

Virtual Creature Fest: Yellow Sac Spider

Get to know some of New Jersey's spine-tingling spiders.

When it comes to scary spiders, the yellow sac spider is one that crawls under the radar. It's an innocuous looking spider that blends into the background and never takes center stage in Halloween horror flicks. But like the black widow and brown recluse, *Cheiracanthium inclusum* can deliver a nasty bite, so best to beware when doing spring cleaning!



The yellow sac spider is very common in most of the United States, including New Jersey. The **cephalothorax** (fused head and thorax) of the yellow sac spider is yellow-orange to brown, and the abdomen is pale yellow to light grey. An adult female sac spider's body is typically 1/4 to 3/8 inches long with a leg span of about an inch. Males are less plump looking, with a slightly larger leg span than the females. The front legs are longer than the other three pairs. Yellow sac spiders have eight dark eyes of similar sizes arranged in two horizontal rows. Like wolf spiders, the eyes of sac spiders have a **tapetum lucidum** which is tissue behind the eyes that reflects back incoming light. This makes their eyes glow in the dark and provides these spiders with excellent night vision for nocturnal hunting.

Sac spiders are active hunters and do not build webs to ensnare prey. They construct silken tubes or web like sacs under leaves, in brush piles, log piles, or if they are in the house, at the corners of a walls and ceilings. Yellow sac spiders hide out in these flattened silk tubes during the day and creep out of them to hunt during the night. It is these sacs that give this spider its common name.

Yellow sac spiders mate in late spring and summer but wait until autumn to lay their eggs. After mating, females deposit about five egg sacs in their silken tube, each containing two to four dozen eggs. The small, white, paper-like sacs are sometimes laid outdoors in very protected locations, but as these spiders do seek shelter indoors when it gets cold in the fall, they will also lay their eggs in our homes. They will often deposit their eggs in their silk retreats in attics, basements, along ceiling and wall corners, or behind pictures and bookshelves.

The female will guard her egg sacs until the eggs hatch during the following spring. The young spiderlings will remain within the silken retreat for a few days, eventually venturing out at night in search of food. The young will frequently return at dawn to hide within the protection of the sac.

Sac spiders are prowling spiders and are most active at night. When they are on the hunt for their small insect prey, they run quickly waving their forelegs before them. Indoors, they can be observed on walls and ceilings, but drop to the floor and sprint for cover when disturbed. It is during their nocturnal roamings that the spiders can have accidental run-ins with humans. When they become trapped between a person's skin and bed sheets or clothing, they will bite to defend themselves. The **chelicerae** or jaws of yellow sac spiders are very powerful, and the fangs can penetrate human skin quite easily.

The site on the skin where the venom is injected is very painful and will burn, swell, and itch. The burning sensation associated with the bite will last for an hour or more, and a rash and blistering



can occur during the next 10 hours. Some patients may exhibit systemic reactions with fever, muscle cramps, and nausea. Despite the nastiness of the bites, there have been no records of deaths caused by the sac spider. A large number of bites attributed to the brown recluse and black widow spiders may actually be the result of yellow sac spiders instead. When in doubt just wear gloves before you go poking about the dark corners of your attic. Otherwise you may never know what bit you!

Test Your Knowledge

1. Do yellow sac spiders build webs to ensnare their prey?

Answer: No, they are hunters and don't build webs.

2. Why are they called sac spiders?

Answer: Because they create silken tubes or sacs to hide out in during the day.

3. What is the cephalothorax?

Answer: In spiders, the head and thorax are fused together in one unit called the cephalothorax.

4. What is the function of the tapetum lucidum?

Answer: To increase light available to improve night vision capabilities for nocturnal hunting.

5. What are the chelicerae?

Answer: The spider's jaws that house the fangs.

6. Do sac spider bites result in death?

Answer: No, but the bites can be painful and cause fevers, swelling, and blistering.

Additional Resources

- [Sac Spiders](#)
- [Yellow Sac Spider](#)
- [Tapetum Lucidum](#)
- [Common Spiders](#)

Kids Activity: Spider Web Marble Art

Materials

- Aluminum pie or baking pan (round or rectangular)
- Black construction paper cut to fit in bottom of pan
- White craft paint
- Small cup or container to coat marbles with paint
- A few marbles
- Little plastic spider or hand-made spider

Instructions

- Cut black construction paper to fit bottom of pan.
- Place paper in bottom of pan.
- Pour some white paint in a small cup or container.
- Immerse marbles in paint.
- Remove marbles from paint and drop them onto paper in your pan.
- Roll marbles around by moving the pan; the marbles will “paint” the spider web design.
- Remove marbles and paper from pan and allow “web” painting to dry.
- Glue spider onto “web” and hang as a decoration.



Roll paint covered marbles around pan

Activity and Photo Source: Tinkerlab

Spider Web Marble Art Math Application

Once the paint is dry, students can use the painting to measure angles with a protractor, mark and name them.

Possible questions to frame the discovery:

1. Can you find an acute angle? (less than 90 degrees)
2. Where are some straight angles? (those exactly 180 degrees)
3. Can you find an obtuse angle? (more than 90 degrees)
4. Can you find a right angle? (exactly 90 degrees)
5. How many (name) angles can you find in the painting?

For More Ideas...

To use this lesson in your classroom or for multidisciplinary extensions, contact Kate Reilly, Manager of Education, Duke Farm at kreilly@dukefarms.org

Some topics for possible integration include: habitat, food webs, anatomy, nocturnal animals, adaptation, predators, yellow animals ...and more!



Completed Spider “web” with spider