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Scripture & Science for Kids



Eight-Legged, Fanged Wonders of God's Creation

KYLE BUTT

In autumn, near the end of October, you are likely to see lots of "spider webs" decorating front doors and Halloween scenes. The reason for this is because lots of people think spiders and their webs are a little bit creepy. In fact, some people are terrified of spiders. This fear of spiders is called arachnophobia (uh-RACK-nuh-foh-bee-uh). The long name comes from the fact that spiders are in a special group of insects known as arachnids (uh-RACK-nids). Even though some people are scared of spiders, these little creatures are amazing, and are very helpful to humans in many ways.

Spiders have eight legs. Most of them have eight eyes as well, although some have fewer eyes. Every spider in the world has fangs and is venomous. That means that spiders produce venom that they inject into their prey.

Thankfully, most spiders have such weak venom

that they cannot hurt humans. Their venom only works on the small insects that the spiders catch. Some spiders, however, like the Brown Recluse and the Black Widow, have venom that can harm humans. It is important to try to avoid these kinds of spiders.

Spiders come in many different shapes and sizes. There are thousands of species of spiders. And they live on every continent except Antarctica. The largest spider in the world is known as the Goliath Birdeater Tarantula. You will read about it later in this issue of *Discovery*. Some of the smallest spiders in the world are no bigger than the head of pin.

God designed spiders with many amazing skills and abilities. One of the most amazing things about spiders is their ability to spin silk and make intricate webs. Eric Lyons has written an interesting article about spider silk for us this month. Some spiders even use their silk to "fly." They spin special, thin lines of silk into the air. This thin silk is called gossamer silk. It forms a small "pouch" that catches the wind and the spider floats away. This process is called "ballooning." Most of the time, young spiders, called spiderlings, bal-



loon. They usually only travel a few yards. But if the

wind is very strong, ballooning spiders can travel several miles. Spiders have been found far out at sea in the currents of the wind. Scientists believe this is how new species of spiders "invade" islands.

People who believe in evolution try to explain ballooning by saying spiders formed over millions of years by natural processes. But there is no natural process that could "teach" a spider how to fly. This ability did not evolve. God created everything that "creeps on the Earth" (Genesis 1:25), including spiders. He gave them the ability to "fly," using their silk as parachutes.

Spiders are also helpful to humans because they eat insects that can damage crops or infest houses. Since spiders are such great hunters and trappers, they kill flies, aphids, ants, beetles, and all kinds of insects. In fact, scientists are trying to study spider venom to use in making medicines or natural insecticides.

Some spiders have a very interesting way to avoid predators and to catch prey—they mimic ants. God has given them the ability to act like ants. Since spiders do not have antennae like ants, the ant-mimicking spiders put two of their legs up on their heads to cover their extra sets of

eyes (since they have eight) and to look like antennae. These ant-mimickers look so much like ants that the ants are fooled and are often eaten by the spiders. In other cases, the spiders make themselves look like ants so that they are not eaten by predators that like to eat spiders but don't like to eat ants. How could evolution ever explain a spider's ability to copy ant behavior? It cannot. Only God could have given spiders the ability to mimic ants.

Spiders are amazing creatures. They are wonderful evidence that God is a brilliant Designer.



Super-Strong Spider Silk

ERIC LYONS

To the average person, a spider's web looks very weak and flimsy. With the greatest of ease, a person can destroy a web. In only a second, the spider's house is destroyed with the wave of a hand. Even Job's uninspired friend, Bildad, mentioned the weakness of webs when he compared the unrighteous to those "whose trust is a spider's web" (Job 8:14), who are leaning upon a house that easily perishes. So why are scientists so awestruck by the spider's silk webbing?

Scientists are fascinated with spider silk because it has the amazing ability to absorb a strong impact. Think about it. Spider silk is much, much smaller and lighter than the flies and grasshoppers that often fly full speed into a spider's web. Yet the web doesn't break. It stretches (30% farther than the stretchiest known nylon) but it doesn't break—at least not usually. Some spiders' webs are so strong, in fact, that they can even catch small birds, such as hummingbirds. (Yes, some spiders will even catch and eat birds.) Although it may not seem strong and tough from the vantage point of a human who easily can tear down a spider's web, pound-for-pound, the silk from certain kinds of spiders is five times stronger than steel.

Since harvesting silk from spiders is not very practical, scientists are attempting to make artificial "spider silk" that could be used for countless things, including bulletproof vests, bridge cables, and artificial tendons. How have scientists fared so far? Although they have made some progress, one scientist admitted that despite **years** of research, artificial webbing "**can't even come close**" to equaling the amazing qualities of spider-produced silk. Sadly, this same scientist believes that spiders just "**evolved** the capacity to spin silk." Are we to believe that the **mastermind** behind the light, stretchy, shock-absorbing, tougher-than-steel, better-than-anything-man-made, spider webbing is **mindless** evolution? Absurd!

Spider webbing is God's wonder material. That is, God designed these arachnids with the amazing ability to weave wonderful webs. Truly, "the foolishness of God is wiser than men, and the weakness of God is stronger than men" (1 Corinthians 1:25). "For every house is built by someone, but He who built all things is God" (Hebrews 3:4).



Hairy Friends From Our NIGHTMARES

JEFF MILLER

The Black Widow is the most poisonous spider in North America, and the Brazilian Wandering spider is the most poisonous **in the world**—responsible for the most human deaths caused by spiders. However, the spider that is arguably the largest in the world, and which perhaps causes the most fear when we see it, is known as the Goliath Birdeater Tarantula (tuh-RAN-chuh-luh).

"Tarantula" is a generic name that is given to hairy spiders, and the Goliath is no exception when it comes to hair. When this spider's sensitive hairs vibrate, they alert the Goliath to the presence of prey, since its eyesight is very weak (even though it has eight eyes!). The Goliath can grow to be a foot across and has fangs that are one inch long! It lives in the rain forests of South America, where it hunts at night for its food—usually frogs, small snakes, beetles, cockroaches, lizards, rats, and even bats. However, it received its name because of reports from explorers



centuries ago who saw the Goliath Birdeater eating a hummingbird (its first name obviously came from the giant of the Bible that David killed). The Goliath spins a welcome mat of silk at the entrance to its burrow that serves as a motion detector, alerting the spider that something's come to its doorstep—for dinner!

The bite of the Goliath Tarantula, as well as the other tarantulas, is not typically very serious to humans (it is comparable to a bee sting). No human death from the bite of the Goliath has ever been reported. However, it is a very aggressive spider that would **not** make a good pet. It makes hissing sounds to frighten anything that seems to be a threat by rubbing its legs together. This rubbing motion also brushes off hairs into its enemies' eyes. The Goliath will rear up on its hind legs in a show of aggression as well.

The person who does not believe in God would have you to believe that the Goliath Birdeater Tarantula was formed through evolution over millions of years. But common sense tells us that such a thing is not possible. Someone had to give the spider the ability to regrow its legs. Somebody had to give the Goliath its amazing alarm system of hairs that tells it if dinner is nearby. Somebody had to give the Goliath the instinct to make trip wires to warn it if something is at the door. These things require **planning**. **Planning** requires **thinking**. **Thinking** requires a **mind**, and evolution does not have a mind. God—the Super-mind behind the Universe—clearly created the Goliath Birdeater Tarantula.

ACTIVITY PAGES



CROSSWORD CHALLENGE



TRUE OR FALSE

- Spiders are helpful to humans in many ways.
- Spiders have only four legs.
- Most spiders have such weak venom that they cannot hurt humans.
- God designed spiders with many amazing skills and abilities.
- Spiders are helpful to humans because they eat insects that can damage crops or infest houses.
- Evolution perfectly explains why some spiders mimic ants.
- Some spiders' webs are so strong that they can catch small birds.
- The Goliath Birdeater can grow to be a foot across and has fangs that are one inch long.

Across

- A special, thin spider silk used in "ballooning"
- Number of legs spiders have
- A common name that is given to hairy spiders
- The most poisonous spider in North America
- The special group of animals that spiders are in
- Fear of spiders

Down

- Can stretch 30% farther than the stretchiest known nylon
- Pound-for-pound, the silk from certain kinds of spiders is five times stronger than this
- The water spider
- The process of certain spiders making a small "pouch" of silk that catches wind, causing spiders to float away

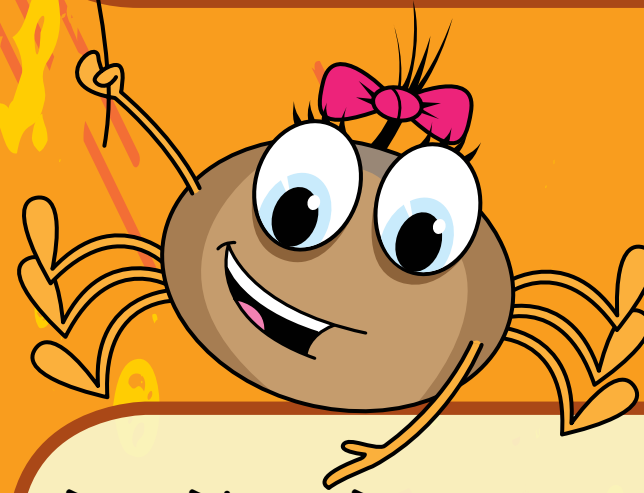
FILL IN THE BLANK



- The largest spider in the world is the Goliath _____.
- God created everything that "_____ on the Earth" (Genesis 1:25).
- "The _____ skillfully grasps with its hands" (Proverbs 30:28).
- "For every _____ is built by someone, but He who built all things is _____" (Hebrews 3:4).
- The Brazilian _____ spider is the most poisonous in the world.

ON A SEPARATE SHEET OF PAPER

- Describe how the Diving Bell spider creates its own "oxygen tank."
- List three amazing qualities of spider silk.



Dear Digger Doug,
How did God put the Bible together?
—Jesse, Middletown, New Jersey.



Dear Jesse,

That is a great question. In fact, it is so good that one of our authors, Kyle Butt, has written an entire book about it. That book is called *How Do You Know the Bible is From God?* We have also had an issue of *Discovery* on that question.

The Bible was written over a period of about 1,600 years by approximately 40 different writers. God inspired the Bible, which means that He directed the writers to put down what He wanted them to write. Over the years, people collected the writings of these inspired men and began to put them together.

By A.D. 100, all the books of the Bible were finished. God had given us a Bible that contains "all things that pertain to life and godliness" (2 Peter 1:3). We should thank God all the time for inspiring the Bible—the greatest book in the world.



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ADDRESS SERVICE REQUESTED

The Diving Bell Spider

DAVE MILLER

One of the amazing spiders designed by God is the Diving Bell spider, also called the water spider. Even though the spider depends on air like all air-breathing creatures, this spider is able to spend long periods of time under water. How? It creates its own oxygen tank!

Here's how he does it: the spider first produces silk threads to spin webbing into a dome-shaped cocoon that is anchored to pond weeds underwater. Then he surfaces to collect a large air bubble. He holds the air bubble between the special water-repelling hairs located on his abdomen and rear legs. He then inserts the bubble inside the webbing that he created to form a sort of umbrella for the air bubble. Voila! An underwater air chamber—a diving bell if you will! The spider enters the "bell" from the bottom and breathes the air of the bubble.

From this location, the spider awaits prey that touches the webbing. When he feels the vibrations of the silk threads, the spider rushes out, snags the prey, and pulls it into the gas chamber for a tasty meal. As the spider breathes in oxygen, nitrogen increases in the bubble, but diffuses through the bubble wall, causing the bubble to shrink. So, after about a day, he must resurface to collect more oxygen for his bell.

Researches think that being able to stay so long in his bubble serves important purposes. For one, it helps to protect the spider from predators. Also, it allows the spider to remain hidden from prey that comes near. Obviously, this spider, and its ability to create a "diving bell," could not have just happened—or evolved over millions of years. Such thinking makes no sense! Instead, the only adequate explanation for such complexity is that God designed this spider with its amazing abilities. Proverbs 30:28—"The spider skillfully grasps with its hands." "God made...everything that creeps on the earth" (Genesis 1:25). God is an incredible God!



ANSWERS

CROSSWORD: Across: 1. Gossamer; 4. Eight; 5. Tarantula; 6. Black Widow; 9. Arachnids; 10. Arachnophobia; Down: 2. Spider silk; 3. Steel; 7. Diving Bell; 8. Balloning; TRUE OR FALSE: 1-T; 2-F; 3-T; 4-T 5-T; 6-F; 7-L; 8-L; 9. Birdfeeder; Tarantula; 2. creeps; 3. spider; 4. house; God; 5. Wandering. **FILL IN THE BLANKS:** 1. Birdfeeder; Tarantula; 2. creeps; 3. spider; 4. house; God; 5. Wandering.

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