

JUST FOR U.S.*

GRADES 4-6

* UNDERSTANDING SCIENCE

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Garden Spider

Have you seen a giant spider lately? Did it have writing in its web?

The large black and yellow garden spider spins a wheel-shaped web, called an ORB web.



Because a garden spider puts one or more wide zigzags in the web, some people call it a "writing" spider. Fall is the best time to find these eight-legged spinners. When you locate one, return often and watch the action.

SPIDER SILK

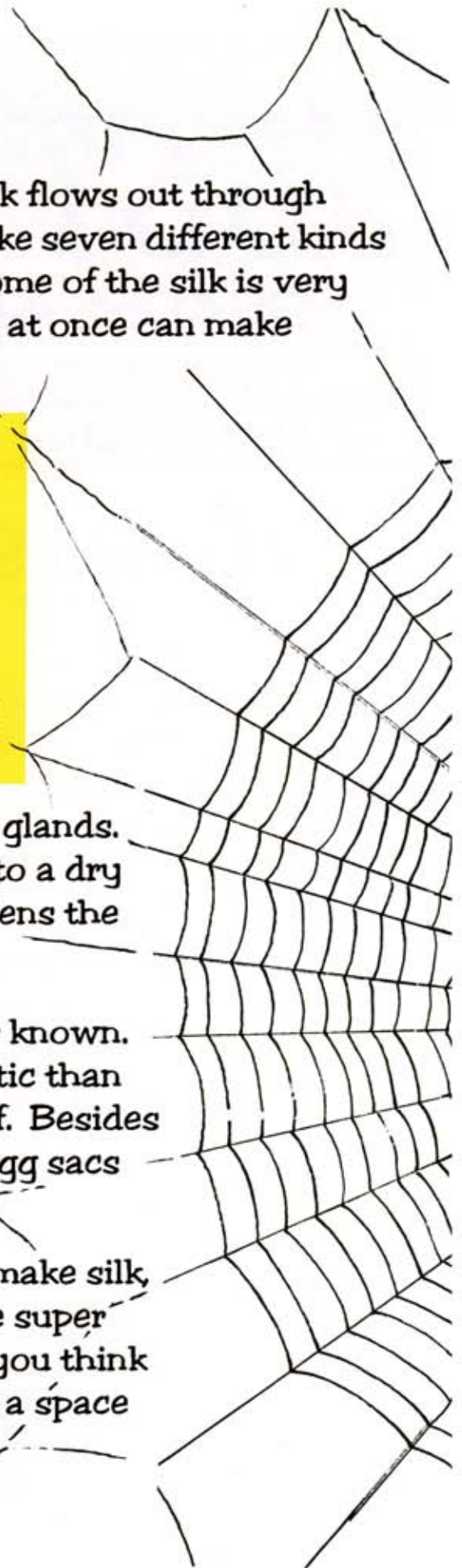
Silk glands produce spider silk. The silk flows out through tubes called spinnerets. Garden spiders make seven different kinds of silk. Silk may be sticky or nonsticky. Some of the silk is very stretchy. Spinning from several spinnerets at once can make thicker threads.



Silk is liquid when it is inside the silk glands. Pulling on the liquid silk makes it change to a dry thread. To make a silk line, the spider fastens the silk to something and walks away.

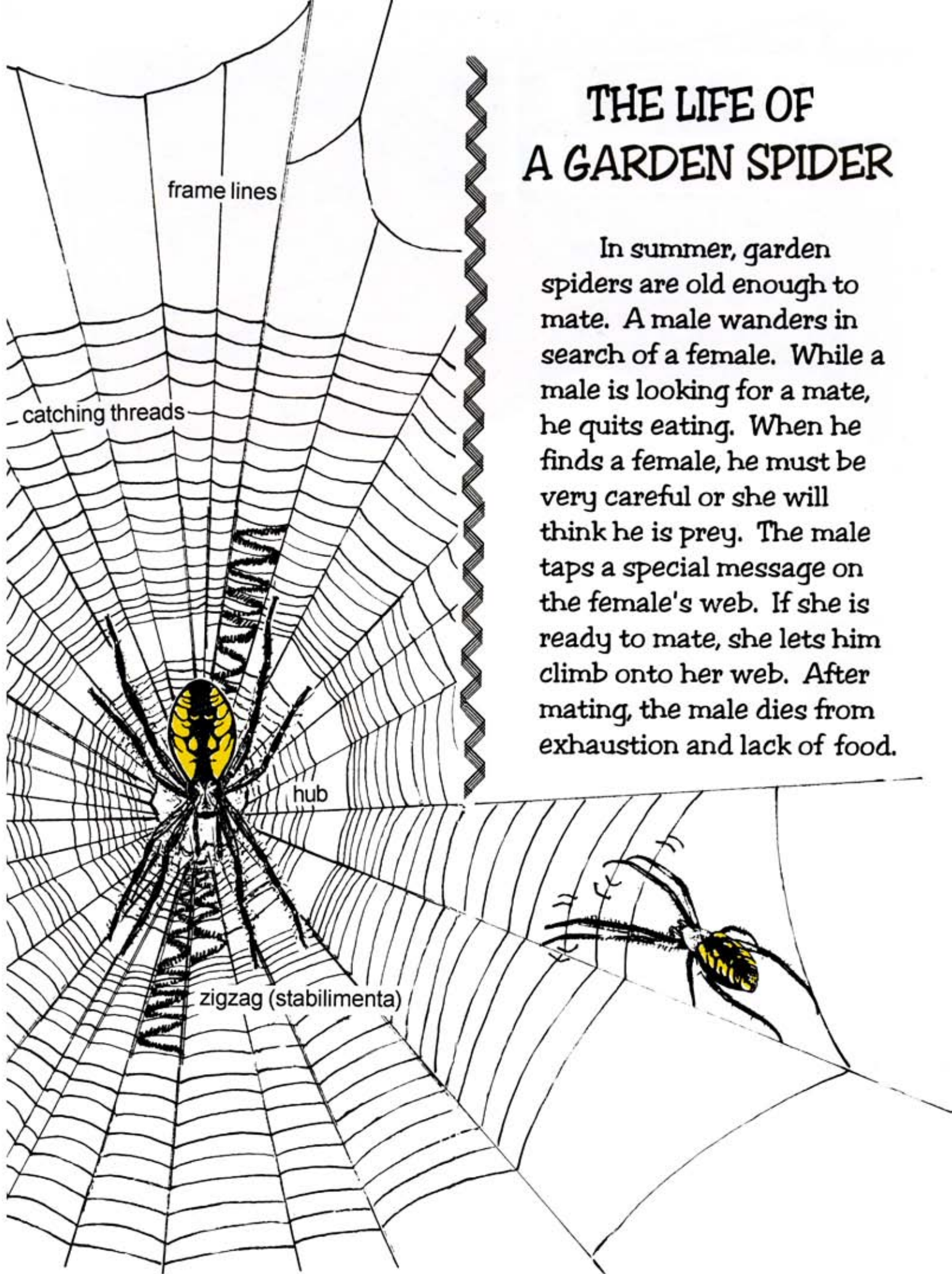
Spun silk is the strongest natural fiber known. It is about as strong as steel and more elastic than nylon. Spider silk is completely waterproof. Besides web making, a garden spider uses silk for egg sacs and for wrapping its prey.

Scientists want to know how spiders make silk, so they can copy it. Artificial silk would be super lightweight and unbelievably strong. Can you think of something to make with it? How about a space suit, a knapsack, or a parachute?



THE LIFE OF A GARDEN SPIDER

In summer, garden spiders are old enough to mate. A male wanders in search of a female. While a male is looking for a mate, he quits eating. When he finds a female, he must be very careful or she will think he is prey. The male taps a special message on the female's web. If she is ready to mate, she lets him climb onto her web. After mating, the male dies from exhaustion and lack of food.



In the fall, the female uses the last of her energy to spin a silk bag called an egg sac. She lays nearly 1000 tiny eggs inside the sac. Then, as winter begins, the female dies.



The eggs hatch during the winter. The tiny spiderlings stay inside the sac for weeks where they are snug and safe. Usually, spiderlings do not leave their sac until spring.



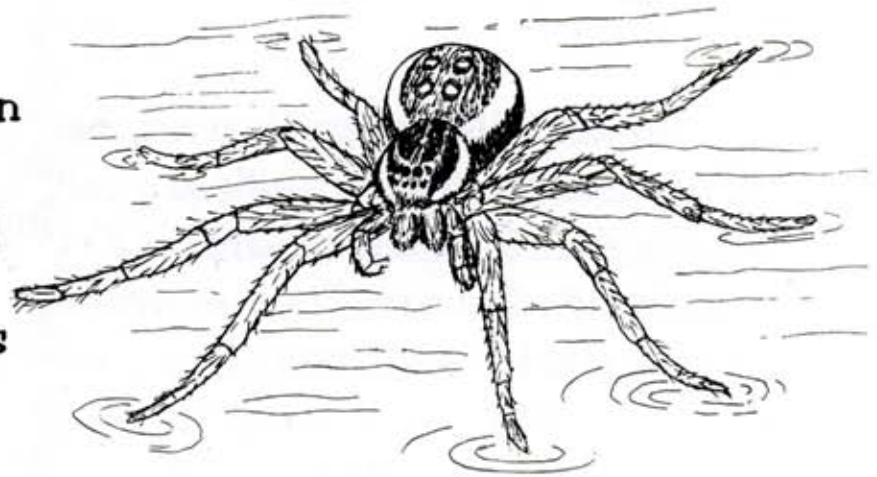
A garden spider and its first web is small. Through spring and summer, the spider grows and so does the size of its web.



Notice all the writing in this young male garden spider's web.

What big spiders live in Georgia?

The fishing spider is Georgia's biggest. The garden spider, wolf spider and the trapdoor spider are also very large. These are unusual because most spiders are less than 1/2 inch long.



The fishing spider has a leg span of 3 inches.

But can they hurt me?

Almost all spiders use venom to paralyze their prey. Spiders have sharp fangs to inject the venom. Only a few spiders have fangs that can puncture a person's skin. So, yes, some spiders can hurt you. The only two in Atlanta that are dangerous are the black widow and the brown recluse.

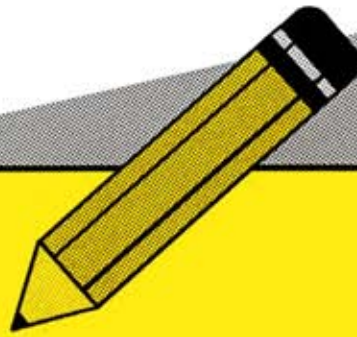


This is a brown recluse. Notice the violin-shaped mark.



The black widow has a red spot on her abdomen.

The best way to treat spiders is the best way to treat all wildlife--with respect.



SPIDER JOURNAL

Observe a spider and fill in this journal page.

date and time of observation _____

location of web _____

Use a ○ to show the spider.

Are there any prey in the web?

Do you see any torn places?

What might have happened? _____

What else do you observe? _____

sketch of web



SPIDER QUIZ

1. Are there any real tarantulas in Georgia?
2. What kind of spider lives the longest? How long?
3. Spiders belong to the animal group ARACHNIDS.

Name two other kinds of arachnids that live in Georgia.

Just for U.S. was written by Ginny Johnston and illustrated by Judy Cutchins. Dr. Fred Sherberger was our consultant.

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