worldkids

VOL. 5 • NO. 5 • MAY/JUNE 2019



NEW EXHIBIT NEW GUESSES

Take Apart SMART!

T. rex reimagined at the American Museum of Natural History—hatchlings, juveniles, feathers, and more (AP Photos)

INTRODUCING

T. REX, ULTIMATE PREDATOR

(NO KIDDING!)

p18

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JETBALLOON — 26-29 Nigeria's Ancient Dye Pits



SO STUCK

Park rangers at Thap Lan National Park in Thailand stumble on a surprise sight: six baby elephants stuck in the mud!

The elephant calves have been separated from their parents. They try to climb out of the slippery mud hole. The rangers can see the calves need a hand. So they split up. Some say, "You go get help. We'll stay here with the baby elephants overnight." One set of rangers sets off. The others hunker down for a muddy slumber party.

Their work is just beginning. The next day, the elephants stick together at one side of the mud hole. Rangers dig with pickaxes and hoes. In four hours, they have built a mud ramp. The elephants climb out as the rangers cheer. One slips then gets back up. Once they make it out, they all run toward the forest.

The rangers celebrate a job well done. But the elephants don't stop to say thank you. It's time for them to go find their moms!

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AP Photos, R. Bishop

Puzzling Times

Which animals do these word math puzzles add up to?



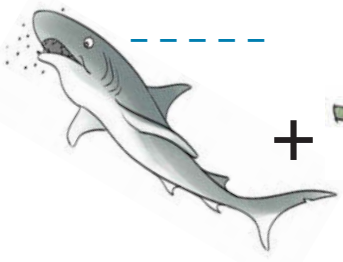
D R initials



scratch an . . .









tenth letter



twelfth letter



fifth letter

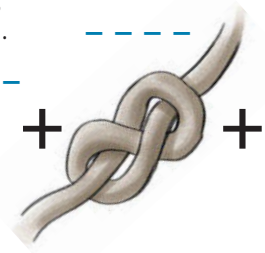
a knight's pole



an average grade



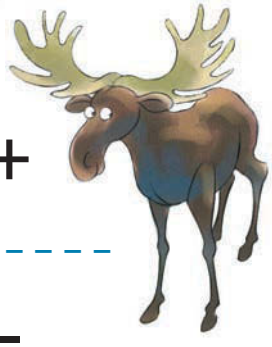
Twelve months is one . . .

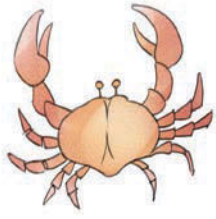


thirteenth letter



Now spell your answer backwards.





to circle the earth



fifth letter



cow sound



sleeping sound



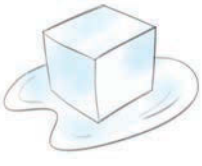
fifteenth letter

cookie





cube



a grain



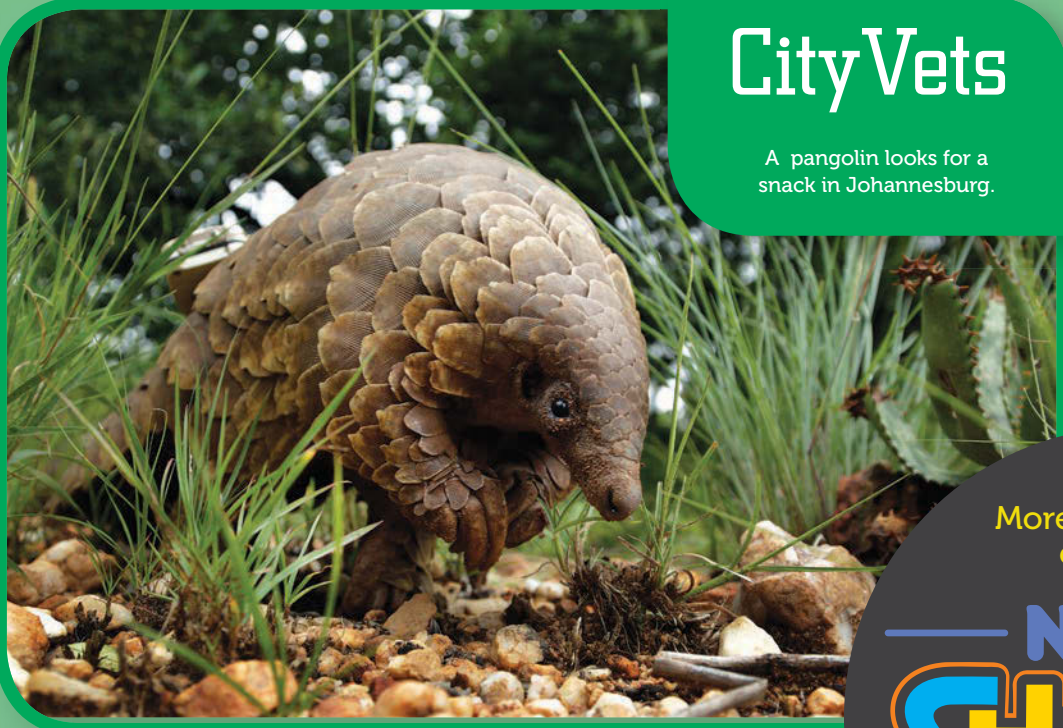
Answers page 5

City Vets

The city of Johannesburg, South Africa, is growing. That can create opportunity for people. It can also make problems for wild animals. The spreading city squeezes them out of their old homes!

At the edge of the city, a veterinary hospital helps. "I'd love to be in the bush, but I get more cases here," says veterinarian Nicci Wright. She helped start the hospital two years ago. Since then, her hospital team has treated about 4,000 animals. The wildlife hospital mainly treats small mammals and raptors that are injured. About 160 animals live in the small hospital now. They include leopard tortoises, a toothless 12-foot python, and an otter. The otter was taken far from her natural habitat when someone tried to make her a pet.

What do city vets and volunteers do all day? They take injured young pangolins for walks so the animals can search for ants. They care for baboons and vervet monkeys whose mothers have been run over by cars. Once animals heal, they move them back to safer, wilder parts of South Africa.



A pangolin looks for a snack in Johannesburg.

More sho
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Why Stripes?

Zebra stripes are dazzling! They're especially dazzling if you're a fly.

That's what some scientists from London and California say. They dressed horses in black-and-white-striped coats to find out why zebras have stripes.

The result? Fewer horseflies landed on the coated horses than horses without coats. The researchers guess that zebra stripes may protect from blood-sucking insects that can spread disease. They think the stripes might confuse the approaching bugs as they come close, making it hard for them to land.

From a distance, the flies were equally attracted to both horses and "zebras." But when the flies got closer, things got dicey. They tended to fly past or bump into the "zebras." The researchers studied how flies reacted to real zebras too.

People have wondered for a long time why zebras have stripes. These researchers say you have to think like a bug to find out. And their study gave them a tip: If you want summer flies to stay away from you, wear stripes!



In England, a horse plays zebra for the experiment.



The cameras are on American Airlines as well as planes operated by other companies.

Smile!

You're flying at 30,000 feet in the air. And guess what? You could be on camera!

Newer seat-back entertainment systems on some airplanes have cameras. Are the cameras used? Airline officials say "no."

Then why have the cameras at all? One airline official says they could be used for video conferencing from your seat in the future. But officials also say they didn't add the cameras. The cameras just came built in to the screens on the backs of seats.

But not all passengers are comfortable with cameras, even unused ones. One passenger has a simple idea for protecting privacy: Slap stickers over the lenses!

orts online
y day!
ws
ORTS®
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Plastic Suit



Rosa Ferrigno's plastic outfit



Need some new clothes? Try raiding the grocery bag drawer! Rosa Ferrigno's new suit takes recycling to an extreme. She knitted it from more than 300 plastic grocery bags. Ms. Ferrigno is a 75-year-old from Greece, New York. She doesn't watch TV, and she likes to stay busy. In the summer, she works in the garden. This winter, she knitted clothes out of Wegmans grocery bags. She scissored filmy plastic bags into brown strips. She tied the strips together to make yarn. Next, she began to knit a skirt and jacket, lining them both with cotton fabric. Store-bought knitting needles were too small to handle the plastic, so Ms. Ferrigno whittled her own.

Last summer, Ms. Ferrigno saw someone's purse made from repurposed plastic bags. She started her own bag projects. She made two purses before the suit. Fran Bertalli, Mrs. Ferrigno's daughter, tells the Rochester *Democrat and Chronicle* that her mom has been knitting and sewing since her childhood in Sicily. Mrs. Ferrigno says she does it just for fun.

AP Photos

PUZZLE p3: 1) DR + WAGON + ITCH - WITCH = DRAGON 2) SHARK + JEEP - J - ARK = SHEEP, 3) C + YEAR + KNOT + M - CART (backwards) = MONKEY, 4) CRAB + ORBIT + E - CORE = RABBIT, 5) SNORE + O - OREO + RAKE + ICE - RICE = SNAKE, 6) L + ANCHOR + E - LANCE + MOOSE - MOO = HORSE | **PUZZLE p32: Across 1.** femur, **4.** OT, **6.** set, **9.** OK, **10.** pressure, **12.** old, **14.** leak, **15.** bone, **17.** tie, **18.** ma, **19.** paleontologist, **21.** RR, **22.** badge, **25.** town, **27.** noon, **28.** robot, **30.** NT, **31.** iron, **32.** cast, **35.** see, **36.** spy, **37.** fade. **Down 1.** footprints, **2.** model, **3.** UK, **4.** ore, **5.** tea, **6.** sub, **7.** erosion, **8.** ten, **10.** plan, **11.** skeleton, **13.** liar, **16.** extinct, **18.** mold, **20.** theory, **22.** bone, **23.** ant, **24.** grip, **26.** OT, **29.** BO, **32.** CA, **33.** AD, **34.** SE | **QUIZZES: SCIENCE SOUP, p6-9, Myopia, Cheese** 1) d, 2) c, 3) c, 4) d, 5) Answers will vary, but may include: Good bacteria fight pathogens and help us stay well. | **TIME MACHINE, p10-13, Poetry, Fencing** 1) a, 2) b, 3) a, 4) b. | **CITIZEN SHIP, p14-17, Wild Pigs, Cable Cars** 1) a, 2) a, 3) d, 4) d, 5) Answers will vary, but may include: The Nile was a superhighway and Roman roads were well-planned and maintained. | **TAKE APART SMART, p18-21, T. rex, Water bears** 1) c, 2) a, 3) a, 4) b | **CRITTER FILE, p22-25, Owls, Dogs** 1) b, 2) b, 3) d, 4) c, 5) Answers will vary but may include: A dog's loyalty can show us a glimpse of God's faithfulness to us. | **JET BALLOON, p26-29, Nigeria, Puerto Rico** 1) b, 2) a, 3) c, 4) a

Hold the Phone!



Students line up for a vision test in eastern China.

Too much homework could be harmful—especially if it's done on a screen. Chinese leaders want to protect kids' eyes. Zhejiang province officials plan to ban homework on apps. *Hold the phones!*

The homework ban looks something like this: Teachers may not assign homework on cellphones. Extra time will be given for breaks, sports, and extra-curricular activities. Students in first and second grade won't have any homework at all. This is a strong stance against homework! But does homework really hurt kids' eyes?

Leaders in China see some scary statistics about eyesight. In their country, too many students have to wear glasses. Many have a condition called "myopia," or near-sightedness. This causes the eye to stretch and become too long. It makes it hard to see things at a distance. Faraway objects appear blurry. Close objects look normal. Wearing glasses or contact lenses helps people with myopia see better. In China, 77 out of every 100 high school students are near-sighted. What is causing this high rate of myopia?

Doctors think myopia is caused by family history and lifestyle. Kids whose parents have poor eyesight are more likely to have weaker eyes. This can't be helped. Kids who spend most of their time inside focusing on close objects like phone screens also have a risk of weaker eyes. This cause of myopia can be helped! That's why Chinese leaders are considering the homework ban. They want to limit screen time and get kids outside more. Outside, eyes work hard. They focus on things up close and far away. Looking around outside actually helps save sight.



It honors God when we take care of what He has given us – including our eyes! More importantly, we need to be careful about what we put into our minds through our eyes. Psalm 119:37 says, "Turn my eyes from looking at worthless things; and give me life in your ways." Has homework been hurting your eyes? Maybe it's time to head outside. Ask God to open your eyes to His beautiful creation.

Science SOUP

kids.wng.org/science-soup

Take Care of Your Eyes

Look at how God designed your eyes. The bones of your nose, cheek, and brow form a protective cage to keep large objects from hitting your eyeball. Tear ducts make fluid to wet the surface of your eyes when wind dries them out or when a speck of dirt needs to be washed away. Eyelashes catch dust before it gets onto your cornea. Your lids adjust (squint) to keep bright light from hurting your eyes.

God gave you those natural protections. But eyes are still very delicate. Doctors warn that they are easily injured. They also say that most of the eye injuries they treat could have been prevented. So how can you protect your eyes?

▷ Wear goggles for some sports and safety glasses for some kinds of work.

▷ If you do get a bit of something in your eye, don't rub. Blink and look side to side to try to move the speck to the corner of your eye where tears will wash it out. Or ask your parents to help rinse your eye.

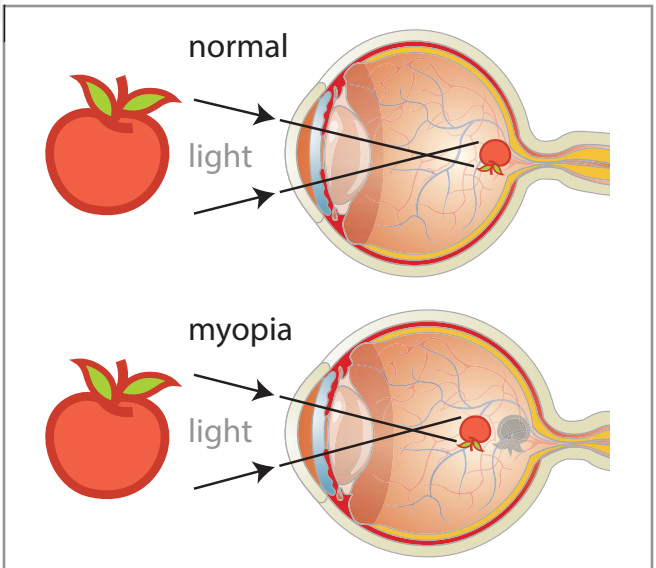
▷ You've probably been warned not to read in dim light. And not to spend too much time staring at computers and phone screens. It's probably good advice, although doctors don't agree whether these things actually harm our eyes or just make our eyes tired.

▷ Wear sunglasses on a bright, sunny day or in bright snow. And don't stare directly at the Sun or other bright lights.

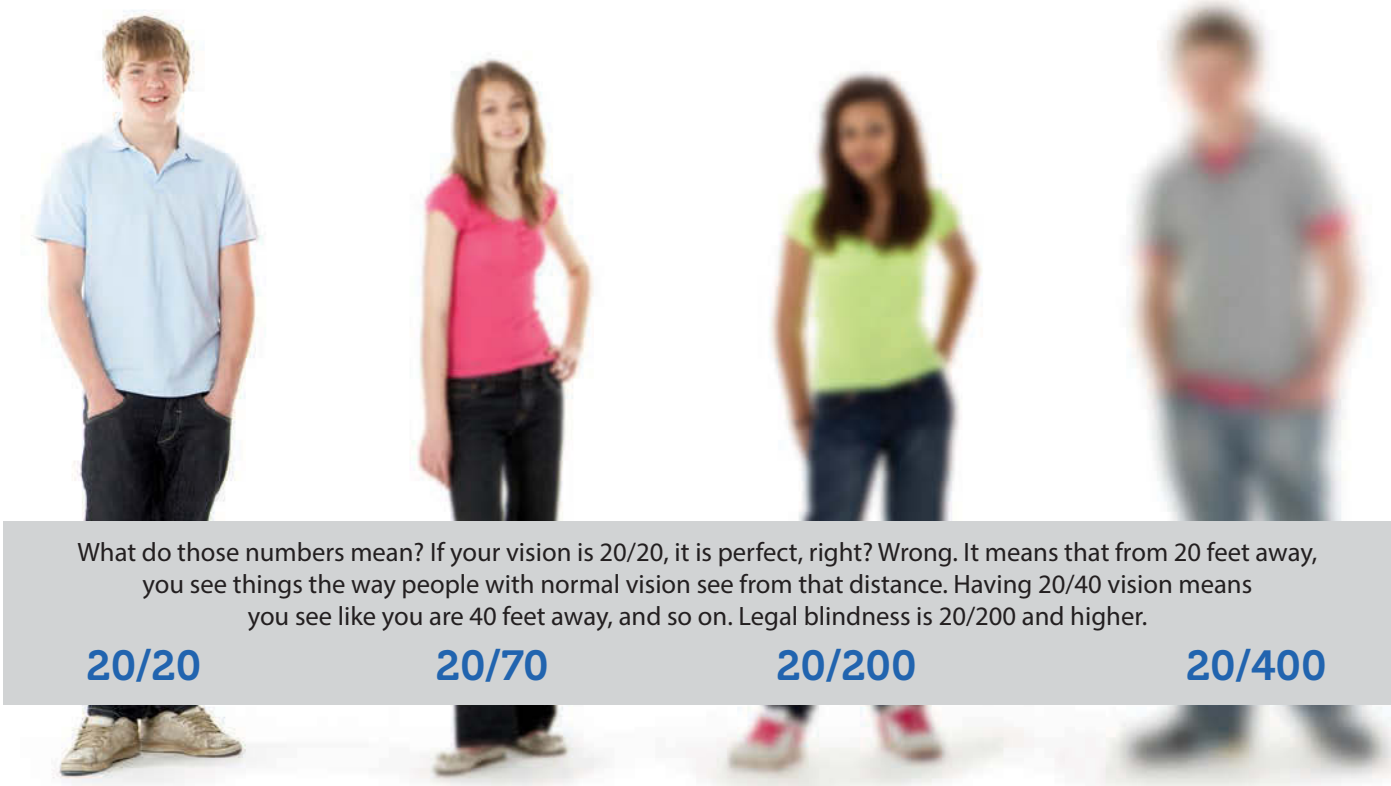
▷ If things look out of focus across the room or words on a page look blurry, tell your mom or dad. You might need glasses. Not only could lenses help you see more clearly, your eyes won't get tired as quickly. And if do you have glasses, wear them. (By the way—don't wear other people's glasses.)

▷ Finally, consider others. Wouldn't it be awful to know that you hurt someone's eyes? Don't throw dirt. Be careful with sticks. Watch out where you point sprays.

Whether for yourself or for others, you could think of lots of rules. And when it comes to eye safety, that's exactly the point—THINK!



With myopia, the eyeball is longer. Light focuses before reaching the retina, the back surface.



What do those numbers mean? If your vision is 20/20, it is perfect, right? Wrong. It means that from 20 feet away, you see things the way people with normal vision see from that distance. Having 20/40 vision means you see like you are 40 feet away, and so on. Legal blindness is 20/200 and higher.

AP Photos, R. Bishop

Science SOUP

A cheese from Ohio captures the top spot at the U.S. Championship Cheese Contest in Green Bay, Wisconsin. The winner is . . . baby Swiss!

Cheesemakers at Guggisberg Cheese in Millersburg, Ohio, crafted the winning cheese. It just *barely* beat a Gouda cheese to first prize. (Do you know the difference between a Gouda and a Swiss? Both Swiss and Gouda cheese have sweet, nutty flavor. But Gouda is not as hard, and Swiss is full of holes. The more holey the Swiss, the stronger the flavor.)

The cheese championship contest—the biggest in the United States—takes three days and happens once every two years. People bring their very best cheese, butter, and yogurt to compete. This year, judges evaluated more entries than ever: 2,555. The categories with the most entries are Cheddars, Brick and Muenster, and Latin American Style Melting Cheeses. Judges choose the best by asking these questions: How is the cheese's flavor? What does the cheese feel like in the mouth? Is it salty enough? Does it have good color? Is it packaged in an attractive way?


Judge Kory Hyvonen tastes a parmesan cheese in Green Bay, Wisconsin.

The winning Guggisberg cheese comes from cows living in pastures in Ohio. Local farmers deliver milk to the cheesemakers every day. During cheese making hours, customers watch through viewing windows as the milk becomes cheese.

CHAMPION CHEESE


Officials move a cut of Swiss at the United States Championship Cheese Contest.

Make Your Own

Did you know you can make Swiss cheese at home? You can! At least, you can in theory. But you'll need some ingredients you probably don't keep in your cupboard. And you'll need a fancy tool called a cheese press. At this point, it might be a good idea to imagine you're making cheese . . . or watch a professional cheesemaker in action! A cheesemaker follows these directions: Start with two gallons of fresh cow or goat milk. Add one-eighth teaspoon of propionbacteria. Propionbacteria are microscopic, rod-shaped bacteria. They create carbon dioxide bubbles that make the holes in Swiss cheese. (Those holes are called eyes. Cheese without eyes is called blind.) Add more bacteria (called thermophilic culture). Put in some salt and rennet. (Rennet is a set of enzymes that come from the guts of animals. It helps them digest their mothers' milk. In cheese making, it makes milk coagulate, or form curds.) Now the work is just getting started! The cheesemaker must cook, strain, and drain the bacteria, salt, and milk. He or she pops the cheese into a cheese press at different pressures for many hours. Then the cheese is soaked in brine (salt water) for 24 more hours. For one week, the cheese rests at a temperature between 55 and 65 degrees. The cheesemaker wipes it with salty water and flips it every day. Next, the cheese ages for two or three weeks, then for around 12 more weeks. While the cheese waits, the bacteria will do its work. Making cheese is a huge job! It's more like owning a complicated pet than cooking dinner. No wonder great cheesemakers win prizes for their art!

The laborer deserves his wages.

— 1 Timothy 5:18

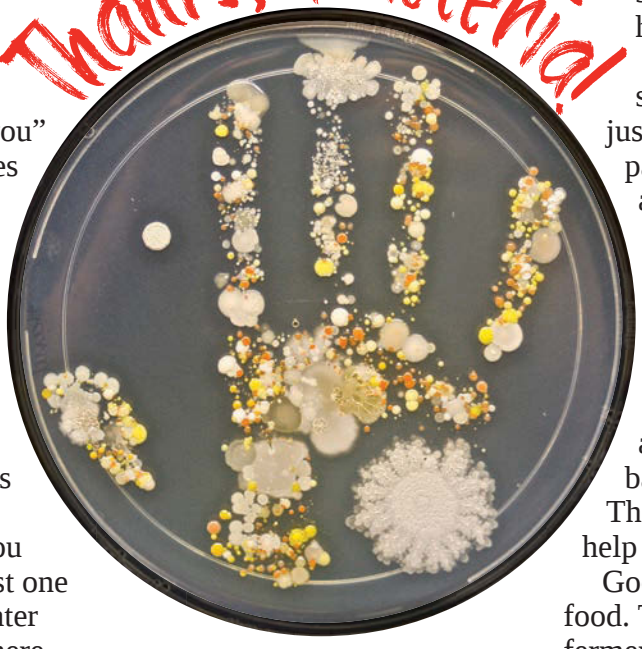
Thanks, Bacteria!

If you love cheese, you can thank a cheesemaker . . . AND you can thank bacteria. WHAT?! Do you really want to say "thank you" to a class of grimy microbes that can cause diseases?

Well, yes!

At the end of this sentence, you will see a period. In a spot the size of that period, 250,000 bacteria could fit. WOW! Just imagine how many bacteria and other microbes you could find in your garden. Imagine how many you could find in the ocean. Just one and a half gallons of seawater holds more bacteria than there are people on Earth!

Take a look at your hand. If you zoomed in to the microbe level, you would make a startling discovery. Your hand is a zoo of bacteria!



Professor Tasha Sturm of Cabrillo College in California put her son's hand onto a science laboratory dish after he had been playing outdoors. She let the harmless, ordinary bacteria grow to display the incredible variety and wonder of microbes.

But don't run for the shower yet. Bacteria are just microbes. For the most part, they aren't yucky at all. They're God's tiny (and yet huge) army that helps fight bad bacteria. Less than one percent of bacteria make us sick. We call those pathogens. But why give those guys all the attention? Most bacteria are on our side. They fight pathogens and help us stay well.

Good bacteria also preserves food. That's what happens with fermented foods like yogurt, sauerkraut, and cheese. The safe bacteria adds flavor while slowing down bacteria that causes sickness.

Quiz

1. What is myopia?
a) being unable to see things close up
b) being unable to see things far away
c) when the eye stretches too long
d) b and c

2. Having 20/40 vision means __.
a) one eyeball is larger than the other
b) one eye is worse than the other
c) seeing as well at 40 feet as a person with normal vision sees at 20 feet
d) seeing as well at 20 feet as a person with normal vision sees at 40 feet

3. What makes holes in Swiss cheese?
a) rennet
b) brine
c) bacteria
d) enzymes

4. What is a pathogen?
a) bacteria that preserves food
b) the main ingredient in cheese
c) a cheese flavoring
d) a kind of bacteria that makes us sick

5. Bacteria aren't just gross. They're God's huge, tiny army to do good! How do they help us?

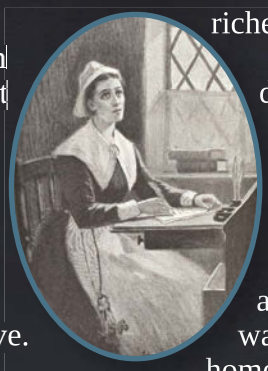
Answers page 5

Finding Anne

Above and lower right: Anne Bradstreet's handwritten manuscript, "Meditations Divine and Moral"

Anne Bradstreet was the first poet ever published in North America. She died long ago—in 1672. Now professors and students at Merrimack College in Massachusetts want to know: Where is she buried?

A marker stands for Mrs. Bradstreet in an old burial ground near the college. But it is not over her gravesite. Her original grave marker was probably wooden. Time likely wore it away long ago. The professors and students think Mrs. Bradstreet was buried on the land where her family home used to be. They plan to use radar to search for her grave.



Anne's Life

When she was a girl, Anne was very sick with a disease called rheumatic fever. She wrote poems to please her father, who made sure she got a good education. She was married when she was just 16 years old. In one famous poem, she wrote about how much she loved her husband: "I **prize** thy love more than whole mines of gold/ Or all the riches that the East doth hold."

Mrs. Bradstreet also wrote about the difficulty of life in America. Her husband became governor of the Massachusetts Bay Colony. He traveled to England on business. (That was very hard. After all, Mr. Bradstreet couldn't just hop on a plane to come home! He had to take a grueling, long sea voyage.) While he was gone, Mrs. Bradstreet took care of her home without him—*and* their eight children. She was never strong after her childhood illness. Still, she didn't stop writing.

Mrs. Bradstreet was a Puritan—one of the Christians who separated from the Church of England. Some came to America to practice their beliefs freely. Many people have forgotten about Mrs. Bradstreet's work. But God has not. She believed poetry was a way to glorify Him.

AP Photos



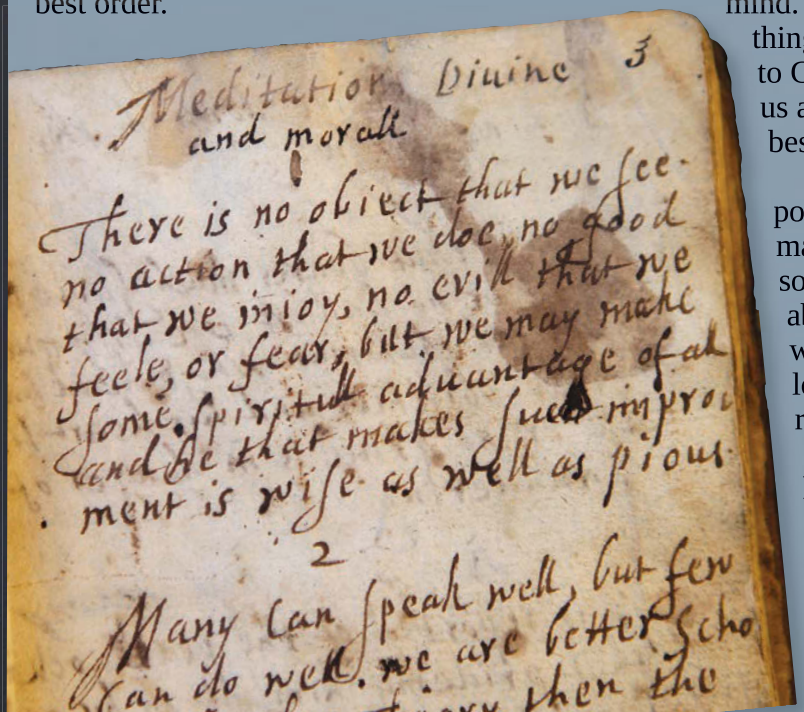
Professor Christy Pottroff (left) and student Taylor Galusha walk in an old burial ground in North Andover, Massachusetts. They see the site of a grave stone. But Ms. Pottroff says Anne Bradstreet is NOT buried there.

What Makes a Poem a Poem?

You know a poem when you hear one. But *how* do you know it's a poem?

Mrs. Bradstreet's poems rhymed. But not all poems do. Mrs. Bradstreet's poems talk about sad times, like when her house burned down in 1666. They talk about happy times too, like the years she spent with her children. Mrs. Bradstreet wrote many poems with big ideas in them about God and people. But some are about everyday life. A poem can be about *anything*!

A famous poet named Samuel Taylor Coleridge said poetry is "the best words in the best order."


Meditation Divine 3
and morall

There is no object that we see.
no action that we doe, no good
that we injoy, no evill that we
feele, or fear, but we may make
some spirituall advantage of all
and he that makes such improve-
ment is wise as well as pious

2

Many can speak well, but few
can do well. we are better scho

You could also describe poems in other ways.

You know you're reading a poem
because you hear its rhythm.
A poem helps you feel your thoughts
and think your feelings.
Poems happen when words
don't go all the way across the page.

All those things can be true. But one thing is certain: People who **craft** great poetry think carefully about the words they choose and what order they put them in. Poems should sound like music. They should paint pictures in a reader's mind. And Mrs. Bradstreet was onto something when she said they should bring glory to God. God *loves* words! He chose to tell us all about Himself and how life works best using the words of the Bible.

Did you know some of the greatest poets in history were Christians? That makes sense. Christians have a great reason to write! Writing is a chance to talk about how we see God's goodness in the world. Christian poets have also learned a lot about what makes poetry excellent by reading the Bible, which is full of poems.

But remember—a poem doesn't have to be *about* God in order to bring Him glory. When we write poems, we are bringing glory to Him by using our creativity to tell the truth.



Competitors battle during a national lightsaber tournament in France.

LIGHTSABER FENCING

Lightsabers flash. The swords **emit** throaty, electric sounds. Two people in France fight for three minutes inside a circle marked in tape on the floor. One strikes the other in the head. *Five points!* The other strikes back. He hits his opponent's legs. *Three points!* Meanwhile, watching fans wear Star Wars costumes to celebrate the event—and this news: Star-Wars-style lightsaber dueling is now an official sport in France! Of course, the lightsabers used in the fighting can't really slice a Sith lord in half like they can in an imaginary galaxy far, far away. But they do *look* real.

Fencing is an old sport. Many people take it seriously. Traditionally, fencers use blades called foils, epees, and sabres. Why would the French Fencing Federation allow bright lightsabers too?

They want to help keep people from sitting around so much! Serge Aubailly is the federation secretary general. He says it's becoming difficult to convince kids to play sports. He says kids sit on the couch. They play videogames, exercising only their thumbs. But now kids *and* grownups are interested in lightsaber fencing. Many grownups have loved Star Wars since they were kids. They buy fancy lightsaber gear for tournaments too.

Have you ever felt interested in fencing? In the past, kids were drawn to the sport because they admired characters like Zorro, Robin Hood, and The Three Musketeers. Now more kids and grownups might start fencing because of Luke Skywalker, Obi-Wan Kenobi, and Darth Vader. (At one lightsaber fencing event outside Paris, France, someone dressed as Darth Vader was seen buying a ham sandwich and a bag of potato chips at the cafeteria during a break . . . quite a sight!)

Only hundreds of people (not thousands) in France are committed to lightsaber dueling. So the sport is official—but you probably won't see it in the Olympics anytime soon!



Luke Skywalker duels Darth Vader in *Star Wars: The Empire Strikes Back.*

Centuries of Swords

To fence, you'll need speed, agility, cat-like reflexes, **precision**, and maybe some high-tech equipment. Do you have what it takes?

You've read about fencing and seen it in movies. But how did a dangerous weapon become popular sporting equipment? Don't pick up your lightsaber yet! First, check out these historical highlights about fencing.



Japan's Sera Azuma, right, competes against China's Huo Xingx during a women's fencing match.

Swordplay began as a skill of war. Ancient people and tribes from all over the world—including Persia, Babylon, Egypt, and Greece—used sword fighting to survive. Rome's army took things to the next level. They made sword fighting a fine art. Gladiators learned the skill in schools with professional teachers. But Rome fell, and so did sword fighting. It became a skill mostly criminals wanted to learn. But fencing stayed popular even though it was outlawed in cities. Secret schools of fencing survived.

And fencing stuck around. Swordfighters in the Middle Ages wore bulky armor for protection. They carried heavy swords to pierce armor. But the invention of gunpowder made armor useless. A bullet could easily put a hole in it! People still carried swords for protection. But they had to develop smooth swordsmanship skills again since they had no armor to hide behind. Gentlemen studied swordplay—in times of peace and times of war. People created secretive fencing moves so they could surprise opponents.

And fencing style developed differently in different places. Italian gentlemen fenced with speed and accuracy, using the point of the sword instead of the edge. French swords were shorter and lighter. This made fencing moves much easier and faster.

In the late 19th century, fencing became a sport. People fenced for fun. Competitions began.

Fencing is complicated to score. But a change to fencers' uniforms in 1936 made scoring easier. Uniforms started carrying electric pulses. Cords connected the sword, scoring box, and clothing. When the tip of a sword touched a fencer, a message went to the scoring box. This recorded the hit. Now fencing swords are digital. That settles scores and cuts out arguments.

In fencing, a violent weapon turned into game equipment. An art of war became an art of athletes. Rome's gladiators fought to the death with swords. Modern Olympians fence to win gold medals. And now, lightsaber dueling is lighting up France. Fencing is an example of how something that can be used for evil is used for good instead. The Bible tells us about the end of war, when weapons will be turned into useful tools. A lightsaber is a useful tool—for having FUN!

And they shall beat their swords into plowshares, and their spears into pruning hooks; nation shall not lift up sword against nation, neither shall they learn war anymore.

— Micah 4:3

Quiz

1. prize
- a) treasure
- b) sell
- c) give

2. craft
- a) take apart
- b) make
- c) rewrite

3. emit
- a) give off
- b) give up
- c) give away

4. precision
- a) carelessness
- b) accuracy
- c) guessing

AP Photos, 20th Century Fox



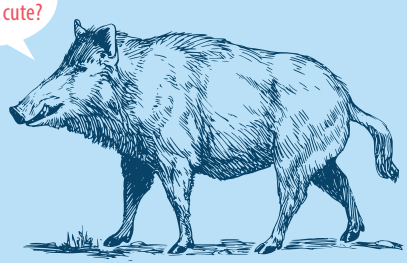
WILD PIGS TAKE OVER!

People in Asia celebrated their New Year this winter. Now it's the year of the PIG! (The Chinese calendar follows a 12-year cycle of animals: rat, ox, tiger, rabbit, dragon, snake, horse, sheep, monkey, rooster, dog, and pig.) But people in Hong Kong, China, will tell you they've had enough of pigs already. Wild pigs—real ones—are running all over! People in Hong Kong see wild boars in parks, in housing developments, and even in shopping centers! Herds of wild boars rush across a road in front of cars. That's dangerous for boars and drivers.

And there's a problem: The wild boars seem to have lost their fear of humans. Authorities in the busy city are looking for ways to make sure humans and wild boars have fewer dangerous meetings.

More than seven million people live in Hong Kong. As the growing city spreads out, the wild boars multiply too. People move into spaces that used to be the boars' homes. Not far from its cramped apartment blocks and neon lights, Hong Kong has plenty of untouched land where boars have lived for a long time. Some areas where homes are close to parks or forests have become popular spots for boars to forage for food among the garbage cans.

Boars have four razor sharp tusks that grow up to five inches long. They're smart too, and weigh hundreds of pounds. Some hunters fear wild boars more than bears! Wild boars can also spread diseases to people. But wild boars attack very rarely. And the wild pigs can look very cute and cuddly. Not everyone agrees about what to do with the wild boars. Some say, "Kill the pigs!" Others say, "You don't have to kill them. But please don't feed them!"





Residents pose with a boar.



A boy and a boar enjoy a public park.

Citizen SHIP
kids.wng.org/citizen-ship



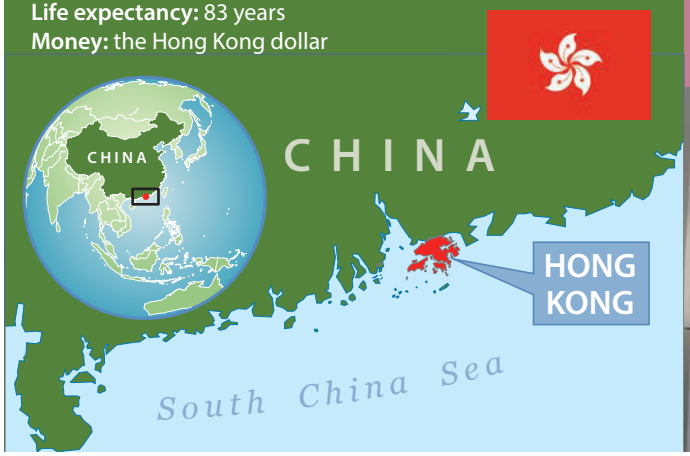
Check out Hong Kong

Kids swing and play surrounded by the cement, steel, and glass of tall city buildings. They're used to it. This is Hong Kong, after all.

Adults ride buses, taxis, and trains through crowded streets. People here depend on trade for food, fuel, building materials, and almost everything else you can think of. They're used to it. The business of Hong Kong is business!



Size: 430 square miles—the size of San Antonio, Texas
Geography—part of Southeast Asia, it has a mainland area and more than 200 islands
Climate: subtropical with monsoon rains; cool and humid in winter, hot and rainy from spring to summer, warm and sunny in fall
Land Use: mostly urban, less than 5% of the land is farmed
Population 7.2 million
Languages: Chinese 90%, English 5%
Religion: Buddhist 28%, Christian 12%, Muslim 5%
Life expectancy: 83 years
Money: the Hong Kong dollar



TIMELINE



Before 1842—Hong Kong has few people and is mainly known for the fishing trade.

1842—China turns Hong Kong Island over to Britain when a war between the two nations ends.

1898—Following a second war, Britain leases more land and 235 islands from China for 99 years.

1941–45—During World War II, Japan invades Hong Kong but is defeated by the Allied nations. Hong Kong goes back to British control.

1970s—Hong Kong becomes known as an "Asian Tiger." Its strong economy is based on technology industries.

1984—Britain signs an agreement to turn Hong Kong over to China in 1997. This comes with China's promise that Hong Kong will be allowed freedom and will not be ruled by a communist governing system for 50 years.



People protest in favor of democracy in Hong Kong.

1997—As promised, Hong Kong is turned over to China. But it is not long before people start to protest that China is not living up to its end of the bargain.

2014—China has limited voters' choices for democracy and freedom. Protesters in favor of democracy hold the center of the city for weeks. Step by step, China continues to tighten its control of Hong Kong.



In Hong Kong, a Chinese woman walks by an electronic board that tracks the values of companies and investments.

AP Photos

Citizen SHIP

A Ride in the Sky

Cable cars hang, suspended high in the air. Below them, it's chaos! People, buildings, and webs of roads cover the mountainsides and a deep, wide valley. Welcome to La Paz, Bolivia! Here, a ride through the sky carries people above the crowded mountain city.

At almost 12,000 feet above sea level, La Paz is the highest capital city in the world. And it has the highest, longest, cable car system in the world.

Now the city has added another line of cable cars to the system. This is great news for commuters who depend on the cable cars for transportation. As more and more people move to the city, the winding, scattered, and unplanned roadways are thick with traffic jams. A quick ride above the city makes sense to people who want to get around. The new line connects poorer parts of La Paz to richer parts. A ride on the line takes just 11 minutes.

A cable car is a vehicle suspended on a cable. In Bolivia, cable cars run on electricity and solar power, not gas. Using the system reduces pollution. Riders in them don't have to worry about road accidents.

The 10 routes in the system have 1,396 cable cars floating through the sky at 11 miles per hour. That's enough to move 13,000 people at the same time! And every day, 150,000 people ride the cable cars. The system is reliable, safe, faster than traveling on the roads, and costs passengers less than riding a bus.

The cable car lines run back and forth between the city's major attractions. In fact, the cable car system IS one of the city's major attractions. Every ride provides stunning views of the mountains, valley, and the busy streets below.

How high will Bolivians go to zig-zag around their busy capital city? At up to 13,000 feet above sea level, it looks like the sky's the limit. There is nothing like it in the world! Wouldn't a cable car make a great place to praise the Lord?

"Praise the Lord! Praise the Lord from the heavens; praise Him in the heights!"

— Psalm 148:1



A woman rides a cable car that links the city center of La Paz with its neighbor El Alto, Bolivia.

AP Photos

People Movers



The Bible talks a lot about travel. People walked, rode camels and donkeys, drove chariots, and even sailed boats. Large groups of people moved around a lot. The Israelites crossed the giant Red Sea. Thousands of families walked together toward the Promised Land. Armies poured over hillsides in times of war.

Wherever and whenever people have lived, they have had transportation problems to solve.

Bolivia's La Paz cable car system is a great example of a public venture that helps lots of people. Where can we find examples of other works that were engineered to solve people-moving problems? Start with history.

Many Old Testament events took place in ancient Egypt. Good planning made Egypt a center of trade. The Nile River played a big part. It provided a good water supply and nutrient-rich soil. It was also like a super-highway. Goods and people were easily transported along the river.

In the New Testament, Romans were proud of their well-planned and maintained road system. Those roads made transportation easy. Long, straight roads connected towns. Large and small roads had good drainage and helpful footpaths. Busy roads and curvy roads were designed wider than other roads so traffic wouldn't jam.

The Roman road structure is still used today! In parts of the city of Rome, new roads have been built right on top of old roads. Some old roads have survived for a thousand years!

Bolivia's cable cars system probably won't last that long. But creative minds are always thinking up new and better people movers.

Commit your work to the Lord, and your plans will be established. — Proverbs 16:3

QUIZ Citizen Ship

1. Officials in Hong Kong want people and wild pigs to ___.
- ☐ a) have fewer dangerous meetings
- ☐ b) live in the same neighborhoods
- ☐ c) share their food
- ☐ d) hunt each other

2. Hong Kong's population is ___.
- ☐ a) 7.2 million
- ☐ b) 4.5 million
- ☐ c) 12.2 million
- ☐ d) 1.6 billion

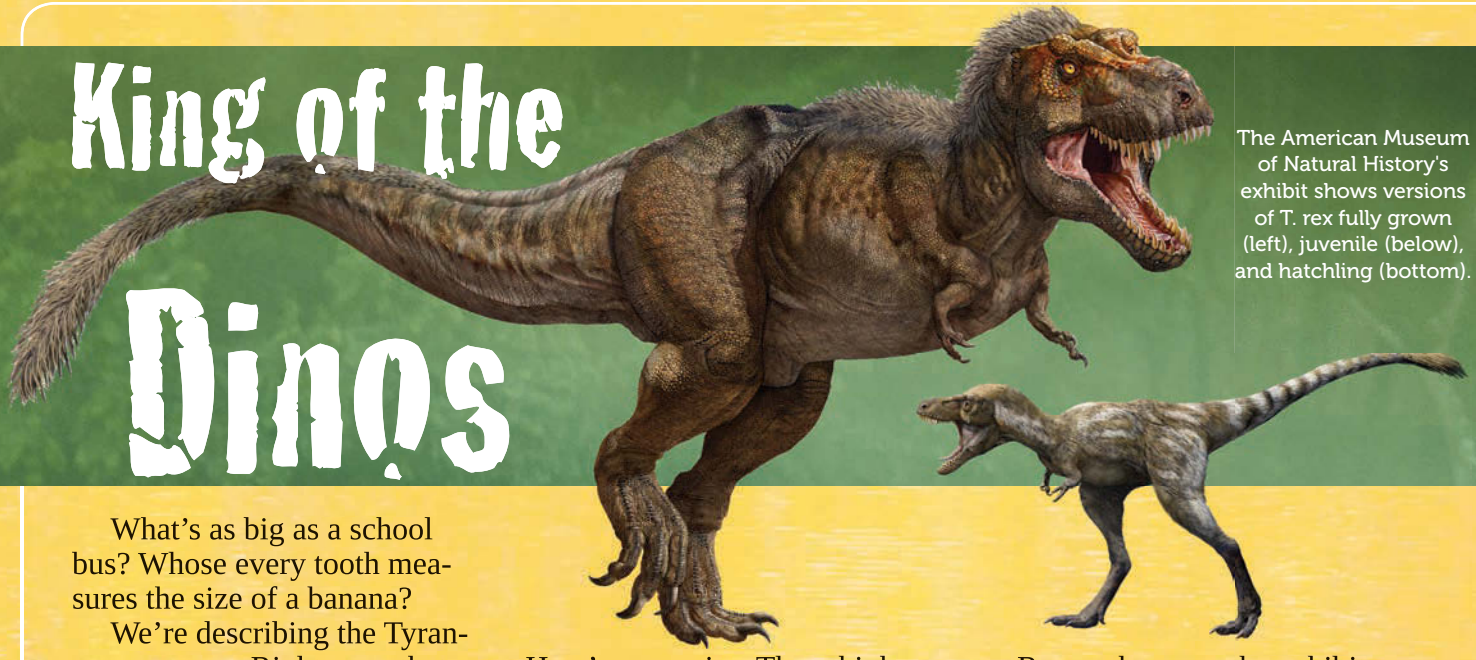
3. Which are cable car benefits?
- ☐ a) linking parts of a busy city
- ☐ b) speed
- ☐ c) cheaper rides than buses
- ☐ d) all of the above

4. Egyptians used __ as a super-highway.
- ☐ a) cable cars
- ☐ b) long, straight roads
- ☐ c) hillsides
- ☐ d) the Nile

5. What are some examples of good people-moving ideas from Bible times?

Answers page 5

King of the Dinos



The American Museum of Natural History's exhibit shows versions of T. rex fully grown (left), juvenile (below), and hatchling (bottom).

What's as big as a school bus? Whose every tooth measures the size of a banana?

We're describing the Tyrannosaurus rex. Right now, that dino is leaving its gigantic footprints at the American Museum of Natural History.

The new dinosaur exhibit opened this spring at the museum in New York City. And the "king of the dinos" isn't the only creature museum-goers will get to "meet." (*Rex* is Latin for "king." Tyrannosaurus means "tyrant lizard.") The whole tyrannosaur family will be on display. That includes the speedy, tiny guys scientists believe came before T. rex. (Not everyone agrees that some of these little tyrannosauruses were another part of the tyrannosaurus family. Some scientists think they are just baby T. rexes!)

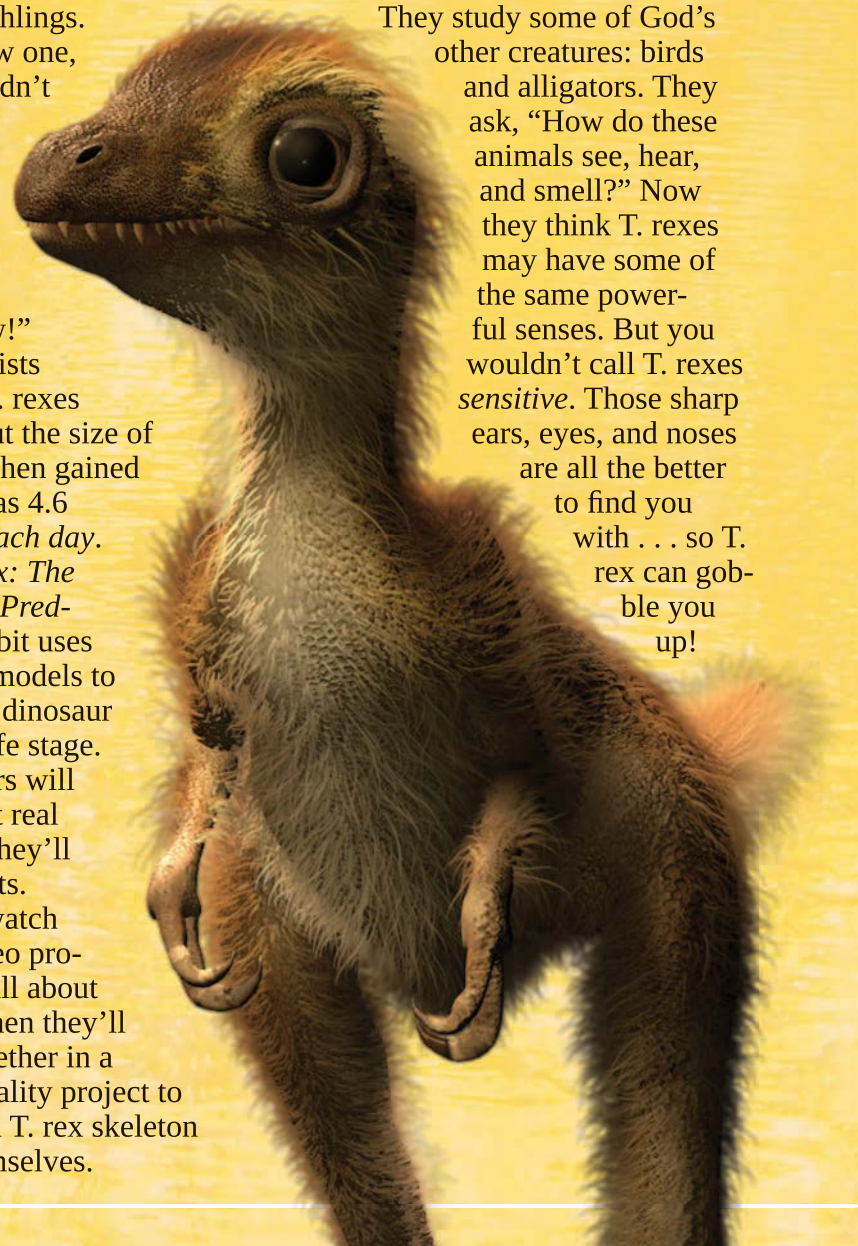
Scientists don't know everything about T. rexes. How could they? No one has ever seen one alive! People have to guess what the creatures were like by studying fossils. They believe the **savage** creatures had sharp claws. Their teeth could bite through bone. But what about T. rex babies?

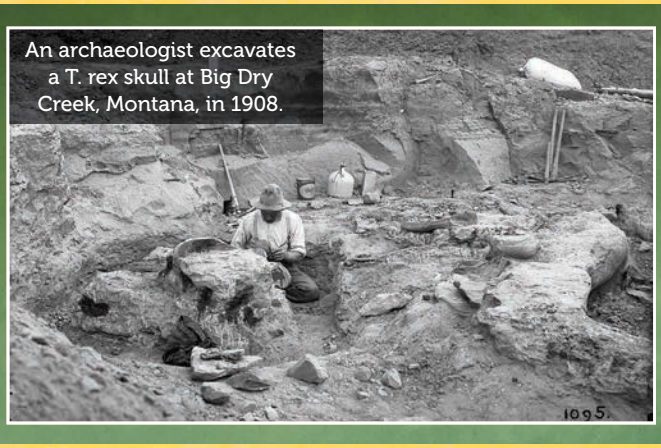
Here's a surprise. They think the killer dinos started as fluffy little hatchlings. If you saw one, you wouldn't scream "Ahh-hhh!" You would coo, "Awwww!"

Scientists believe T. rexes started out the size of a turkey then gained as much as 4.6 pounds *each day*. The *T. rex: The Ultimate Predator* exhibit uses life-size models to show the dinosaur at each life stage.

Visitors will check out real fossils. They'll study casts. They'll watch huge video projections all about T. rex. Then they'll work together in a virtual reality project to build a T. rex skeleton themselves.

Researchers use the exhibit to show off some new ideas. They study some of God's other creatures: birds and alligators. They ask, "How do these animals see, hear, and smell?" Now they think T. rexes may have some of the same powerful senses. But you wouldn't call T. rexes *sensitive*. Those sharp ears, eyes, and noses are all the better to find you with . . . so T. rex can gobble you up!




An archaeologist excavates a T. rex skull at Big Dry Creek, Montana, in 1908.

The Making of a Dinosaur

Workers at the American Museum of Natural History scurry around making sure everything is ready for the big dinosaur exhibit. What does it take to make a show like this happen?

Answer: a *lot*! It takes serious effort to build even a single dinosaur model. Sometimes the whole process takes years! First, scientists dig up fossils. In the lab, they use molds and casts to make **replicas** of the fossils. Only then can they build the copies into a dinosaur model. Some scientists even give dinosaur fossils CAT scans. A CAT scan is an x-ray test usually used on people. It takes pictures from more than one angle. Then it puts the pictures together. But even after a CAT scan, scientists do not know exactly how a dinosaur looked. Scientists and artists still have to guess a little . . . or maybe a lot.

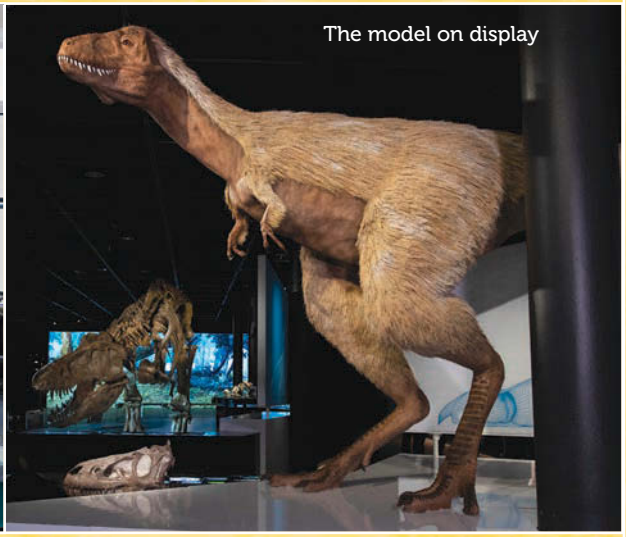

Pedicure for a T. rex replica

The model makers working on T. rexes at the museum have used their artistic and building skills to make dinosaur models before. But they have never made the *same* dinosaur at different ages. That's what they did with T. rex. They designed the teeth, bodies, and fluffy feathers of a T. rex hatchling. They also designed a four-year-old and an adult. Their mental pictures of T. rex might look different from yours. They may even look different from the imaginings of Barnum Brown, the man who discovered T. rex in 1902.


Broom straw becomes T. rex feathers in the workshop.

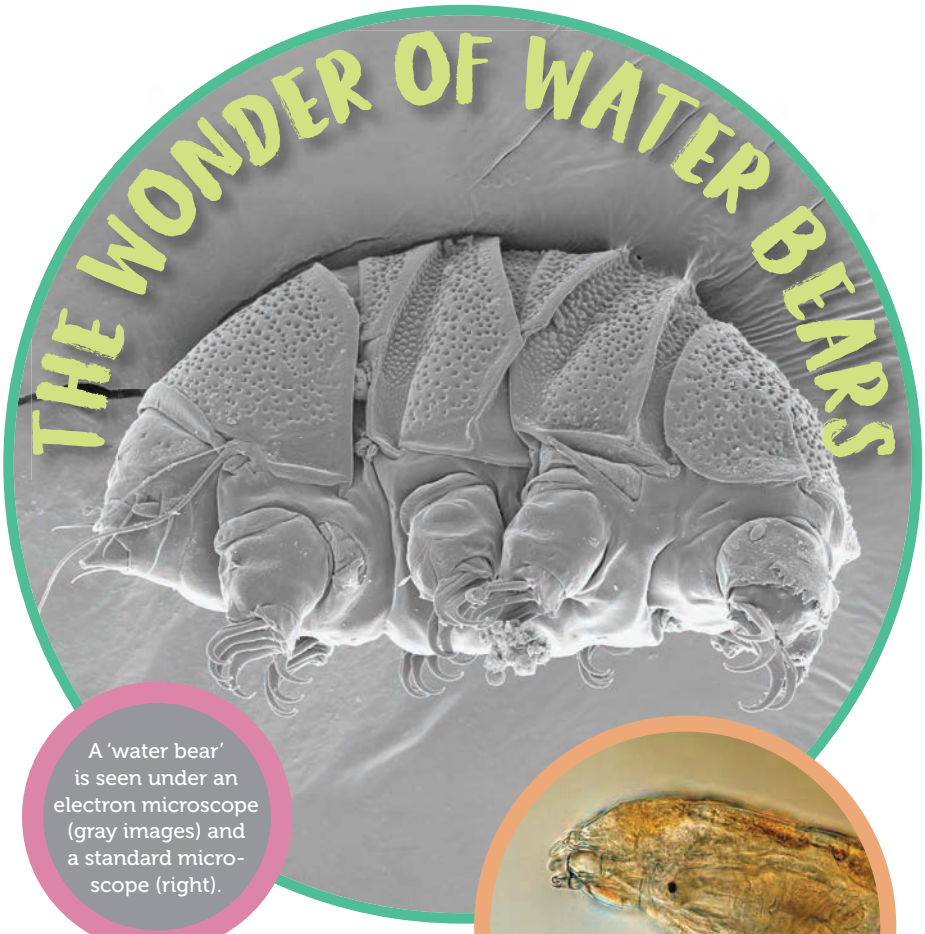
Not everyone agrees about how dinosaurs looked. And not even Christians agree about *when* dinosaurs actually lived. Some people say thousands of years ago. Others say millions of years. But Christians do agree on this: T. rex was created by God. You might even say He got this whole show started in the first place.


Exhibition workers at the American Museum of Natural History assemble a young Tyrannosaurus rex replica.


The model on display

AP Photos, AMNH

THE WONDER OF WATER BEARS



A 'water bear' is seen under an electron microscope (gray images) and a standard microscope (right).

Meet the tardigrade, or 'water bear.' It's a pipsqueak—about the size of a period. Check it out under a microscope. It looks part chubby bear and part one-eyed alien! Tardigrades are kind of cute . . . and almost impossible to kill.

No water? No worries. Tardigrades survive. Antarctic cold, 300-degree heat, a lack of oxygen, and even radiation don't stop these animals. There are as many as 1,200 species of tardigrades. They live all over Earth: on mountaintops, deep in the ocean, and maybe even in your driveway! They eat algae and water plants. They have eight legs. The rear two face backward. The front six face forward. But tardigrades don't have a skeleton or circulatory system (the parts of the body that pump blood.) This can sometimes make them able to curl up into hyper-survival mode—"cryptobiosis." Not all come back from cryptobiosis. But most do.



In 2007, scientists put two species of tardigrades in containers. They launched them into space. The water bears were exposed to cold, airless space full of radiation from the Sun and stars. A person in that situation would explode! But tardigrades lived. Later, they multiplied. The offspring from those tardigrade astronauts are still alive.

How to Use a Tardigrade

When the going gets tough for tardigrades, they curl up. They dry out. They wait. When the environment gets better and they get water, they spring back to life. Some can wait for decades before becoming active again

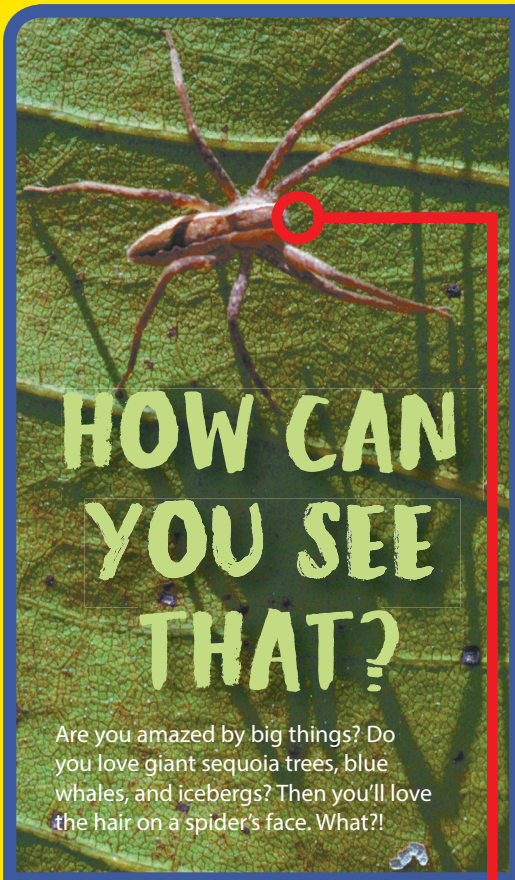
Biologists study tardigrades' teeny-tiny genes. They think putting those genes into other parts of creation—such as crops—could help crops survive drought just like tardigrades do. Scientists have other plans too. One hopes to use tardigrade tricks to make bags of blood last longer. Now blood lasts about six weeks in a bag. Scientists hope blood could be stored dried. Then soldiers could take their own blood supply into battle. Ambulances could carry more blood needed for emergencies. Scientists wonder about vaccines too. Now vaccines have to be kept cold. That's challenging. Could a tardigrade **technique** help with that too? Could tardigrade tech help preserve human organs?

Japanese scientists study whether tardigrade proteins could help them come up with a better sunscreen. Remember how those tardigrades survived radiation in space? *Maybe*, scientists think, *their DNA could protect people from dangerous radiation from the Sun.*

For by Him all things were created, in heaven and on Earth, visible and invisible.

— Colossians 1:16

AP Photos, Semitool

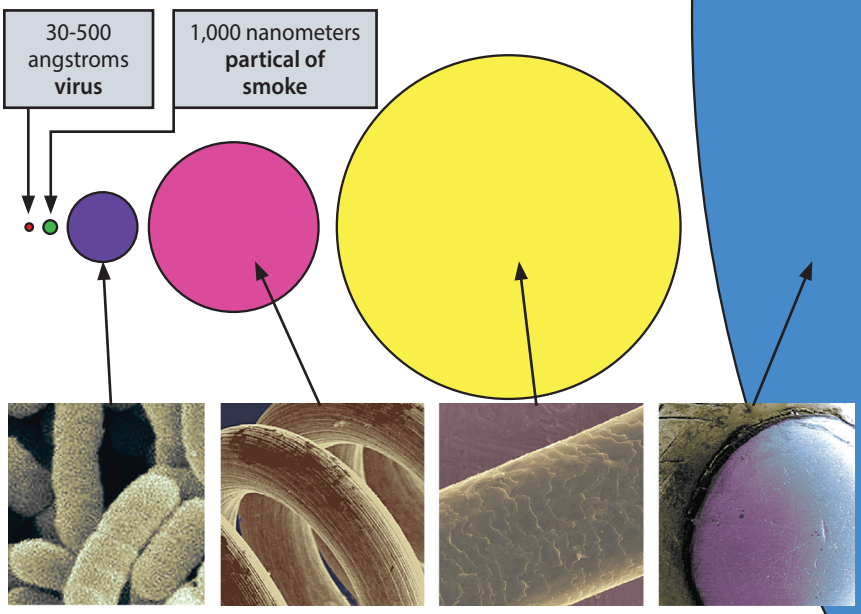


HOW CAN YOU SEE THAT?

Are you amazed by big things? Do you love giant sequoia trees, blue whales, and icebergs? Then you'll love the hair on a spider's face. What?!

Our ruler might have centimeter marks, or even millimeters. To measure the smallest things, we need to divide our ruler even further.

1 centimeter = 10 millimeters = 10,000 microns = 10,000,000 nanometers = 100,000,000 angstroms



3-5 microns **bacteria**

20-50 microns **thickness of a lightbulb filament**

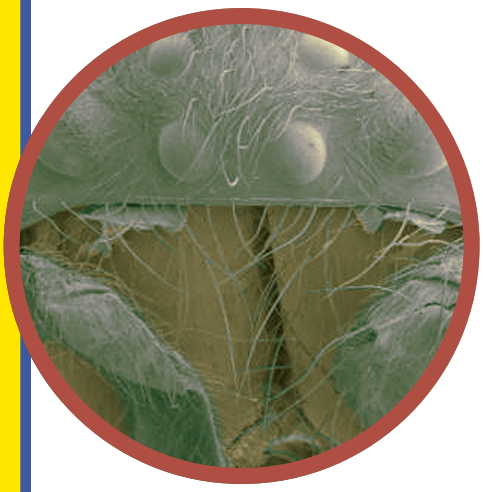
20-150 microns **thickness of a human hair**

1/2 to 3 millimeters **ball point pen tip**

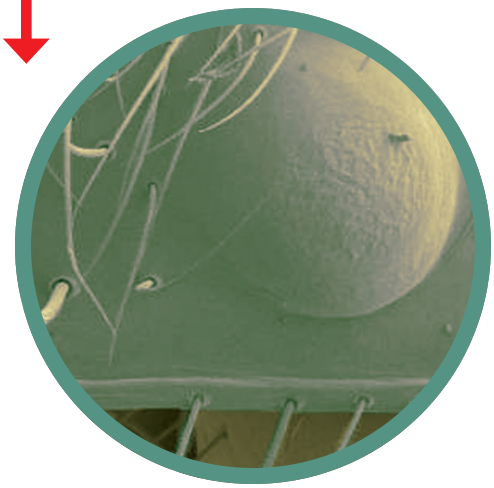
Yes, that's right. We can see some incredibly tiny things thanks to microscopes. But there are things even the most powerful microscopes can't **detect**. When you think about that, you realize how big God really is. He can create things we can't even see!

Microscopes have been around for a few hundred years. But today, scientists use new electron and ion scanning microscopes to see farther and farther down into the tiniest parts of God's big creation.

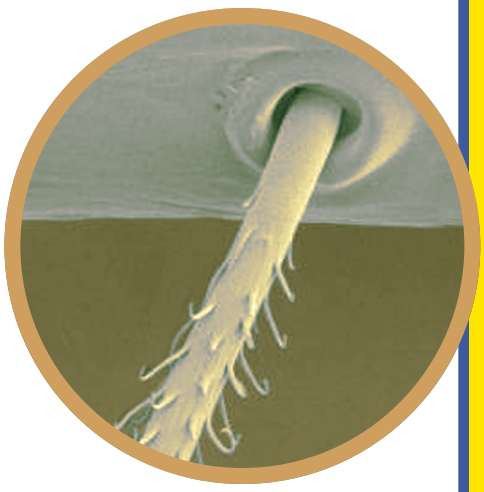
Imagine you are not enlarging the *pictures* with a microscope, but instead *you* are shrinking down small enough to see a wolf spider as close as these images show. If you could see the rest of the spider in each picture, how big would the spider be?



The spider is enlarged 70 times bigger than it really is. Imagine the rest of the spider. It would be as big as your dad.



If you could see the rest of this spider, it would be the size of a semi truck. The spider is magnified 300 times.



The picture shows a tiny hair over the spider's fang. If you could see the rest of this picture, the spider would be the size of a 747 jet plane.The spider is magnified 2,400 times its real size.

Quiz

Take Apart Smart!

1. savage
- ■ a) feathery
- ■ b) gigantic
- ■ c) fierce

2. replicas
- ■ a) copies
- ■ b) twins
- ■ c) opposites

3. technique
- ■ a) skill
- ■ b) organ
- ■ c) preserver

4. detect
- ■ a) hide
- ■ b) discover
- ■ c) measure

Answers page 5



OWLS and the AIRPORT

Plane engines thunder overhead. But that doesn't bother these new neighbors! Ten burrowing owls moved into a ghost town near the Los Angeles International Airport (LAX). (A ghost town is an empty town. It has buildings but no people.) This many rare owls haven't been spotted here in 40 years! "This is very exciting—a real stunner," says Pete Bloom, a biologist.

Surfridge was once a beachfront neighborhood in Los Angeles, California. People built its streets and houses on beautiful sand dunes. But when the LAX airport was built, people moved away. No one wanted to live under the roar of jets. Years later, scientists began restoring the ghost town. They made it into a wildlife preserve called LAX Dunes Preserve.

A preserve is land that keeps rare plants and animals safe. The LAX Dunes Preserve sits between a popular beach and a popular airport. But wildlife seems to like it even though it's noisy. Visitors aren't allowed into the preserve. Scientists want to keep its 900 species of plants and animals safe.

Thousands of endangered butterflies have moved into the ghost town. Native evening primrose flowers thrive there. Tiny California gnatcatcher birds build nests at the preserve too. (This endangered bird family has lost its habitat to city development.) Scientists plan to bring more endangered species to the preserve. They search for native animals, like the Pacific pocket mouse, that might flourish there. Even though people abandoned it, the ghost town's land is priceless for wildlife.

The LAX Dunes Preserve shows us an example of how something that was discarded has become valuable again. Now the ghost town's empty streets fill up with rare plants and animals. The old town has new life! The Bible gives us the promise that God makes all things new.

Therefore, if anyone is in Christ, he is a new creation. The old has passed away; behold, the new has come.
— 2 Corinthians 5:17



AP Photos, R. Bishop

WELL-EQUIPPED OWLS

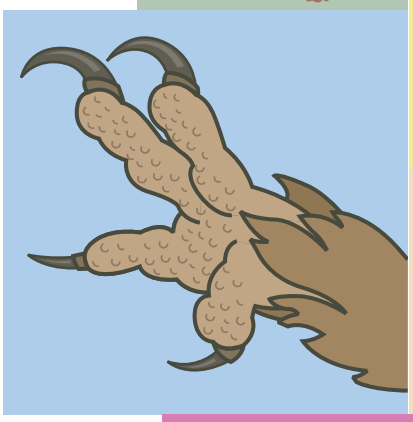
One way God provides for His creatures' needs is by equipping them to hunt and survive. Does an owl need to hide? God gives it colors that blend in with woods, tree bark, or the snowy Arctic. Here are some other ways God designed strigiformes for their home and way of life.

I know all the birds of the hills, and all that moves in the field is mine. (Psalm 50:11)

1 Owls are raptors—meat-eating predators. A five-inch elf owl might settle for preying on a large insect. A 32-inch-tall great gray owl might catch a skunk. Owls eat some prey whole and then regurgitate (spit up) the parts that can't be digested as pellets.



2 Owls have sharp beaks and talons. Their foot bones are short and strong, designed to handle the impact of a swooping attack. Knobby skin provides grip. Did you know that owls and other birds have tendons with a ratchet effect? Their feet stay locked on a perch without constantly using their muscles.



3 Most birds have eyes on the sides of their heads. Owl eyes face forward and don't move. Their field of view is small, about 110 degrees. Yours covers 180 degrees. But an owl can turn its head 270 degrees and nearly upside down. And its very large eyes collect lots of light. Some owls can see a mouse from half a mile away.



4 Did you think all owls were nocturnal, hunting only at night? Some are diurnal, hunting during the day. Here's another big word: Some owls are crepuscular. That means they like to hunt at dawn and dusk. One advantage of being a night owl is being able to share hunting territory with daytime predators.



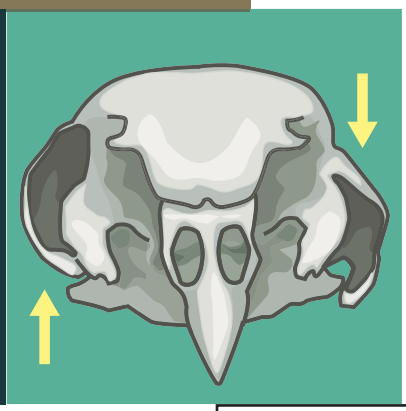




5 Owls don't build. They reuse the nests of other birds. Or they look for snug spots like hollows in trees, clumps of grass, or the abandoned burrows of other animals. Owls that live out in flat, barren areas like the arctic tundra will scrape a dent into a small mound of earth. Owls lay up to a dozen eggs. You could build a simple owl box like this one.

6 The thickness of an owl's plumage and shape of its broad wings make flapping less noisy. The front edge of an owl feather is comb-like. Little points break up the air as it streams over the feather. The trailing edge is ragged. It spreads the air as it leaves the wing. These features soften the turbulence and noise of air rushing over the owl's wings.

7 Owls have good eyes, but you might be surprised to learn that they hunt mainly by sound. If you're looking for an owl's ears, don't be fooled by those tufts on top of its head. Those are just display feathers. An owl's ears are on the sides of its skull. The ears of some species are lopsided. They are not even. One opening is higher than the other. That way, sound doesn't reach each ear at exactly the same time. Owls use the difference to gauge the distance and direction of prey.





Kids play with a hands-on display.

HOT DIGGITY DOG!

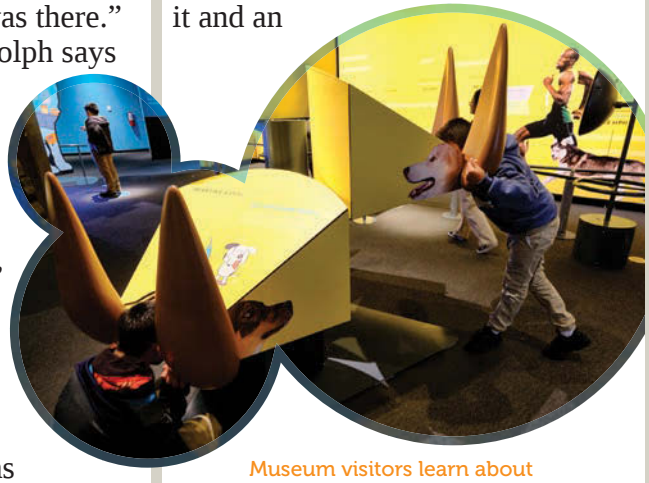
For five years, researchers at the California Science Center have been sniffing out the answers to hundreds of questions about dogs. Why do dogs do what they do? What makes dogs and people get along so well? You'll find their answers at the exhibit "Dogs! A Science Tail" in Los Angeles.

Get ready for some laughs while you're learning about canines. The exhibit has nine popular "hands on" stations. What does a fire hydrant smell like to a dog? Step up to the hydrant, push the button, and take a whiff. "We just smell pee," Jeffrey Rudolph laughs. He's the science center's president. "A dog can tell what dog was there." Mr. Rudolph says a dog also knows what time other dogs were there and which direction they were going!

At a similar station, try seeing like a dog. Dogs have limited color vision, but they see motion better than we do. Other stations show you what a dog tastes when it licks a hand. Another shows what a dog can hear. "In a bedroom they can hear a termite scratching on the wall," Mr. Rudolph says. Some dogs' excellent hearing helps them help people. An avalanche rescue dog can hear a person buried in snow when people can't hear a thing. Dogs can also help save people from drowning and find them in collapsed buildings. The science center's IMAX Theatre will show a film about canine life savers called *Superpower Dogs*.

Want to see a pup in action? Museum guests can meet real therapy dogs, rescue dogs, and drug-sniffing dogs. The exhibit also includes borrowed original paintings by American artist Norman Rockwell. The paintings show the love between people and their dogs.

When did the connection between dogs and people start? No one knows. Is a dog's love real? There is science to prove it and an exhibit to explain it! When dogs and people look into each other's' eyes, their bodies produce a hormone called oxytocin—the "love hormone."



Museum visitors learn about a dog's sense of hearing.



An interactive display demonstrates how a dog sees—not in color!

God gives us good things to enjoy. The loyalty of a dog can be a tiny glimpse of God's faithfulness to us.

For great is His steadfast love toward us, and the faithfulness of the Lord endures forever. Praise the Lord!"

— Psalm 117:2

A DOG'S NOSE KNOWS

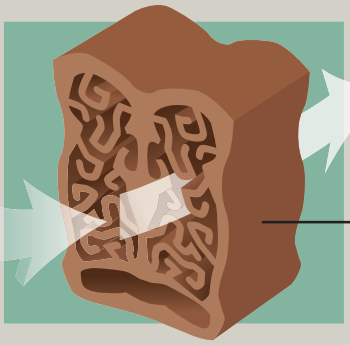
What's inside a dog's nose? The answer is, way more than you ever thought!

Dogs' noses hold tiny organs called turbinates. Your nose has them too. From a normal distance, these organs look like scrolls or seashells. If you look at them through a microscope, they look like thick sponges. Those sponges hold the body's sniffer-cells. They connect to nerves that send smelly messages to the brain.

But there's a big difference between your nose and your dog's nose. Your turbinates measure about as big as a postage stamp. A dog's—if you unfolded them—could be as big as a sheet of typing paper! Think of all the scent-messages flying into your dog's brain at once! Unlike you, your dog doesn't use mainly its eyes to make sense of the world. It uses its nose.

Scientists think a dog's sense of smell is better than a human's by 10,000 or even 100,000 times. If a dog had as much seeing power as it has smelling power, it could see at least 3,000 miles into the distance!

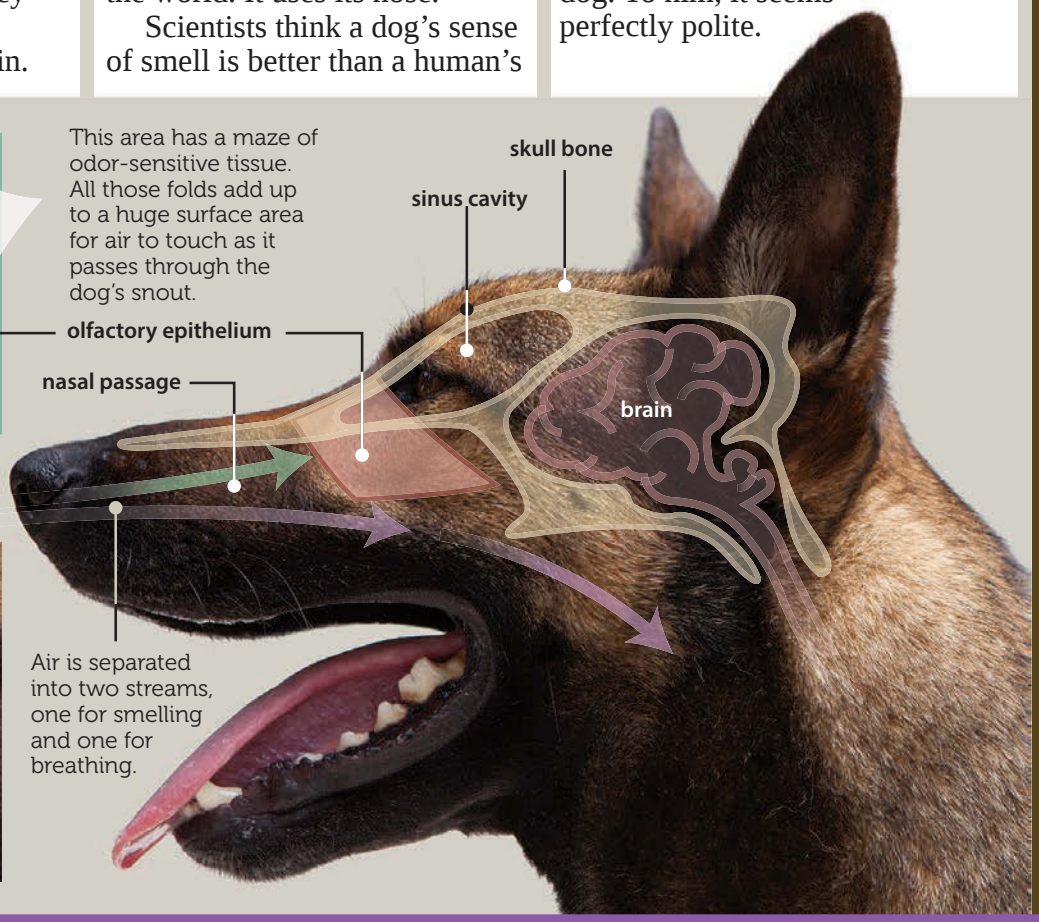
If you think about how dogs act, that makes sense. When two dogs meet on the street, they give each other a good sniff. Dogs even leave messages for each other on mailboxes and bushes . . . but not in words that can be read. Instead, they leave their urine scent behind. We think, "What a revolting way to say hello!" But just ask your dog. To him, it seems perfectly polite.



This area has a maze of odor-sensitive tissue. All those folds add up to a huge surface area for air to touch as it passes through the dog's snout.

Air is puffed out the side slits away from the scent being sniffed into front holes.





Critter File Quiz

1. What is a preserve?
- a) a kind of owl nest
- b) land that keeps animals safe
- c) a site for an airport
- d) a kind of jet

2. Diurnal means __.
- a) eating only plants
- b) hunting in daytime
- c) hunting at night
- d) having two stomachs

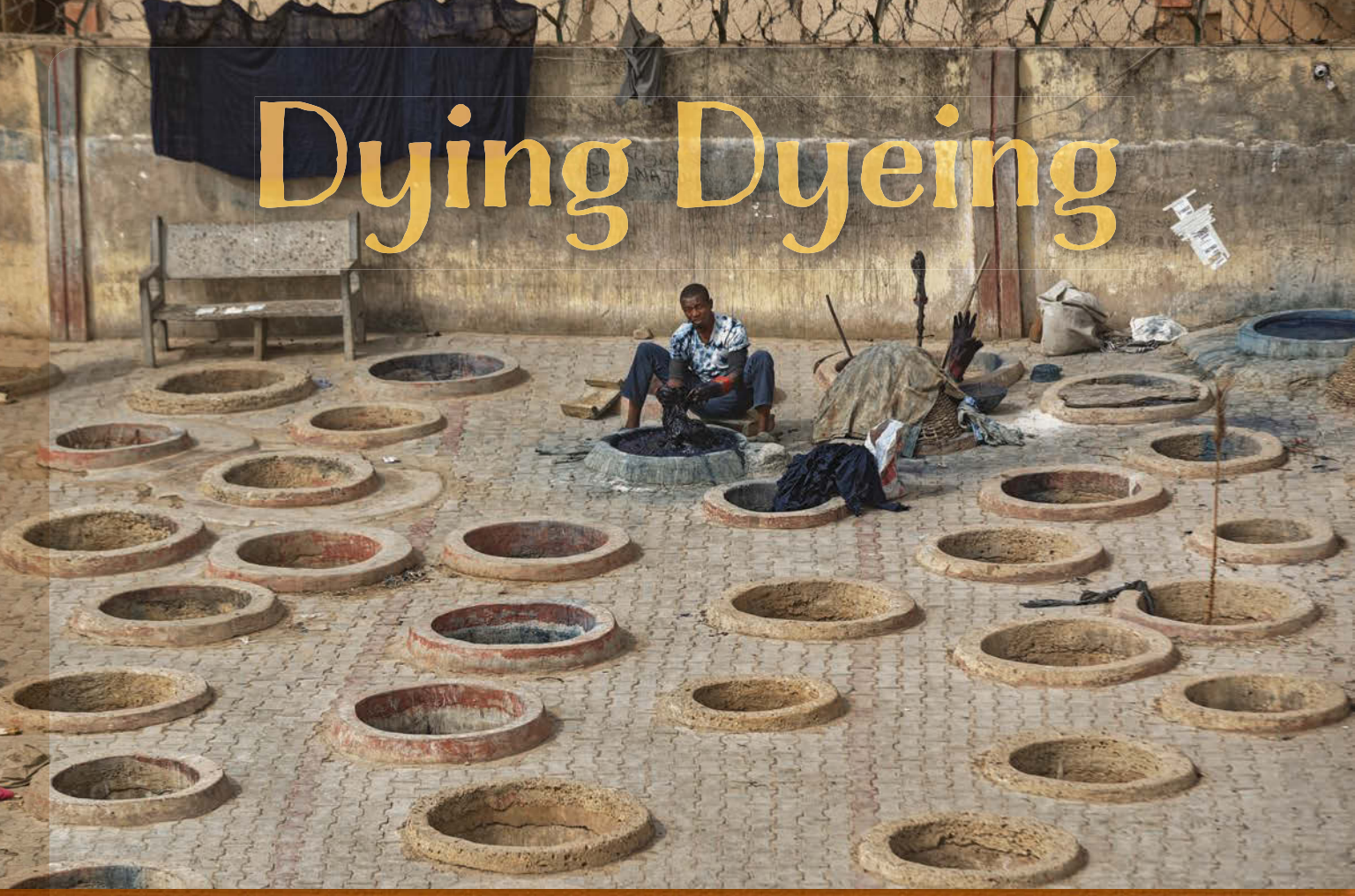
3. Dogs have __.
- a) great color vision
- b) super-sensitive hearing
- c) the ability to see motion well
- d) b and c

4. Which is true of a dog?
- a) Its nose works best at dusk and dawn.
- b) Its tongue has both smell and taste buds.
- c) Air inhaled is separated for breathing and smelling.
- d) It can't smell when its mouth is closed.

Answers page 5

5. What can we learn about God from a dog's loyalty?

Dying Dyeing



People squat on the ground, dipping hand-woven cloth into pits filled with dye. The fabric comes out blue. These dyers practice an ancient art. But is the art of indigo dyeing . . . dying?

Many dye pits in Kano, Nigeria, appear to be abandoned. Sons inherit the old dyeing tradition from their fathers. But they decide to work in other businesses or for the government instead. The men who remain wear sturdy gloves. They seem to have endless patience, sometimes taking six hours to dye one garment dark blue.

The **homespun** cloth hangs to dry on razor wire fences topping the walls around the pits. The colors range from sky blue to darkest night. The designs have names like *moon and shadow*, *moon and star*, and *three baskets*. (The "baskets" stand for wealth, education, and power.)

The dye pits were founded in 1498. Back then, they attracted travelers and traders from across Africa. The dye pits helped make the city of Kano one of the most prosperous in West Africa at the time. The fabrics are still used today by the African Tuareg people. Tuareg people's skin sometimes even turns bluish from the clothes!

The indigo dye pits use no chemicals, 50-year-old Lawan Ismailu explains.

He dips his fingers into the blue-tinged foam and licks them. He smiles. "Smells like chicken," he says. He also says indigo makes good medicine.

Some workers grumble. They say Chinese fabrics sell for half the price of Nigerian ones, taking money away from local dyers. But the Chinese fabrics are lower quality. They quickly fade.

Millions of Nigerians live in poverty. Dying dyeing just makes things worse.

Many of the abandoned traditional pits are choked with debris. But Mr. Ismailu says they keep the pits in good shape—in case indigo dyeing comes back.



Above: A lone craftsman dyes fabric at the ancient dye pits in Kano.

JETBALLOON
kids.wng.org/jet-balloon



1 The ingredients are natural.



2 Dip cloth. Repeat . . .

DIGGING OUT THE PITS



3 Hang cloth to dry.



4 Beat out the wrinkles.



5 It's all in a day's work.

Imagine you are a child living in Nigeria. Your grandfather worked at the Kano dye pits. So did his father, and his father, and his father . . . all the way back 500 years! (That was so long ago, Christopher Columbus had just discovered America!) Once, the demand for indigo cloth kept 120 dye pits busy in Kano. But now most of the pits have been filled in. Will you be one of the next generation who helps dig them out and make them useful again? To do so, you will have to learn some skills. If you learn them, you will know how to do something almost no one else does—in the whole world!

But don't expect your work to go quickly. Good things like indigo cloth take time to make. Just preparing dye can take as long as a month! Plus, it *smells*.

Start here. Dump about 400 gallons of water into your empty pit. (Each pit is about 20 feet deep.) Add 40 buckets of ash. Leave the pit alone for three days. When you come back, add about 440 pounds of baba plant. (English is the main common language in Nigeria. But many people there also speak the Hausa language. *Baba* is the Hausa word for the indigo plant.) After three more days, skim out the plant parts. Add potassium. Potassium will make the dye stay in the cloth. Now wait some more. The mixture has to ferment—kind of like sauerkraut or yogurt would. Fermentation gives indigo dye its signature stink (or, if you agree with Mr. Ismailu, its chicken smell).

Blue cloth makers in Nigeria follow other traditions too. They weave their own garments using raffia, cotton, and silk. They beat the cloth with a **mallet** to get out wrinkles. (Doesn't that sound more fun than ironing?) But style is changing. People who live nearby don't want as much real indigo clothing. So dyers—present and future—hope for another kind of buyer: tourists.

Hear, my son, your father's instruction.
— Proverbs 1:8

AP Photos



Big Ideas Save Lives

A Puerto Rican looks at the sky after Hurricane Maria destroys the island's communication systems.

Phones fail. People can't call for help. Only one radio station survives. Police, firefighters, and emergency responders can't talk. People are in trouble. But they can't get help quickly. Hurricane Maria is a double disaster!

Hurricane Maria smacked the island of Puerto Rico in 2017. No one was prepared! Downed trees blocked roads. Fires broke out. People couldn't communicate. Without electricity, the days were dark and lonely. Phone batteries died. People waved flags. The flags meant, "Please bring water!" They banged pots and pans for attention. Messages like "WE NEED FOOD," and "SOS," were scribbled in big letters on roads.

City officials walked to neighborhoods trying to help. "It was a bit like going back to the start of humanity," says Mayor Carlos Delgado. "Everything was done on foot." The officials tried to find out: Who needs food? Does everyone have water? Is medicine missing? Are all family members found? But a few people can only do so much without good communication! Help was just too slow in coming. Almost 3,000 people died.



Project OWL researchers test the communication system.

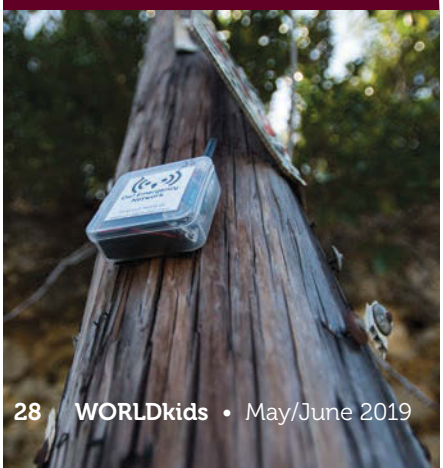
Hurricane season starts on June 1. This year, tech developers are ready. One hundred thousand developers submitted their ideas and inventions in a contest. They all had to answer the same questions: How can we get ready for disasters? How can we help after disasters come? Now the developers are ready to test their ideas in Puerto Rico.

One team uses Velcro to stick tiny transmitters to trees. The boxes send out a Wi-Fi connection. In an emergency, people can connect their phones to the internet and ask for help. Another developer thought of an idea for large doormats with symbols on them. The mats would be visible from the sky. Drones could **relay** the symbols for food, water, or medical care to emergency responders. Google employees try out ideas too. They hope to use balloons to beam internet access. This could connect people stranded by a storm.

Hurricane season is practically here. But so are these big ideas! Could Velcro, balloons, drones, or doormats help save lives? Do *you* have an idea that could help people when disaster strikes?

Nevertheless, He looked upon their distress, when He heard their cry. — Psalm 106:44

Tiny transmitters can be mounted almost anywhere.



Team members test a helium-filled balloon carrying a tiny transmitter.



Peek at Puerto

Neither a state nor independent, Puerto Rico has been a territory of the United States since 1898. (Other U.S. territories are the island of Guam, the Northern Mariana Islands, American Samoa, and the Virgin Islands.)

Puerto Ricans are American citizens by birth. But they can't vote for president in U.S. elections.

Puerto Rican culture is a blend of Spanish, African, and native Caribbean.

Millions of tourists provide an important boost to the island's economy each year. But many islanders have left for the U.S. mainland. They grew frustrated with Puerto Rico's poverty, lack of jobs, government debt, and mismanagement of resources. And don't forget frustration with the slow recovery from Hurricane Maria two years ago!

Surfers hike to a favorite beach on Puerto Rico.



Size: 3,500 square miles—about three times the size of Rhode Island, the smallest U.S. state
Geography: Located in the Caribbean Sea along a major shipping lane. San Juan is one of the biggest and best natural harbors in the Caribbean.
Religion: Christian 90% (mostly Catholic)
Capital: San Juan
Population 3.3 million
Languages: Spanish, English
Life expectancy: 81 years
Literacy: 93% can read and write



Replicas of Pinta (left) and Nina, ships that sailed on Columbus's voyage to Puerto Rico



TIMELINE

1493—On his second trip to America, Christopher Columbus lands on the island and claims it for Spain.



1508—The first European settlement is started by Spanish explorer Juan Ponce de León (picture).

1500s—The native Amerindian Taíno population is almost wiped out by disease and violence. African slaves are first brought to the island.

1868—People rebel, but the uprising is put down by Spanish rulers.

1898—Spain gives Puerto Rico to the United States as part of the ending of the Spanish-American War.

1917—Puerto Ricans are given U.S. citizenship, but the government of the United States maintains strict control over the island.

1940s—Puerto Ricans are allowed to elect some of their own leaders—governors.

1952—Puerto Rico becomes a self-governing commonwealth of the United States. Under the United States it grows economically.

1960-80s—Macheteros (Cane Cutters) and other groups fighting for independence carry out bombings and killings.

1998—In a vote, Puerto Ricans decide they want to continue as a U.S. commonwealth.

2012—Vote for the island to become a U.S. state.

2017—Puerto Rico goes bankrupt. Another vote calls for U.S. statehood. The island continues to struggle to recover from Hurricane Maria.



In San Juan, people celebrate a vote.

Jet Balloon Quiz

1. homespun
- a) factory-made
- b) homemade
- c) endless

2. mallet
- a) hammer
- b) iron
- c) razor wire

3. relay
- a) hide
- b) yell out
- c) communicate

4. literacy
- a) reading, writing
- b) earning, spending
- c) eating, drinking

Answers page 5

Surfin' on Dunkin'



Korey Nolan shows his coffee cup surfboard.

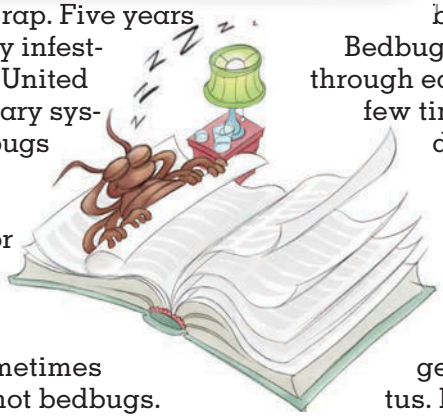
Can you catch a wave with coffee cups? Korey Nolan decides to try. He enters a contest where people must create a surfboard from waste materials. His board is made of hundreds of used Dunkin' Donuts coffee cups. Mr. Nolan's creation surfs him into second place! First place goes to a board made of 150 aluminum cans.

It took seven months for Mr. Nolan to collect the coffee cups. Family members gave him most of them. He picked up a few from the roadside. He added more than thirty plastic straws and other materials to the cups too. Then he compressed everything together. He used bamboo and epoxy to finish off the board.

What do you name a surfboard made of 700 Dunkin' Donuts coffee cups?

Mr. Nolan chose the name "Yewwlatta" for his eco-friendly board.

Bedbugs to Book-bugs



Bedbugs—they have a bad rap. Five years ago, they made news when they infested several public places in the United States. Now workers in one library system have a mission: Keep bedbugs from becoming book-bugs!

Library employees in Lincoln, Nebraska, check books for bedbugs. The bugs are hard to spot. Workers flip pages and loosen tight spaces, searching for evidence of the critters. Sometimes they find things—but usually not bedbugs. They find food crumbs, stains, and sometimes even $100 bills. One librarian found a piece of bacon being used as a bookmark!

Bedbug detection dogs sniff through each library branch a few times a year too. What do searchers do when they find bugs? They freeze the books! Four days in a freezer at zero degrees kills the bugs and their eggs. The person who checked out the book gets a heads up about the bug status. He or she gets a warning: "Please return other books in plastic bags."

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Pack your Bags, Pandas

The last two giant pandas at the San Diego Zoo say goodbye. It's time for 27 year-old Bai Yun (Bye-Yoon) and her six-year-old son Xaio Liwu (Shyaoww-Lee-woo) to go home to China.

Officials in China and the United States teamed up decades ago to help protect pandas. Pandas are native only to China. In the United States, all the pandas in zoos are on loan from the Chinese government. Now the San Diego Zoo won't have any. Are more on the way? There is no official word yet.

God cares about giant pandas. He used two countries working together to help protect them. How much more does God care for you?

You have granted me life and steadfast love, and your care has preserved my spirit. — Job 10:12


Bai Yun (below) and Xiao Liwu

AP Photos


Kane Tanaka

New Era, Old News

Kane Tanaka holds a picture made of chocolate. It spells out the word "Reiwa." Ms. Kane is 116, the world's oldest living person. She lives at a nursing home in Japan. Ms. Kane is about to watch her nation enter a new era—the Reiwa era.

The new era begins May 1 when a new Japanese emperor takes the throne. Emperor Akihito is stepping down after 30 years. His era was called "Heisei," which means "achieving peace." Now his son Crown Prince Naruhito will become emperor. His era name, "Reiwa," means "beautiful harmony."

This kind of change is big news in Japan. But it is not new to Ms. Kane. She has lived so long that this is her fifth emperor!

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Red Sea, Red Coral

In many places around the world, coral has bleached bone white. But in Israel's Red Sea, the future is looking red . . . and that's a good thing. It means the coral is alive and well!

Coral is a hard, stony substance created by tiny animals called coral polyps. Coral polyps root into the ocean floor like plants. But they don't make their own food. Like many animals, they live on algae. Many sea animals make coral reefs their home. So when coral suffers, other animals suffer. People do too. Coral reefs help protect coastlines from waves and storms. Tourists visit coral reefs, bringing business to people who live nearby.


A diver swims over Red Sea coral.

Coral in the Red Sea's Gulf of Aqaba seems able to resist bleaching. Scientists wonder: Could they transplant it to places where coral is in trouble?

Creepy Cargo


A Filipino officer shows one of the 757 smuggled tarantulas.

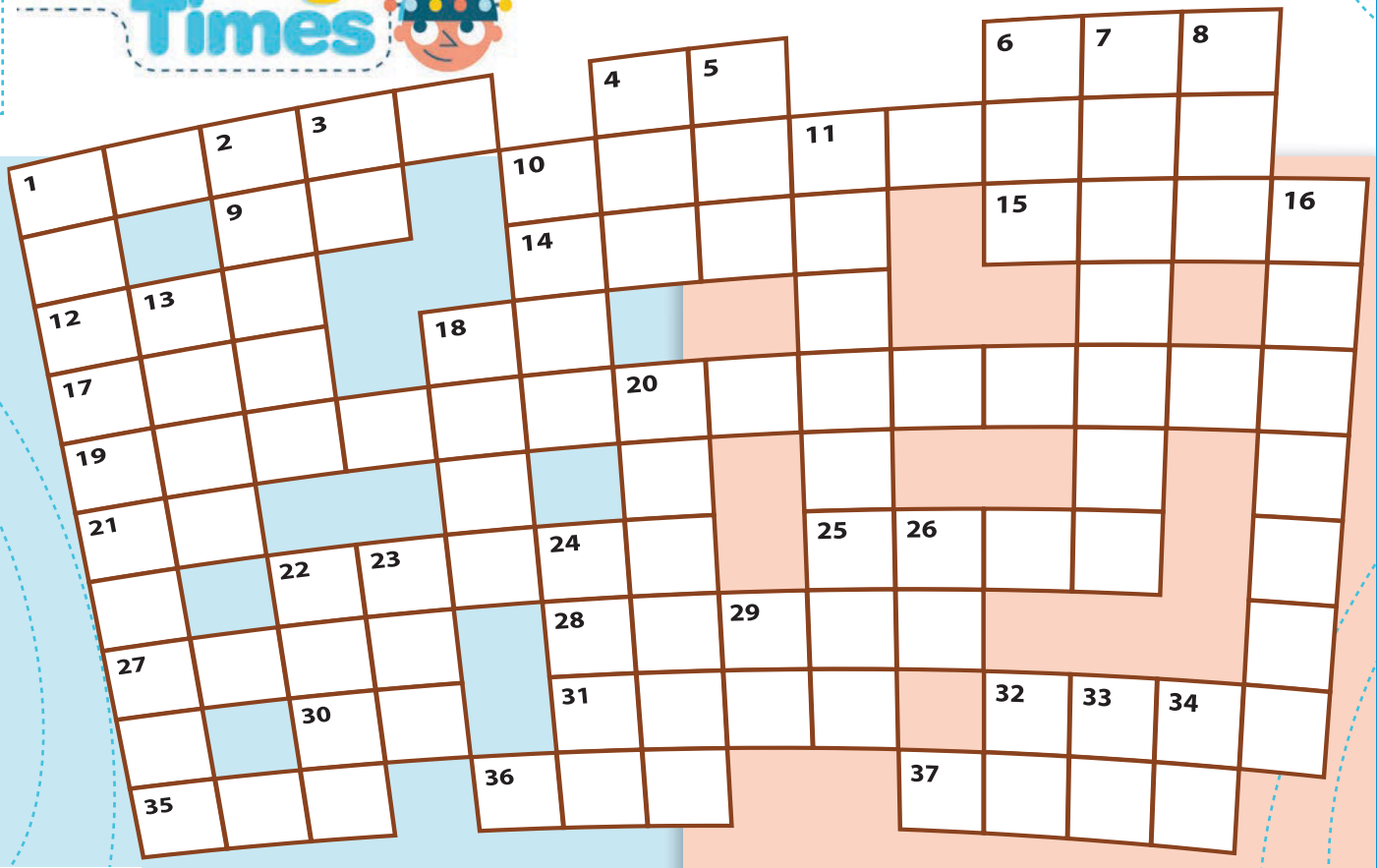
Officials in the Philippines open boxes of cookies and oatmeal. Well, *they think* that's what they're opening. Instead, they find 757 live tarantulas inside! Yikes!

The creatures were flown to the Philippines from Poland. Many of the baby tarantulas were hidden in small plastic vials. (The vials had holes punched in them so the spideys could get some air.) The bigger ones were shipped in see-through plastic containers. The tarantulas are worth around $5,900.

It is against the law in the Philippines to trade or own tarantulas like these unless you have a permit. But spider-lovers aren't the only ones breaking the rules. Since last year, Philippine airport customs inspectors have seized illegal geckos, iguanas, chameleons, and bearded dragons too.

Puzzling Times

Dig up words that will help you understand dinosaur fossils.



WORD BANK

OT	leak	pressure	ma	RR
	set	iron	CA	badge
	ore	old	femur	mold
	tea	bone	paleon-	noon
	SE	tie	tologist	robot
NT	fade	model	liar	OT
cast	extinct	sub	town	BO
UK	OK	erosion	bone	AD
see	foot-	ten	ant	theory
spy	prints	plan	grip	skeleton

ACROSS

1. This dino thigh bone is sometimes as big as a man.
4. Old Testament
6. Ready, __, go!
9. approve, fine, alright
10. This force caused by weight turns sand into rock.
12. "I have been young, and now am __."—*Psalm 37:25*
14. water coming in through a crack
15. solid body part
17. Do this with a shoe laces.
18. short for "mom"
19. This scientist studies fossils.
21. railroad
22. A police officer wears this shiny pin.
25. small city
27. middle time of day
28. machine that does the job of a human
30. New Testament
31. hot appliance
32. This forms when minerals fill an empty space.
35. "They have eyes, but do not __."—*Psalm 135:16*
36. secret agent
37. "We all __ like a leaf."—*Isaiah 64:6*

DOWN

1. Kind of trace fossil marks where a critter walked. Other kinds include bite marks, droppings, and nests.
2. a copy made to look like the real thing
3. United Kingdom
4. rock containing metal
5. Coffee or __?
6. underwater ship
7. Many fossils poke out of the ground through this process of slowly wearing away.
8. 39 + 17 - 46 = __ (spelled)
10. come up with an idea ahead of time
11. whole bone set
13. "A poor man is better than a __"—*Proverbs 19:22*
16. When no more of a species lives on Earth, it is considered __.
18. an empty space in the shape of a creature that has died, been covered by rock, then rotted away
20. an idea of how something might have happened or how something might work
22. answer to 15 across
23. "Go to the __."—*Proverbs 6:6*
24. grab tightly
26. same as 4 across
29. Initials of the previous U.S. President
32. short for California
33. not B.C.
34. southeast initials

R. Bishop