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Discovery

Scripture & Science for Kids



AMAZING TONGUES

ERIC LYONS

GOD'S AMAZING DESIGN IN NATURE CAN BE SEEN IN MILLIONS OF LIVING THINGS—BIG AND SMALL—ALL AROUND THE WORLD. ONE REMARKABLY COMPLEX, WELL-DESIGNED ORGAN IS THE TONGUE. THERE IS A great variety of tongues among animals. Some have big tongues; others have skinny tongues. Some have fast tongues; others have ultra-sensitive tongues. But regardless of the size and shape of various animals' tongues, their abilities are something to be considered...as is their Maker!

CHAMELEON

The chameleon (kuh-ME-lee-un) is probably most famous for being able to change colors and move its big eyes in different directions at the same time. But did you know that the chameleon also has one of the fastest tongues on the planet? It is so fast, in fact, that it is difficult for the human eye to see it when the lizard shoots it at potential prey (which may be more than a body length away). Just how fast is this super-hero-like tongue? Scientists have discovered that the chameleon's tongue can accelerate five times faster than a fighter jet. Now that is **fast!**



GIRAFFE

A giraffe uses its 18-inch tongue to grasp twigs and strip them of leaves. The tongues of giraffes are also incredibly nimble, able to "lick up" leaves from in-between the thorns of acacia trees.



ARCHERFISH

It may be that, like many kids around the world, you enjoy squirting water out of your mouth. Maybe you squirt it through your teeth. Perhaps you just squirt it out through your tightly rounded lips. However you do it, your tongue is definitely involved. Amazingly, a fish called the archerfish actually forms a tube with its tongue and shoots water out of its mouth at potential prey (such as insects and spiders). However, unlike most of us (who don't have very good "squirting" aim), archerfish are able to hit their intended targets with pinpoint accuracy time and again. These fish are superb "spitters" because they were designed by a great Designer Who gave them remarkable tongues.



KOMODO DRAGON

God designed the Komodo dragon's eerie, wagging, forked tongue with the ability to capture scent molecules in the air. How far away can they smell things? Astonishingly, komodos can smell the flesh of a wounded or dead animal 2½ miles away!



MALLEE FOWL

The mallee fowl has a tongue that it uses like a thermometer. How so? After the hen lays eggs inside the bird's large nest (called a mound), the male keeps a close watch over them. The male mallee ensures that the mound and eggs stay right at 92°F. How does it do this? The bird simply sticks its beak and tongue into the mound. With its tongue, this amazing little bird can tell if the temperature is too high or too low. The mallee might scrape some of the mound away to cool the eggs, or it might build up the mound even more in order to raise the temperature. These birds appear to be able to use their tongues to tell the difference in only 1/10 of a degree. Talk about complex design! Thermometers were developed and designed by highly intelligent men over several centuries. Obviously the amazing mallee fowl "thermometer" is no accident of evolution. Such design demands a Designer!



BLUE WHALE

The biggest tongue on the planet should come as no surprise: it's owned by the biggest animal on the planet. The blue whale has a tongue so large that 50 people can stand on it at one time. What's more, it can weigh about three tons...or about as much as a medium-sized Asian elephant!



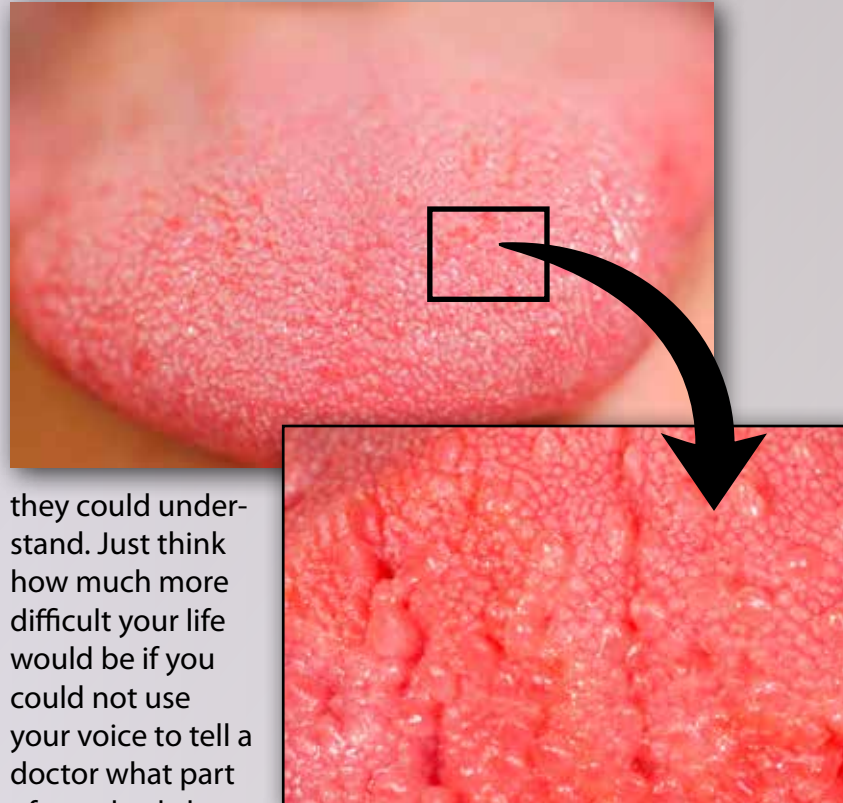
Your Terrific TONGUE

KYLE BUTT

GOD DESIGNED OUR BODIES SO THAT EACH PART HAS AN IMPORTANT ROLE TO PLAY. SOMETIMES

we need big muscles and bones like those in our legs to run or jump. At other times we need strong muscles, such as those in our hearts, to pump blood. There is one little organ that is not very big, but it plays a huge role in our lives: the tongue.

Your tongue weighs about 2.5 ounces. It is only about 2-3 inches long, but it performs some of the most important tasks in your body. For one, it helps you speak and make the kinds of sounds you need for language. Without a tongue, you would not be able to communicate with others using words that



they could understand. Just think how much more difficult your life would be if you could not use your voice to tell a doctor what part of your body hurts when you are sick.

Just imagine not being able to tell your friends a story using your tongue and language.

In addition, your tongue acts as a cleaner. Have you ever gotten a popcorn hull stuck between your teeth? Do you remember how your tongue felt it and you kept trying to get it unstuck? You might not even realize how often you run your tongue around your teeth each day to check for little food particles that are not supposed to be there. Furthermore, your tongue plays a major role in helping you swallow your food. It "grabs" the food that you eat and puts it in the proper place in your mouth so you can swallow it properly. Your tongue is a tireless worker, it does not "sleep" at night, but is constantly working by pushing saliva to the back of your mouth so you can swallow it.

You might find it interesting that your tongue is very strong. It is composed of several muscles that work together to make it one of the strongest organs for its size in your body. Some people have lifted weights of over 20 pounds with their tongues! If you look in the mirror and stick out your tongue, you will see hundreds of small red bumps. Those are called papillae (pa-pil-lee); the singular form is papilla and is pronounced like it is spelled. Many people mistake these bumps for taste buds. They are not taste buds. They are designed to make your tongue have grip, similar to the tread on truck or tractor tires.

Your taste buds are so small you cannot see them in a mirror. You have between 3,000-10,000 of them on your tongue. Not only do they allow you to taste different kinds of food, but they also protect you. If food is rotten or contains harmful bacteria, your taste buds often pick up a "bad" taste that warns you not to eat that food. The shape of your tongue, along with the pattern of papillae on it, is so unique that it is like your own special "fingerprint" (or should we say "tongue print"). There is no one else in the world that has a tongue that looks exactly like yours.

God designed your tongue to be a special, important organ in your body. He gave it many interesting and remarkable jobs. It is right that we should use our tongues to praise God and tell others about His marvelous power and love. We should never use our tongues and speech to bring other people down, call them bad names, use curse words, or lie. The apostle Peter said: "He who would love life and see good days, let him keep his tongue from evil and his lips from speaking deceit" (1 Peter 3:10). Even though our tongue is very little, it is powerful and important (James 3:1-9). Let's use our tongues to thank God for designing and creating such a wonderful body part!



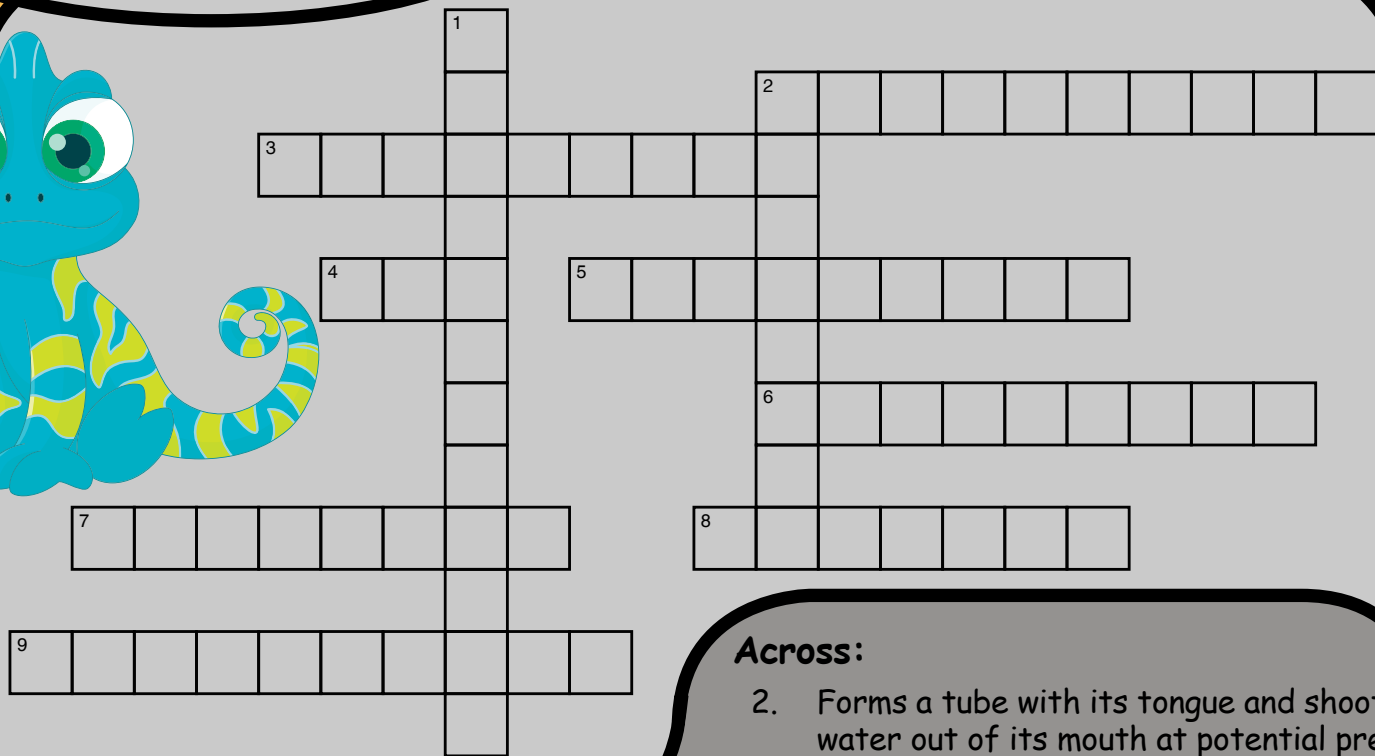
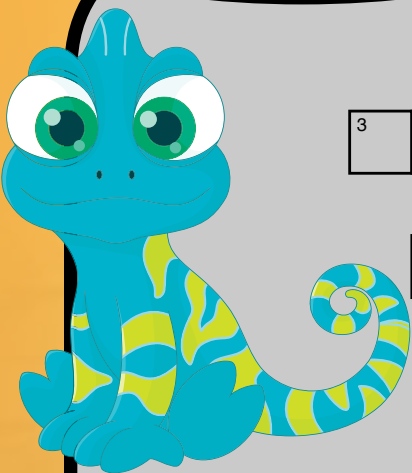
ACTIVITY PAGES



ON A SEPARATE SHEET OF PAPER

1. Explain what is so unique about the archerfish.
2. List three things your tongue helps you do.

CROSSWORD CHALLENGE



Across:

2. Forms a tube with its tongue and shoots water out of its mouth at potential prey
3. Is able to change colors, move its eyes in different directions at the same time, and has one of the fastest tongues on the planet
4. The grand Designer
5. Has a tongue so large that as many as 50 people can stand on it at one time
6. About 3,000-10,000 of these are on your tongue
7. Designed to make your tongue have grip
8. Causes things to drop toward the Earth
9. Has a tongue that it uses like a thermometer

Down:

1. Can smell the flesh of a wounded or dead animal 2½ miles away
2. Can flick its tongue up to 160 times in one minute



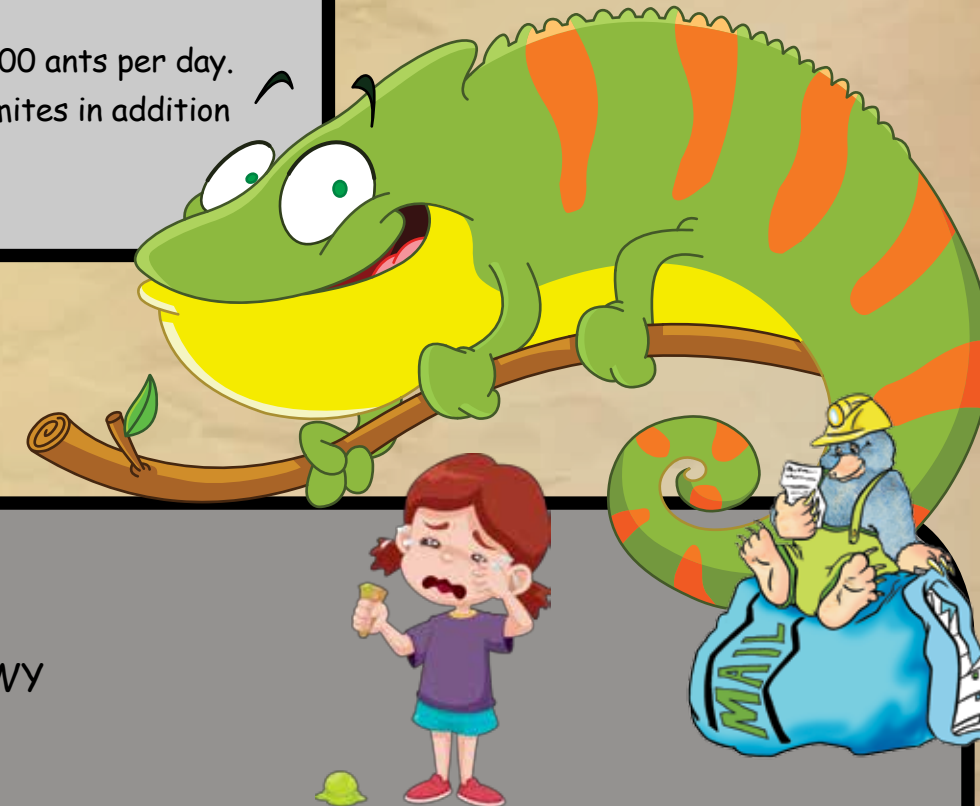
TRUE OR FALSE

1. ___ The chameleon's tongue is long and clumsy.
2. ___ Giraffes have the biggest tongue on Earth.
3. ___ Evolution logically explains the amazing human tongue.
4. ___ Anteaters have well-designed tongues.
5. ___ As many as 50 people can stand on the tongue of a blue whale at one time.
6. ___ Papillae can be found on the human tongue.
7. ___ Humans can jump six times higher on Earth than on the Moon.
8. ___ Your tongue is one of the weakest muscles in your body.
9. ___ Giant anteaters live off of 100 ants per day.
10. ___ Anteaters eat bees and termites in addition to ants.



FILL IN THE BLANKS

1. "For every house is built by someone, but He who _____ all things is _____" (Hebrews 3:4).
2. "He who would love _____ and see good days, let him keep his _____ from evil and his lips from speaking deceit" (1 Peter 3:10).



Dear Digger Doug,

Why do things drop?

—Evie Brown, Rock Springs, WY

Dear Evie,

If you have ever dropped something heavy on your foot, you know it does not feel good. Why do things drop down instead of float up or hover in mid air? There is an amazing force in our Universe called gravity that causes things to drop toward the Earth. The force of gravity depends on how big an object is (how much mass it has). For instance, our Sun is a huge star. Its gravity pulls the planets toward it and they stay in an orbit around the Sun. The Earth, where we live, is big enough to pull the Moon toward it and keep it in an orbit. The Moon is not as big as the Earth, and it does not have as much of a gravitational pull. The Moon has 1/6th the pull as the Earth. That means you could jump six times higher on the Moon than you can jump on Earth. Imagine how fun it would be to play basketball there! If you were in outer space and not close to any planets or other large objects, there would be almost no gravity. You would not be pulled in any direction, but would float all around. We should be glad God designed the Earth with gravity so that we, our houses, and everything else don't float off into space! Thanks for the "heavy" question, Evie.



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The Anteater's Amazing Wet Noodle

JEFF MILLER

HAVE YOU EVER TRIED TO TOUCH YOUR NOSE WITH YOUR TONGUE? IT MAY NOT BE EASY FOR MOST HUMANS,

but it's not a problem for anteaters. Anteaters have tongues that can grow to be two feet long and are shaped like a wet spaghetti strand. Why did God give them such a long noodle?

Anteaters' eyesight is not very good, but that's okay, because their amazing sense of smell makes up for it. They detect their food with their noses instead of their eyes.



Their prey are so small that they do not even need teeth to chew them up, so God didn't give them any. But their tongues are very important for their survival.

Anteaters walk on their wrists in order to protect their special, dangerous, curly claws, which can be used to fight off pumas and jaguars. More importantly, when they detect anthills, termite nests, or beehives with their noses, they use those deadly, four-inch claws to break holes in the insects' homes (which sometimes have very hard walls). Then they stick their very long snout in the

holes, and flick their even longer tongues in to grab as many bugs as they can, as fast as they can.

Their tongues, which have sticky saliva and tiny, back-curved spines that are used to snag insects, can flick up to 160 times in a minute. (That's almost three times a second! Can you do that?) God gave their tongue the ability to move that fast because within about a minute, the soldier insects of the nest come to the rescue and attack the anteater. So he has to quickly get what he needs and move to the next nest to finish his meal. Giant anteaters will eat as many as 35,000 ants, termites, and bees in one day. That must make them tired, because they sleep 15 hours each day. Even though giant anteaters can be seven feet long, they rarely destroy the nests they break into, which allows them to come back for more later!

Do you have an ant or termite problem at your house? Maybe you should consider getting one of God's amazingly designed anteaters as a pet! Just don't let ants crawl on you... unless you want to get licked with a long, wet noodle.



ANSWERS

Down: 1. komodo dragon; 2. anteater. FILL IN THE BLANKS: 1. built, God; 2. life, tongue. TRUE OR FALSE: 1-F; 2-F; 3-F; 4-T; 5-T; 6-T; 7-F; 8-F; 9-F; 10-T. CROSSWORD CHALLENGE: Across: 2. archerfish; 3. chameleon; 4. God; 5. blue whale; 6. taste buds; 7. papillae; 8. gravity; 9. mallee fowl. Yearly Subscription Fees in U.S. Funds Only • United States of America: Individual rate: \$14 each • Bulk rate (at least 5 to same address): \$10.50 each. Club rate (at least 10 to different address paid together): \$12 • Homeschool discount 10% off above rates

