Orb Weaver

Life Science | Lesson Guide

2nd Grade

Photo Description

A large spider with long, thin legs is sitting on a person's hand. The spider has a brown body with darker markings and very long legs that spread out wide. This type of spider is called an orb weaver, and it is known for building beautiful, circular webs to catch insects.

Scientific Phenomena

Anchoring Phenomenon: Why do spiders build webs, and how do they use them to catch food?

Spiders build webs because they are hunters that need to catch insects for food. The spider creates a sticky web and waits for insects to fly or crawl into it. When an insect touches the web, it gets stuck, and the spider quickly comes to catch its meal. This is how spiders survive in nature—the web is their hunting tool, just like a net would be for catching fish.

Core Science Concepts

* Spider Body Parts: Spiders have eight legs, two body parts (head-chest and abdomen), and special spinnerets that produce silk thread to make their webs.

* Hunting and Survival: Spiders are predators that hunt insects. They build webs to help them catch food, which is essential for their survival.

* Adaptations: Spiders have special body features (like silk-making ability and multiple eyes) that help them survive. These adaptations make them successful hunters.

* Life Cycles: Spiders grow from eggs to spiderlings to adult spiders, and different types of spiders build different kinds of webs.

Pedagogical Tip:

Second graders are concrete learners who need to see, touch, and observe real examples. Consider using a magnifying glass to observe spider webs outdoors, or safely showing pictures of different web types. Avoid live spider handling by students unless properly supervised; instead, use high-quality photos and videos for detailed observation.

UDL Suggestions:

Representation: Provide both visual images and tactile models (yarn webs). Use simplified diagrams labeling spider body parts with large text. Action & Expression: Allow students to draw, build, or create webs using string or yarn rather than only answering questions. Engagement: Connect to students' prior knowledge by asking if they've seen spider webs in their homes or yards—this makes the learning personally relevant.

Discussion Questions

1. What do you think the spider uses its web for, and why does it need to catch insects? (Bloom's: Understand | DOK: 2)

2. How are spider legs helpful to spiders when they are building and sitting on their webs? (Bloom's: Analyze | DOK: 2)

3. If a spider didn't have the ability to make silk, how might its life be different? (Bloom's: Evaluate | DOK: 3)

4. What other animals might use tools or build things to help them find food, just like spiders use webs? (Bloom's: Apply | DOK: 3)

Extension Activities

1. Spider Web Hunt: Take students on a safe outdoor walk to look for real spider webs. Have them draw or photograph the webs they find and discuss the different shapes and locations. Ask: Where do you see the most webs? Why do you think the spider built it there?

2. Create a Web with Yarn: Provide students with yarn, string, or pipe cleaners to create their own model spider web on a frame or tree branch. After building, place small paper insects on the web and discuss how a real spider's sticky web would catch them. This builds understanding of web function.

3. Spider Body Parts Craft: Provide templates or have students draw a spider and label its eight legs, body, eyes, and spinnerets. Use this as an opportunity to compare spider bodies to insect bodies (which have six legs) and discuss how the extra legs help spiders.

NGSS Connections

Performance Expectation:
2-LS1-1: Plan and conduct investigations to provide evidence that plants get the energy they need to grow chiefly from water and light, and animals get energy from food.

Disciplinary Core Ideas:
* 2-LS1.A - All animals need food, water, and air to survive; spiders hunt insects as their food source.
* 2-LS1.B - Different animals have body parts and behaviors that help them find, catch, and eat food.

Crosscutting Concepts:
* Structure and Function - Spider body parts (legs, spinnerets, eyes) serve specific functions in hunting and web-building.
* Patterns - Spiders follow predictable patterns: they build webs in similar locations and wait for insects in a similar way.

Science Vocabulary

* Spider: A small animal with eight legs, a body, and the ability to make silk thread to build webs.

* Web: A net made from sticky silk thread that spiders build to catch insects for food.

* Predator: An animal that hunts other animals for food.

* Silk: A very strong, thin thread that spiders make from their bodies to build webs.

* Adaptation: A special body part or behavior that helps an animal survive and find food.

* Spinneret: The special body part on a spider that makes and releases silk thread.

External Resources

Children's Books:

The Very Busy Spider* by Eric Carle – A tactile story about a spider building its web on a farm.

Spiders* by Nic Bishop – Nonfiction photo book with stunning close-up images of different spider types.

Are You a Spider?* by Judy Allen – An engaging introduction to spider life and behavior.

YouTube Videos:

* "Spider Web Time-Lapse" (National Geographic Kids) – Shows a spider building a complete web in fast motion; helps students see the process clearly. https://www.youtube.com/results?search_query=spider+web+time+lapse+national+geographic+kids

* "How Do Spiders Make Their Webs?" (Crash Course Kids) – Simple explanation of web-building with colorful animations perfect for Second Grade. https://www.youtube.com/results?search_query=how+do+spiders+make+webs+crash+course+kids