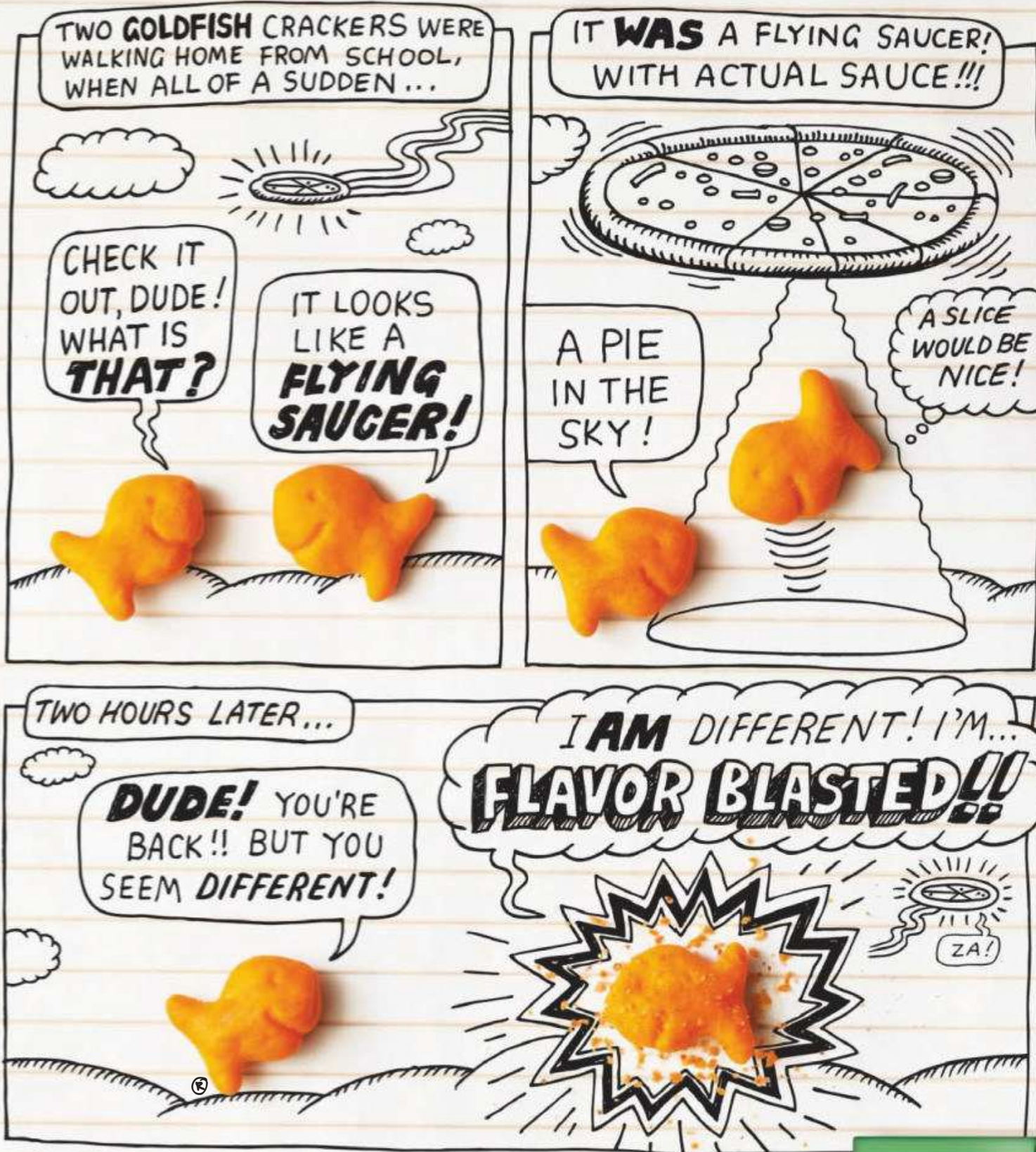


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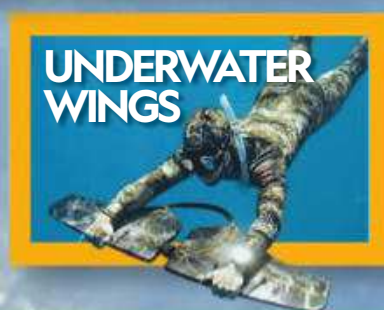


KIDS



HARP SEALS

**ON
ICE**





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Editorial Kay Boatner, *Senior Editor / Digital Producer*;
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Photo Shannon Hibberd, *Senior Photo Editor*;
Kelley Miller, *Contributing Photo Editor*

Production Sean Philpotts, *Director*

Digital Laura Goertzel, *Director*;
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(212) 822-7431; **Detroit** Karen Sarris (248) 368-6304;
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Parents, contact us online: kids@natgeo.com

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At only two weeks old, harp seals learn how to survive in the Arctic.

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and smart gadgets could
change your life.



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COLLECTOR'S
CARDS
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weird but true!

Check out these outrageous facts.

BY MARILYN TERRELL

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



It takes the average
10-YEAR-OLD KID



about 20 minutes
to fall asleep.



Americans spend

1.5 times
more money on
PET FOOD than on
BABY FOOD.



GLASS

can last for
MILLIONS
of years on
EARTH.



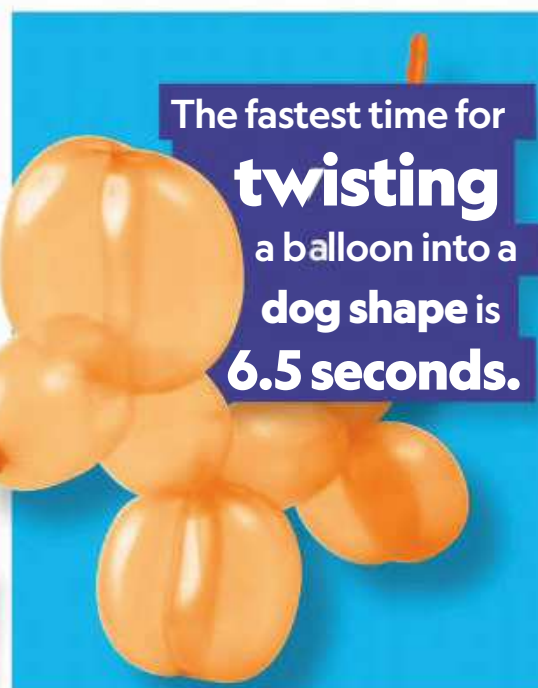
Most
SNOWFLAKES
have
6 **SIDES.**

The most **COMMONLY**
USED letters in the
ENGLISH LANGUAGE
are **E, T, A, and O.**



4,000-year-old
POPCORN

was found in a cave
IN NEW MEXICO.



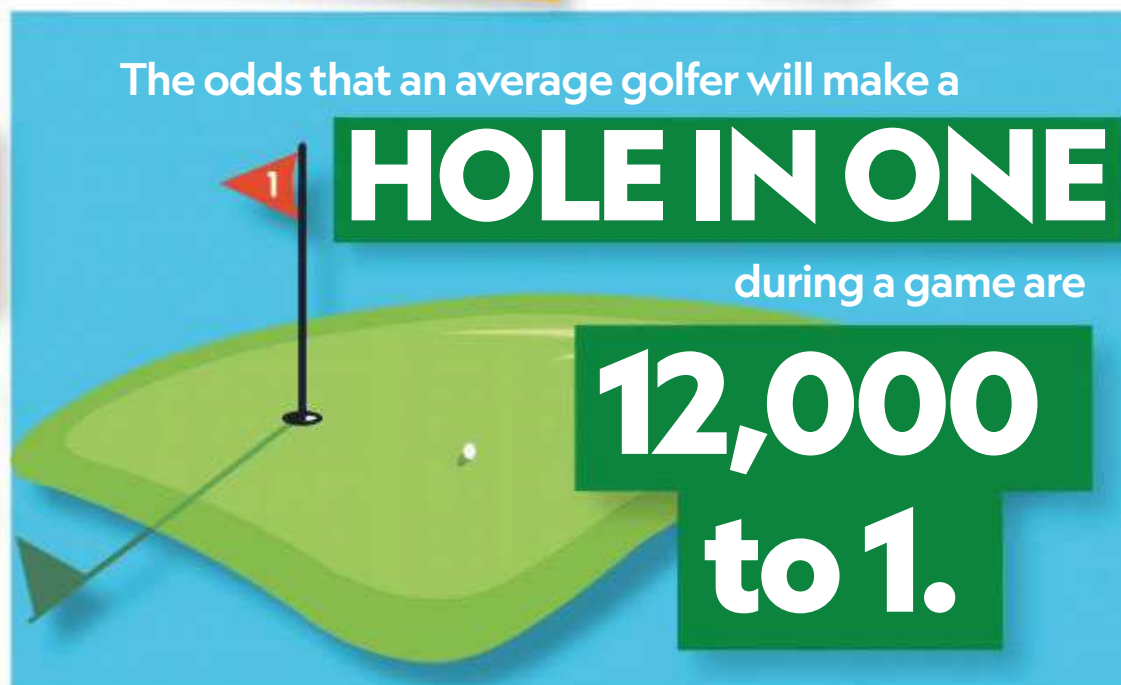
The fastest time for
twisting
a balloon into a
dog shape is
6.5 seconds.



Houseflies

BUZZ

in the key of F.



The odds that an average golfer will make a

HOLE IN ONE

during a game are

12,000
to 1.

GUINNESS WORLD RECORDS

BY ELIZABETH HILFRANK



GIANT GINGERBREAD VILLAGE

Try fitting this gingerbread village into your next holiday party! Chef Jon Lovitch's 1,251-building display holds the record for most buildings in a gingerbread village. The best part? The tiny town, which took over a year to build, is 100 percent edible.

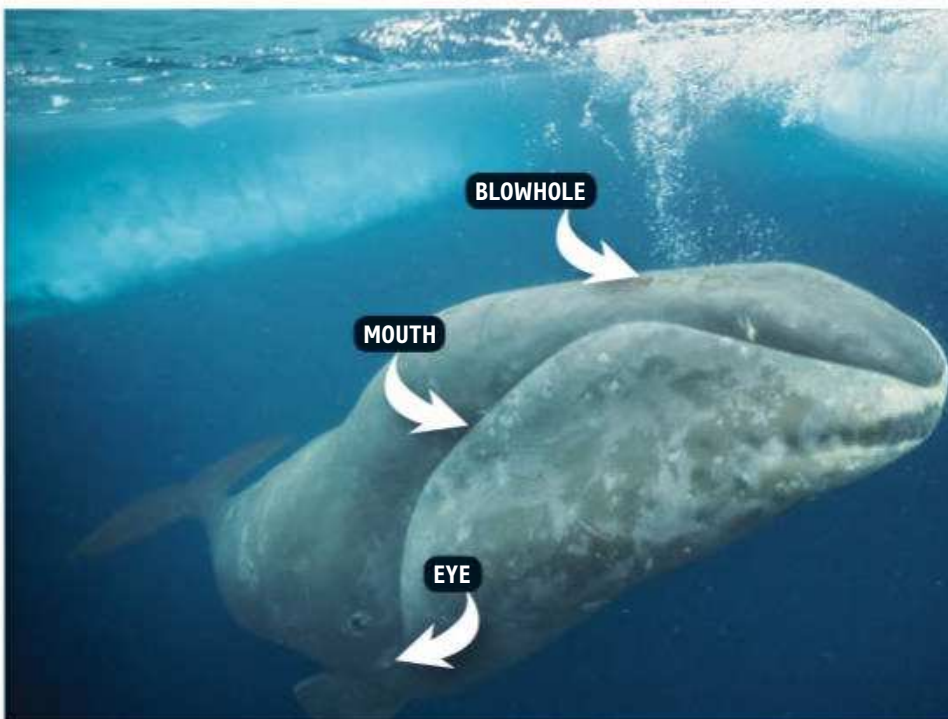
REALLY

WIDE

WIG



Haircut ... what's that? Actress Drew Barrymore donned the widest wig ever made while appearing on an episode of *The Tonight Show Starring Jimmy Fallon*. The wig—measuring over five feet long and seven feet wide—required the help of four people to place on Barrymore's head. Curled at the ends and topped with two big red bows, the giant wig completely covered Barrymore's eyes. But the actress was still able to dance with it on!



BIG BITE

The blue whale might be the world's largest animal, but it doesn't have the biggest mouth. That honor belongs to the bowhead whale, which has a mouth measuring 16 feet long and 8 feet wide. Its tongue weighs approximately 2,200 pounds, about the size of a dairy cow! But no need to fear their big appetites: Whales snack on squid, not humans.

BOWHEAD WHALE

**Bet You
Didn't
Know!**

7 cool facts about castles

BY CRISPIN BOYER

1

The
castle barber
was also the
DENTIST.

2

Neuschwanstein
Castle in
Germany was the
inspiration for
Disneyland's
**SLEEPING BEAUTY
CASTLE.**

3

The first
castles were
built about
**A THOUSAND
YEARS AGO.**

4

England's
Windsor Castle
is about 200
TIMES LARGER
than a typical
U.S. house.

5

Ireland's
Blarney Castle
has a stone that
VISITORS KISS
for luck.

6

The number
of people who
lived in some
castles could have
FILLED a
small village.

7

Supplies
were often
smuggled into
castles through
**SECRET
TUNNELS.**



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facts, grab a
parent to watch
*Things You
Wanna Know!*
[youtube.com
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WILD VACATION

Grab a parent to watch
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for more cool facts.
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BY AMANDA
SANDLIN AND
ALLI DICKEY

DESTINATION
WORLD

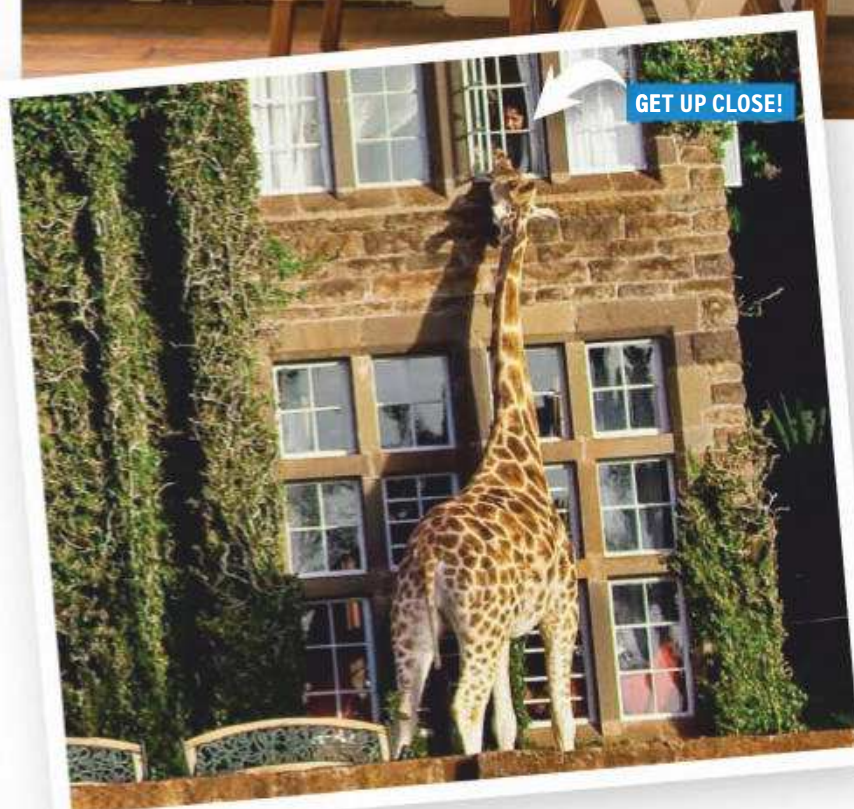
Totally Wild Hotel

GIRAFFE MANOR

WHERE Kenya, Africa

HOW MUCH From \$565 a night

WHY IT'S COOL Ever have the feeling you're being watched? That's because a giraffe might be at your hotel window! Giraffe Manor is home to about 10 Rothschild's giraffes that roam the property. And they're definitely not shy: Some of the giraffes may stick their heads into your second-story bedroom window or eat right off the breakfast table. When they want a snack, the giraffes have been known to pluck flowers from the manor's vases. Mpingo and Olerai, two of the youngest giraffes, are sometimes seen playfully running through the national park that borders the hotel. But no one thinks that these permanent residents are a pain in the neck!



COOL THINGS ABOUT KENYA

Kenya is about the same size as the state of Texas.

The bones of one of the earliest human ancestors ever found were discovered in Kenya's Turkana Basin.

The elephants in Kenya's Tsavo East National Park cover themselves in iron-oxide-rich soil, which turns them red.

THINGS TO DO IN KENYA

Cheer on dozens of camels—some running the wrong way—at the International Camel Derby in the town of Maralal.

Walk through historic Lamu Old Town, a 700-year-old Swahili settlement made partly of coral stone.

Go on safari to see lions, rhinos, leopards, zebras, and elephants in Maasai Mara National Reserve near the border with Tanzania.

Bird-watch on the shores of Lake Nakuru, where hundreds of thousands of bright pink flamingos flock each year.

Swim in glowing waters at a beach in Kilifi. (The secret is the tiny bioluminescent animals living there!)

Clever CREATURES

THESE ANIMALS ARE AT THE TOP OF THEIR CLASS IN SMARTS.

BY JULIE BEER AND MICHELLE HARRIS



An octopus's arms can **think** independently from its brain.

1

SNEAKY SMARTS

Octopuses are curious creatures. They can open the lids of jars, and some have even found escape routes from their aquarium enclosures. They can wriggle their boneless bodies through passages as small as a quarter! Octopuses learn quickly and can recognize individual human faces.

CHECK
OUT
THE
BOOK!





2

NO BIRDBRAIN

African gray parrots are known for being chatterboxes. They're excellent at mimicking humans and can form simple sentences. They're also one of a few animals that are capable of reasoning, or coming up with an answer based on information they already have. They can figure out puzzles and work together to solve problems.

4



SMART LITTLE PIGGY

They might like to wallow in mud, but **domestic pigs** clean up in the intelligence department. Pigs can learn tasks, like operating levers to get food, and are one of a few animal species that understands how mirrors work.



5

CRAFTY CROW

If a **New Caledonian crow** can't find a tool for the job, it just makes one! The South Pacific bird can bend twigs into hooks to retrieve insects hidden in logs.

6



NUTS FOR LEARNING

When it comes to finding nuts, **gray squirrels** are the experts. In one study, researchers hid several hazelnuts to discover how squirrels solved a puzzle. The squirrels were quick learners, and even changed tactics to get their nut reward more quickly.



7

THIRST FOR KNOWLEDGE

Chimpanzees, one of the closest relatives to humans, use things in nature such as leaves and moss like sponges to soak up water for drinking. They pass on this trick to other family members, which is a type of social learning only the smartest of animals achieve.



3

ALL FOR ONE

Talk about teamwork! These **army ants** are joining together to build a living ant tower so some individuals can climb to this plant stem and retrieve food for the community. Researchers discovered that no single ant calls the shots in the tower-building; they make decisions as a colony.



8

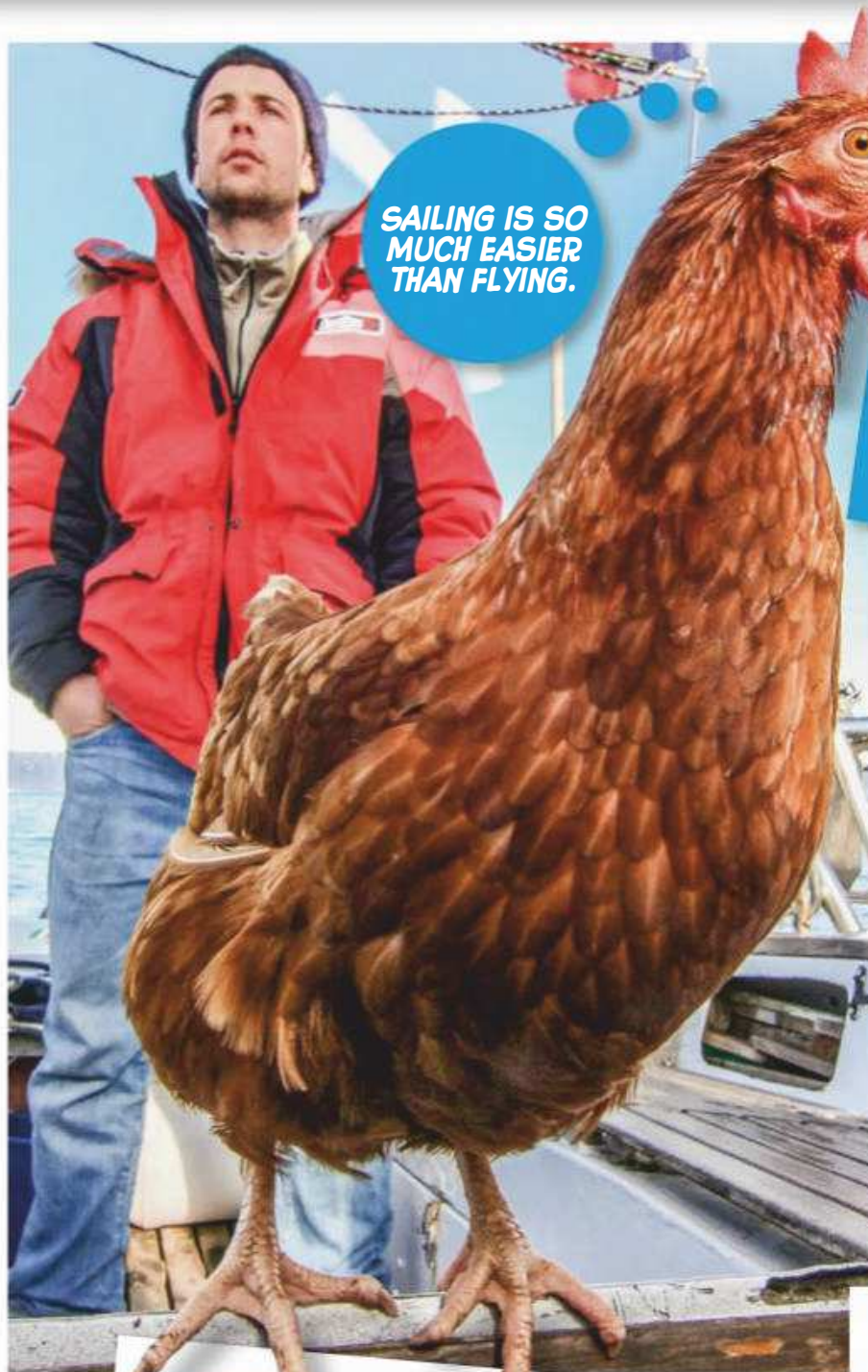
BRIGHT AND BUBBLY

Being playful is considered a sign of intelligence—which puts **dolphins** near the top of the list of smartest animals. Several species of dolphins ride the waves of boats, and some captive dolphins blow bubbles from their blowholes and then swim through them!

awes8me

Grab a parent to **check out the new show Awesome 8** for even more fun lists! youtube.com/natgeokids

AMAZING ANIMALS



SAILING IS SO MUCH EASIER THAN FLYING.

Hen Sails the World!

Brittany, France

Why did the chicken cross the sea? To keep the sailor company!

Guirec Soudée and Monique have been sailing buddies for about four years, visiting places such as Antarctica, the Caribbean islands, and South Africa. The hen stands beside Soudée while he hoists the sails, and she catches fish that have flopped onto the deck. "I knew that this little chicken was as adventurous as I am," says Soudée, author of *The*

Hen Who Sailed Around the World: A True Story.

Monique lives in her own cabin filled with straw, and she's been known to lay an egg on board. Chicken behavior expert K-lynn Smith says Monique probably has a better life than most chickens, with more space and sunshine. The pair are now in Brittany, France, planning their next adventure together. This chicken definitely isn't cooped up!

—Kitson Jazynka

SOUDEE SAYS THAT MONIQUE OFTEN "SINGS" FOR HIM AS THEY SAIL.



MONIQUE USUALLY STAYS CLOSE TO HER OWNER, GUIREC SOUDEE.

LET ME STEER THE BOAT.



Alligator in the Desert?

Scottsdale, Arizona

You might expect to see snakes in a desert, but a water-loving alligator? Clem was brought to Arizona from Florida over 30 years ago and placed in a pond on a 222-acre desert property. His owner often fed his “pet,” but then sold his land—and the new owner didn’t believe that

the shy alligator existed! Clem found his own food for three years until he was spotted enough times for the new owner to believe that Clem was real and call rescuers. The gator was lured into a trap using sounds of baby gators and small animals. “It took four

guys to carry him like a telephone pole into a trailer,” herpetologist Russ Johnson says. Now Clem lives at a conservation center, where he even has a girlfriend: a gator named Fluffy!

—Amanda Pressner

NOW THAT'S
AN ENDING
WITH A TWIST!



CLEM THE
ALLIGATOR
NOW LIVES
IN A GRASSY
ENCLOSURE.

I'M WORKING
ON MY TAN.

CAT
Hallam,
Nebraska

ALLIGATOR
Scottsdale,
Arizona

HEN
Brittany,
France



Cat Survives Tornado

Hallam, Nebraska

When Harley the cat vanished during a tornado, his family thought he was gone forever. But they were truly blown away when their kitty returned a year and a half later. “My daughter said she’d seen him, but I figured she’d confused him with a stray cat,” owner Sue Tighe says. “Then she called his name, and Harley came racing over.” Veterinarian Jeremiah Vondra thinks the savvy tabby survived by hunting rodents or sneaking food from other pets. “He was probably only five or 10 miles away, living in a shed,” Vondra says. “It just took a while for Harley to find his way back.” The cat’s reappearance came just in time: Tighe’s son was moving the next day. “My son was just tickled that Harley had returned before he left,” Tighe says.


—Amanda Pressner



HOME ALONE!


AT ONLY TWO WEEKS OLD, HARP SEALS

LEARN HOW TO SURVIVE IN THE ARCTIC. BY DAVID GEORGE GORDON

A large photograph showing a mother harp seal and her pup on a piece of ice. The mother seal is on the left, and the pup is on the right, leaning towards her. The pup has a thick, white, fuzzy coat. The background is a vast, icy landscape.

The harp seal's scientific name, *Pagophilus groenlandicus*, means "the ice lover from Greenland."

A MOTHER HARP SEAL KNOWS HER BABY BY ITS UNIQUE SMELL.

A vertical photograph on the left side of the page showing a newborn harp seal pup lying on ice. The pup is very small and has a thick, white, fuzzy coat.

It's hard to believe that a helpless-looking two-week-old seal could survive on its own, especially in the icy world of the North Atlantic Ocean. But harp seal pups do. How? With fur, fat, and instinct.

When a pregnant female is ready to give birth, she comes out of the sea and onto the ice. There, with tens of thousands of other females, she gives birth to a 20-pound pup.

A newborn harp seal is skinny. Its warm coat is all that keeps it from freezing. Each hair of its coat is transparent, so the sunlight can reach the pup's skin. The seal's body absorbs the sun's heat and the fur traps that warmth, helping to keep the pup cozy.

Newborn seals nurse on milk that's 10 times richer in fat than cow's milk. That helps a pup gain as much as five pounds a day. (You might gain five pounds a year!) This extra weight is called blubber, a layer of fat that keeps the seals warm. By the time the pup is 12 days old, it weighs about 80 pounds. That's when its mother knows it's time to let the pup survive on its own.

A photograph of a harp seal pup lying on ice. The pup has a thick, white, fuzzy coat with some dark spots. It is looking towards the camera.

THE FUR OF THIS PUP—WHICH IS BETWEEN 12 AND 21 DAYS OLD—HAS BEGUN TO DARKEN TO A GRAYISH COLOR.

GET MORE FUN FACTS ABOUT THE ARCTIC!
natgeokids.com/december

Where
harp seals
live



Adult harp seals
hang out under
the ice mostly
between midnight
and 5 a.m.

Each year,
harp seals migrate
more than
6,000 miles.

QUICK- CHANGE ARTISTS

The fast-growing harp seal pup doesn't look the same for long. These names describe the seal's stages of growth.



1 DAY OLD YELLOWCOAT

A newborn is pale yellow because its fur was stained by the fluids in its mother's womb.



3 DAYS OLD WHITECOAT

Bleached by the sun, the fur turns pure white and stays that way for nearly two weeks.

12 DAYS OLD GRAYCOAT »

Spots and darker fur start to show through the pup's white fur, giving it a grayish look.



21 DAYS OLD RAGGED JACKET

As the pup sheds its white coat, it takes on a tattered appearance. Some pups swim and dive on their own at this time.

A GROUP OF FEMALE HARP SEALS RESTS ON THE ICE WITH THEIR PUPS.

A PUP ON ITS OWN

It can take a harp seal pup up to four weeks to figure out that its mother isn't coming back. During that time, the pup calls for her almost constantly. Most seals make it through these weeks safely as they rest on the ice. The fat each pup has built up from nursing nourishes it for a while. The main threat pups face at this time is the occasional polar bear that passes by.

But after about a month, hunger combined with instinct pushes the pup to take the plunge into the icy sea. As the pup grows and gains strength, it begins to swim well enough to go after its first solid meal: krill, which are small, shrimplike creatures that live in the ocean. Later, as adults, the seals will eat larger prey such as fish.



HARP SEALS' FUTURE

Harp seals face predators such as orcas and sharks in the ocean. The seals are also prey to humans, who hunt them for their pelts, meat, and oil. Laws limit the number of seals that can be hunted. Also, with few exceptions, hunting is limited to graycoats and older seals. (See sidebar below.)

Today the harp seal population is healthy at around eight million. But as the Earth's temperature rises, so does the temperature of the ocean. Warmer seas threaten the formation of pack ice, which is crucial to harp seals during breeding season. This global warming leads to climate change, which causes rising seas, stronger storms, and shifting habitats for wildlife and people. Finding ways to fight climate change will help ensure that harp seal pups and adults stay totally chill in the Arctic environment.

A RAGGED JACKET PUP (SEE SIDEBAR) DIVES UNDER THE ICE TO HUNT.



AN ADULT HARP SEAL TAKES A BREAK FROM HUNTING.

25 DAYS OLD BEATER »

The young seal is now silvery gray with black spots. The name "beater" refers to its clumsy early attempts to swim and dive.



14 MONTHS OLD BEDLAMER

Another molt and the seal gets a new name that sounds like the French phrase *bête de la mer*, or beast of the sea.

4 YEARS OLD SPOTTED HARP

The black harp pattern begins to appear as spots disappear. Some females keep this look for life.



«5-10 YEARS OLD ADULT HARP

Mature males and many females develop black markings on their faces and backs.

DRESSED FOR THE WEATHER

HOW CHANGING COLOR HELPS SOME ARCTIC ANIMALS SURVIVE

BY JOE LEVIT

Harp seals permanently ditch their white fur about a month after they're born. But other Arctic animals mix things up, changing their fur color to blend in with winter snow or summer plants. Check out how these critters survive in style.



WINTER



SUMMER

WHERE'S THAT HARE?

ANIMAL: SNOWSHOE HARE
HABITAT: Northern forests

An all-white look might work in the middle of winter. But what about when the snow starts to melt in spring, leaving large splotches of mud everywhere? That's when a patchy color pattern helps. Snowshoe hares' winter fur grows in patches instead of showing up evenly. This adaptation makes it difficult for predators to tell them apart from a landscape that looks both brown and white.



WINTER



SUMMER

COAT OF MANY COLORS

ANIMAL: ARCTIC FOX

HABITAT: Tundra on borders of forests, and on ice floes in winter

When does camouflage pull double duty? When you're both predator *and* prey. An arctic fox's fur changes from brown to white when the season goes from fall to winter. Less daylight triggers these animals' bodies to stop making as much melanin. Melanin is the substance inside hair or feathers that gives them color. Once a fox produces less melanin, its coat turns white. Blending in with the snowy background helps a fox hide from polar bears and sneak up on lemmings, hares, and birds. Once the snow melts in the spring, their fur gets darker to match the grasses and trees.



WINTER



SUMMER

SNOWSHOES—OR SNOW SHOVELS?

ANIMAL: COLLARED LEMMING

HABITAT: Sandy or gravelly areas

Collared lemmings are the only rodents whose coat changes to white. And they have another wild adaptation to winter: As snow starts to fall, lemmings grow oversized claws on the third and fourth toes of their front feet. This allows them to dig tunnels in the snow all winter. Staying below the surface helps them avoid predators while they shovel for food. By spring, their burrowing wears down their claws to a normal size.

ERMINE ESCAPE

ANIMAL: ERMINE

HABITAT: Marshes and rocky areas near woodlands and treeless plains

The ermine doesn't turn completely white in winter—it sports a black tip on its tail year-round. Why? The black blotch is a sneaky defense against flying predators like hawks. When the bird swoops down to attack, the black tip confuses them. The hawk sees the ermine moving one way, and its tail flailing behind it in other directions. This blur of motion can cause a hawk to miss the ermine entirely.



SUMMER



WINTER

FLUFF-BALL FEATHERS

ANIMAL: PTARMIGAN

HABITAT: Meadows and rocky area

The ptarmigan (TAR-mih-guhn) is a bird that changes its feathers from brown to white. But the feathers don't just provide camouflage in the snow. Downy feathers close to their skin trap body heat in the cold temperatures. The birds also fly into snowbanks, creating burrows that are warmer than outside temperatures.



SUMMER

FIND MORE HIDDEN ANIMALS!
natgeokids.com/december



On September 29th, National Geographic Kids and LEGO® City Arctic teamed up to excavate a frozen creature at National Geographic Headquarters in Washington, DC!

National Geographic Explorer Mike Libeck and 15-year-old climber Lilli Libeck helped hundreds of adventurers uncover and build a life-sized mammoth with the help of two LEGO Master Builders.



Mike Libeck was named a **2013 National Geographic Adventurer of the Year** for his commitment to exploring the world's most remote places, including Antarctica. His daughter Lilli has been to 25 countries on all 7 continents!



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SUPERSMART GADGETS AND BUILDINGS
THAT COULD **CHANGE YOUR LIFE**

THE STRAWSCRAPER >>>

For some people, a windy day means a bad hair day. But for the folks designing this odd-looking building, a windy day is a *good* hair day. For them, **windy days** will mean the **hairy fibers** on their building are capturing loads of **free energy**. A Swedish architectural firm is working on plans to transform an existing Stockholm building into a futuristic, **40-floor** skyscraper that will create energy. The design for this project, known as the **Strawscraper**, encloses the building in a casing covered with long, **flexible straws** that turn **wind motion** into **electrical energy**. From gentle breezes to strong winds, the friction on the straws will produce and store electricity much like a wind power plant does. The Strawscraper will be much **quieter** than a wind turbine, though, and will be **bird-friendly** too.

Plans include a restaurant and a viewing platform in the Strawscraper.

WANT MORE EARTH-SAVING ACTION?
Go online to find out how you can protect our planet.
natgeokids.com/SaveTheEarth

UNDERWATER WINGS

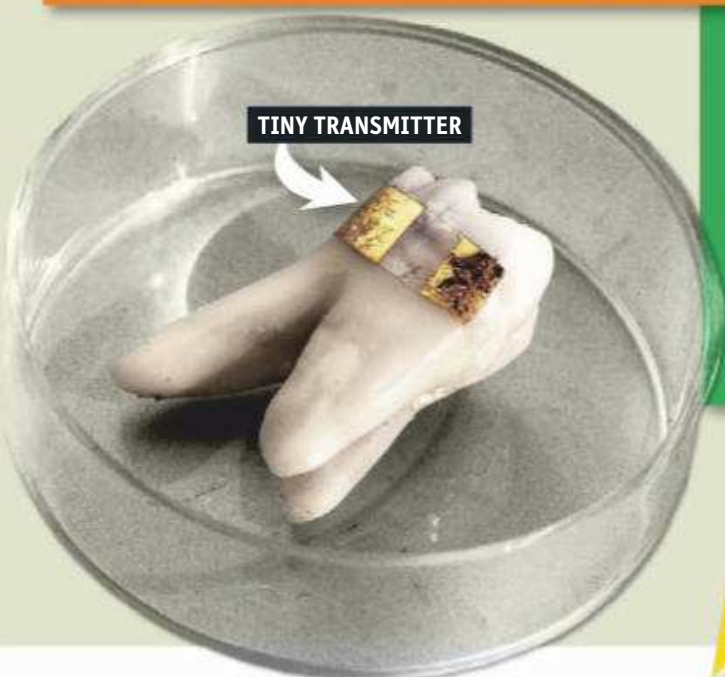
With the **Subwing**, you can know what it'd feel like to glide through the ocean like a dolphin. Made of lightweight, flexible **carbon fiber**, the Subwing acts like a fin that allows you to **slice through the water**. The Subwing attaches to a boat and pulls you beneath the surface of the water. Tip the wings down to **dive toward the bottom**. Tilt the wings to one side and send yourself **spinning and spiraling** with the fish. Ready to come up for air? Point the Subwing toward the surface, and you'll be above water in seconds. Catch your breath, tighten your grip, and **dive back in again for more!**



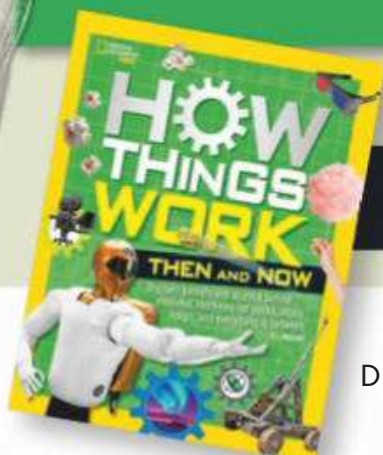
The Subwing's inventor first tested his idea by holding on to a piece of driftwood that was being towed by a boat.

An attachable light on the Subwing lets you explore at night.

WIRELESS TOOTH TATTOO



Going to the dentist twice a year is a must. But between checkups, you might one day be able to **keep tabs on your teeth** with a **wireless tooth tattoo**. Made of gold wires skinnier than a spiderweb, this **tiny sensor** attaches to your tooth like a temporary tattoo. There, it **detects decay** or **harmful bacteria** brewing among your chompers. And if the tattoo senses something's amiss in your mouth, you'll get an alert on a handheld digital device. While scientists have **only tested** the tattoo on cows' teeth, they're hoping that one day the tattoo will **help humans** take a bite out of tooth decay for good.



WIN THIS BOOK! **GO ONLINE NOVEMBER 21-28.**
natgeokids.com/december

SUPPLIED BY WENN.COM / NEWS.COM (STRAWSCRAPER);
SUBWING / WENN.COM / NEWS.COM (SUBWING); FRANK
WOJCIECHOWSKI / REX / SHUTTERSTOCK (TOOTH TATTOO)

NAPKIN TABLE

Bring lunch to another level with the **Napkin Table**. Designed with **friendship** in mind, the Napkin Table elevates your meal by **connecting you and your pal** as you picnic. Each of you slips the napkin straps around your neck. Then balance the **portable, foldable** picnic table between you. While stitched pockets and **cup holders** keep tableware in place, you still need to **stay in sync** with your friend while you eat so you don't tip your table. **Bonus:** By keeping your food off the ground, you don't have to bug out about ants crawling all over your meal.

PLASTIC STRAWS are one of the top 10 trash items found during ocean cleanups. Protect the planet by using a metal or paper straw instead. natgeokids.com/KidsVsPlastic

COOL NEW SHOW!

As the host of Nat Geo Kid's newest video series, *How Things Work*, 15-year-old YouTube star Kamri Noel teams up with National Geographic experts to explain lava lamps, gecko feet, and more. Nat Geo Kids caught up with Kamri to get the behind-the-scenes scoop.

NAT GEO KIDS: Tell us a little about why you decided to work with Nat Geo Kids on this show.

KAMRI NOEL: I've always been interested in photography, plus math and science are my favorite subjects. So working with Nat Geo Kids was perfect.

NGK: What was the funniest thing that happened on the set of *How Things Work*?

KN: Somehow I ended up doing cheer stunts with marine

biologist David Gruber. It was so funny, but I'm not sure that scene made it into the episode.

NGK: What was the weirdest thing you learned hosting *How Things Work*?

KN: How to pronounce weird science words! I couldn't pronounce a bunch of them, so the experts had to keep correcting me. I don't think I'll ever be able to correctly say "ballast."



SURROUND SOUND

Talk about tuning in. The **AudioOrb** truly lets you get into your favorite songs. Step into this **soundproof Plexiglass sphere** and become immersed in music, thanks to **18 speakers** that send sound waves around the orb. Just don't plan on having a **dance party** in there—the AudioOrb is equipped with a soft bench and comfy pillows, so you're meant to **sit back and relax** as you enjoy your time in this bubble of music.



GRAB A PARENT TO CHECK OUT HOW THINGS WORK— and find out how to pronounce "ballast!" youtube.com/natgeokids

HAREBRAINED IDEAS FROM HISTORY



FACE PROTECTION FROM SNOWSTORMS

In 1939, somewhere in **Montréal, Canada**, these **fashionable ladies** hit the streets showing off a short-lived idea for **keeping your face warm** during snowstorms: **a plastic cone!** You'd strap it around your head to keep your face dry as the snow swirled around you. It's hard to tell what happened to the cones, but one thing's for sure: This **snow-stopping invention** was a bit of a flake.



RADIO HAT

It wasn't long after the invention of radio broadcasts that people like this guy tried to take their **clunky radios** with them. This particular portable radio was built into a straw hat, picking up **radio signals** right above your head. It came complete with **a horn that worked like a speaker** to deliver the sounds to the listener.



DOUGHNUT DUNKER

Times sure were different in the 1940s. This **wacky invention**, displayed at the **Congress of American Inventors** in Los Angeles, California, was designed so that commuters could **dunk their doughnuts** and **keep their hands free** to read the daily news. As an added bonus, this gadget also made sure that no **hot coffee** touched your fingers as you dipped your doughnut.

AMPHIBIOUS BIKE



This "**bubble bike**" made waves when it debuted in Paris, France, in 1932. The **amphibious contraption** was at home on both land and water. Called the **Cyclomer**, the bike's two large, hollow wheels doubled as **floats** for water cycling. The smaller, movable floats on top (shown here in the "land" position) could be lowered to water level to give the bike some **extra stability**. This rider wouldn't have even needed to change out of his suit and tie and into a swimsuit before he **hit the lake**.

VOTE FOR YOUR FAVORITE **COOL INVENTION!**
natgeokids.com/december

MIXED-UP MARSUPIALS?

FIND OUT WHY QUOKKAS ACT LIKE GIRAFFES, KOALAS, AND BATS.

BY ALLYSON SHAW

When explorers in the late 1600s first spotted this fuzzy, friendly-looking animal in Australia, they figured they'd stumbled on a house-cat-size rat. Not even close. Quokkas might be related to kangaroos and wallabies, but they're way weirder. This marsupial has traits more often associated with other animals—and that makes it one wacky critter.

ROTTNEST ISLAND



THEY REACH FOR LEAVES LIKE KOALAS



Ground-dwelling quokkas sometimes climb five feet up a tree trunk to reach a tasty-looking leaf or berry. That might not *sound* impressive, but it's something its closest relatives—kangaroos and wallabies—can't do. Tree-loving koalas have strong, large paws made for gripping branches all day. But the quokka can hold on only for a few minutes. Just enough time to swipe a snack!



THEY HOP LIKE RABBITS

If you spot a brown fuzz ball bouncing through the brush, it's not a rabbit—it's a leaping quokka! Although they usually crawl on all fours, quokkas also use their strong back legs to jump. These animals also create passageways in the bushes and grass as they move through the brush, similar to the underground tunnels bunnies create. Furry, cute, *and* hoppy? Yes, please!



THEY CATCH Z'S LIKE BATS



OK, quokkas don't sleep while hanging from a cave or tree, but they do sometimes nap with their heads upside down. Quokkas often sleep in a sitting position with their head resting on their feet. "It's very cute," says Cassyanna Gray, a conservation officer on Australia's Rottnest Island, one place quokkas live. Also, like most bats, quokkas are mostly nocturnal, snoozing *when the hot sun is out*.



THEY CHEW LIKE GIRAFFES

Quokkas eat their food in a way that is similar to giraffes. Both animals use their large, flat molars to grind tough treats like leaves to release moisture and nutrients. The difference? Giraffes later regurgitate the food (meaning they basically throw it back up into their mouths—yuck!) and chew it some more. When a quokka swallows food, the meal enters its first stomach (yep, quokkas have two tummies!), where the food is broken down more before entering the second stomach.



SAY "LEAVES!"

Quokkas have smiley faces and are sometimes friendly around people, so tourists to Australia's Rottnest Island often get too close. The extra attention could put quokkas in danger—or it might help the species survive.

Authorities on Rottnest Island protect the critters with rules against touching or feeding the quokkas. Human food can make them sick, plus giving them snacks (and even water) can make the quokkas too dependent on people. But by following the rules, island tourists help give authorities more power to support the quokka's habitat. For instance, conservationists can use the money generated from tourism to protect the island and monitor the quokka population.

So if you want to protect the quokkas *and* get an epic picture, just use a selfie stick!

Rottnest Island, one of the places quokkas live, got its name after explorers thought quokkas were rats. (Get it? *Rat* nest? *Rottnest*?)

TEST YOUR MARSUPIAL SMARTS WITH THIS FUN QUIZ!
natgeokids.com/december



DARE TO EXPLORE

Three Nat Geo explorers share the adventure behind the science.

BY C.M. TOMLIN

ZOLTAN TAKACS
HOLDS A YELLOW-
LIPPED SEA KRAIT
IN THE SOUTH
PACIFIC OCEAN.

THE HERPETOLOGIST

Zoltan Takacs tracks dangerous reptiles all over the globe. Below, he describes an encounter in the Amazon rain forest—and shares how studying deadly venom could create new medicines.



TAKACS HOLDS A VENOMOUS
RHINOCEROS VIPER IN A
TUBE TO EXTRACT ITS BLOOD.

“One night in the forests of Peru, I encountered an eight-foot-long bush-master snake, the longest venomous snake in the Western Hemisphere. I had managed to wrangle it into my bag when suddenly it shot out toward me! I was surprised, but I managed to dodge out of its way.”

“Since I was a kid, my dream has been to track dangerous creatures. Venomous animals kill their prey with toxins, but many of those toxins could be used to create new medicines. That’s why I chase them. I help study their toxins, which can hopefully be used one day to save lives.”



“You have to be a little crazy to want to be a herpetologist. Normal people wouldn’t spend their vacations catching deadly snakes!”

WANT TO BE A HERPETOLOGIST?

STUDY Biology

WATCH Movies that *you* make. Use cameras to observe and document nature.

READ *Snakes: The Evolution of Mystery in Nature* by Harry W. Greene

GRAB A PARENT TO SEE MORE COOL JOBS ON THE SHOW **BEST JOB EVER.**
youtube.com/natgeokids

THE WILDLIFE CONSERVATIONIST

Hotlin Ompusunggu works to protect the forests of Indonesia in Southeast Asia. She talks about saving orangutans and educating illegal loggers.

"I'll occasionally see orangutans frolicking in the trees above me. We've placed cameras in the forests to monitor their movements, and sometimes it looks like they might be posing for a picture—sort of like an orangutan selfie! Their population in Indonesia is decreasing, mostly because of logging, so when I see one of these photos I'm very happy. It means orangutans are still there and it's like they're saying 'thank you for protecting our home.'"

"The forests of Indonesia provide natural resources like fruit, meat, and wood. Often loggers will try to gain these resources illegally, which is dangerous for animals and people. By educating loggers on the impact of their actions, we can begin to create new forest guardians."



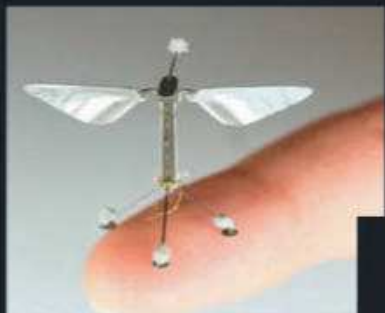
"People may not always agree with you, but don't let that stop you from sharing your ideas."

WANT TO BE A CONSERVATIONIST?

STUDY Biology and ecology
WATCH *Dr. Seuss' The Lorax*
READ *My Life With the Chimpanzees* by Jane Goodall



AN ORANGUTAN HANGS OUT IN THE FORESTS OF INDONESIA.



ONE OF ROBERT WOOD'S ROBOTS RESTS ON A FINGER; BELOW, HE WORKS ON A ROBOT'S WINGS IN HIS LAB.

THE ROBOTICIST

Robert Wood is an expert in robots: robots you wear, squishy robots, tiny robots. He recalls when he figured out how to make a flying robot.



"Once I was in the lab trying to design an insect-size robot with wings. But I was stuck; I needed to understand how a real-life insect moved."

"After my team observed a common housefly up close, we discovered that its wing movements weren't completely controlled by muscles. A major

part was simply how the wing was structured. Knowing that, we built the wing designs for the robot. And guess what? The bot could fly!

"I think of robots as problem solvers; for example, a flying robot

could be useful for things like search and rescue. Each time my team tries to use a robot to solve a problem and it doesn't work, we rebuild. Eventually we'll build a bot that will solve the problem."

"Almost nothing works perfectly the first time. If we build something right from the start, we wouldn't learn anything."

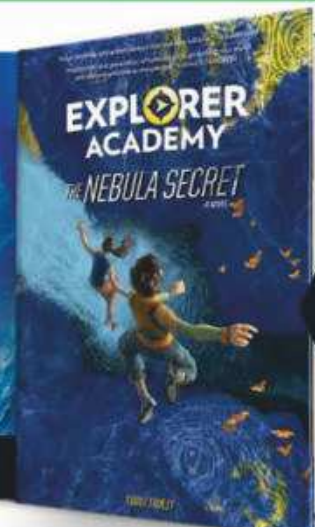
WANT TO BE A ROBOTICIST?

STUDY Math and technology
WATCH *Big Hero 6*
READ National Geographic Kids' *How Things Work*

EXPLORER ACADEMY: THE NEBULA SECRET

is packed with action inspired by some of the real-life technology and people on these pages.

ExplorerAcademy.com



CHECK OUT THIS BOOK!

FUN

STUFF

GAMES, LAUGHS, AND LOTS TO DO!

A Wintry Mix-Up



PLAY

This snowy park seems picture-perfect. But look again! Find and circle at least 12 things wrong in this scene.

ANSWERS ON PAGE 35

JAMES YAMASAKI

WHAT IN THE WORLD?

CHECK OUT
THE BOOK!



LIGHT SHOW

These photographs show close-up and faraway views of objects that light up. Unscramble the letters to identify each picture. Blinded by the light?

ANSWERS ON PAGE 35



RIBYHDTA
NEADCSL



LIEPRAAN



OENP GISN



RSREIF LHEWE



YODHILA GHISTL



KWIOEFRSR



FELFEI RTOEW



FAFIRCT AMJ



TRONNRHE
HSGKIT

TOP ROW (LEFT TO RIGHT): © JOINGATE / DREAMSTIME; ERIC MEOLA / GETTY IMAGES; CREATAS / PUNCHSTOCK. MIDDLE ROW (LEFT TO RIGHT): FOOTOO / SHUTTERSTOCK; ERIC FRANCIS / SHUTTERSTOCK; © ISTOCK / PAPABEAR. BOTTOM ROW (LEFT TO RIGHT): GIANNI TRIGGIANI / SHUTTERSTOCK; TESTING / SHUTTERSTOCK; © ROYALTY-FREE / CORBIS.

EXPLORER ACADEMY

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

TEXT AND PUZZLE BY GARETH MOORE

THE CODE: MORSE CODE

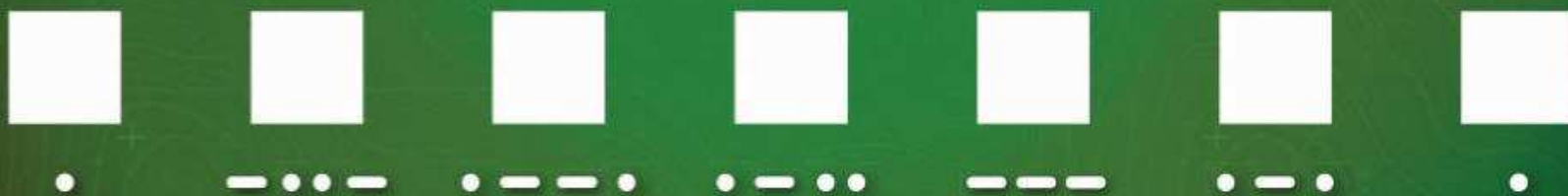
Letters in Morse code are represented by a combination of dots and dashes. Check out the written Morse code alphabet below.

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

CRACK THIS CODE!

Decode this Morse code message.

ANSWER ON PAGE 35

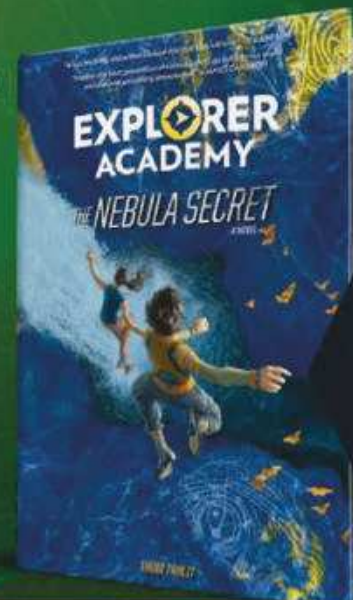


TRY THIS!

Morse code was originally created to send messages using sound (like from a telegraph) or light (like from a flashlight). Grab a friend and a flashlight and try to send secret messages with light. For a dot, use a quick flash; for a dash, use a longer one. Be sure to pause between each letter so your friend knows when a new coded letter starts.

The Morse code for emergencies, SOS, doesn't stand for "Save Our Ship." Sailors picked the letters because the code is easy to remember: three dots, three dashes, three dots!

BREAK MORE CODES!
ExplorerAcademy.com



CHECK
OUT
THE
BOOK!

CRITTER CHAT

If animals used social media, what would they say? Follow this Japanese macaque's day as it updates its feed. BY ALLYSON SHAW



JAPANESE MACAQUE

Japanese Macaque

LIVES: Near Nagano, Japan

SCREEN NAME: SnowMonkey

FRIENDS: 🐾

SIKA
DEER



DearDeer

JAPANESE GIANT
FLYING SQUIRREL



FlySquirrel

MOUNTAIN
HAWK-EAGLE



RaptorPower

START

10 a.m.



SnowMonkey

Br! If it gets any colder I'm coming down from these trees and getting into the hot tub.

Nooo!!! Then I have to forage for my *own* food—and it's so much easier to stand underneath you and just wait for you to knock down tasty leaves.



DearDeer

Meh, good riddance. I'm trying to sleep over here! 😴



FlySquirrel

Wake up, **FlySquirrel!** Let's race ... in the air!



RaptorPower

Uh, if the prize is that I get eaten, then no thanks. I'm going to glide *away* from you.



FlySquirrel

6 p.m.



SnowMonkey

Finally warming up in my favorite spot! #HotSpringsSelfie



Make room for me! I'm a great swimmer ... at least in lakes and the sea.



DearDeer

But you usually swim when you're hiding from predators. I fear nothing.



RaptorPower

Easy for you to say—you have talons! My best defense is to stay ALERT.



DearDeer

6:15 p.m.



SnowMonkey

Speaking of predators: PREDATOR ALERT. THIS IS NOT A DRILL.

Chill out—I'm nowhere *near* the hot springs!



RaptorPower

SnowMonkey, what did you see? I've been on the lookout all day.



DearDeer

LOL, it was just my shadow. But I ❤️ being mistaken for a predator. 😊



FlySquirrel

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ARE YOU "NORMAL"?

Take this superfun quiz to find your range of strange.

BY MARK SHULMAN

Answer these questions to see how "normal" you really are. Check off your answer to each question, then see how other kids responded. Add all your points together, find your final number in the score box at the bottom, and read what your score says about you.

Some responses add up to more or less than 100 percent because the numbers are estimates.



IF YOU COULD MEET ANYONE, REAL OR FAKE, WHO WOULD IT BE?

- ☐ Fictional character, singer, actor, or someone else: 2
- ☐ Sports star: 3
- ☐ Political figure: 4

Somebody fictional?

1 in 4 kids want to meet a fictional character.

Star of the stage?

1 in 5 want to get in tune with a famous singer.

Ready for your close-up?

Another 1 in 5 would rather act naturally with an actor or actress.

Kick it with an athlete?

1 in 10 kids hope to come off the sidelines and hang with a sports star.

Vote for me?

Just 1 in 33 kids voted for a political figure.

None of the above?

Nearly 1 in 4 kids desire to meet a mystery person.

DO YOU BITE YOUR TOENAILS?

- ☐ No: 1
- ☐ Yes: 4

Absolutely not.

9 out of 10 say no, and then, "Could I even do that?"

Absolutely ... well ... maybe.

1 in 10 kids have a spine as flexible as their sense of taste.

WHAT'S YOUR GO-TO SLEEPOVER SNACK?

- ☐ Pizza or ice cream: 2
- ☐ Something else: 3

Pizza, please!

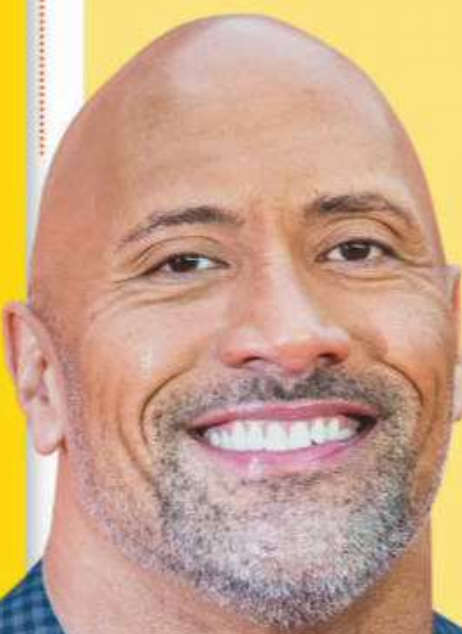
More than 25 percent of kids ask for a slice at a sleepover.

I scream for ice cream!

About 16 percent of kids get the scoop.

Something else?

About 54 percent of kids prefer something else entirely. What else is there?



DWAYNE JOHNSON

SCORES

13-16: NORMAL AS LIVING IN A HOUSE

You mostly prefer to keep things comfortable. But that doesn't make you boring! With a solid home base, you're free to get weird in other ways.

WHAT DO YOU LIKE TO WRITE WITH?

- ☐ Pencil, computer, or pen: 2
☐ Something else: 3

Did you pencil in your answer?
Pencils are the sharpest choice with 33 percent.

Type it out?
Computers are the right type for 25 percent.

No eraser here?
A pen clicks with 23 percent of kids.

Made for markers?
5 percent make markers their permanent choice.

Paint it up?
4 percent bristle if they can't have a paintbrush.

Feeling crafty?
3 percent pointed to finger paints and other handy tools.

Something else?
7 percent prefer other stuff like quills, lasers, nails, and cake frosting tubes.



DO YOU READ YOUR HOROSCOPE?

- ☐ Yes: 2
☐ Sometimes: 2
☐ No way: 2

The signs say ... yes!
You and 30 percent of your friends have stars in your eyes and eyes on your horoscope.

Sometimes peek into the future?
The rest of the time you use your crystal ball with the other 35 percent of kids.

Are you kidding?
You and the other 35 percent think the stars are just balls of gas.



DID YOUR SCHOOL CLOSE IN THE LAST YEAR BECAUSE OF WEATHER?

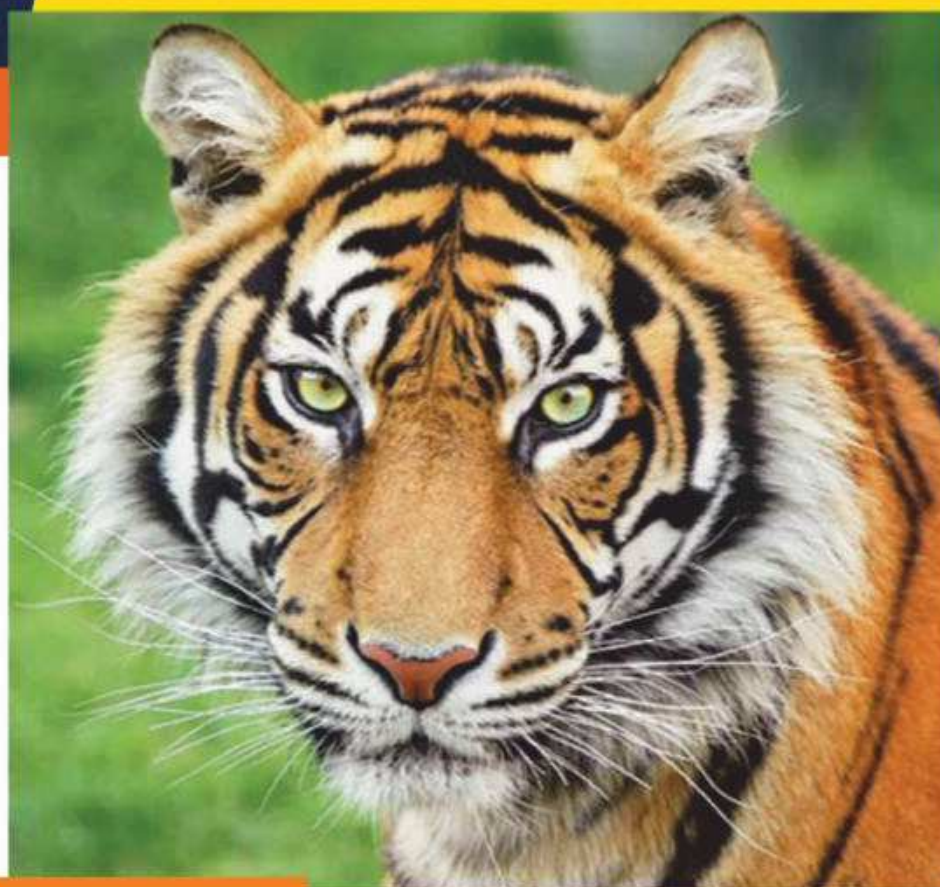
- ☐ A few days: 2
☐ One day: 3
☐ Lots of days: 4
☐ No days: 2

Got your sled on?
Almost 3 in 10 kids got a few days off.

One day of fun?
Almost 1 in 7 kids had just one day off for rotten weather.

Best winter ever?
1 in 9 kids said, "Yeah! Lots of days! It's all fun and ... um ... shoveling?"

Warm winter?
A bit less than half got no days for snow days.



WHAT'S YOUR FAVE WILD ANIMAL?

- ☐ Tiger, wolf, dolphin, or panda: 2
☐ Penguin, snake, elephant, koala, or giraffe: 3
☐ Crocodile, spider, or seal: 4
☐ None of the above: 2

Want to dive with dolphins?
17 percent of kids love this ocean mammal best.

Love a lone wolf?
16 percent of kids want to howl at the moon.

Think tigers are terrific?
12 percent of kids want to earn their stripes.

Think pandas are perfect?
11 percent of kids feel the panda-monium.

Think snakes are super?
6 percent of kids say these reptiles rock.

All about those elephants?
5 percent of kids never forget their favorite animal.

Can't get enough of koalas?
5 percent of kids like this marsupial most.

Just giraffes?
4 percent of kids stuck their necks out for giraffes.

Love that crocodile smile?
3 percent of kids cheer for crocs.

Got the spider-sense?
1 percent of kids definitely aren't afraid of spiders.

Think seals are spectacular?
1 percent of kids give their seal of approval.

None of these?
13 percent of kids love an animal not listed.



CHECK OUT THE BOOK!

17-20: NORMAL AS LIVING ON A BOAT

You don't always go with the flow, but sometimes you're happy to bob on the waves. You've probably got a pretty bizarre pet—and also a perfectly made bed. Hey, it'd be weird not to.

21-24: NORMAL AS LIVING IN A BLIMP

You're way out there, living at the extremes. You might be super messy or incredibly neat, but either way, you're an original. Keep flying high!

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

DECORATION DISASTER

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 BIANCA BOWMAN

PLAY MORE FUNNY FILL-IN!

natgeokids.com/ffi



This year my family and I decided to decorate our _____ with _____ lights.

noun

holiday

I started with the _____ tree in the yard, but the string of lights caught on a(n) _____.

adjective

noun

I _____ and pulled until it broke free with a(n) _____. I fell backward, got

past-tense verb

weird noise

tangled in the _____, and started to _____ down the hill. My younger brother tried to

noun, plural

verb

help but tripped over our _____. As I rolled down the _____, the lights wrapped

animal

noun

_____ around me. “_____!” I yelled. Finally I _____ into a compost bin,

adverb ending in -ly

funny expression

past-tense verb

which tipped over and spilled _____ all over my _____. Maybe we should’ve stuck to decorating

type of food, plural

body part

just the inside of the _____.

noun



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.



FROM THE NOVEMBER 2017 ISSUE



When you're blue, it helps to smile!
Seamus T., 11
Asheville, North Carolina

Cheese! Or should I say, *Seas!*
Gabriella A., 10
Grovetown, Georgia

What? Do I have algae stuck in my teeth?
Charis H., 12
Eagle River, Wisconsin

Squawk! Parrotfish want a cracker!
Claire T., 11
Redmond, Washington

Sorry I told those bad fish puns. I feel *gill*-ty. If you can think of a better fish pun let *minnow*.
Braeden B., 12
Sunnyvale, California

I find that *finny*.
Eliana B., 7
Melrose, New York

I'm off the hook!
Xavier D., 9
Oak Hill, Virginia

Selfie time!
Mikayla M., 9
Bend, Oregon

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"What in the
World?"
(page 29): Top row:
birthday candles,
airplane, open sign,
Middle row: Ferris
wheel, holiday
lights, fireworks.
Bottom row: Eiffel
Tower, traffic jam,
northern lights.
"Explorer
Academy"
(page 30): Explore



"A Wintery Mix-Up"
(page 28):
Answers



LEAST CHIPMUNK

LEAST CHIPMUNK

A

A least chipmunk is so heavy it scampers across only strong branches.

FALSE. At no more than two ounces, the chipmunk weighs less than this magazine. Half of its eight-inch length is its tail.

B

To be called “busy as a chipmunk” can be considered a compliment.

TRUE. A chipmunk was seen storing 478 acorns. Another stored 2,000 cherry pits, and one put away 3,700 blueberry seeds.

C

It uses its little paws to carry small loads of seeds to its den.

FALSE. It fills its cheek pouches with seeds, stuffing in enough that the pouches stretch to the same size as its head.

D

A chipmunk watches out for snakes.

TRUE. Depending on where it lives, other predators include owls, hawks, weasels, cats, foxes, coyotes, and martens.

E

Chipmunks don’t hibernate.

TRUE. Although they sleep a lot during winter, they do wake up to eat.

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ARCTIC FOX

ARCTIC FOX

A

Arctic fox numbers can depend on lemming numbers.

TRUE. Many arctic foxes eat mainly small rodents called lemmings. If there are more lemmings, more fox pups are born.

B

Seal pups are sometimes on the arctic fox's menu.

TRUE. A fox can smell a seal den a mile away. It dives headfirst through the snow or digs into a seal's lair to catch a seal pup.

C

These foxes suffer in the cold.

FALSE. They don't even begin to shiver until it's minus 94°F. They're built to stay warm, with extra fat in the winter and dense fur even between their foot pads.

D

They're always white.

FALSE. Arctic foxes can be white, brown, or blueish-gray. Their color depends on what time of year it is.

E

An arctic fox's home is probably older than yours.

TRUE. Dens are used for generations. Some are even 300 years old.

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MANDRILL

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MANDRILL

A Male mandrills make a scene in front of unwanted guests.

TRUE. To scare away intruders, males show their large canine teeth and jump up and down in a frenzy.

B Most adult humans weigh less than full-grown mandrills.

FALSE. Female mandrills weigh about 25 pounds. Males weigh around 50 pounds.

C Mandrills have cheek pouches.

TRUE. Their cheek pouches extend down the sides of the neck and hold as much food as their stomachs.

D You might see them in the rain forests of South America.

FALSE. These monkeys are found in parts of Africa.

These lazy primates eat food only close to where they sleep.

E False. They forage as far as five miles each day in search of fruits, nuts, mushrooms, and small animals.

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ORCA

ORCA

A **These creatures wouldn't hurt a fly.**

FALSE. OK, they don't eat flies, but they kill and eat other whales, seals, sea lions, penguins, walruses, and a variety of fish and squid. Orcas are called killer whales.

B **Black-and-white coloration makes its presence obvious.**

FALSE. Its coloration makes it hard for prey to see the orca—until it's too late.

C **The NFL could use a newborn calf's size and strength.**

TRUE. The 8-foot-long, 350-pound newborn could add some muscle to a team, but its mom probably wouldn't let it play.

D **If you're spending the day with an 8,000-pound orca, you'll need 50 cans of tuna to keep its tummy full.**

FALSE. You'll need to have more than 650 cans of tuna to keep your friend full!

E **Orcas dive the deepest of all whale species.**

FALSE. Since their food is usually near the surface, so are they.

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 **NATIONAL
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SALTWATER CROCODILE

SALTWATER CROCODILE

A

A healthy human adult can outrun a crocodile.

TRUE. Crocodiles' success is in the speed of a short-distance surprise attack, not a long chase.

B

If you hear high-pitched barking sounds from underground, run!

TRUE. Female crocodiles bury their eggs underground. As soon as the young begin hatching, they call for mom, who's waiting nearby to carry them to the water.

C

Most eggs hatch successfully.

FALSE. Only 20 percent hatch, due to predators and flooding.

D

A croc would order the "surf and turf" plate at a fancy restaurant.

TRUE. This predator eats mammals and fish, as well as birds.

E

Whether males or females hatch is purely chance.

FALSE. Nest temperatures determine gender. Most males are produced at approximately 88°F.

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 **NATIONAL
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AFRICAN ELEPHANT

AFRICAN ELEPHANT

A

An elephant's trunk is like the Swiss Army knife of the animal kingdom.

TRUE. It's a sniffer, snorkel, bucket, glass, fingers, back-scratcher, shovel, and nose.

B

An elephant has more muscles in its trunk than you have in your body.

TRUE. You have up to 850 muscles; an elephant's trunk has 15,000.

C

As quiet as a cat on carpeting, elephants tiptoe through forests.

TRUE. Due to the structure of their feet, they walk on their toes. Their specially padded feet work like shock absorbers and muffle the sound of each step.

D

The tusks are just ornamental.

FALSE. Tusks are used for protection, digging, and ripping apart trees.

E

You probably drink as much water as an elephant does each day.

FALSE. An elephant drinks more than 50 gallons of water a day, sometimes all at once.

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