Centipede

Life Science | Lesson Guide

Kindergarten

Photo Description

This is a centipede—a long, brown creature with many legs running along its body. The centipede has a rounded head at the top and a curved tail at the bottom. Its body is made up of many sections that look like rings stacked together, and each section has legs attached to it.

Scientific Phenomena

Anchoring Phenomenon: Why does a centipede have so many legs?

Centipedes have many legs because their bodies are divided into segments, and each segment has a pair of legs. This body design helps centipedes move quickly across the ground to hunt for food and escape from danger. Each leg works together with the others in a wave-like pattern, allowing the centipede to move smoothly and efficiently through soil, leaf litter, and dark spaces where they live.

Core Science Concepts

* Body Structure and Function: Centipedes have segmented bodies with multiple legs. Each segment serves as a unit, and the legs help the centipede move, find food, and survive in its environment.

* Adaptation: The centipede's many legs are an adaptation—a special body feature that helps it survive. Fast movement helps centipedes hunt small insects and avoid predators.

* Habitat and Behavior: Centipedes live in dark, damp places like under logs, rocks, and in soil. They are predators that hunt at night for food.

* Life Cycles: Centipedes grow by shedding their outer skin (exoskeleton) and adding more segments and legs as they get bigger.

Pedagogical Tip:

For Kindergarteners, focus on the observable feature: "How many legs can you count?" Rather than discussing complex anatomy, use tactile comparisons (e.g., "Your legs help you run; a centipede's many legs help it run even faster!"). Use a call-and-response chant like "Centipede, centipede, walking so fast / With all of those legs, it goes zoom, zoom, past!" to reinforce the concept through movement and rhythm.

UDL Suggestions:

Multiple Means of Representation: Provide picture cards, real plastic centipede models, and live-action videos so students with different learning preferences can engage. Multiple Means of Action & Expression: Allow students to show understanding through drawing, acting out centipede movements, or arranging objects in a line. Multiple Means of Engagement: Use the "gross factor" (many legs!) and sensory experiences to hook interest, but always maintain a respectful, curious tone about all creatures.

Zoom In / Zoom Out

Zoom In: Tiny Body Parts Inside
Under a microscope, if we could look very close at a centipede's leg, we would see it's made of even tinier tubes and joints that bend and move. Inside the centipede's body, there are tiny muscles that pull on each leg to make it move forward. The centipede's brain is very small (like a grain of rice!), but it sends messages down its long body to tell each leg when to step. This is how all those legs work together without getting tangled!

Zoom Out: Centipedes in the Forest Community
A centipede is part of a big forest community living in the soil and leaf litter. Centipedes eat small insects and worms, which helps keep the forest floor balanced. When centipedes die, their bodies break down and become nutrients that feed plants and soil. Other animals—like birds, reptiles, and spiders—hunt centipedes for food. So the centipede is both a hunter and hunted, connected to all the other living things in the forest ecosystem.

Discussion Questions

1. What do you notice about the centipede's body? (Bloom's: Remember | DOK: 1)
2. Why do you think a centipede needs so many legs instead of just two or four like we have? (Bloom's: Analyze | DOK: 2)
3. Where do you think a centipede likes to live, and why might all those legs help it there? (Bloom's: Comprehend | DOK: 2)
4. If you had to move like a centipede, how would your body move differently? (Bloom's: Create | DOK: 3)

Potential Student Misconceptions

Misconception 1: "Centipedes have 100 legs because 'centi' means 100."
Clarification: While "centi" does mean 100, most centipedes don't actually have exactly 100 legs! They have many legs—sometimes 30, 50, or more—depending on the species and how old they are. Young centipedes have fewer legs than adults. The name "centipede" just means "hundred feet" because they have lots of legs, not because they always have exactly 100.

Misconception 2: "Centipedes and millipedes are the same thing."
Clarification: Centipedes and millipedes look similar because they both have many legs, but they're different creatures. Centipedes are hunters with fewer legs per segment (one pair per segment) and they move fast. Millipedes eat dead leaves and have two pairs of legs on each segment, so their bodies look rounder and fatter. Centipedes are predators; millipedes are decomposers!

Misconception 3: "All those legs make a centipede slow because they'd get in each other's way."
Clarification: Actually, all those legs make centipedes very fast! The legs move in a wave pattern, one after another, like a whip cracking. This helps them zoom across the ground super quickly to catch food and escape danger. More legs = faster movement!

Extension Activities

1. Centipede Movement Relay: Mark a start and finish line in the classroom or gym. Have students move like a centipede by crawling on hands and feet while keeping their bodies low and moving in a wave-like pattern. Emphasize teamwork: "Can we move like a centipede together?" This builds gross motor skills and reinforces how multiple legs work as a team.

2. Leg Counting and Craft: Provide paper, markers, and pre-cut paper legs. Students create their own centipede by gluing legs onto a paper body segment. As they glue, count the legs together: "One leg, two legs, three legs..." This integrates fine motor practice, counting, and artistic expression while reinforcing the concept of many body segments.

3. Damp Habitat Exploration: Create a sensory bin with damp soil, leaf litter, rocks, and safe decomposing wood pieces (no real centipedes). Students explore with hands or tools, discussing where centipedes hide and why they like dark, damp places. This connects structure and function to real-world habitat needs.

Cross-Curricular Ideas

Math Connection: Counting and Patterns
Have students count centipede leg pairs using manipulatives (blocks, counters, or pasta pieces) and create simple addition problems: "If this centipede segment has 2 legs, and we add another segment with 2 legs, how many legs do we have now?" Students can build centipede bodies with repeating patterns using colored blocks or beads, reinforcing both counting and pattern recognition.

ELA Connection: Story and Movement Words
Read Centipede's 100 Shoes by Tony Ross aloud, then have students act out the story using movement words: "creep," "scurry," "zoom," and "wiggle." Create a shared class anchor chart with action words related to centipede movement and have students draw pictures or dictate sentences using these words: "The centipede scurries under the log."

Art Connection: Collaborative Centipede Mural
Each student creates one or two segments of a giant classroom centipede using painted paper plates, construction paper, or clay. Segments are joined together to form a long centipede that can wrap around the classroom or hallway. Students decorate their segments with patterns, textures, and colors, celebrating individuality while showing how parts work together as a whole.

Social Studies Connection: Homes and Communities
Discuss that centipedes have "homes" (like under logs and rocks) just as students have homes. Compare centipede habitats to human homes: "A centipede likes dark, damp places. What do you need in your home to be safe and comfortable?" Create a simple Venn diagram or chart comparing animal needs (shelter, food, water) to human family needs, building empathy for all living creatures.

STEM Career Connection

Entomologist (Bug Scientist)
An entomologist is a scientist who studies insects and bugs, including centipedes! They observe how centipedes move, what they eat, and where they live. Some entomologists work in museums or universities, while others work outdoors catching and studying bugs in nature. They might answer questions like, "Why do centipedes have so many legs?" or "How fast can they really run?"
Average Annual Salary: $63,000–$85,000 USD

Zookeeper or Wildlife Educator
A zookeeper takes care of animals in zoos, nature centers, and wildlife sanctuaries. If a zoo has a bug exhibit, zookeepers might care for centipedes, making sure they have the right food, a damp home with the right temperature, and a clean habitat. They also teach visitors (like you!) fun facts about centipedes and why they're important. It's like being a caretaker for creatures!
Average Annual Salary: $28,000–$42,000 USD

Pest Control Specialist or Naturalist
A pest control specialist or naturalist helps people understand bugs and creatures that live near homes. They teach families that centipedes are actually helpful because they eat harmful insects—so we shouldn't be scared of them! These professionals might visit schools, nature centers, or homes to show people that centipedes are friends, not pests, and help keep our environments in balance.
Average Annual Salary: $32,000–$55,000 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 structures that serve different functions in growth, survival, and reproduction.

Crosscutting Concepts:
* Structure and Function - The centipede's leg structure allows it to move quickly.
* Patterns - The pattern of many segments and legs repeating along the body.

Science Vocabulary

* Centipede: A long bug with many legs that hunts for food in dark, damp places.

* Segment: One of the ring-shaped parts that makes up a centipede's body.

* Legs: Body parts that animals use to walk, run, and move around.

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

* Exoskeleton: A hard, shell-like skin on the outside of the centipede's body that protects it.

* Adaptation: A special body part or behavior that helps an animal survive in its home.

External Resources

Children's Books:
Centipede's 100 Shoes* by Tony Ross – A humorous, engaging story about a centipede's many feet (accessible picture book for K).
The Very Busy Spider* by Eric Carle – While not centipede-specific, it introduces insects and body parts in Carle's signature tactile style.
Creepy Crawly Creatures* by Gianna Marino – A simple board book exploring various insects and their features.