

Expository Nonfiction



Genre Study

Expository nonfiction explains information and ideas. Look for

- charts that give additional information.
- facts and details that help you build an understanding of a topic.

What the Author Tells Me

What I Already Know

Inference



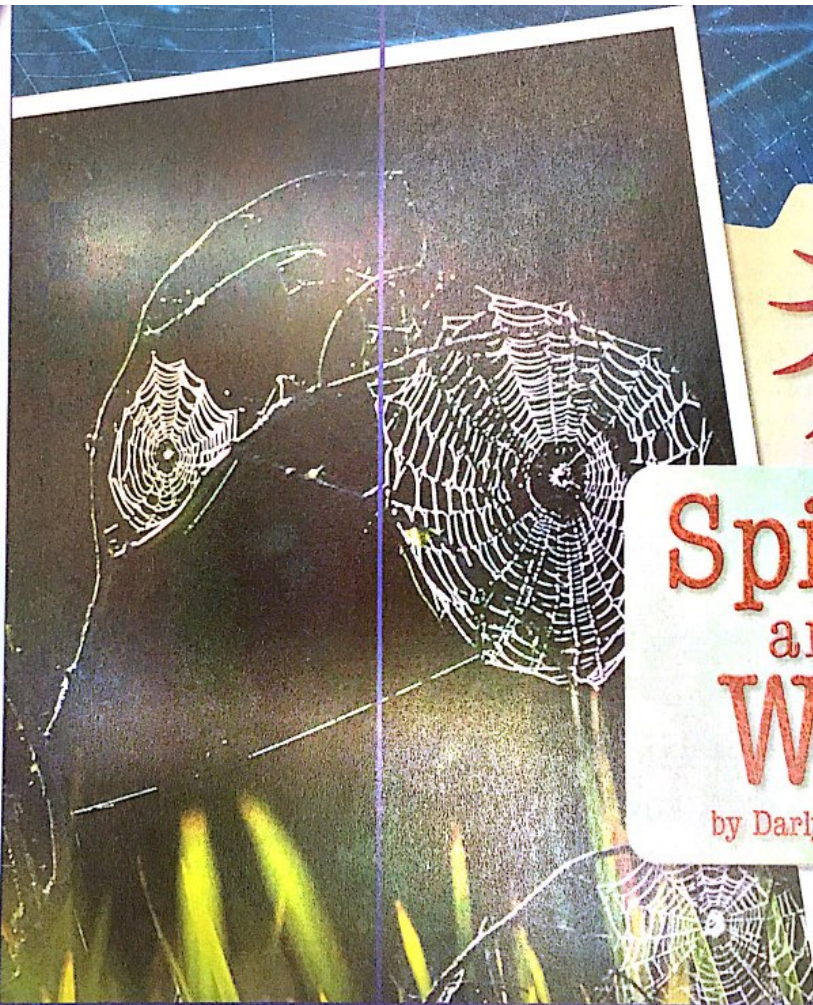
Comprehension Strategy

Ask questions as you read to help you better understand the text.



CALIFORNIA STANDARDS
ENGLISH-LANGUAGE ARTS STANDARDS—Reading 2.2

Ask questions and support answers by connecting prior knowledge with literal information found in, and inferred from, the text. **Reading 3.4** Distinguish common forms of literature (e.g., poetry, drama, fiction, nonfiction)



Spiders and Their Webs

by Darlyne A. Murawski

Introduction 1

You can find spider webs just about everywhere you look—in forests, deserts, gardens, even underwater. About 13,000 of the 38,000 known species of spiders make webs to capture insects and other small prey.

Spider webs are made of silk threads. Young and female spiders are usually the web builders. Spider silk is liquid when it is inside glands in the spider's abdomen. It becomes threadlike as it is drawn out of tiny openings in the spinnerets on the bottom of the spider's abdomen. A thread of spider silk is stronger than a thread of steel of the same thickness. Some silk is stretchy, like a rubber band. Some is sticky. In fact, spiders can make as many as seven different kinds of silk. Each kind is used for a different purpose, such as making egg cases or wrapping prey, like the Argiope (far right).

When an insect gets stuck in the threads, the spider attacks. To keep their prey from escaping, spiders inject venom from their fangs. They may also wrap prey tightly in silk. Most spiders have teeth to chew an insect's hard exoskeleton. They spit up juices that turn the prey's insides to liquid so they can drink it.



Spiders deserve our respect. They control insect populations and, in turn, become food for birds and many other animals. Although most spiders aren't harmful to us, a few species deliver a bite that can be painful or even deadly. With spiders, it's best for their safety and ours to **LOOK BUT DON'T TOUCH.**

3

Golden Orb Weaver

This huge spider (photograph, right) is a golden orb weaver. That tiny spider with her is her mate! Her web can be three feet wide or larger. It is strong enough to last for several days. This spider can choose the color of silk she makes to spin her webs: gold for webs in sunny places; white for webs in shady places.



What looks like drops of water on the web (small photograph, bottom right) are really glue drops. When an insect, like the bee in the art above, flies into the web, it gets stuck in a sticky mess. The spider runs out and bites it with her long fangs. She can eat the insect right away or wrap it in silk and store it in her web for later.



SPIDER FACTS

- Common names:** golden orb weaver, golden silk spider, banana spider
- Habitats:** forests and clearings in northern South America, in Central America, and in the southern United States (mainly Florida and Texas)
- Food:** mainly a variety of flying insects, such as moths, flies, and bees, but has also been known to eat small birds and frogs
- Body size:** 24 to 40 mm (adult females; males are much smaller)

24 - 40 mm

0 25 50 millimeters
0 1 2 inches

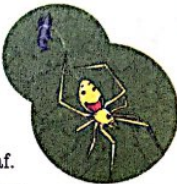


DID YOU KNOW? Spiders know if a visitor is the right size to eat by how much the web shakes when it lands. Luckily, male golden orb weavers are too small to be mistaken for food.

Hawaiian Happy-Faced Spider

1 You have to use a magnifying glass to see this tiny yellow spider with the big grin on her abdomen. She makes a messy little web in a shallow dip on the underside of a leaf.

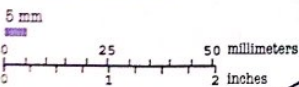
The spider uses her web to protect her eggs and to store food. When a small insect visits her leaf, she springs into action. With her hind legs, she pulls silk from her spinnerets and tosses it over her prey. Then, she reels it in. After she wraps her meal in silk, she tucks it in the web next to her eggs. When she gets hungry, she'll eat it. After her eggs hatch, she'll use the web as a nursery and find food for her babies for a few months.



2 **DID YOU KNOW?** Not all happy-faced spiders have a smiley-face pattern on their abdomens. Some have other expressions or just an abstract design.

SPIDER FACTS

- Common name:** Hawaiian happy-faced spider
- Habitats:** underside of leaves in Hawaiian wet forests, from Oahu to the big island of Hawaii
- Food:** small insects, such as young leafhoppers and fruit flies
- Body size:** up to 6 mm (adult females; males are smaller)



Water Spider

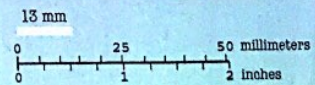
This kind of spider lives underwater, but it needs air to breathe. To solve this problem, it builds an air-bubble house. First it attaches strands of silk to the leaves and stems of water plants. Then it fills the space with a netlike web. The spider makes several trips to the surface. Each time, a bubble of air sticks to its hairy abdomen. The spider carries the air bubbles back to its web and brushes them off. The air makes the web swell up like a balloon. The spider swims outside its house to catch its food, then drags it inside to eat.



DID YOU KNOW? Water spiders must swim to the surface often to get new air for their webs. The new air is rich in oxygen, which the spider needs to breathe.

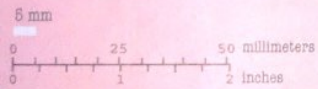
SPIDER FACTS

- Common name:** water spider
- Habitats:** ponds, quiet streams, and shallow lakes in northern and central Europe and in central Asia
- Food:** a variety of small aquatic prey, such as tadpoles and baby fish
- Body size:** about 13 mm (adult males; females are slightly smaller)



SPIDER FACTS

- Common name:** social spider
- Habitats:** along waterways and in undergrowth of rain forests from Panama south to Brazil
- Food:** insects of various sizes, including beetles, butterflies, katydids, dragonflies, and wasps
- Body size:** 8mm (adult females; males are slightly smaller)



Social Spiders

Some spiders live together in groups. They are called **social spiders**. Thousands of these spiders work together to make a web that can be as big as a garbage truck!



The web has a sheet of silk across the bottom. Lots of long lines attach the sheet to the branches of trees and shrubs, as shown in the art above. These lines "trip" flying insects. They fall down and are caught in the sheet. The tiny spiders you see in the photograph (left) are busy attacking a katydid that flew into their web. By working together, social spiders can catch and eat insects that are many times larger than they are.

1

2

3

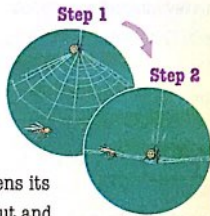
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DID YOU KNOW? Instead of making a new web when it gets damaged or dirty, these spiders work together to repair and clean the one they have.

Ray Spider

The ray spider (right) makes an orb web that it uses like a slingshot to snag a meal. With its front legs, the spider pulls on a silk thread that draws the web back (Step 1). When the spider senses food is near, it loosens its grip on the thread. The web springs out and catches the insect in the sticky, spiral threads (Step 2). Then the spider runs across the web and grabs its prey. Special hairs and claws on the spider's feet keep it from getting stuck in its own web. This spider can use its web a few times before it has to build a new one.



2

3



DID YOU KNOW? You can trick this spider by rubbing your thumb against your fingertips under its web. Sensing something is near, the spider will release its web.



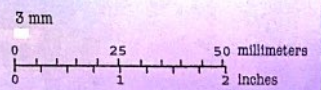
SPIDER FACTS

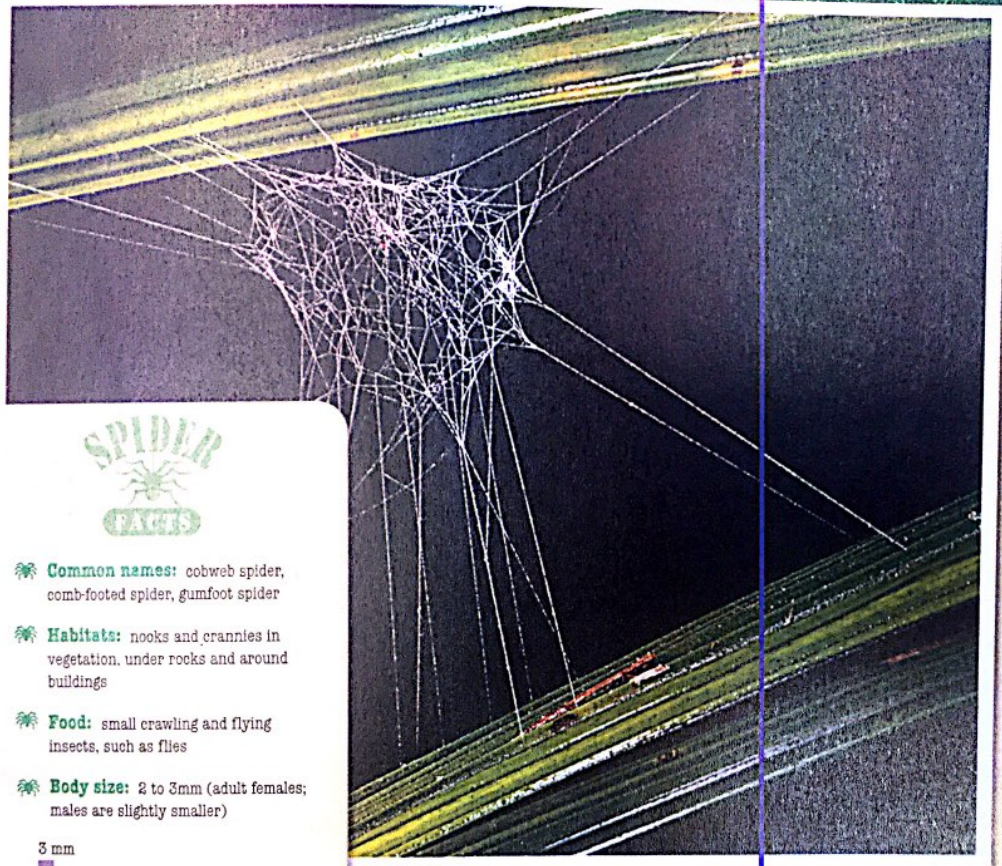
Common names: ray spider, ray orb weaver, cone web spider

Habitats: dark, damp locations near streams and in shaded woods. Most species live in the tropics, but some can be found in the U.S., Europe, and Asia. This photograph was taken in a Costa Rican rain forest.

Food: small flying insects, such as flies, moths, and beetles

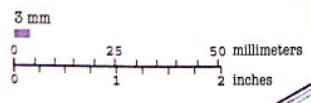
Body size: about 3 mm (adult females; males are smaller)





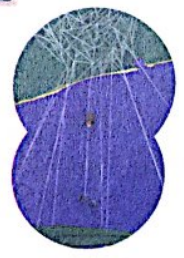
SPIDER FACTS

- Common names:** cobweb spider, comb-footed spider, gumfoot spider
- Habitats:** nooks and crannies in vegetation, under rocks and around buildings
- Food:** small crawling and flying insects, such as flies
- Body size:** 2 to 3mm (adult females; males are slightly smaller)



Cobweb Spider

The spider that made this messy-looking web (photograph, left) is called a cobweb spider. That red dot in the middle is the spider hanging upside-down. It's waiting for a meal. It traps insects with silk threads attached to the lower leaf. They are sticky near the bottom. When an ant or some other kind of small insect touches one of these threads, it gets stuck. The line breaks away from the leaf. Like a yo-yo, it springs up, carrying the insect toward the spider. The spider flings more silk around the insect to make sure it can't get away. Then the spider delivers a deadly bite and sucks its prey dry.



- 1
- 2
- 3



DID YOU KNOW? Cobweb spiders are some of the easiest spiders to find. Chances are you have some in your house or in your garage.

Think Critically



- 1 How can you tell that many spiders use webs to survive? MAKE INFERENCES
- 2 What does the water spider do first to build its air-bubble house? SEQUENCE
- 3 What did you learn about spiders that surprised you? EXPRESS PERSONAL OPINIONS
- 4 How can you tell that the author wants people to be careful around spiders? DRAW CONCLUSIONS
- 5 **WRITE** Choose your favorite web from “Spiders and Their Webs.” Use details from the selection to describe your favorite web to someone who has never seen one. SHORT RESPONSE

CALIFORNIA STANDARDS
ENGLISH-LANGUAGE ARTS STANDARDS—Reading 2.2 Ask questions and support answers by connecting prior knowledge with literal information found in, and inferred from, the text. Reading 2.3 Demonstrate comprehension by identifying answers in the text. Reading 3.4 Determine the underlying theme or author’s message in fiction and nonfiction text. Writing 2.2 Write descriptions that use concrete sensory details to present and support unified impressions of people, places, things, or experiences.

Meet the Author and Photographer Darlyne A. Murawski

Darlyne Murawski loves nature and has traveled all over the world taking pictures of small animals, insects, and marine life. She spent many years studying tropical plants and butterflies.

Darlyne Murawski says she hopes her books will help children become more interested in exploring the world of nature. She also writes articles about nature topics for magazines.

www.harcourtschool.com/reading

