

# SPIDERS

Spiders are arachnids, not insects. Insects have three body parts and six legs. Spiders have eight legs and two body parts; the abdomen and the cephalothorax, which is the spider's head and thorax. Many insects have wings and antennae; spiders have neither. Spiders have a hard exoskeleton that covers the outside of their bodies. Spiders don't have noses. They breathe through tracheae on the underside of their abdomen.

There are two basic types of spiders: web builders and wandering spiders. Some live underground in tunnels, in the water or on plants. Most spiders are beneficial creatures, which means that they are our friends. Spiders are helpful to people because they eat harmful insects. Spiders can eat grasshoppers and locusts, which destroy plants and crops. They also eat flies and mosquitoes, which besides giving painful bites and being a nuisance, can also carry diseases. Although spiders feed mostly on insects, some spiders capture and eat tadpoles, small frogs, small fish, and mice.

Most spiders have eight eyes. Some have two, four, six, or even 12 eyes. Spiders' eyes are singular, unlike the compound eyes found on many insects. The main pair of eyes is always the spider's middle pair, and this pair has is different than the lesser eyes. The main eyes are used for focusing on prey. The other eyes detect movement and allow the spider to have a very broad range of vision.

The spider's mouth parts are found below the spider's eyes. All spiders have fangs, through which venom is ejected. Spider bites can be quite painful, and a few can be fatal. Spiders eat by sucking up the liquid in the body of the prey. Only a few types of spiders are poisonous to humans.

Spiders have silk spinning glands called spinnerets at the rear of their abdomens. Spider silk is a thick liquid that hardens as soon as it is pulled

out of the spinnerets. A garden spider may use his or her silk for other purposes than building a web. While spiders build their webs and snares from silk, they also use silk to catch prey, store food, escape from danger, make egg sacs, wrap themselves to survive cold winters, send and receive vibrating signals, wrap prey for storage, or for transportation in the form of silken ropes, parachutes or balloons - often powered by the wind. This special way of traveling is called ballooning, when spiderlings float through the air on a strand of silk.

Spider silk can be five times stronger than steel, and may be stretched as much as one-fourth its length before breaking. The silk of Nephila spiders is the strongest natural fiber known, and South Sea Islanders use the silk of these spiders to make tote bags and fish nets.

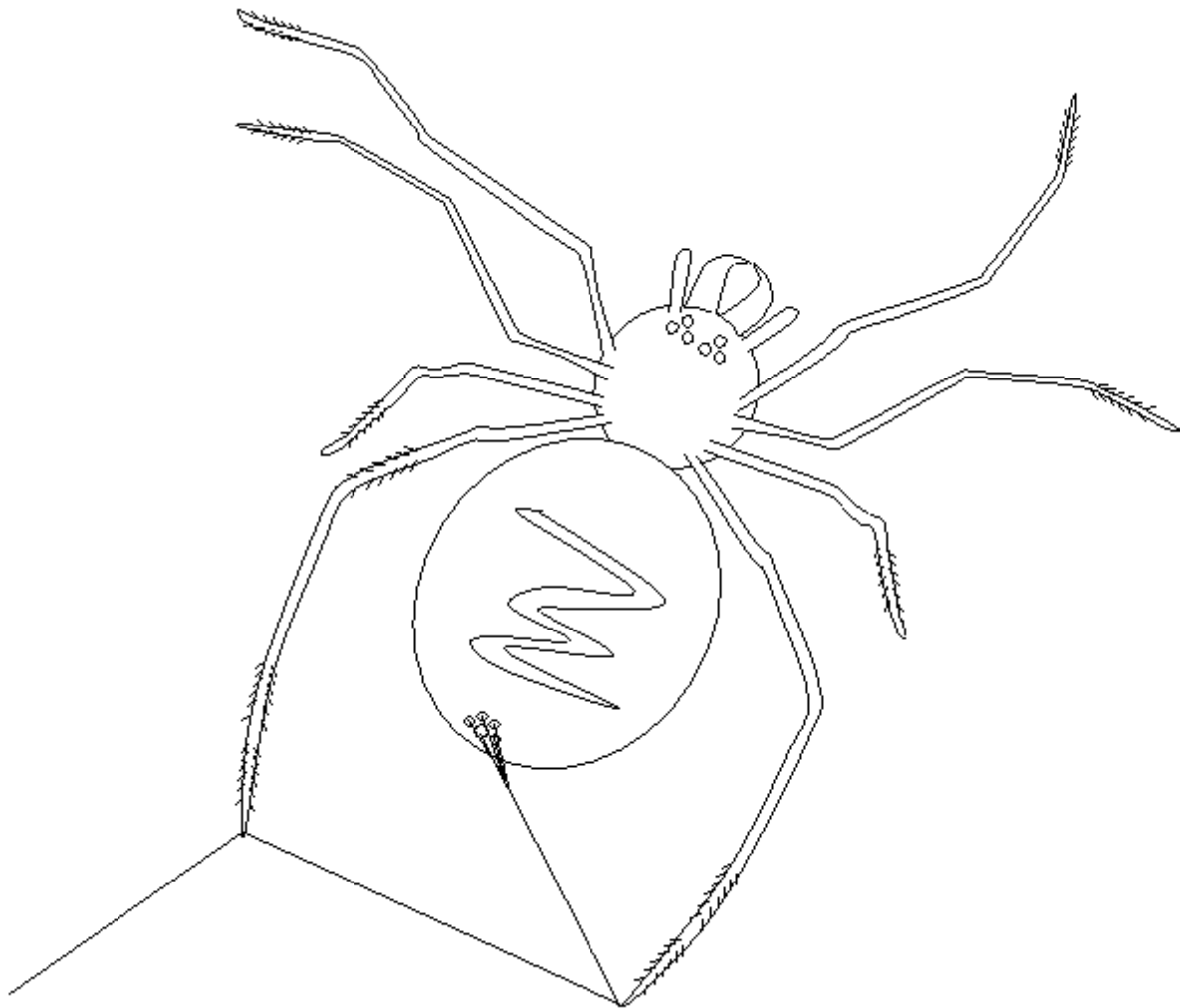
Usually, female spiders are bigger than male spiders. Female spiders are dutiful mothers and are often seen tending their egg sacs - which can contain up to 300 spiderlings or more. All spiders hatch from eggs which are protected in the egg sac. Spiders molt, or shed their skin, occasionally as they grow. After the first molt the young spiders are totally independent from their mothers.

**Warning!** Never pick up a spider without talking with an adult. Some spiders are poisonous and can hurt you.

Spiders are arachnids. They live everywhere in the world.

All spiders have

- 8 legs
- a spinneret that spins silk
- fangs
- jaws and teeth, but cannot chew



## POISONOUS SPIDERS

Watch out for these spiders - they're poisonous! Black Widow and Brown Recluse spiders have a painful bite than can be toxic or deadly!



Black Widow



Brown Recluse

The Black Widow is a shiny, coal black color; with long, slender legs and a round abdomen. Black Widows have "comb feet" on the back legs, which is a row of curved bristles used for flinging silk over its prey. On the underside of the female's abdomen there is usually a red hourglass mark and one or two red spots over the spinnerets and along the middle of her back. The female has a reputation for eating the male after mating.

The male's legs are larger than the female's and each joint is orange brown in the middle and black on the ends. On the sides of the male's abdomen there are four pairs of red and white stripes.

Young spiderlings are orange, brown and white; they get blacker with each molt.

The black widow is a tangled web weaver - it makes an irregular,

funnel-shaped web.

Brown recluse spiders belong to a group of spiders known as violin spiders or fiddlebacks. This is because of the fiddle-shaped pattern they have on their head region. The spider is golden brown with the fiddle being dark brown or black. They can be the size of a dime up to the size of a half-dollar.



Unlike most spiders, the Brown Recluse have six eyes. This spider is not hairy and the fiddle pattern is often shiny. Many of the wolf spiders are similar in appearance and have similar markings as the brown recluse. They are large, robust, and hairy and can be distinguished from the brown recluse.

The Brown Recluse is a sheet web weaver.

Spiders are seldom aggressive and bite only when threatened or injured.

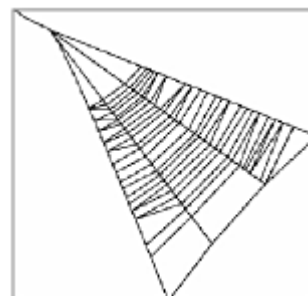
# SPIDER WEBS

Different spiders weave different types of webs. Spiders can get caught in spiderwebs, sometimes even their own webs! However, you won't see it very often because they're careful with their feet. The tips of a spider's legs are oily. That helps keep them from getting stuck on their sticky webbing. Also, a spider's web has two different kinds of silk on it. One kind is sticky and one is not. The spider avoids walking on the sticky webbing.

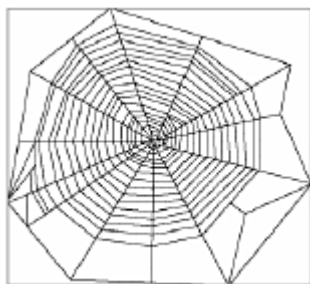
After a night's use, a spider's web may become damaged. The spider then removes the silk in the morning, leaving only the first bridge line. Sometimes they eat their old webs to conserve silk and to make use of the nutrients of any tiny insects caught in the web. After a daytime rest, the spider constructs a new web in the evening. If the spider's catch was low and the web was not heavily damaged, the spider may reuse the web after making repairs. You may see one of the following types of webs but no two spider webs are ever the same.

## Triangle Web

Triangle webs are three-sided. Spiders that weave triangle-shaped webs wait for their prey at one end of their web. When an insect contacts the web, the spider shakes the strands to better catch the insect.



## Orb Web



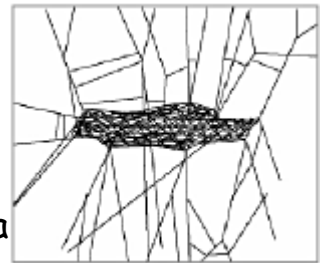
Orb-web weaving spiders do not have sharp vision. However, they can build beautiful and complicated webs. These spiders weave their round webs in open areas. Threads of dry silk extend from an orb web's center like the spokes of a bicycle wheel. Lines of sticky silk connect the spokes, and serve to trap insects. The spiders discover food by feeling vibrations in their webs. Orb-weavers cut any inedible debris or insects out of the web with their fangs

and drop them to the ground. Orb-weavers include the argiope, garden spiders, orchard spiders, and wolf spiders.

Some orb weavers lie and wait for their prey in the center of the web. Others attach a trap line to the center of the web and then hide in a nest near the web, and hold on to the trap line. When an insect lands in the web, the line vibrates. These vibrations act as a signal to the spider to dart out and capture the insect.

### Sheet Web

If you live near woods, there's a good chance that you'll see one of these hammock-like webs. Sheet-web weavers spin thin sheets of silk between blades of grass or branches of shrubs or trees. These spiders also spin a net of crisscrossed threads above the sheet web. When a flying insect hits the net, it bounces into the sheet section. Often, an insect will fly directly into the sheet. The spider, waiting beneath the web, quickly runs to the insect and pulls it through the webbing. Sheet webs last a long time because the sheet is thick, and when the spider repairs any damaged parts, the sheet gets thicker still.



### Tangle Web



Tangle-web weavers spin the simplest and most disorganized-looking type of web. Tangle webs are made of a jumble of threads attached to support lines. These webs look messy, but they're effective for catching unsuspecting insects - perhaps because they don't look like a spider's web!

Many types of garden spiders, including the poisonous Black Widow spider, make tangled webs, usually in dark places. If a tangled-web weaver takes up residence in your yard, be extra careful when inspecting the web!

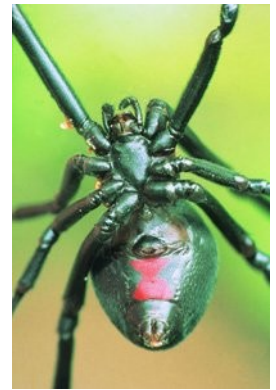
## Black Widow



shiny, coal black, slender legs, round abdomen



tangled web

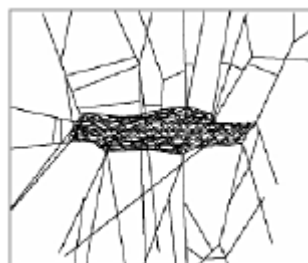


red hourglass marking on underside

## Brown Recluse



brown, fiddle-shaped pattern on head, marking is dark brown or black not hairy



sheet web

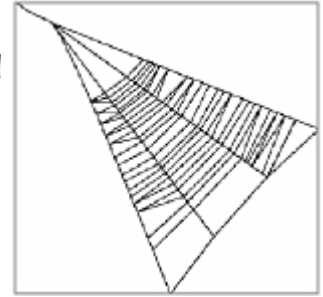


6 eyes

## WEB TYPES

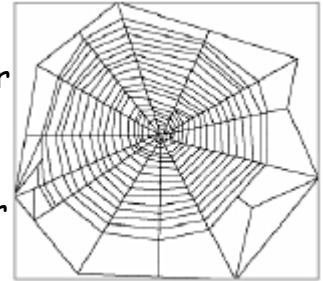
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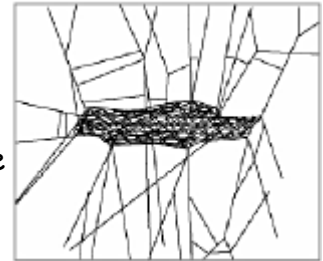
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1. Spiders are arachnids *true* *false*
2. Spiders have 3 body parts and 6 legs *true* *false*
3. Spiders breathe through their noses *true* *false*
4. All spiders build webs *true* *false*
5. Most spiders are helpful to people *true* *false*
6. All spiders have 8 eyes *true* *false*
7. All spiders have fangs *true* *false*
8. Spiders eat by chewing their food *true* *false*
9. A spiders silk is only used for building webs *true* *false*
10. All spiders hatch from eggs *true* *false*

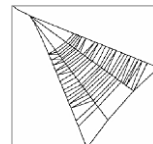
11. \_\_\_ triangle web

A.



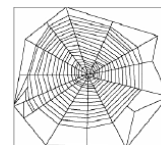
12. \_\_\_ orb web

B.



13. \_\_\_ sheet web

C.

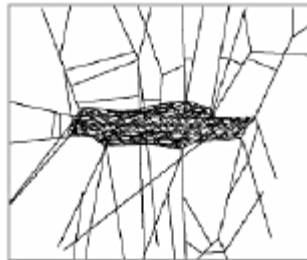
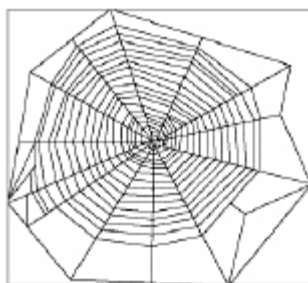
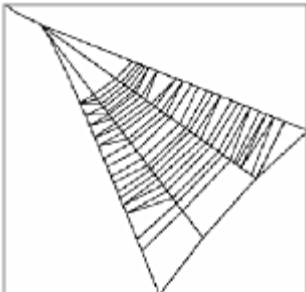
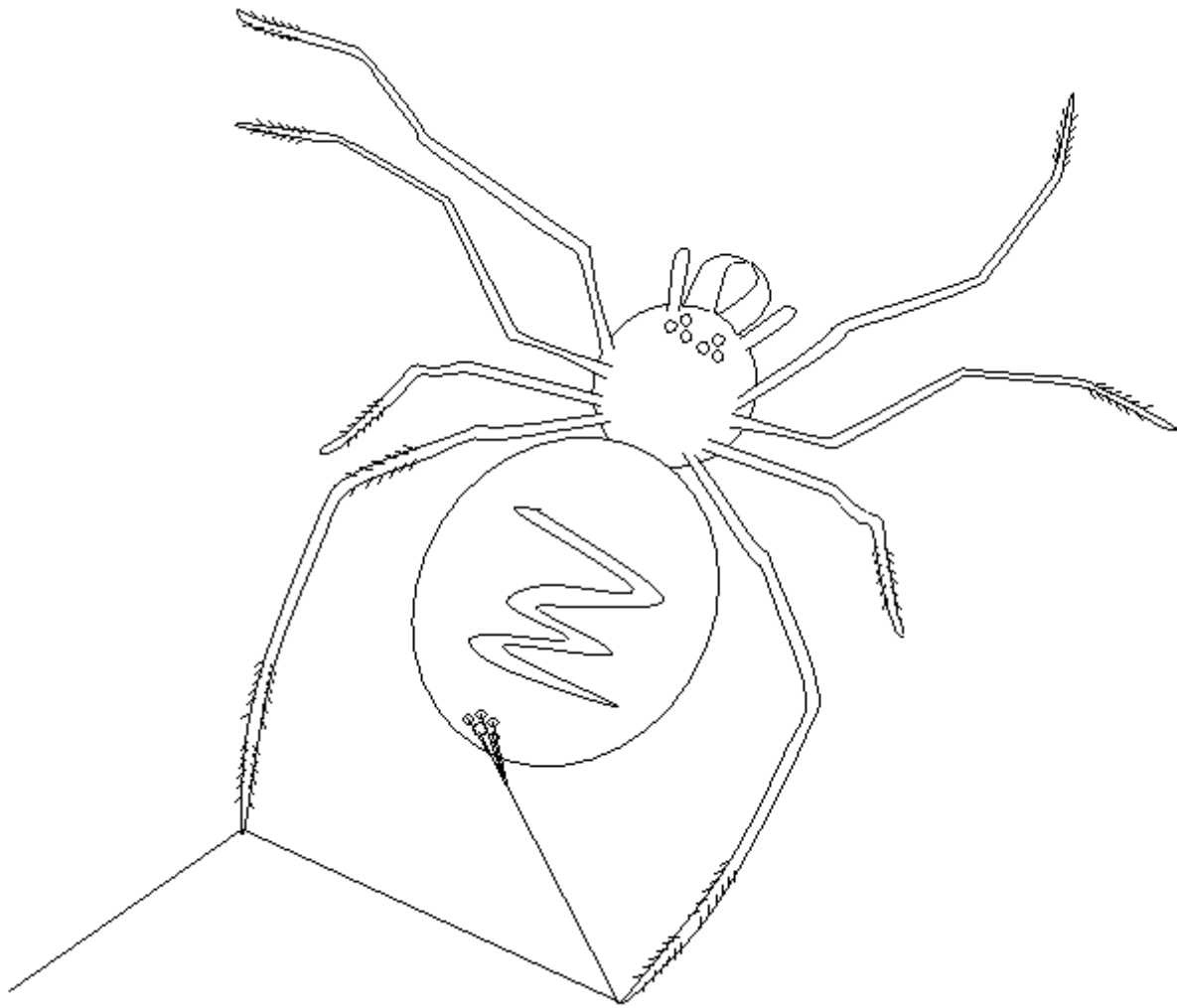


14. \_\_\_ tangle web

D.



# Graphics for Notebooking



Answer key to worksheet:

1. true
2. false
3. false
4. false
5. true
6. false
7. true
8. false
9. false
10. true
11. B
12. C
13. D
14. A