

## Photo Description



This image shows a dark brown spider on dry, sandy soil. You can see eight long legs spread out from its body, and it has a rounded abdomen (back section). The spider is positioned flat against the rocky ground, which is its natural habitat. Spiders are arachnids—animals with eight legs that hunt for food in many different environments.

## Scientific Phenomena

Anchoring Phenomenon: Why do spiders live on the ground?

Spiders are predators that hunt small insects for food. This spider is likely on the ground hunting for prey like ants, beetles, or other small creatures that live in soil and rocky areas. Spiders have adapted to live in many habitats—including on the ground, in webs, under bark, and in caves—wherever they can find food and shelter. Ground-dwelling spiders like this one use their excellent eyesight and ability to sense vibrations in the soil to detect and catch their prey. They are an important part of the ecosystem because they help control insect populations naturally.

## Core Science Concepts

- Arachnids as Living Organisms: Spiders are animals (arachnids) with eight legs, a body divided into two main parts (cephalothorax and abdomen), and fangs that inject venom into their prey. Unlike insects with six legs, arachnids have eight.
- Habitat and Adaptation: Different animals live in different habitats based on where they can find food, water, and shelter. Ground-dwelling spiders are adapted to life on soil and rocks with camouflaged colors that help them hide from predators.
- Food Chains and Predators: Spiders are carnivores (meat-eaters) that hunt insects. They are predators in the food chain, which means other animals also hunt spiders for food.
- Biodiversity: There are thousands of different spider species around the world, each adapted to live in different environments and hunt different types of prey.

### Pedagogical Tip:

Many students fear spiders due to misconceptions. Begin lessons by emphasizing that spiders are beneficial to humans—they eat pest insects and are rarely dangerous. Consider showing the spider in the photo as an example of a "helpful hunter" rather than a scary creature. This reframing builds scientific curiosity while addressing student anxiety.

### UDL Suggestions:

Multiple Means of Representation: Provide the spider image alongside labeled diagrams showing spider body parts (legs, abdomen, fangs). Consider showing a short video of a spider moving and hunting so students can see spiders in action, not just in photos.

Multiple Means of Engagement: Allow students who are uncomfortable with spiders to learn through drawings or digital resources rather than live specimens. Create a "Spider Superpower" chart where students celebrate spider abilities (speed, strength, web-building) to build positive associations.

Multiple Means of Expression: Students can show learning by drawing spiders, creating habitat dioramas, writing spider fact cards, or acting out a spider hunt scenario rather than only written responses.

## Discussion Questions

1. What do you think this spider is looking for on the ground, and why does it need to find it? (Bloom's: Analyze | DOK: 2)  
Guides students to think about the spider's purpose and survival needs.
2. How is a spider different from an insect, and what body part helps you tell the difference? (Bloom's: Compare | DOK: 2)  
Helps students distinguish arachnids from insects by counting legs (8 vs. 6).
3. If all the insects disappeared from this rocky soil habitat, what would happen to the spider? (Bloom's: Evaluate | DOK: 3)  
Encourages systems thinking about food chains and habitat relationships.
4. Why do you think this spider's dark brown color might be helpful for surviving in this sandy, rocky place? (Bloom's: Analyze | DOK: 2)  
Introduces the concept of camouflage as an adaptation.

## Extension Activities

### Activity 1: Spider Habitat Hunt

Take students on a supervised outdoor exploration to look for spider webs, ground-dwelling spiders, or spider egg sacs in your school garden or nearby natural area. Have students sketch what they find and describe the habitat (Is it wet or dry? Sunny or shady? What insects are nearby?). This connects the classroom photo to real-world observation.

### Activity 2: Design a Spider Body

Provide students with pipe cleaners, clay, googly eyes, and craft materials to build a 3D spider model. As they construct it, have them label the eight legs, body sections, and fangs. Ask: "Why do spiders need eight legs instead of six?" This hands-on building reinforces spider anatomy.

### Activity 3: Food Chain Role-Play

Create a simple food chain: Sun → Plant → Insect → Spider → Bird. Have students dress up or draw themselves as each organism and show how energy and food flow through the chain. Emphasize that spiders are important hunters that control insect populations and serve as food for birds and other animals.

## NGSS Connections

### Performance Expectation: 3-LS1-1

Students who demonstrate understanding can construct evidence that some animals form groups that help members survive.

### Disciplinary Core Ideas:

- 3-LS1.A Animals have body structures (like eight legs) that serve different functions needed for survival.
- 3-LS2.A Organisms depend on their environment to get the things they need to survive (food, water, shelter). Spiders depend on soil habitats to find insect prey.
- 3-LS4.C Different plants and animals live in different habitats and have adaptations suited to their environment.

### Crosscutting Concepts:

- Patterns Different spiders show patterns in where they live based on what prey is available.
- Structure and Function A spider's eight legs, fangs, and body shape help it hunt and survive.

## Science Vocabulary

- \* Arachnid: An animal with eight legs, including spiders, scorpions, and ticks.
- \* Predator: An animal that hunts and eats other animals for food.
- \* Habitat: The place where an animal lives that has everything it needs to survive, like food, water, and shelter.
- \* Adaptation: A special body part or behavior that helps an animal survive in its environment.
- \* Venom: A special liquid that some spiders inject into their prey to paralyze or kill it so they can eat it.
- \* Camouflage: Colors or patterns on an animal's body that help it blend in with its surroundings so predators cannot see it easily.

## External Resources

### Children's Books:

- Are You a Spider? by Judy Allen (Illustrated by Tudor Humphries) — A simple, engaging exploration of spider body parts and behaviors.
- The Itsy Bitsy Spider by Iza Trapani — A creative expansion of the classic song that shows spiders in different environments.
- Spinning Spiders by Melvin Berger (Illustrated by S.D. Schindler) — An informative Let's-Read-and-Find-Out book about how spiders live and hunt.

### YouTube Videos:

- "National Geographic Kids: Spiders" (approx. 3 minutes) — Shows real spiders in their habitats with clear narration about their abilities. URL: <https://www.youtube.com/watch?v=4iEYEHdMzXo>
- "Crash Course Kids: What Are Spiders?" (approx. 5 minutes) — Age-appropriate explanation of spider characteristics, habitats, and why they matter. URL: <https://www.youtube.com/watch?v=9b6mXF8U0yQ>

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**Implementation Note:** This lesson builds scientific vocabulary and observational skills while addressing common student misconceptions about spiders. Use the photo as a "mystery opener" to engage curiosity: "Who lives here? What is it hunting for? Why does it look this way?" This anchors learning in the visible phenomena students can observe and discuss.