

## Photo Description



A large spider sits on a person's hand. The spider has long, thin legs with dark stripes and a brown body. You can see the spider's small eyes looking forward. The spider is not moving fast—it is just sitting still on the warm skin.

## Scientific Phenomena

**Anchoring Phenomenon:** Why do spiders sometimes crawl on people, and what are they doing?

Spiders are arthropods (animals with jointed legs and hard outer bodies) that explore their environment to find food, water, or a safe place to rest. The spider in this image is likely investigating the hand as a new surface. Spiders use their legs to sense vibrations and chemicals, which helps them understand their world. They do not bite or hurt people unless they feel scared or trapped—most spiders are shy and prefer to hide.

## Core Science Concepts

- \* Spiders are living things: Spiders need food, water, air, and shelter to survive, just like all animals do.
- \* Spiders have special body parts: Spiders have eight legs (not six like insects), multiple eyes, and fangs they use to catch and eat tiny bugs.
- \* Spiders are helpful to people: Spiders eat mosquitoes, flies, and other bugs that might bother us. They are nature's pest control helpers.
- \* Spiders live in different places: Some spiders live in gardens, homes, trees, or soil. Different spiders like different homes.

### Pedagogical Tip:

For Kindergarteners, use sensory-rich language when discussing spiders: "bumpy skin," "tickly legs," "gentle crawler." Many young children feel scared of spiders, so normalize them by talking about how small and helpful they are. Showing real (or high-quality photo) examples reduces fear and builds curiosity.

### UDL Suggestions:

**Representation:** Provide multiple ways to learn about spiders—real-life observation (in a safe container), photos, videos, and books with illustrations. Some students may be anxious about spiders, so offer a "spider explorer" role where they observe from a distance without touching.

**Action & Expression:** Allow students to show learning through drawing spiders, acting out spider movements, building spider habitats with blocks, or dictating facts to a teacher. Not all students need to handle or see a live spider to learn meaningfully.

**Engagement:** Create a "spider discovery station" with magnifying glasses, pictures, and safe exploration tools. Celebrate curious questions about spiders rather than fearful ones.

## Zoom In / Zoom Out

### Zoom In: Spider Senses (Microscopic Level)

If we could shrink down and look very, very closely at a spider's legs, we would see tiny hairs all over them! These hairs are like super-sensitive feelers that help the spider sense vibrations, temperature changes, and even smell chemicals in the air. The spider doesn't need big eyes to hunt—it feels its way through the world using these invisible hairs. Scientists use special microscopes to study these tiny sensory hairs and learn how spiders understand their environment.

### Zoom Out: Spiders in the Food Web (Ecosystem Level)

A spider is part of a large web of life in nature. Spiders eat insects (like flies and mosquitoes), which means spiders are hunters in their ecosystem. But spiders are also food for other animals! Birds, lizards, and wasps hunt spiders. When spiders die, they become food for decomposers like bacteria and fungi, which return nutrients to the soil. This helps plants grow. Spiders are an important middle link in the food chain that connects plants, insects, predators, and the soil all together.

## Discussion Questions

1. What do you notice about the spider's legs? Why might a spider need so many legs? (Bloom's: Observe | DOK: 1)
2. Where do you think this spider lives, and what might it eat? (Bloom's: Infer | DOK: 2)
3. How do you think the spider feels when it crawls on a person's hand? Is it scared, curious, or looking for something? (Bloom's: Analyze | DOK: 2)
4. What is one helpful thing spiders do in our world? (Bloom's: Understand | DOK: 1)

## Potential Student Misconceptions

Misconception 1: "All spiders are poisonous and will bite me!"

Scientific Clarification: Spiders are not poisonous—they are venomous (which means they use venom to catch bugs, not to hurt people). Most spiders are very shy and will not bite people unless they feel trapped or scared. Spiders are much more interested in eating bugs than bothering humans. In fact, spiders are our friends because they eat the bugs we don't want in our homes!

Misconception 2: "Spiders are insects like ants and flies."

Scientific Clarification: Spiders are not insects, even though they are both small animals. Insects have six legs, but spiders have eight legs. Insects have three body parts, but spiders have two main body parts. Spiders are in their own special group called arachnids (ah-RACK-nids). This makes them different and special!

Misconception 3: "Spiders don't do anything useful—we should always get rid of them."

Scientific Clarification: Spiders are very helpful! They eat thousands of bugs every year, including mosquitoes, flies, and other insects that can bother us or spread germs. Without spiders, we would have many more annoying bugs in our homes and gardens. Spiders are nature's free pest control!

## Extension Activities

1. Spider Movement Dance: Play soft music and invite students to move like spiders—crawling on all fours, moving their "legs" in different directions, and exploring the classroom. This helps them understand how spiders move and builds comfort with the idea of spiders.

2. Create a Spider Habitat (in a safe container): Use a clear plastic container with soil, leaves, and a small hiding spot. Students can observe a spider (collected safely by an adult) and draw or dictate what they notice about where it goes and what it does. Release the spider afterward.

3. Spider Snack Sorting Activity: Use crackers shaped like bugs (goldfish, ants on a log, etc.) and have students sort them into a "spider's web" drawn on paper with yarn. Students count how many "bugs" the spider "ate." This reinforces that spiders are predators and eat insects.

### Cross-Curricular Ideas

**Math:** Create a "Spider Leg Counting" activity where students count spider legs in pictures (8 legs per spider) and practice addition by combining legs from multiple spiders. You can also have students graph favorite spider colors or count how many spiders they observe in a classroom "hunt."

**ELA / Literacy:** Read *The Very Busy Spider* by Eric Carle together, then have students dictate or draw a sentence about what the spider was doing. Create a class-made spider story book where each student contributes one page about a spider's day. Practice the letter "S" sound by listing spider words: "spider," "spin," "silk," "small," "safe."

**Art:** Have students paint or draw their own spiders using various art materials (watercolors, markers, collage with yarn for legs). Create a giant class spider web by taping yarn across a wall and letting students add painted or paper spiders to it. Students can also use their bodies to create a "living spider web" by standing in a circle and passing yarn while holding a piece—a kinesthetic art experience!

**Social Studies:** Discuss how spiders live in different places around the world (deserts, forests, homes, gardens) and how different cultures view spiders—some see them as symbols of creativity, while others tell spider stories and folktales. Students can map or draw where spiders might live in their own neighborhood.

### STEM Career Connection

**Arachnologist (Scientist who studies spiders)**

An arachnologist is a scientist who loves spiders so much that they study them their whole job! They watch spiders, learn what they eat, where they live, and how they build webs. They use microscopes to see tiny details and write down everything they discover. Some arachnologists help people understand that spiders are safe and helpful. If you love asking questions about spiders and like to observe them carefully, you could be an arachnologist when you grow up!

Average Annual Salary: \$65,000–\$85,000 USD

**Pest Control Specialist**

A pest control specialist helps families and businesses get rid of bugs and unwanted pests in homes and buildings. They use their knowledge of insects and spiders to know which animals are helpful (like spiders!) and which ones are problems. They might trap unwanted bugs or spray safe treatments. These workers know a lot about how spiders and insects behave, and they help protect people and buildings.

Average Annual Salary: \$35,000–\$50,000 USD

**Entomologist (Scientist who studies insects and arachnids)**

An entomologist is a scientist who studies all kinds of small animals, including spiders, insects, and bugs. They might work in a laboratory, in nature, or in a museum. Entomologists discover new species, figure out what animals eat, and learn how insects and spiders help or hurt our environment. They might teach other people about these creatures or write books and articles about their discoveries.

Average Annual Salary: \$65,000–\$90,000 USD

## NGSS Connections

Performance Expectation (Kindergarten):

K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.

Disciplinary Core Ideas:

- \* K-LS1.A All organisms have basic needs, such as food, water, and a place to live.
- \* K-LS1.C Animals have body parts that help them sense their world (legs, eyes, fangs).

Crosscutting Concepts:

- \* Patterns Spiders follow patterns in their behavior, like hunting bugs and hiding in safe places.
- \* Structure and Function Spider legs help them walk, climb, and sense their environment.

## Science Vocabulary

- \* Spider: An animal with eight legs, multiple eyes, and a body that helps it catch bugs for food.
- \* Legs: The long, jointed body parts that spiders use to walk, climb, and feel their world.
- \* Fangs: Small, pointed teeth that spiders use to catch and eat tiny insects.
- \* Web: A sticky trap that some spiders build to catch flying bugs.
- \* Predator: An animal that hunts and eats other small animals for food.

## External Resources

Children's Books:

- The Very Busy Spider\* by Eric Carle (Kindergarten favorite about a spider spinning a web)
- Spinderella\* by Donovan Bixley (A fun, rhyming story about spiders)
- Are You a Spider?\* by Judy Allen (Lift-the-flap book about spider life cycles)