



Spiderweb

NATURE'S AMAZING ART

Lynnae W. Allred



Adina Voicu

A spider's web is one of nature's most incredible creations.



Spider web covered with water droplets

Have you ever wondered how spiders make webs?



Amandad

Spiders produce a liquid inside of their bodies made of protein. A spider can turn this protein into silk for making a web.

Your hair and fingernails are made out of protein. If you think about it, your hair looks a little bit like the strands of a spiderweb.

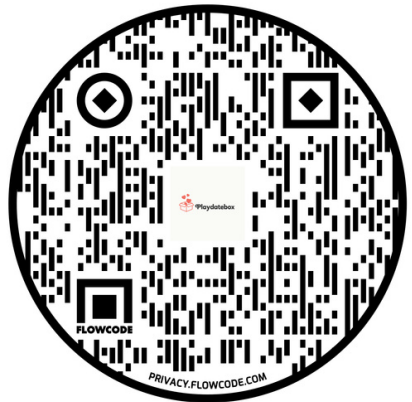


Werner Redlich

The protein gel inside of the spider's body flows into a tube. Next, this gel is pulled through glands at the back of the spider's body called spinnerets.

They bathe the protein gel in an acid. This makes the gel turn hard as it gets pulled out of the spider's body. Spider silk!

Scan this code with the camera app on a smartphone and watch the first 60 seconds of this video to see a banana spider spin silk from her spinnerets to wrap a wasp she caught in her web!





Skeeze

Spiders can have two to eight spinneret glands so they can make different kinds of spider silk.

Some spider silk is thick and very, very strong. Some spider silk is thin. Some spider silk is very sticky.

A spider uses different kinds of spider silk for different jobs.



Even though scientists are pretty smart, it has taken many, many years for them to figure out how to make spider silk in a laboratory. They are hoping that someday when people can make spider silk as well as spiders can, we can use it for lots of useful things.

Maybe we would make a coat that would be as light as a pencil and still keep you warm. Maybe spider silk could be used to repair a wound. Maybe we would use it to make a very, very strong rope or use it to make a net that would stop an airplane on a runway. What would you make from spider silk?



Most male spiders don't build webs, but they can spin silk. They sometimes wrap up bugs in silk to give to female spiders as gifts.



631372

Spiders have as many as eight eyes!

But even with so many eyes, some can't see very well. Their webs are important for helping them catch food and also to warn them when they are in danger of being eaten by another predator.

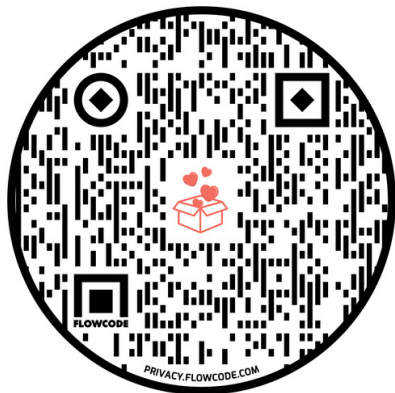
If a predator bumps the web, the web will wiggle and vibrate, which warns the spider to hide or run away.



Jake Hecke

Some spiders don't build webs for catching prey. They use their spider silk for other things. For example, some tarantulas use spider silk to line and protect their burrows.

This QR code will show you a cool video about tarantulas and the webs they build.





mdherren

Spiders can make nests out of their silk or wrap up a whole bunch of spider eggs into a big ball-shaped pouch. Someday, these eggs will hatch into more spider babies.



Kevin McIver

A single dragline of silk will let a spider hang from a ceiling or a branch.

Sometimes baby spiderlings and even adult spiders will lift their abdomens into the breeze and spin many strands of silk all at once. Static electricity keeps the strands from tangling and helps the wind carry the spiders away as if they are flying at the end of a kite string. This is called ballooning.

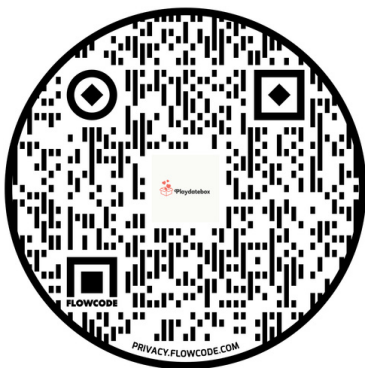
Ballooning is a very interesting behavior. Scan here to see more about how scientists think it works.





Albrecht Fietz

This is an orb web. It is made by a spider who wants to catch some tasty bugs to eat. An orb-making spider can build a web in about an hour, and some spiders build a new web every day.



Scan this image with your smartphone camera to watch an orb spider spinning a web.



Lynnae Albrecht

This is a funnel web. Guess who is hiding at the bottom of the funnel? The spider who built this web is hoping its prey — a grasshopper or a beetle maybe — will wander by. The spider will then come out of hiding and ambush the unsuspecting prey.



A sheet web is mostly flat. The spider waits at the edges and hides until another insect lands on the web. Then it will be rolled up in spider silk and eaten.



Don Drife

A bowl and doily web is another unusual web shape. Suspended above the web are many very thin strands of spider silk. A flying bug accidentally crashes into one of them and gets knocked off balance and falls. There's a big bowl down below to catch the falling bug. It's dinnertime for the spider!



jPlenio

Sometimes when a spider is finished with its web, it will eat it! Why would a spider want to eat a bug or its own web?

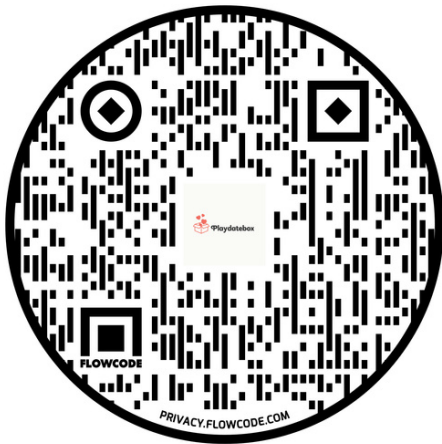
Well, like humans and most other animals, bugs are made of protein. So if a spider eats a bug, or an old web, it can turn that bug or used web into liquid protein.



Artur Pawlak

And if you have liquid protein, you know what you
can make out of it?

Yes, a beautiful and amazing, intricate work of art.
You can make a spiderweb!



Scan to learn more
about spiders!



Emilian Robert Vicol