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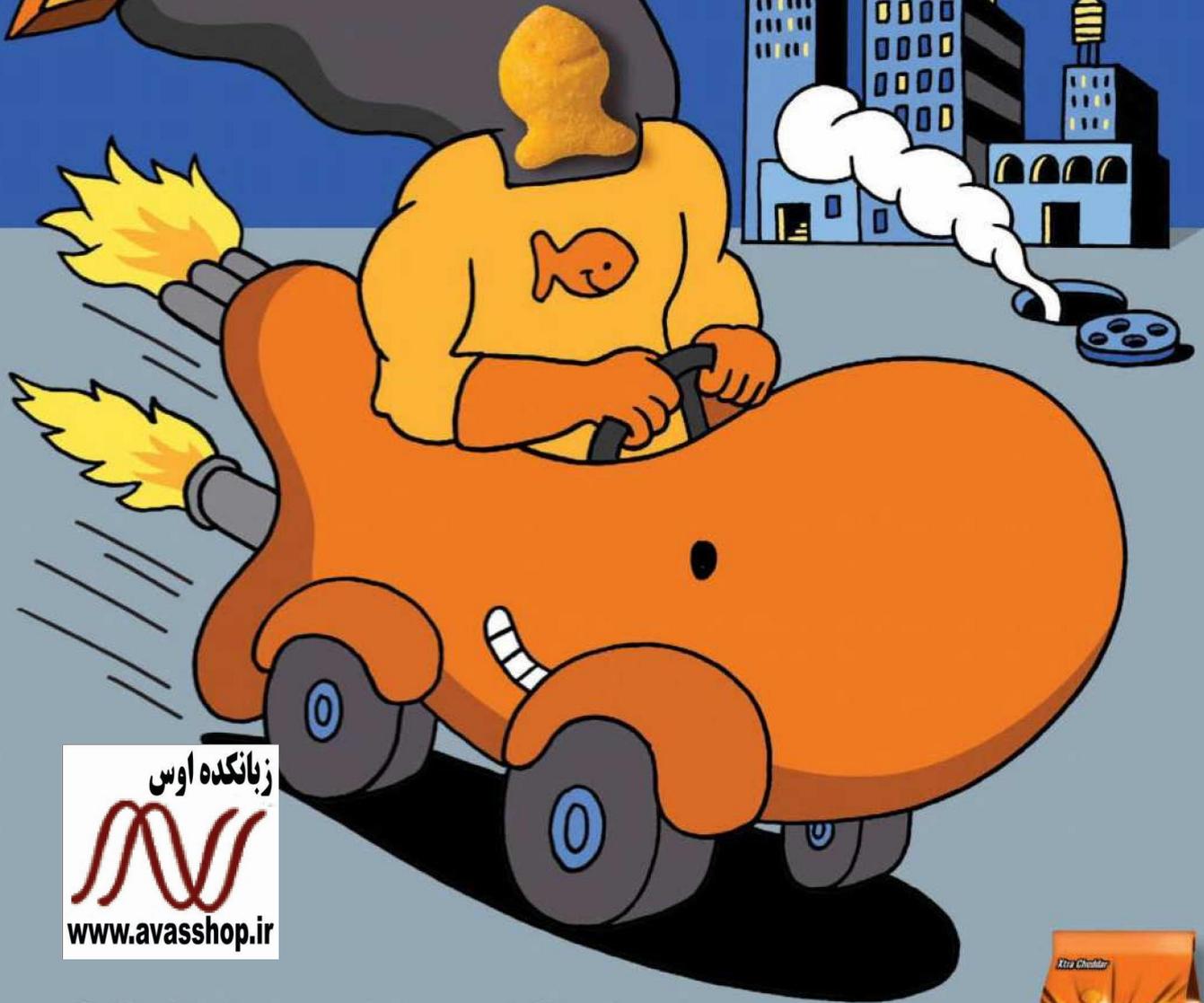
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COVER: GRAHAM S. JONES, COLUMBUS ZOO AND AQUARIUM (CHEETAH AND DOG); MICHELE WESTMORLAND / GETTY IMAGES (CUSCUS); JOE PEPLER / REX / SHUTTERSTOCK (HORSE); MONDOLITHIC STUDIOS (ART); CHRIS M. LEUNG (SURFING DOG), PAGE 3; ISOBEL SPRINGETT (DOG AND HORSE); © MONDOLITHIC STUDIOS (ART); © ALAN MURPHY / BIA / MINDEN PICTURES (HAWK); KIM IN CHERL / MOMENT RF / GETTY IMAGES (FENNEC FOX)

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# weird but true!

Check out these  
outrageous facts.



Check out  
the book  
and app!

**ELEPHANTS**  
can run faster  
than most  
humans.



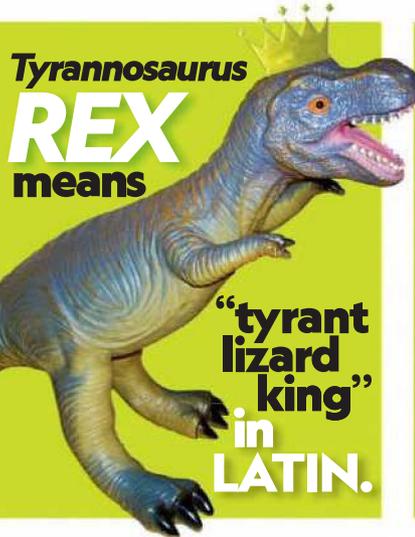
**SAND**  
melts  
at around  
**3,000°F.**

There's  
**real**  
**GOLD**  
in the  
**sun.**

The  
dots  
on  
dice  
are called **pips.**



*Tyrannosaurus*  
**REX**  
means



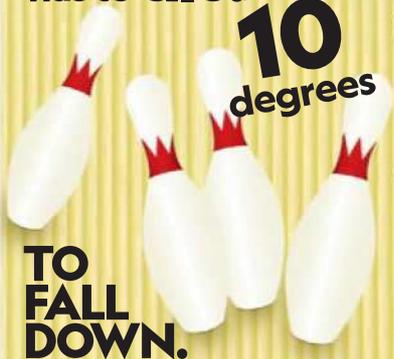
“tyrant  
lizard  
king”  
in  
**LATIN.**

**11,000**  
is the  
average  
number of people  
**BORN**  
every day in the  
United States.

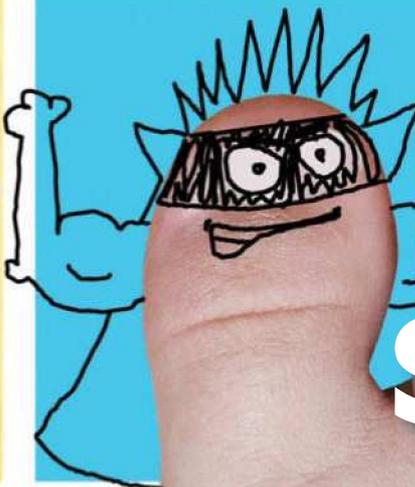


It costs about  
cents  
**6** to make a  
**nickel.**

**A BOWLING PIN**  
has to **tilt** about  
**10**  
degrees



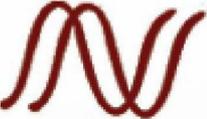
**TO  
FALL  
DOWN.**



**TOE  
WRESTLING  
IS A  
COMPETITIVE  
SPORT.**

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# LOST IN SPACE

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**know**

# 6 facts of incredible size

BY ERIN WHITMER

Check out  
the book!



**1** A beverage company created a **giant ice-cream float** made with 2,850 gallons of cola and 7,200 scoops of ice cream.

**2** More than **200 people** could fit inside the world's **biggest igloo**.

**3** The **heaviest lizard**, the **Komodo dragon**, can weigh more than **two grown women**.

**4** The **smallest known spider** is smaller than the **period** at the end of this sentence.

**5** One of the **smallest dinosaurs**, a *Fruitadens*, was about as tall as a **toy poodle**.

**6** **Vatican City** in Italy is the world's **smallest country**, covering only **one-fifth** of a **square mile**.

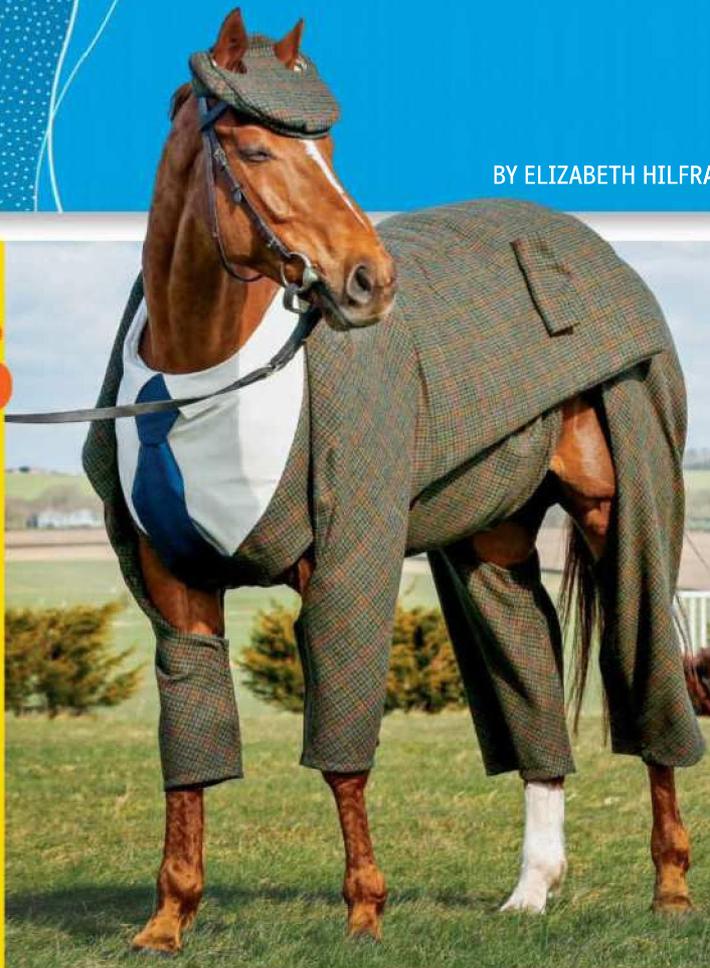


# GUINNESS WORLD RECORDS

BY ELIZABETH HILFRANK

## HORSE WEARS SUIT!

**H**ere's something you've probably *neigh*-ver seen before. Morestead the chestnut gelding racehorse holds the title for first horse in a three-piece suit. Designer Emma Sandham-King created the tweed suit as well as a shirt, tie, and cap. Then Morestead made his runway debut at a horse-racing festival in England famous for its tweed fashions. To cover the animal, Sandham-King used enough cloth for 10 average-size human suits. Somebody give Morestead an award for "Best Dressed."

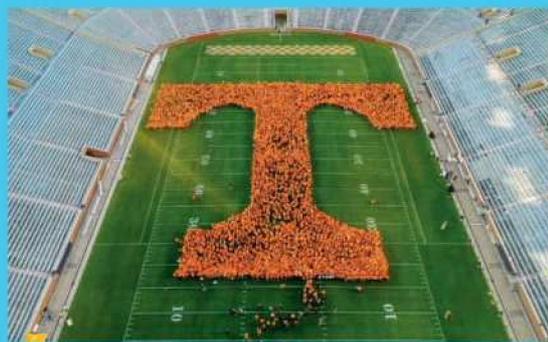


## BIG BIKE

**T**hey're going to need an extra-wide bike lane for this bike to make it down the street. Jeff Peeters of Mechelen, Belgium, built the world's heaviest bike using only recyclable materials. Weighing more than 1,900 pounds (slightly more than a cow) the bike took Peeters more than six months to make. To earn the title, Peeters had to ride the bike half a mile without stopping—on a straight path, of course. This bike's too big to handle any tight turns!

## SUPER-LARGE LETTER

**I**f an "A" is good and an "F" is bad ... what about a "T"? Students and teachers from the University of Tennessee gathered to form the world's largest human letter. More than 4,000 people (plus one dog) filled the width of the school's football field and stood still for five minutes. Dressed in the school color of orange, the crowd formed a giant letter "T" for the word "Tennessee." Talk about school spirit.



## GALÁPAGOS WILDLIFE

Meet some awesome animals that exist only in and around the Galápagos Islands.

BY JEN AGRESTA AND SARAH WASSNER FLYNN



1

### LEAPING LOCUSTS!

It's no surprise that **large painted locusts** are related to grasshoppers; both insects share a super jumping ability. These locusts can leap 9.8 feet, which is helpful when they're fleeing from their predators: lava lizards and Galápagos hawks.



2

### WILLING TO ADAPT

Penguins in warm waters? **Galápagos penguins**, which live farther north than any other penguin on Earth, are the only penguins that reside in the Northern Hemisphere. They've found creative ways to adapt to their isolated habitat: They build their nests with lava rocks!



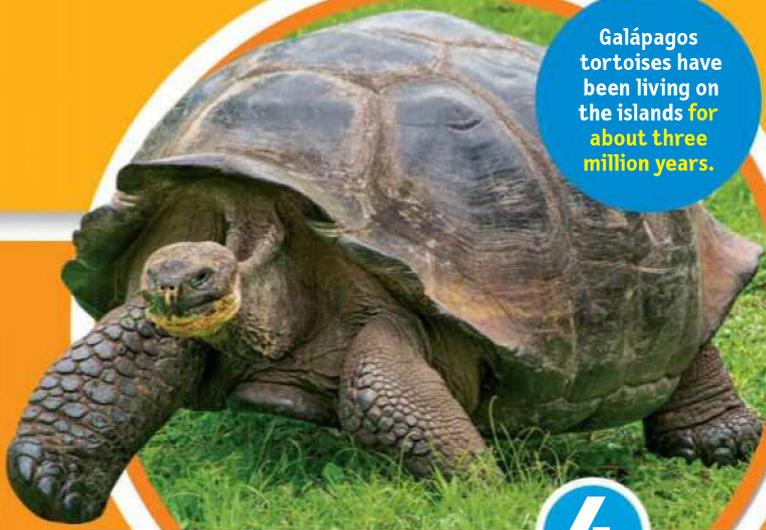
3

### A BIRD THAT MOOS

The **waved albatross**, the largest bird on the Galápagos, has a wingspan of 7.2 feet. But what's even more impressive is its courtship dance. Couples nod heads, clack their bills, waddle, and let out a cowlike moo!



Galápagos tortoises have been living on the islands for about three million years.



4

### OLD-TIMERS

Galápagos tortoises are the longest living vertebrates: up to 152 years old! Hunting and the introduction of new predators have decreased their numbers, so they're now protected by the Ecuadorian government. Galápagos tortoises eat grasses, leaves, and cactus, and sleep up to 16 hours a day.

### CATCHING Z'S

Like many sea lions, Galápagos sea lions can be found lounging on beaches. They head to the sea to catch fish but generally tend to stick close to shore. About 50,000 sea lions call the Galápagos home.



5



6

### WADE A MINUTE

Flightless cormorants have adapted so that they don't need their wings for flight; they wade into the water for their food. Living on just two islands in the Galápagos, they propel themselves through the water by kicking their strong legs to chase down prey, including octopuses, fish, and squid.



7

### TOP HUNTER

One of the only natural predators on the islands, the Galápagos hawk feeds on anything it can get its talons on: rodents, birds, lizards, baby tortoises, and sea turtles. It uses the same nest—which is up to 9.8 feet deep—over several seasons.

Marine iguanas sneeze frequently to get rid of sea salt from glands near their noses.



8

### YOU CALLING ME CLUMSY?

English naturalist Charles Darwin called marine iguanas the "most disgusting, clumsy lizards." These odd-looking reptiles also have a unique adaptation: They're the only iguanas that can swim and hunt underwater. Although they look fierce, they survive almost exclusively on algae.

9

# AMAZING ANIMALS

SIT?  
STAY? PLEASE.  
I CAN DO  
BETTER  
THAN THAT.

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## Dog Hangs Ten



Abbie Girl's natural sense of balance might help her surf.



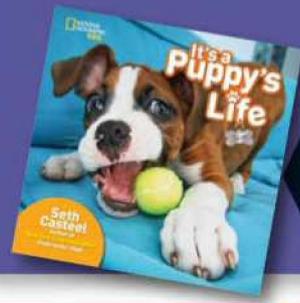
Abbie Girl and owner Michael Uy surf together at least a few times a week.



### Pacifica, California

This dog knows how to catch—how to catch waves, that is! Abbie Girl the Australian kelpie took the top prize at the World Dog Surfing Championships for the second year in a row, where she surfed the largest and longest waves. “She nailed it in every category,” competition judge Charly Kayle says.

Owner Michael Uy started taking Abbie to the beach after adopting her more than 11 years ago. Once the dog got used to the water, she eventually hopped on a surfboard. “Working kelpies herd sheep by running across their backs,” Uy says, noting her breed’s natural instinct might help Abbie balance. The dog also rides a custom board that’s lighter, thinner, and soft on top so she can dig in her claws. And nobody minds the wet dog smell!  
—Aaron Sidder



Check out this book!

# Pig Saves Owner

Las Vegas, Nevada

Jordan Jones was playing outside when suddenly a growling dog lunged toward him. Terrified, the boy could barely react. But just in time, Jordan's potbellied pig Dasiey jumped in front of the dog, fending off the angry animal.

Jordan's mom, Kim Jones, heard Dasiey's squeals and ran outside. "Jordan was just frozen, not moving," she says. "Dasiey was backed into a corner but still standing up to the dog." At one point Dasiey's head was locked in the dog's jaws. But she refused to give up.

Jordan's dad finally untangled Dasiey and the dog. Jordan was fine, as was Dasiey after a few stitches. "If Dasiey hadn't been there, the dog would've attacked Jordan," Jones says. "Dasiey will always be our hero."

—Christina Chan

JUST CALL ME SUPERPIG!



NEXT TIME I'LL ASK FOR DIRECTIONS.

# Seal Pup Mystery

Carnforth, England

The last thing anyone expected to see in the middle of a country road was a seal pup. But there was Ghost, two miles away from the nearest river and about eight miles from his ocean habitat. How did the motherless youngster get so far from home?

"You never see seals this far inland," wildlife rescuer Nick Green says. "I figured whoever reported the seal had made a mistake." Seals often hunt where rivers meet the sea, so one possibility is that Ghost swam too far

upriver and got lost. But the fact that he left the river and made the difficult journey over land stunned rescuers.

"They feel safest in the water," Green says. "This was extremely unusual, and we'll never know the reason."

Luckily, Ghost was healthy and unharmed, so he was released back into the Irish Sea less than two weeks later. "He swam right off," Green says. The mystery remains unsolved, but at least the story has a happy ending.

—Aline Alexander Newman

## DOG

Pacifica, California

## PIG

Las Vegas, Nevada

## SEAL

Carnforth, England



MARK RALSTON / AFP / GETTY IMAGES (ABBIE, MAIN); CHRISTOPHER BRISCOE (ABBIE SURFING); MICHAEL UY (ABBIE, PROFILE); CHRIS W. LEUNG (ABBIE AND MICHAEL, STANDING); MICHAEL SHARKEY (DASIEY); RSPCA PHOTOLIBRARY (GHOST)

# INCRECIBLE ANIMAL FRIENDS



# 10

true stories about surprising BFFs



▲ EMMETT

▲ CULLEN

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# TORTOISE TAKES IN HIPPO

## MOMBASA, KENYA

When Owen the hippo was a baby, a tsunami separated him from his family. He was rescued and taken to the Haller Park wildlife sanctuary in the African country of Kenya. But Owen couldn't stay with the park's other hippos because they wouldn't accept the little guy. The park staff decided to put him in an enclosure with a tortoise named Mzee.

In need of a friend after his ordeal, Owen followed Mzee everywhere. At first Mzee wasn't so sure about this new admirer. But soon the two became great pals. Owen even started behaving like a tortoise, eating the same foods Mzee ate and sleeping at night instead of during the day like most other hippos. And while tortoises aren't known for



their social behavior, Mzee seemed to enjoy spending time with his hippo friend. The two ate leaves together, went for swims together, and took long naps together. Mzee would even stretch out his neck so Owen could affectionately lick him!

# DOG CALMS CHEETAH

## COLUMBUS, OHIO

For the first few weeks of his life, Emmett the cheetah cub had pneumonia and required around-the-clock care. Kind humans at the Wilds conservation center in Cumberland, Ohio, oversaw his recovery. But once Emmett was better, he moved to the Columbus Zoo and Aquarium.

Cheetahs are naturally cautious animals. But Emmett had a rough start. So the zookeepers thought it was important that he find a friend. Like people, some animals can get lonely. Having a friend—an animal to interact with, and even cuddle with—is important for development. That's where Cullen came in: This bundle of fur was destined to become Emmett's adorable puppy pal.

The pair love playing together. Best of all, Emmett and Cullen are helping the Columbus Zoo raise awareness about cheetahs to help protect this endangered species.



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GRAHAM S. JONES / COLUMBUS ZOO AND AQUARIUM (EMMETT AND CULLEN);  
PHOTOGRAPH COPYRIGHT 2006 BY PETER GRESTE (OWEN AND MZEE, TOP);  
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IT'S  
SHOW-  
TIME!

DALLY

SPANKY



YODA

## LLAMA COMFORTS SHEEP

FELICITY



### LOS ANGELES, CALIFORNIA

Felicity the sheep was severely mistreated until she was rescued from her former living situation. At her new home, the Barbados blackbelly sheep never quite bonded with the other sheep and spent her time alone. Until she befriended a goat named Claire, that is.

Claire was rescued around the same time as Felicity; the duo were known as pals around their new home, the Farm Sanctuary. But after a while, Claire began to spend more of her time with the other goats. In Claire's absence, a gentle llama named Yoda stepped up to look after the shy sheep.

Felicity and Yoda enjoy going for walks on the hillside, grazing in the fields, and napping together. Felicity can even tuck her little body beneath Yoda's larger one when she's feeling shy or scared, which some experts say comforts the anxious sheep.

As Felicity gets used to her new home, she's also gotten less nervous around her human caregivers. She now takes treats from them, something she wouldn't have done previously. Maybe the sweet, soothing llama has more in common with a certain Jedi master than just a name!

# HORSE- RIDING DOG

## NEAR SPOKANE, WASHINGTON

Spanky the miniature horse was a bit of a troublemaker when Francesca Carsen first rescued him. The horse would get aggressive with humans and other horses, sometimes kicking and even biting them. But Carsen knew that with the right training, Spanky could be a happy, well-behaved horse.

Soon after, Carsen adopted a tiny Jack Russell terrier named Dally. Spanky and Dally had a normal horse and dog relationship, with Dally watching Spanky learn to jump and do tricks. But one day, Dally jumped from a stool right up onto Spanky's back! The unlikely twosome soon became fast friends.

Today they travel around the country performing tricks together for audiences. They're an incredible sight to see, plus their friendship has made Spanky a kinder, happier horse. Now he gets along with humans and horse friends alike.



STRIPED FRIENDS FOR THE WIN.

KITTEN

# CAT CARETAKER

## TE HORO, NEW ZEALAND

Sometimes cats have an unfriendly reputation. Not Kitten the cat. A longtime resident at Free as a Hawk Refuge, Kitten is known for being exceptionally nurturing toward other animals.

Kitten's owner thinks that because the cat was so well cared for when she was young, she might believe that all kinds of animals at the sanctuary need

taking care of—including ducks, lambs, possums, and others.

Most recently the feline has been caring for a baby emu that hatched at the refuge. The striped pair spend most of their time snuggled together on a comfortable couch, with Kitten grooming the sleeping emu's long, feathered neck.

# PUP BEFRIENDS GOATS

## CUMBERLAND, MAINE

Lola, a tiny Maltese/Chihuahua mix, was struggling to make friends at the Sunflower Farm Creamery. But then she met Princess Leia and Ladybug, her soon-to-be BFFs. The fact that they were goats didn't seem to bother Lola!

The trio—known as the Triple L Squad around the farm—became inseparable. Princess Leia and Lola, the closest of the group, would follow the farm's owner, Hope Hall, and her family on their daily chores. The little puppy and the playful goats chase each other around the hen coop and jump off of hay bales before settling down to snooze together. Princess Leia, Lola, and Ladybug may be small, but their friendship is anything but.

PRINCESS LEIA

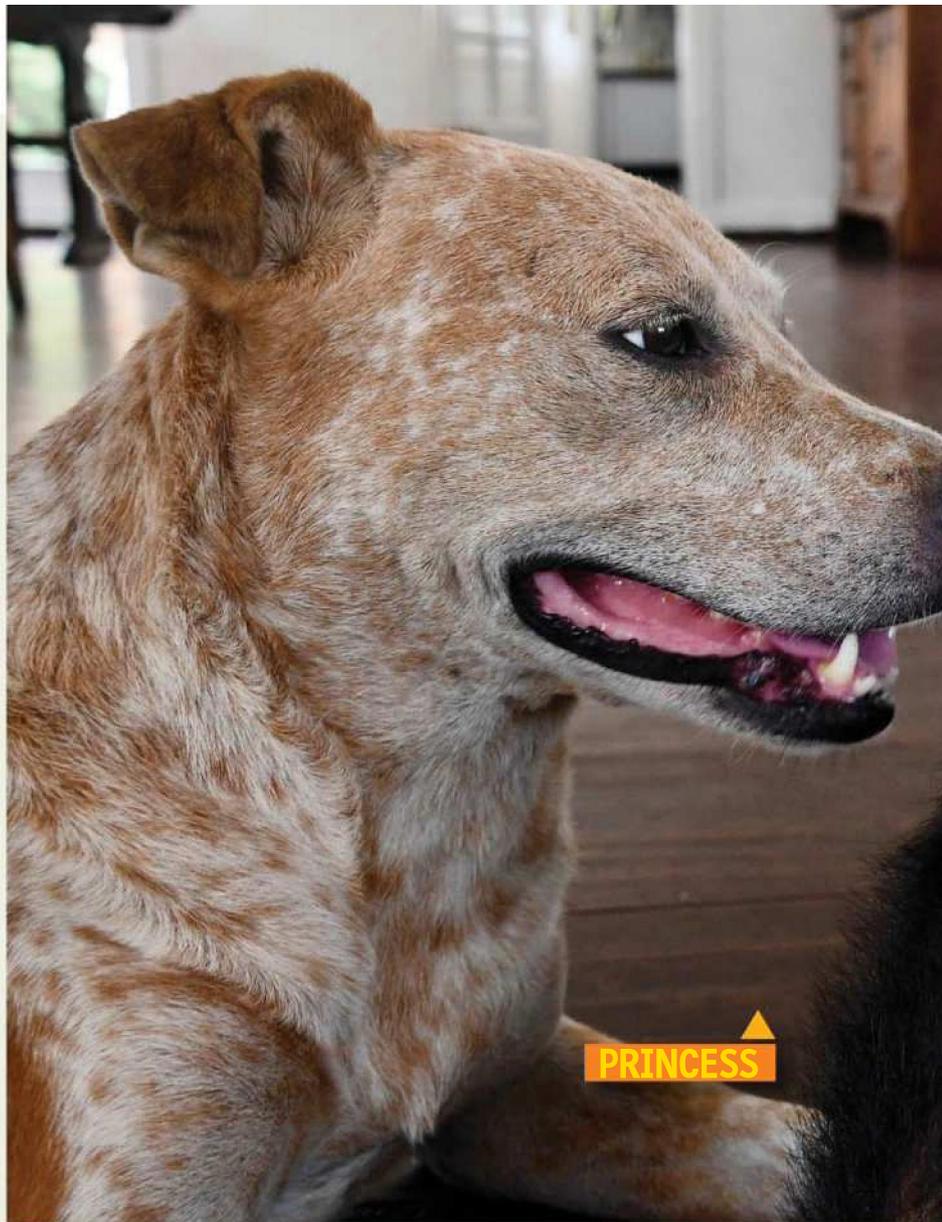
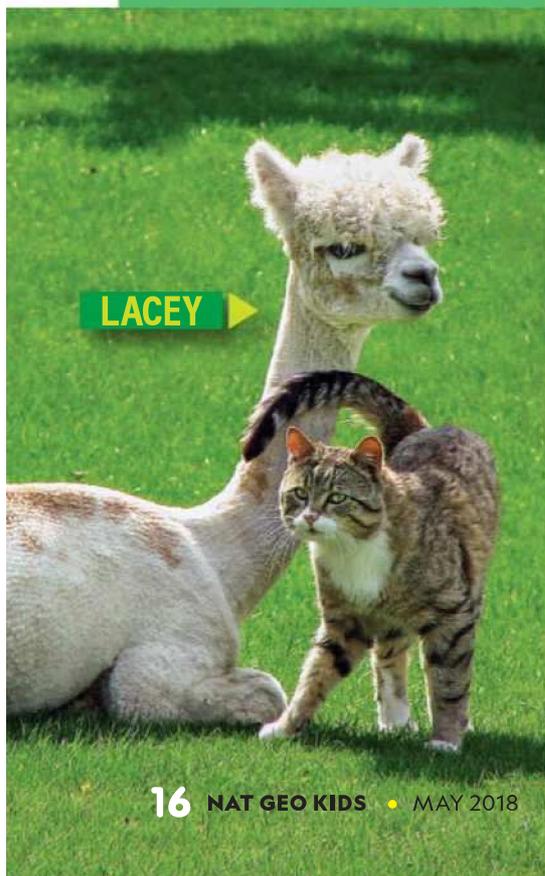
LOLA

# ALPACA IS CRAZY FOR CATS

## ALBERTA, CANADA

When Lacey the alpaca was born at A to Z Alpacas, her mother couldn't feed her. So the farm's owner, Leslie Unruh, stepped in and began bottle-feeding the newborn alpaca. Lacey wasn't always the tidiest eater during her meal times. But the cats on the farm didn't complain! The felines began to hang around during Lacey's feeding times, hoping to lap up the milk that dripped to the floor from the bottles.

Then the cats began spending their time with her even when Lacey wasn't eating. At night the cats snuggled up with the alpaca to keep warm. During the day, they'd follow her around the farm, playfully chasing her before napping together on the front porch. What began as some stolen slurps of milk blossomed into a full-blown friendship!



# FAWN BEFRIENDS RESCUED RABBIT

## BUFFALO, NEW YORK

When Leondra Scherer, a wildlife rescuer and rehabilitator, got a call in late fall that a fawn needed help, she thought it was a mistake. Baby deer are typically born between May and August in upstate New York, and it would be rare for one to be born so late in the year. But sure

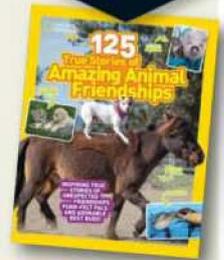
enough, Scherer found an orphaned one-day-old fawn in desperate need of care.

Scherer named the fawn Pumpkin and brought her home to tend to her. Scherer would've loved for Pumpkin to have an animal companion she could interact with, but all of the other fawns at the farm were much older than Pumpkin and ready to be released back into the wild.

That's when Scherer adopted Chunk, a laid-back rabbit. "I wasn't sure if it would work," Scherer says. But when she introduced the two, Chunk immediately hopped over to the fawn for snuggles and a nap. "If you see a picture of Pumpkin and you can't see Chunk... he's there, he's just burrowed beneath her!" Scherer says.

YOU ALWAYS HAVE MY BACK.

Check out the book!



# DOG FOSTERS CHIMPS

## LIBERIA, AFRICA

Princess the dog was so wild, no one ever thought she'd be adopted. But after a few months of kindness and training with Jenny and Jimmy Desmond, she finally found a home.

When the Desmonds moved to Liberia, a country in West Africa, to rescue and rehabilitate chimpanzees, Princess went too. She loves spending her time wrestling and playing tag with the chimps, including Jack. She even acts as their protector, barking at other

animals that get a little too close to Jack and his friends.

Jack's fellow chimp, Portea, was in bad shape when she got to the Desmonds. At her previous home she had been treated badly and was now skinny and depressed. The Desmonds gave Portea around-the-clock care, but Princess helped the most. Thanks to the dog's attention, "Portea transformed from shy and sad to happy and energetic," Jenny Desmond says. Portea lives with the other chimps now, but she always has time to play with Princess.

JACK

I THINK I'LL STICK WITH YOU.

LAMMIE

# RHINO LOVES LAMB

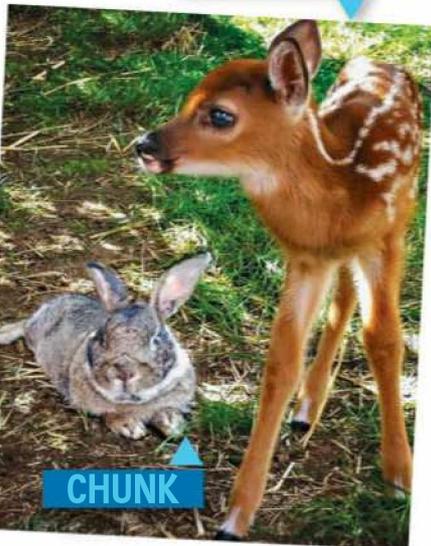
## KAPAMA PRIVATE GAME RESERVE, SOUTH AFRICA

Gertjie the rescued rhino was in need of a companion. His caretakers at the Hoedspruit Endangered Species Centre had tried to pair him with other animals, but they couldn't find a match.

Enter Lammie. The three-week-old lamb hadn't bonded with humans, which increased the likelihood of her making friends with Gertjie. When the

staff put the two animals together, Lammie immediately took to Gertjie, snuggling up to him right away. Lammie started following the rhino everywhere, and now the two are great friends. Gertjie even imitates Lammie's hopping movements—but with much heavier hooves!

PUMPKIN



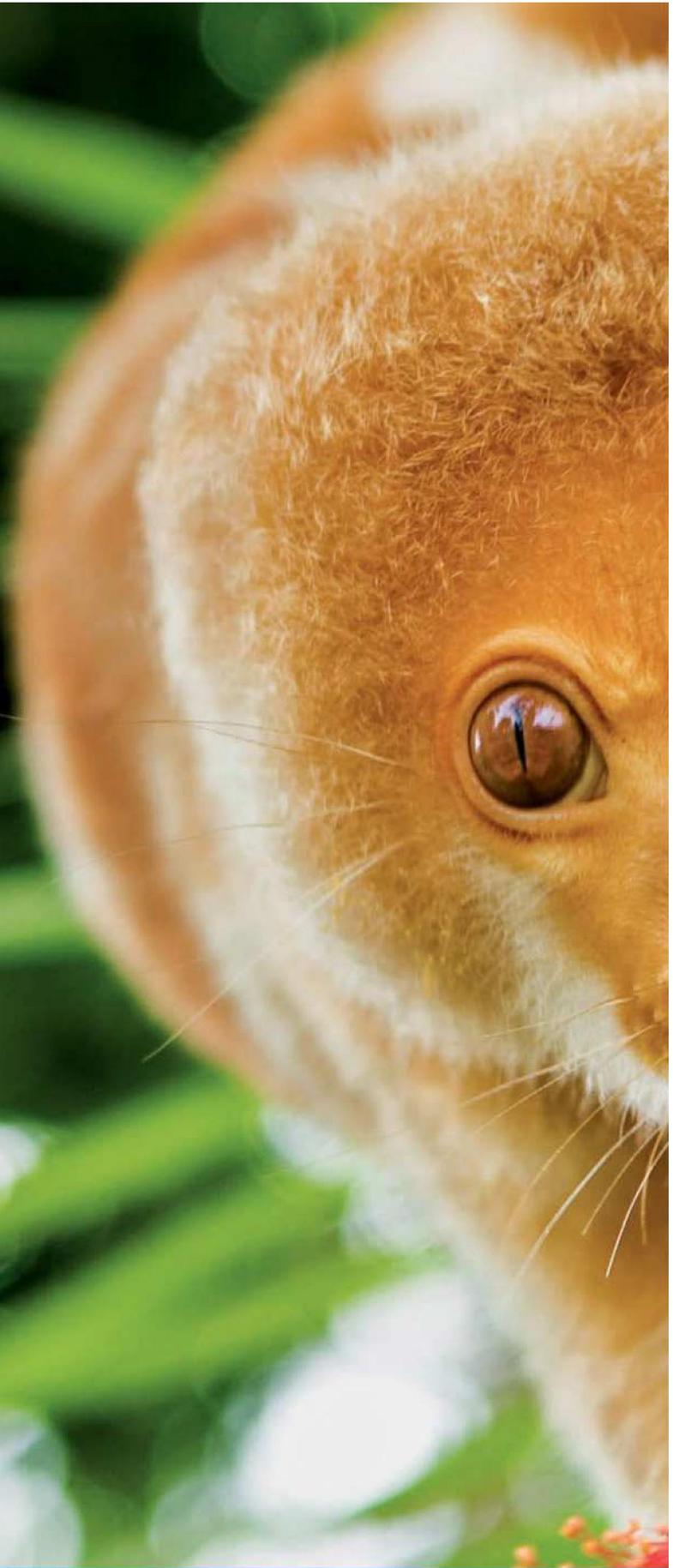
CHUNK

GERTJIE





NATIONAL  
GEOGRAPHIC  
KIDS



The common spotted cuscus is a marsupial, like a kangaroo or koala.

The slow-climbing mammal uses its long



tail to grip branches.

It eats fruit, leaves, birds, and reptiles in its home in New Guinea and northern Australia.

# FUTURE WORLD

BY KAREN DE SEVE  
ART BY MONDLITHIC STUDIOS

**A** buzzer goes off, marking the start of a race. Your heart is pounding—not that you can hear it over the sound of revving engines. Your car weaves through the other vehicles, making its way to the front of the pack. Peering through the windshield, you see the finish line ahead. Your car crosses first! The crowd roars.

You aren't actually in the car. But thanks to a pair of smart glasses you're wearing in the stands, you experienced exactly what the real driver did on the course.

"In the future, advanced technology will enable us to feel as if we're part of the event," says Aymeric Castaing, founder of Umanimation, a future-tech media company. Take a peek at more ways we'll be entertained by 2060 and beyond—but first, check out two terms to know.

**1. Augmented reality (AR):** Technology that layers computer-generated images onto things in the real world (like in "Pokémon GO")

**2. Virtual reality (VR):** A computer-generated experience that makes you feel as if you're inside a totally different world

## SUPER STADIUMS

Didn't see that catch? No worries: In the future, 3-D holograms could appear in midair above the field to show replays of sports moments. For some events, you'll even get a seat in a flying pod that can put you close to the action. (The pod even flies you home afterward!) Meanwhile, say goodbye to long lines for food or team jerseys. Through an app, flying drones will deliver anything you order right to your seat.

## GAME ON

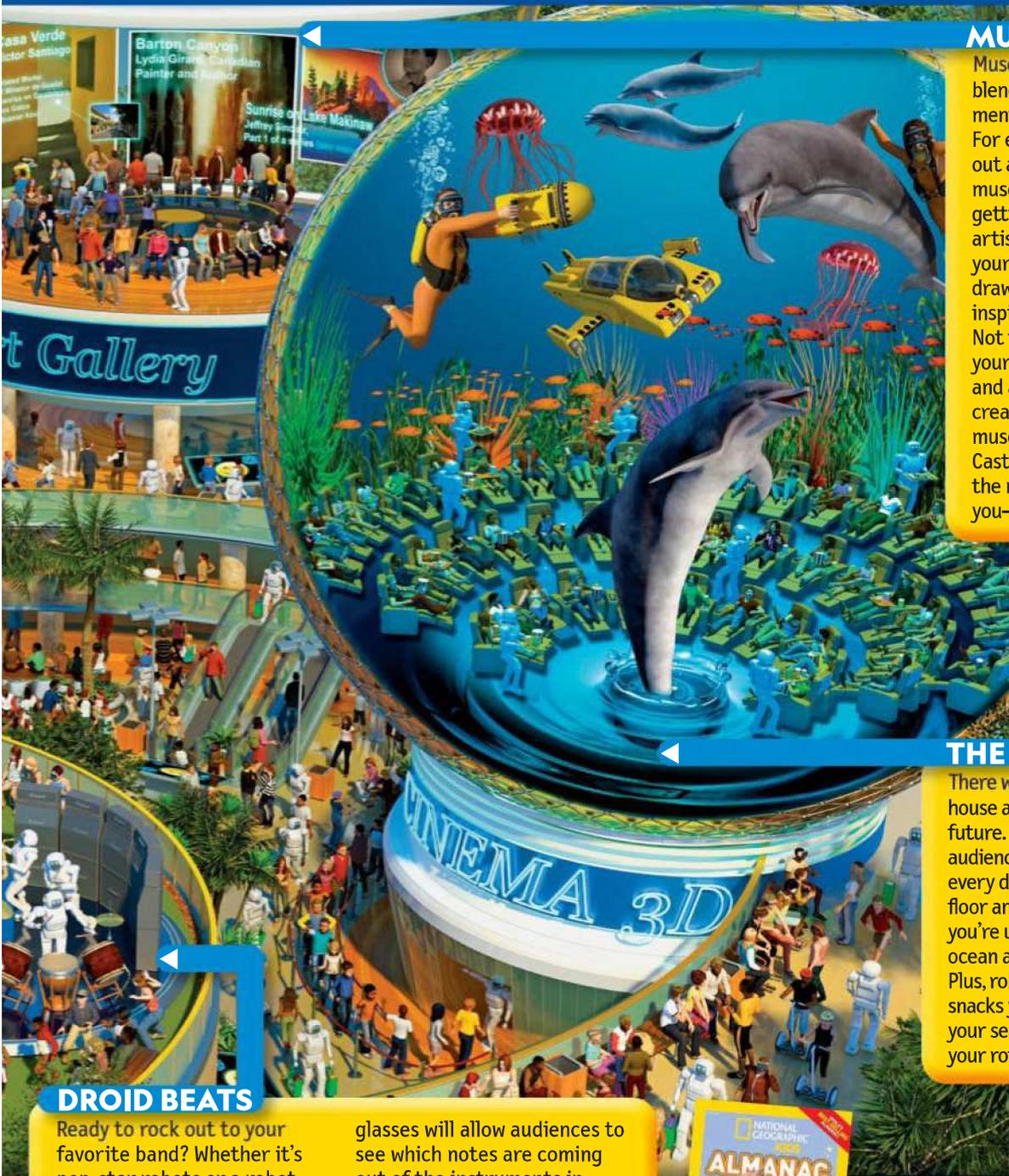
A colorful alien zooms directly toward you, attempting to knock you aside with its spaceship. You put your hands in front of you, blocking the alien with a powerful force field. As the alien and its crew retreat in defeat, a crowd cheers your dramatic victory.

To the group assembled in front of you in the park, it looks like you're in outer space and just took down an alien in a

spaceship—thanks to virtual reality (VR) goggles and a suit with motion sensors that detect your movements. Everything you saw through your goggles was projected onto a video screen at a virtual gaming playground. There, the audience can watch and cheer you on as you go up against the aliens. They can also wear headsets and feel as if they're in outer space too!



# Entertainment



## MUSEUMS TO GO

Museums of the future will blend real life with augmented *and* virtual reality. For example, you can check out a sculpture at an art museum with AR glasses, getting details about the artist and style. Then using your VR headset, you can draw your own masterpiece inspired by what you saw. Not feeling creative? “Using your in-home VR headset and a 3-D printer, you can create what you saw in the museum in your bedroom,” Castaing says. It’s like taking the museum home with you—sort of.

## THE BIG SCREEN

There won’t be a bad seat in the house at movie theaters in the future. Films will surround the audience with 3-D screens in every direction... including the floor and ceiling. You’ll feel like you’re underwater at the latest ocean adventure blockbuster. Plus, robots will deliver the snacks you’ve ordered from your seat’s tablet directly to your rotating chair.

## DROID BEATS

Ready to rock out to your favorite band? Whether it’s pop-star robots or a robot orchestra conductor, future music may be in nonhuman hands. And audiences won’t just hear music played by robots—they’ll be able to see it. Augmented reality (AR)

glasses will allow audiences to see which notes are coming out of the instruments in front of them. “AR glasses could even enable beginning musicians to take their lessons on the go,” Castaing says. “The glasses could essentially become their teacher.”



WIN THIS BOOK! TRY ONLINE APRIL 19-26.  
[natgeokids.com/may](http://natgeokids.com/may)

# HURRICANE RESCUE

**BRAVE PEOPLE FACE DANGEROUS STORMS TO SAVE A HAWK, TWO MANATEES, AND OTHER HELPLESS ANIMALS.** BY SCOTT ELDER

**A** confused hawk stands weakly on a Texas road. Two manatees flounder on a Florida beach. They're all in the path of deadly hurricanes, desperate for help.

Last summer, hurricanes Harvey, Irma, and Maria barreled through parts of the United States. Dangerous winds—some nearly 200 miles an hour—and historic flooding toppled power lines, destroyed buildings, and blocked roads. Many people fled to safety or sheltered in their homes until the storms passed. But other people needed rescuing—and so did some animals.

Luckily brave people all over the country stepped up to help not only their human neighbors, but their animal neighbors as well. Read on for heroic stories about animal rescues.

After struggling to move the heavy manatees (one below), rescuers pulled the animals to safety on a tarp (bottom).

## MANATEE MOVERS

**T**he two manatees are stranded. Winds from Hurricane Irma are so extreme that they've blown the sea a hundred yards away from the shore in Sarasota, Florida. Trapped on land, the sea mammals won't survive unless they get back to the water. But it's a football field away.

Michael Sechler and two friends quickly realize the manatees are in trouble. "We wanted to help," he says. Unsure if the water would return in time to save the sea creatures, the friends try to nudge the manatees toward the water. "But these guys are probably over 800 pounds," Sechler says. "There was nothing the three of us could do."

## HEAVE-HO!

Thinking quickly, Sechler posts for help on social media and calls everyone he knows. Almost immediately, local residents join police officers to rescue the helpless pair.

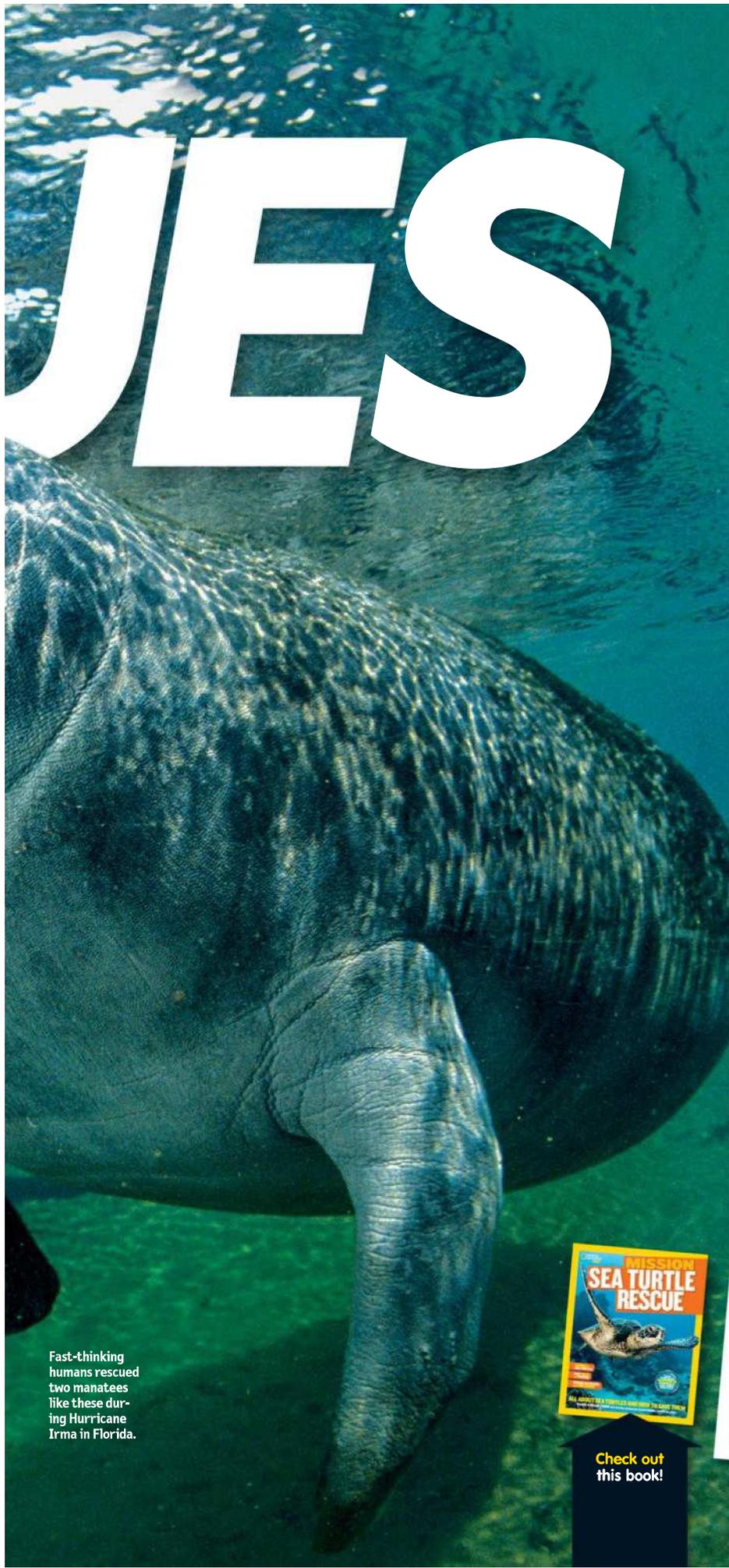
But the extra muscle can't budge the sea mammals out of the shoe-swallowing muck. So rescuers come up with a solution: One by one, the giant

creatures are rolled onto a heavy-duty tarp. Grabbing the tarp's edge, the helpers drag the manatees to the water.

As the hurricane gets stronger, the two manatees swim into the safety of the ocean. "Everyone was hunkering down for the hurricane," Sechler says. "But we set aside our own problems to help these guys out."



# JES



Fast-thinking humans rescued two manatees like these during Hurricane Irma in Florida.



Check out this book!



## HELP FOR A HAWK

Usually Cooper's hawks perch themselves high above the ground on tree branches. So taxi driver William Brusco is surprised to see the dazed foot-tall bird standing on the roadside in Houston, Texas, unable to fly away as Hurricane Harvey approaches.

When he pulls to the side of the road, the hawk suddenly hops through the car's open window and refuses to leave. The bird doesn't appear injured, so Brusco figures it wants shelter from the storm. "The hawk sought refuge in my taxi," he says. "I had to keep it safe."

Not knowing what to do, Brusco posts a video on social media asking for help. Wearing heavy gloves, he then carries the hawk—which he nicknames Harvey—into his home as the storm barrels into the city. »



Harvey the hawk seeks shelter in a taxi during Hurricane Harvey in Texas.

## LIFE-THREATENING INJURY

Bruso's video quickly goes viral and is seen by wildlife rehabilitator Liz Compton. She can see from Harvey's droopy wings, inability to fly, and abnormal calmness that something is wrong and rushes to Bruso's apartment before the roads flood. "Without care from an experienced rehabber, Harvey won't survive," says Compton, who works for the Texas Wildlife Rehab Coalition (TWRC).

Harvey's physical exam reveals no broken bones, but Compton suspects the bird has a head injury.

"Cooper's hawks often hit their heads on something like a branch while hunting," she says. "That's why Harvey couldn't fly."

Back at the TWRC's wildlife center, Compton gives the hawk medication to reduce brain swelling, and fluids to fight dehydration. After a diet of soft solid food returns the injured hawk to a healthier weight, Compton discovers something else. "Harvey is female!" she says.

## SPREADING HER WINGS

A week later, Harvey is healing. "She isn't slouching her wings, and she's getting really feisty," Compton says. But before the hawk can soar free, Compton

needs to make sure she can fly. So she sends Harvey to Erich Neupert of the Blackland Prairie Raptor Center near Dallas, who "flight-tests" Harvey in a large, specialized cage. After another week, Harvey is cleared for takeoff.

Under a blue, storm-free sky, Neupert carefully removes Harvey from a pet carrier with gloved hands. Bruso takes hold too, and together they release her into the air. Harvey flies toward a nearby forest and disappears into the trees.

"Harvey got a second chance," Bruso says. "She's a symbol that we'll recover too."

With help from Ryan Moore (left, with Moose the dog), St. John rescuers load animals onto a plane.



With help from Ryan Moore (left, with Moose the dog), St. John rescuers load animals onto a plane.



**HAWKS, SQUIRRELS, and DOG**

Houston, Texas

**MANATEES**

Sarasota Bay, Florida

**CATS**

San Juan, Puerto Rico

**CATS and DOGS**

St. John, U.S. Virgin Islands

WATCH MORE PET RESCUES!  
[natgeokids.com/may](http://natgeokids.com/may)

# 5 TIPS TO PROTECT YOUR PET

When Mother Nature strikes, people must quickly evacuate to a safe place. Sometimes that means leaving a pet behind. Follow these tips to make sure your pets are taken care of.

# MORE HURRICANE HELP

Check out other stories of hurricane rescues.

## GIMME SHELTER

### Hurricane Irma, St. John, U.S. Virgin Islands

The storm ripped roofs off homes and threw boats onto land. It even knocked a hole in the wall of the local pet shelter. Still, Animal Care Center manager Ryan Moore stayed behind to help. “I look at them as my family,” Moore says. “I couldn’t just leave them behind.” The dogs and cats were safe but desperately needed food. Soon the International Fund for Animal Welfare delivered more than a ton of pet food by boat. Later, Moore traveled with all hundred pets to New Hampshire, reuniting some pets with their families while others awaited safe new homes.



## THE CATMAN

### Hurricane Maria, Puerto Rico

Nothing was going to stop Glen Venezia. Known as “the Catman,” he’d been caring for 250 of the city of San Juan’s stray cats for 10 years—and he wasn’t going to quit because of a hurricane. Braving high winds, fallen trees, and total darkness, Venezia pushed his grocery cart loaded with food to his regular stops, greeted by familiar cats (like Lolita, left) grateful for his help.

## SQUIRREL SURVIVORS

### Hurricane Harvey, Texas

The baby squirrels were in trouble. High winds had blown them from their nests, knocking them helplessly to the ground. But workers at the Texas Wildlife Rehab Coalition (TWRC) were ready. “We took in all of them,” says Liz Compton of the TWRC. Over a hundred tiny squirrels—some so young they hadn’t grown fur yet—were fed special formula every few hours. When they were old enough to survive on their own, rescuers released them into the woods.



## LUCKY DOG

### Hurricane Harvey, Texas

The rescue boat was waiting. Zoey Bonilla and her family needed to flee the waist-deep water in their apartment. But Boy the pit bull was scared and refused to leave. A neighbor promised to take care of Boy on a higher floor but later had to evacuate as well. Terrified, Bonilla alerted rescuers, who kicked in the door to rescue the dog so he could be reunited with his family.

Pets often hide during bad weather. **Know their secret places** so you can find them quickly.

**Prepare a pet kit** with food, water, medications, veterinary records, a carrier or leash, and a couple of toys. Store it in a place you can get to quickly in case you need to evacuate.

Sometimes you have no choice but to leave your pet behind. **Place a Pet Alert sticker in a front window** of your home to alert rescuers that an animal might be inside.

Make sure your **pet’s collar tag has up-to-date info** in case you get separated. Or talk to your vet about microchipping your animal, which means inserting a **computer microchip inside your pet** that shows contact information when scanned.

**Social media** is a great way to reunite pet owners with their furry friends. With a parent’s help, post pictures of displaced pets on websites of local animal shelters, and see if your city or state is posting photos as well.

# EXTREME RECORDS

**THE TALLEST, DEADLIEST, FASTEST,  
SMALLEST, HOTTEST STUFF ON EARTH**

BY JULIE BEER AND MICHELLE HARRIS



## **HOTTEST PLACE ON EARTH** **LUT DESERT**

The Lut Desert in southeast Iran is so hot that scientists once thought it was impossible for animals or plants to live there. Satellite measurements in 2005 found an air temperature of 159.3°F—the highest ever recorded. (Dalo, Ethiopia, has the highest recorded ground temperatures.) The desert is full of sand dunes and open spaces with dark, pebbled ground perfect for soaking up the sun's heat. For humans that can be deadly, but Blanford's foxes, reptiles, and spiders all make this scorching spot their home.



## **DEADLIEST BITE FORCE** **SALTWATER CROCODILE**

When scientists set out to measure and compare the bite force of different animals (like lions, tigers, and, yup, crocodiles), they found that saltwater crocodiles were the winners. (Great white sharks might be slightly stronger, but that hasn't been measured directly—yet!) These death-dealing darlings can bite down with the strongest force of them all: 3,700 pounds per square inch. That's about 25 times the force you'd use when chomping down on a piece of pizza!

A saltwater crocodile can stay underwater for more than an hour.

It's so hot and dry in parts of the Lut Desert that not even bacteria can survive there.



Fennec foxes have hairy foot-pads that protect them from the hot desert sand.

## SMALLEST SPECIES OF FOX FENNEC FOX

Fennec foxes may be the smallest of all species of fox, but what they lack in size they make up for in ears! Measuring up to six inches long, those enormous sound-scanners are actually built-in AC units. In the Sahara (and other areas of North Africa), where these animals live, daytime temperatures can soar to more than 130°F. Fennec foxes beat the heat by burrowing up to three feet in the sand and letting their oversize ears release body heat, keeping them cool.

## FASTEST FLIGHT SPEED OF ANY INSECT

### DRAGONFLY

Soaring up to 35 miles an hour, dragonflies clock the fastest flight speed of any insect. But that's just one of their skills. They can decelerate from 35 to zero miles an hour in less than a second, and they can fly backward, sideways... you name it. Dragonflies have two sets of wings—up to six inches wide—and they control each one separately, allowing them to easily change direction. To fly successfully, their wing muscles must be warm, so they either bask in the sun or whirl their wings. Their speed makes them effective hunters; dragonflies nab the prey they're after about 95 percent of the time!

A dragonfly's bulging eyes give it almost 360-degree visibility.

## TALLEST MOUNTAIN ON EARTH

### MAUNA LOA VOLCANO

Think the tallest mountain on Earth is Mount Everest? Surprise! It's Mauna Loa, an active volcano in Hawaii. Before you demand a re-measure, here's the scoop: At 56,000 feet from its peak to its base, Mauna Loa is almost twice as tall as Mount Everest's 29,035 feet. So why doesn't it look like it? Because only a quarter of Mauna Loa is above water! Its base is depressed 26,200 feet below the ocean floor.

Mauna Loa is so massive that it actually sunk the ocean floor 26,000 feet in the shape of an inverted cone.



Check out the book!

# FUN STUFF

GAMES,  
LAUGHS,  
AND LOTS  
TO DO!

## Brain Games

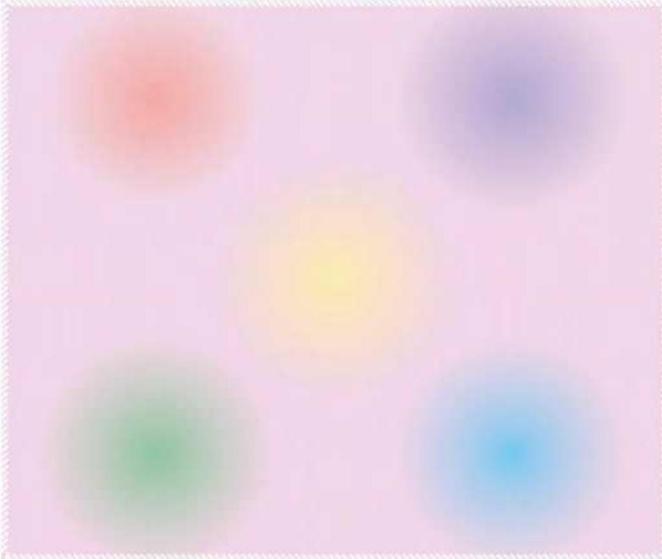
Trick your noodle with these mind-bending optical illusions.

TEXT BY STEPHANIE WARREN DRIMMER

PUZZLES BY GARETH MOORE

### VANISHING COLORS

Make these five colored circles disappear! Hold the magazine close to you and keep it still, focusing on the center of the yellow dot. Try not to move your eyes or blink. As you watch, the red, purple, blue, and green circles will vanish. Then the yellow circle fades out too. Finally the pink background fades to gray—and you're left with a blank square.

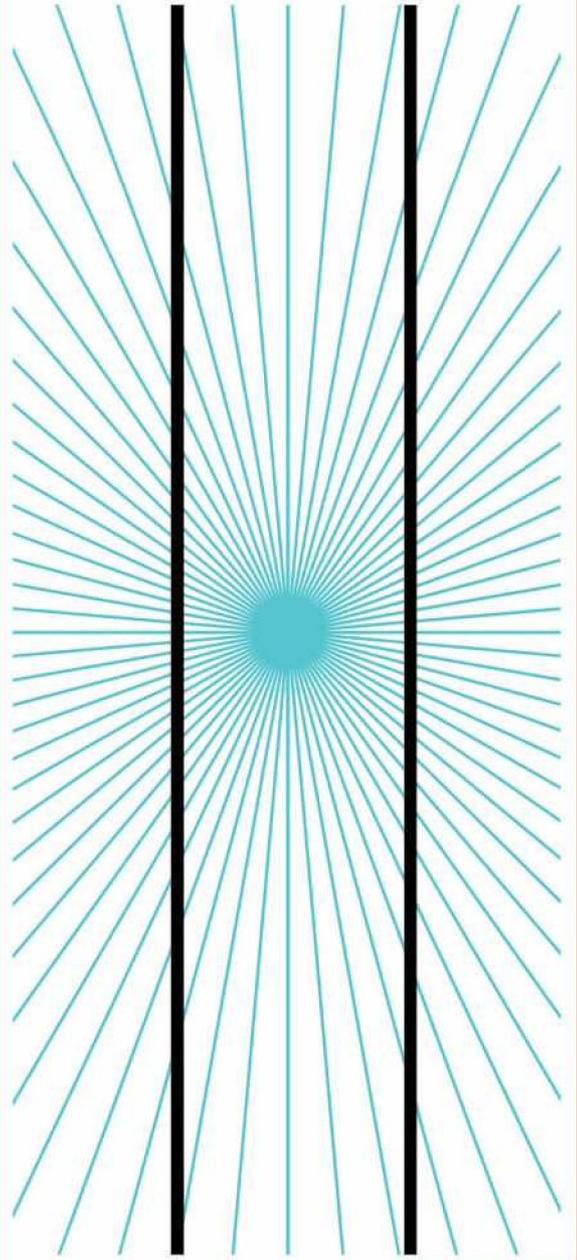


#### [ BEHIND THE BRAIN ]

The colors seem to disappear because you're keeping your eyes still. When your eyes start to get tired, they stop telling your brain about the stuff that hasn't changed. So over a small amount of time, the colors appear to fade.

### STRAIGHT LINES

The black lines appear to bend away from the center of the blue lines. But do they really? Use a ruler or another straight-edged object to check.



#### [ BEHIND THE BRAIN ]

In this illusion, the blue lines appear to be vanishing into the distance, even though they're just drawn on the page. This tricks your brain into thinking that you're looking down a long, circular tunnel. Your brain then assumes the black lines must have been drawn on the *inside* of that tunnel—so they must bend too.



## BLIND SPOT

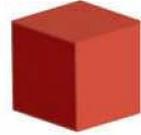
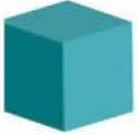
Hold the magazine as far away from you as you can, so that you can clearly see all three boxes in the image below. Then close or cover your right eye.

Keeping your right eye shut, focus on

the red box. (But you should still be able to see both the blue and green boxes at the edge of your vision.)

Next, slowly and steadily move the magazine toward you.

As the page gets closer, you should see out of the corner of your eye that first the blue box vanishes. Then as it gets even closer, the blue box reappears. Then the green box disappears and reappears.

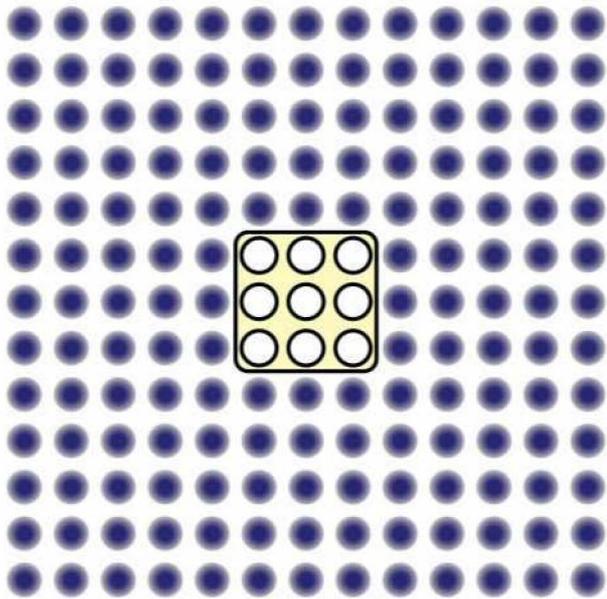


### [ BEHIND THE BRAIN ]

The optic nerve is a clump of nerve endings in each of your eyes that sends the information about what you see to your brain. But this nerve creates a blind spot in each of your eyes. Normally you aren't aware of it because your brain fills in the missing parts of the picture with information from your other eye and guesses about the rest of the scene. But when an object falls in your blind spot—and your other eye can't see it either—the object vanishes. Then it reappears once it moves out of your blind spot.

## FLOATING SURFACE

Let your eyes rest on this image. Does it appear that the pale yellow box is floating above the scene, while the blue circles seem to be hanging out below?

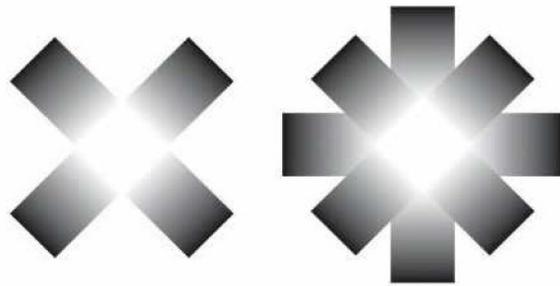


### [ BEHIND THE BRAIN ]

Of course nothing is *actually* floating off the page. But since distant objects appear blurry in real life, your brain assumes that the blurred shapes here must also be in the distance, and the sharp, clearly outlined yellow box must be much closer.

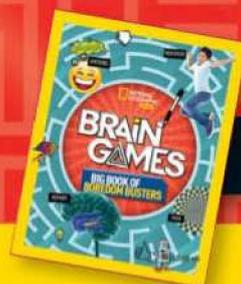
## TURN ON THE LIGHTS

The white diamonds in the center of these two images both appear to glow much brighter and whiter than the white paper around them. But the paper and the diamonds are exactly the same brightness.



### [ BEHIND THE BRAIN ]

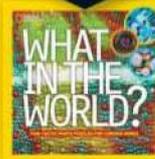
Your brain sees the black rectangles fading to white toward the center and instantly tries to think of something in real life that looks like that. Your brain comes up with the image of a bright light shining on the rectangles. The illusion is even stronger in the right-hand picture because the diamond shape is surrounded by more shaded black rectangles.



Check out **the book!**

# WHAT IN THE WORLD

Check out the book!



## UNDER THE SEA

These photos show close-up and faraway views of sea creatures. Unscramble the letters to identify what's in each picture. Keep swimming!

ANSWERS ON PAGE 35



EASSOERH

\_\_\_\_\_



OLCAR

\_\_\_\_\_



MTRHIE RCBA

\_\_\_\_\_



زبانگده اوس **MRSIH**

\_\_\_\_\_



LELJYISFH

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TOP ROW (LEFT TO RIGHT): © RICHARD CAREY / DREAMTIME; MATT PROPERT; BLAZ KURE / SHUTTERSTOCK; MIDDLE ROW (LEFT TO RIGHT): © WHITCOMBER / DREAMTIME; CHAI SEAMAKER / SHUTTERSTOCK; AQUAPIX / SHUTTERSTOCK; BOTTOM ROW (LEFT TO RIGHT): © MIKHAIL BLAJENOV / DREAMTIME; © GARY BELL / OCEANWIDE IMAGES; BETH SWANSON / SHUTTERSTOCK.

# 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 elephant is thinking?



## FROM THE APRIL 2017 ISSUE

**Check it out, bros! I'm snake-boardin'!**  
Patrick Y., 11  
Mahone Bay, Canada

**I hope he's a vegetarian!**  
Meaghan M., 7  
Dallas, Texas

**No ... sudden ... movements ...**  
Evan S., 15  
Battle Ground, Washington

**I guess now I'm a-head of you.**  
Grace R., 12  
Bridgeport, Connecticut

**This branch is rather scaly.**  
Ethan G., 11  
Joplin, Missouri

**Please don't sneeze!**  
Jaslene L., 9  
Emeryville, California

**A moving vine? What's next, a walking stick?**  
Parker F., 11  
Spanish Fork, Utah

**What? It's not like I'm bugging you.**  
Maggie O., 10  
Marshfield, Massachusetts

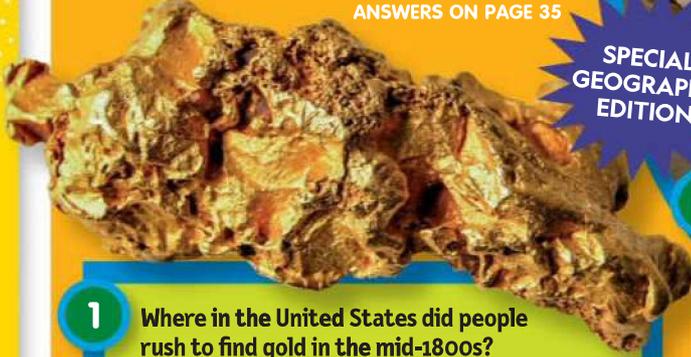
FROM THE PAGES OF ALMANAC 2019:

# STUMP YOUR PARENTS

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

ANSWERS ON PAGE 35

SPECIAL  
GEOGRAPHY  
EDITION



**1** Where in the United States did people rush to find gold in the mid-1800s?

- A. Florida
- B. California
- C. Idaho
- D. Maine

**2** Which of the following residences is home to a current royal family?

- A. Graceland, in Tennessee
- B. Palace of Versailles, in France
- C. Hogwarts
- D. Buckingham Palace, in England

**3** What is the most common music played during the festival of Carnival in Rio de Janeiro, Brazil?

- A. reggae
- B. country
- C. samba
- D. hip-hop



**4** Nordkapp, Norway, is the northernmost point of mainland Europe. In the summer, what time does the sun set there?

- A. 7 p.m.
- B. midnight
- C. 2 a.m.
- D. never

**5** Which South American country celebrates *dulce de leche* each year on June 21, in honor of its traditional caramel dessert?

- A. Argentina
- B. Uruguay
- C. Chile
- D. Bolivia



**6** Why is it dangerous for people to go into the Cave of Crystals in Mexico?

- A. Venomous spiders cover the ground.
- B. Crystals break and fall.
- C. It's extremely hot.
- D. Gravity doesn't exist inside the cave.

**7** A trip on the Trans-Siberian Railway in Russia covers 5,772 miles, from Moscow to Vladivostok. How long is the journey?

- A. 3 hours
- B. 1 week
- C. 1 month
- D. 1 year



**8** How does the Bactrian camel of the Gobi, a desert in China, prepare for winter?

- A. It migrates south.
- B. It hibernates in the sand.
- C. It grows a shaggy coat.
- D. Nothing—there's no winter in the desert.

**9** What mineral gives Australia's Ayers Rock, or Uluru, its red color?

- A. zinc
- B. iron
- C. diamond
- D. quartz

**10** Which fruit is also the name of a New Zealand bird?

- A. papaya
- B. banana
- C. mango
- D. kiwi



**BEE SMART!**



Watch kid geography geniuses compete in the **National Geographic Bee**, a turbocharged quiz show that will stream on the National Geographic Bee website starting May 24. Learn more! [natgeobee.org](http://natgeobee.org)

# 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](http://ExplorerAcademy.com).

TEXT AND CODE BY GARETH MOORE

## THE CODE: HIEROGLYPHS

Ancient Egyptians used a writing system made up of symbols called hieroglyphs. These hieroglyphs represented objects, which conveyed concepts, numbers, and speech sounds.

The number system was based on multiples of 10. So to write the number 3, the Egyptians would write the hieroglyph for "1" three times. Or to write the number 20, they would use the hieroglyph for "10" two times.

1 =		The hieroglyphs looked like this.
10 =		
100 =		So the number 3,412 could be written like this.
1,000 =		
10,000 =		
100,000 =		
1,000,000 =		

## ANCIENT EMOJIS

Ancient Egyptians based hieroglyphs on real-life objects and drawings of their gods. Check out the origins of some of their number symbols.

- » a finger
- » a piece of rope
- » a coil of rope used to hold an animal
- » a lotus, a type of plant
- » a large finger
- » a tadpole becoming a frog
- » the Egyptian god Heh

### CRACK THIS CODE!

Using your knowledge of ancient Egyptian hieroglyphs, decode the following numbers. Then sort the numbers from highest to lowest. Finally, place the letters in the white boxes according to the numerical order. **ANSWERS ON PAGE 35**

Write the numbers here!

40

<b>R</b>	<b>U</b>	<b>I</b>	<b>N</b>	<b>C</b>	<b>R</b>	<b>A</b>	

Write the letters here!

<b>Z</b>	<b>E</b>	<b>D</b>	<b>S</b>	<b>I</b>	<b>G</b>	<b>N</b>
<input type="text"/>						

BREAK MORE CODES!  
[ExplorerAcademy.com](http://ExplorerAcademy.com)



Check out the book!

## OFFBEAT

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 MARGARET J. KRAUSS

Play more Funny Fill-In!  
[natgeokids.com/ffi](http://natgeokids.com/ffi)



The orchestra from my town, \_\_\_\_\_ ville, flew all the way to \_\_\_\_\_ to play in the annual \_\_\_\_\_ festival. We checked our instruments and arranged to have \_\_\_\_\_ take them to \_\_\_\_\_ Park, where we'd play the concert. When we finally arrived backstage, we \_\_\_\_\_ with surprise. Someone must have mixed up our luggage! Instead of \_\_\_\_\_ we had \_\_\_\_\_ and \_\_\_\_\_ . But the show had to go on. The percussion section used \_\_\_\_\_ boards to start a beat. With two spatulas, \_\_\_\_\_ joined in, whacking a stack of \_\_\_\_\_ as if they were drums. The \_\_\_\_\_ players picked up \_\_\_\_\_ peelers and rattled them against a set of \_\_\_\_\_ . The cello players held \_\_\_\_\_ and used them as bows, pulling them across a bunch of \_\_\_\_\_ . The noise was so \_\_\_\_\_ that the entire band burst out laughing.

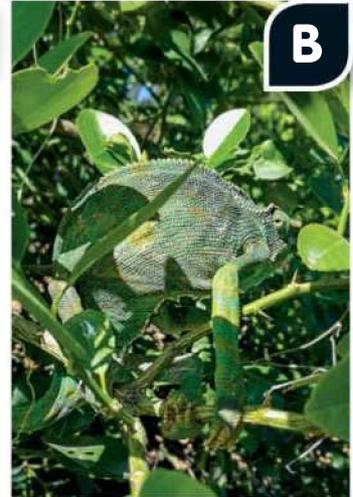


# FIND THE HIDDEN ANIMALS

Animals often blend in with their environments for protection. Find each animal listed below in one of the pictures. Write the letter of the correct picture next to each animal's name.

ANSWERS BELOW

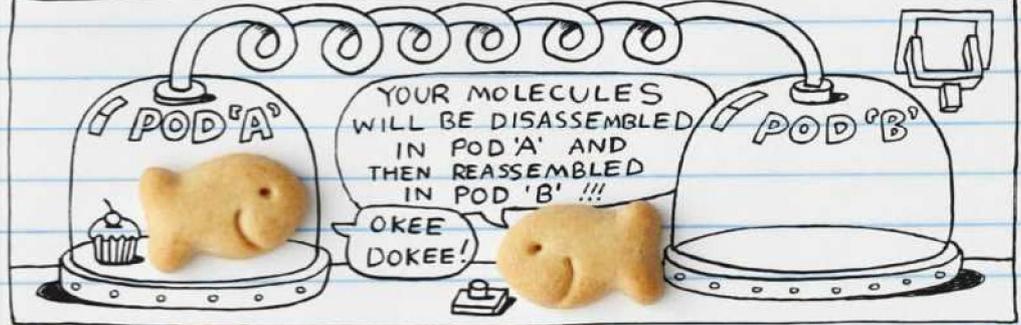
- 1. sea star \_\_\_\_\_
- 2. crab \_\_\_\_\_
- 3. arctic hare \_\_\_\_\_
- 4. owl \_\_\_\_\_
- 5. antelope \_\_\_\_\_
- 6. chameleon \_\_\_\_\_



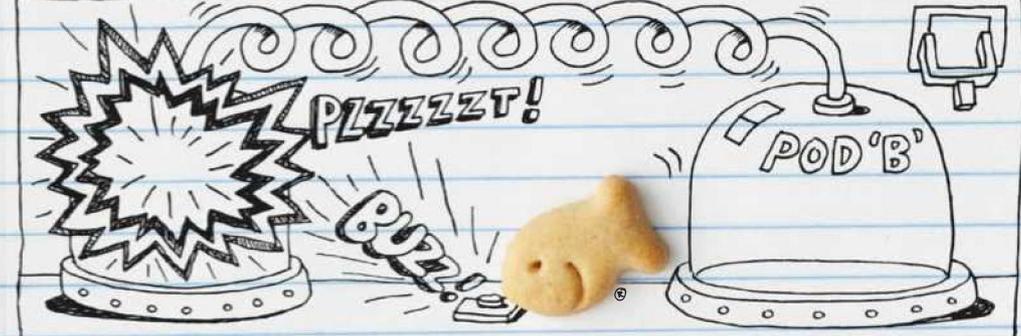
**Answers**  
 "What in the World?" (page 30):  
 Top row: seahorse, coral, hermit crab. Middle row: shrimp, jellyfish, oyster.  
 Bottom row: octopus, sea spiders, puffer fish.  
 "Stump Your Parents" (page 32):  
 1. B, 2. D, 3. C, 4. D, 5. A, 6. C, 7. B, 8. C, 9. B, 10. D.  
 "Explorer Academy" (page 33):  
 R = 40, U = 1,100,020, I = 300,024, N = 11,200, C = 3,200,000, R = 2,000,000,  
 A = 32,000, Z = 1,010,101, E = 336, D = 111,111, S = 211,200, I = 211,001, G = 3,111,  
 N = 122,100. MESSAGE: CRUZ IS IN DANGER.  
 "Find the Hidden Animals" (this page):  
 1. D, 2. E, 3. F, 4. C, 5. A, 6. B.

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