies**, or “**colorful little men**.”



5 **Russian** was the **first language** spoken in **outer space**.



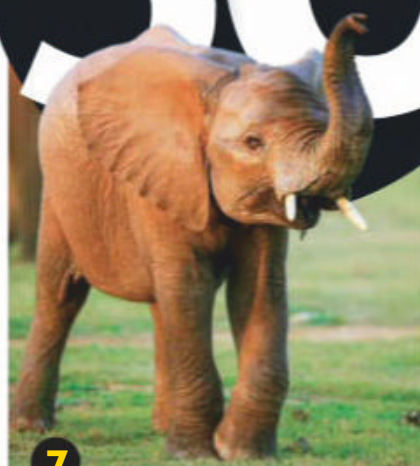
6 It takes approximately **480 hours** to learn a new language.



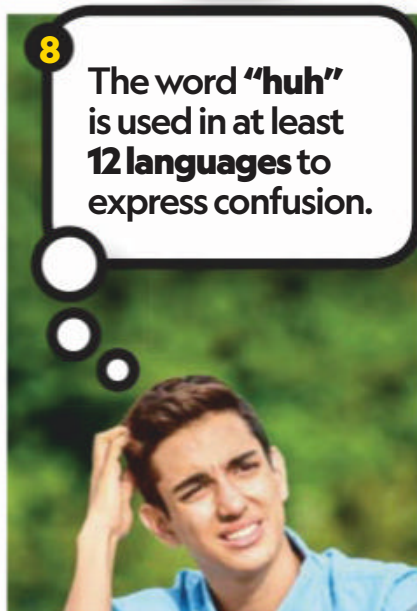
BY
ALLI
DICKEY

30 COOL

THINGS ABOUT



7 **Elephants** make a **rumbling noise** to alert others when they spot a **beehive**.



8 The word “**huh**” is used in at least **12 languages** to express confusion.

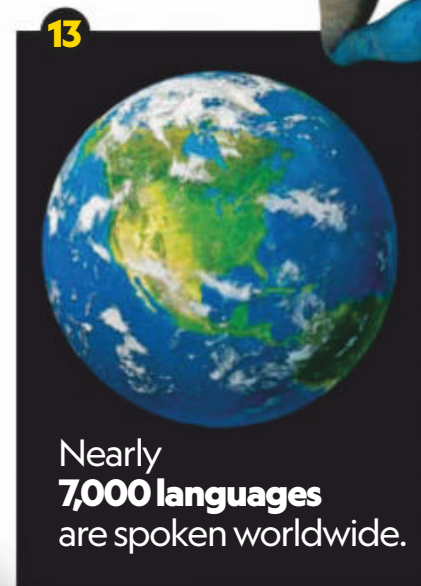
9 More people speak English in **China** than in the **United States**.

10 **Kinshasa**, the capital of the **Democratic Republic of the Congo**, is the world’s **second largest French-speaking city**.



11 **Rabbits** rub their **chins** on things like **their food** to indicate that the item **belongs to them**.

12 **Hippopotamus** means “**river horse**” in **ancient Greek**.



13 Nearly **7,000 languages** are spoken worldwide.



ROBERT EASTMAN / SHUTTERSTOCK (1); DAN WALLACE / DREAMSTIME (2); ISTOCK / STOCKSNAPPER (3); KUTTELVASEROVA / SHUTTERSTOCK (4); VLADISLAV / SHUTTERSTOCK (5); F9PHOTOS / SHUTTERSTOCK (6); JACOB A. SUSANNA / SHUTTERSTOCK (7); CHEAPBOOKS / SHUTTERSTOCK (8); PHOTODISC (9); UNITED STATES FLAG; PIXELJOY / SHUTTERSTOCK (10); CHINESE FLAG; NATALIA MELNCHUK / SHUTTERSTOCK (11); ISTOCK / PJMALSBURY (12); SKYPIXEL / DREAMSTIME (13)



14

Instead of making sounds, **octopuses** communicate by **changing color**.



15

Mother hens start talking—er, **clucking**—to their chicks about **24 hours before** they've hatched.



18

Cryptophasia is the name given to **secret languages** spoken by some **sets of twins**.



16

The **first word** spoken by **most babies** around the world is **"dadda."**

19

Babies' cries can sound different in **different languages**.



17

A type of **sloth** in South America called **the ai** (pronounced like the letter *i*) is named after the **high-pitched** sound it makes to "talk."

20

Papua New Guinea has **840 languages**—more than any country in the world.

21

The **Albanian language** has **27 words** for different kinds of **mustaches**.

PLAY LANGUAGE GAMES!
natgeokids.com/march

LANGUAGE

22 Pneumonoultramicroscopicsilicovolcanoconiosis—a type of lung disease—is the longest word in the English language.

23

In the **1960s**, a man invented a **language** called **aUI** (pronounced ah-EW-ee) that he claims he learned from **an alien**.

24

Death-watch beetles communicate with each other by using a **clicking system** similar to Morse code.



28

Instead of speaking, residents of **La Gomera**, an island near Spain, often **communicate** by **whistling**.

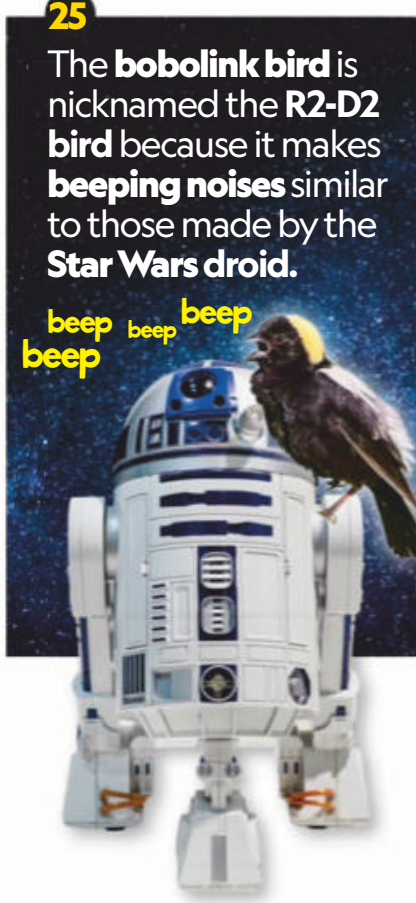
29

Pirahã, a language spoken in Brazil, has two words to describe colors. They translate to **"light"** and **"dark."**

25

The **bobolink bird** is nicknamed the **R2-D2 bird** because it makes **beeping noises** similar to those made by the **Star Wars droid**.

beep beep beep



26

No words rhyme with **"orange"** or **"purple."**

30

Puppies lick humans when they're hungry; **older dogs** do it to **show affection**.



27

Hawaiians have over **200 words** for rain.

FUN STUFF

PLAY

GAMES,
LAUGHS,
AND LOTS
TO DO!

Bowling Freeze-Frame

BFF doesn't only stand for "best friends forever." Can you figure out the three-word phrase that describes each of the numbered scenes in this bowling alley? The first word always begins with *b*, and the second and third words always begin with *f*. For example, the answer to number one is "Baboon fries fish."

ANSWERS ON PAGE 35



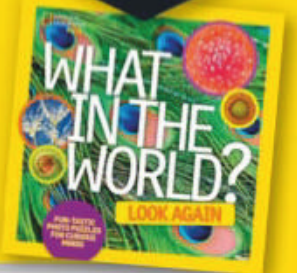
WHAT IN THE WORLD

GREEN GRUB

These photos show close-up and faraway views of green food. Unscramble the letters to identify what's in each picture.

ANSWERS ON PAGE 35

CHECK OUT
THE BOOK!



PRGSAE



RENGE AEBSN



ELISM



TUETLCE



RLYCEE



YNEHOWDE
LEOMN



CIORLBCO



TASOOMTE



RLUESBSS
SROSTUP

TOP ROW (LEFT TO RIGHT): © LEWAL1988 / SHUTTERSTOCK; © LEONORI / SHUTTERSTOCK; © STEVE HIX / SOMOS IMAGES / CORBIS.
MIDDLE ROW (LEFT TO RIGHT): POSINOTE / SHUTTERSTOCK; © A.L. SPANGLER / SHUTTERSTOCK; © MRS. SIWAPOM / SHUTTERSTOCK.
BOTTOM ROW (LEFT TO RIGHT): KELLEY MILLER / NG STAFF; © UNKAS PHOTO / SHUTTERSTOCK; © SUNVIC / SHUTTERSTOCK.

kids

VS. PLASTIC

Part of the PLANET OR PLASTIC? initiative

BY ELLA SCHWARTZ

MAKE THIS

HOMEMADE
YOGURT

TO AVOID THAT

PLASTIC
YOGURT
CONTAINERS

YUMMY YOGURT

Help keep the Earth healthy by ditching single-use plastic items. This month, **make your own yogurt instead of buying it in plastic cups at the store.**

These plastic containers can be dangerous to wild animals like raccoons and squirrels when they get their heads stuck in them.

PLANET PROTECTOR TIP: You'll need to purchase one last cup of store-bought yogurt for this recipe. Once it's empty, rinse and dry the yogurt container before putting it into the recycling bin.

STEPS

1

Grab a parent and warm the milk in a pot on the lowest setting on the stove, stirring often with a whisk or spoon. Remove the milk once it reaches 190°F or when you start to see bubbles.



2

Place the pot in a bowl filled with ice and cold water to quickly cool the milk.

If you're using a kitchen thermometer, remove the pot from the ice bath when the temperature of the milk reaches 115°F. If not, take the pot out when the milk is just slightly warm.



3



Pour 1/2 cup of the warm milk into a small bowl.

4



Mix in 2 teaspoons of store-bought yogurt.

5



Return the mixture to the pot of warm milk and stir until fully combined.

6



Carefully pour the mixture from the pot into a glass jar and screw on the lid.

7



Wrap the jar in a towel and leave it in a warm spot.

8

After 10 to 12 hours, the yogurt is ready to eat! Serve it with fruit, honey, or granola, or just eat it plain. Your homemade yogurt will last up to two weeks in the refrigerator.

When you're ready to make yogurt again, use 2 teaspoons from this first batch to make more.



WANT TO DO MORE? Visit [natgeokids.com/KidsVsPlastic](https://www.natgeokids.com/KidsVsPlastic) to take a Planet Protector pledge and get more Earth-saving tips.

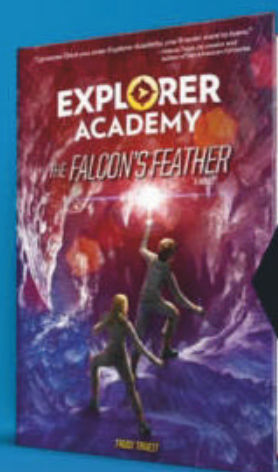
EXPLORER ACADEMY

In the new book *Explorer Academy: The Falcon's Feather*, 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: FLAG CODE

Secret messages can be hidden in real-life objects, including flags. Here, each flag represents the first letter of the country the flag belongs to. For example, the French flag would represent the letter *f*, and the Argentine flag would represent the letter *a*. Take a look at these flags from different countries below.



WIN THE BOOK!
TRY ONLINE
FEBRUARY 12-19.
natgeokids.com/march

CRACK THIS CODE!

Using the first letter of each flag's nation, decode the words below.

ANSWER ON PAGE 35

BREAK MORE CODES!
ExplorerAcademy.com



Unleashed



LOOK WHAT EMMA'S FRIENDS BROUGHT FOR US TO PLAY WITH WHILE THEY GO TO SCHOOL!

THEY ARE THE MOST ADORABLE LITTLE CREATURES I HAVE EVER SEEN!

I JUST WANT TO PINCH THEIR LITTLE CHEEKS! AAAAWWW!



HEY! WHO ARE YOU CALLING CUTE? WE MAY LOOK CUDDLY, BUT WE CAN BEAT YOU TIRED OLD FUR BALLS AT ANY GAME!

TIRED?

OLD?

CHALLENGE ACCEPTED! THE BATTLE OF THE AGES HAS BEGUN!



THE PETS COME UP WITH CHALLENGES TESTING ADULTS VERSUS KIDS.

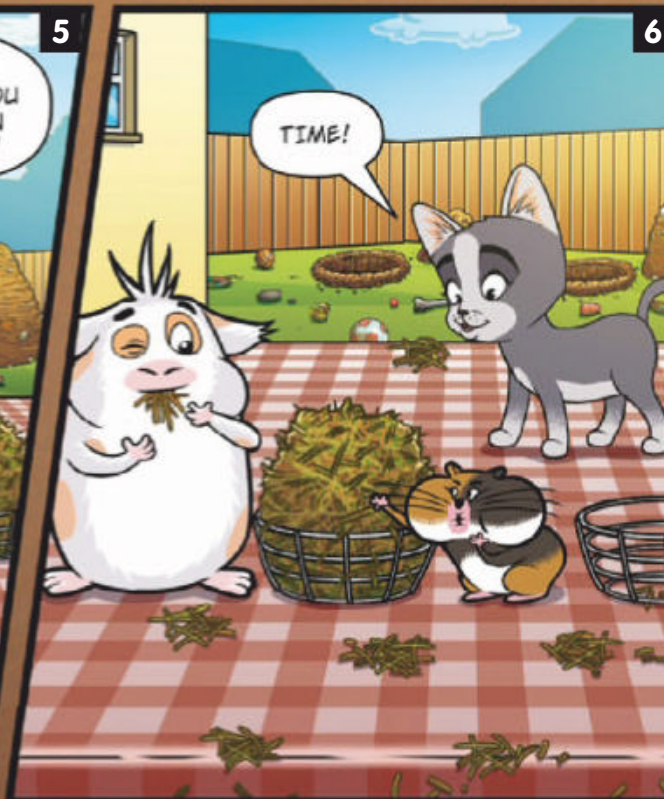
THE PUP THAT DIGS THE BIGGEST HOLE IS THE ALPHA DOG. READY, SET, GO!



TIME'S UP! THE PUPPY WINS!



GUINEA PIGS—YOUR CHALLENGE IS TO STUFF AS MUCH HAY AS YOU CAN INTO YOUR CHEEKS IN JUST 10 SECONDS! GO!



TIME!



THE FIRST CAT TO BREAK EYE CONTACT LOSES!

COME ON, PRINCESS TALLULAH! YOU'VE GOT THIS!

IT'S JUST LULU!



ARTZONE

WACKY SCHOOL SUBJECT

Nat Geo Kids readers can't wait to do their homework for these weird classes.



▲ Clover Chemistry

Eden B., 14, Oakville, Canada



How to Swim With Sharks

Holden T., 12
Memphis,
Tennessee

Animal Communication

Emily K., 9
Eliot, Maine



Draw a weird new theme park ride.

Send us
your
original
drawings:

**Nat Geo Kids—
Park Art Zone**
P.O. Box 98002
Washington, DC
20090-8002

Include your name, address, phone number, date of birth, a title for your drawing, a statement that it is your own work, and the name of your parent or guardian. Your parent or guardian must sign a release for publication if your illustration is selected. Submissions become the property of National Geographic Partners, and all rights thereto are transferred to National Geographic Partners. Submissions cannot be acknowledged or returned. Selection will be at the discretion of Nat Geo Kids.



▲ Skydiving Class

Andrew C., 14
West Des Moines,
Iowa



▶ Rocket Class

Emilio G., 10
El Paso, Texas

▼ Mountain Climbing Class

Olivia L., 11
Raleigh,
North Carolina



▲ Wizardry 101

Macie C., 13, Roslyn, New York

▼ Travel 101

Sarah O., 15, Cocoa Beach, Florida



▼ Bird Watching Class

Allyson Z., 12, Garnet Valley, Pennsylvania



Answers

"Bowling Freeze-Frame"
(page 28): 1. Baboon fries fish.
2. Boy films frog. 3. Bowler feeds
ferret. 4. Bulldog fries fairy. 5. Bicyclist
finds fortune. 6. Bees frighten family.
7. Baker fans feet.

"What in the World?"
(page 29): **Top row:** grapes, green
beans, limes. **Middle row:** lettuce,
celery, honeydew melon. **Bottom row:**
broccoli, tomatoes, brussels sprouts.

"Explorer Academy"
(page 31): North Star