Praying Mantis

Life Science | Lesson Guide

1st Grade

Photo Description

This image shows a praying mantis, a large green insect with long, folded front legs that look like hands pressed together in prayer. You can see its large eyes, thin body, and spiky legs perched on a plant stem near colorful pink and yellow flowers. The mantis is a hunter that waits very still for other insects to come close.

Scientific Phenomena

Anchoring Phenomenon: How does a praying mantis catch food it cannot reach?

The praying mantis demonstrates predatory adaptation and camouflage. This insect has evolved folded front legs (raptorial limbs) that allow it to ambush and snatch prey with lightning speed. The green coloring helps the mantis blend in with leaves and stems, making it nearly invisible to unsuspecting insects. This is an example of how animals have special body parts and behaviors perfectly suited to their role as hunters in nature. The mantis remains perfectly still—a hunting strategy called "sit-and-wait predation"—waiting for prey to approach before striking.

Core Science Concepts

• Body Structures and Functions: Praying mantises have specialized body parts (large eyes for seeing prey, powerful front legs for catching, and a flexible neck) that help them hunt. Animals have different body parts that help them survive.

• Camouflage and Adaptation: The mantis's green color helps it hide among plants. Animals have colors, patterns, and shapes that help them survive in their habitats.

• Predator-Prey Relationships: The praying mantis is a predator (hunter) that eats smaller insects. This shows how living things depend on each other in nature.

• Insect Characteristics: Like all insects, mantises have six legs, three body sections, and antennae. They are part of a larger group of animals called arthropods.

Pedagogical Tip:

First graders learn best through direct observation and hands-on exploration. If possible, invite a local naturalist or use a live (safe, contained) praying mantis for observation. Even video clips showing the mantis striking prey are far more memorable than pictures alone. The "WOW factor" of seeing this insect move creates lasting neural connections around the concept of adaptation.

UDL Suggestions:

Representation: Provide both visual images AND video clips of mantises hunting, plus simple labeled diagrams. Some students learn better kinesthetically—have students act out the "freeze and strike" hunting behavior with their arms.

Action & Expression: Offer multiple ways to show understanding: students can draw the mantis, act it out, build it with craft materials, or dictate observations to you. Avoid requiring writing, which is developmentally challenging in Grade 1.

Engagement: Connect to students' curiosity about "cool bugs." Frame the lesson as "Nature's Ninja" to capture their imagination and motivation.

Discussion Questions

1. What special body parts does the praying mantis have that help it catch food? (Bloom's: Remember | DOK: 1)

2. Why do you think the praying mantis is green? How does that help it survive? (Bloom's: Understand | DOK: 2)

3. How is a praying mantis different from other insects like ants or bees? (Bloom's: Analyze | DOK: 2)

4. If a praying mantis didn't have those big strong front legs, how might its life be different? (Bloom's: Evaluate | DOK: 3)

Extension Activities

1. Mantis Movement Charades: Have students move around the classroom acting out how a praying mantis waits still and then quickly strikes. This kinesthetic activity reinforces the hunting adaptation and burns energy appropriately. You can play "freeze" music and students hold their "hunting position."

2. Camouflage Hunt: Hide pictures of praying mantises in a nature scene (leaves, stems, flowers) around the classroom. Students search for the "hidden" mantis, discovering firsthand how camouflage works. Discuss why this hiding ability helps the mantis survive.

3. Design a Hunting Arm: Provide straws, pipe cleaners, paper cups, and fasteners. Students design and build a model of a praying mantis front leg, then test it to "catch" lightweight objects (pom-poms, cotton balls). This connects to NGSS 1-LS1-1 about mimicking nature's designs.

NGSS Connections

Grade 1 Performance Expectations:

1-LS1-1: Use materials to design a solution to a human problem by mimicking how plants or animals use their external parts to help them survive, grow, and meet their needs.
- Connection: Students could design a "hunting arm" inspired by the mantis's raptorial legs.

Disciplinary Core Ideas:
- 1-LS1.A Structure and Function – The praying mantis has body parts (legs, eyes, antennae) that help it live and survive.
- 1-LS1.B Growth and Development – Mantises grow through stages (egg !’ nymph !’ adult).

Crosscutting Concepts:
- Structure and Function – The mantis's folded legs are perfectly shaped for catching prey.
- Patterns – The green color pattern helps the mantis blend into its environment; the "freeze-and-strike" behavior is a repeating pattern.

Science Vocabulary

* Mantis: A large insect with long, folded front legs that it uses to catch other insects for food.
* Predator: An animal that hunts and eats other animals.
* Camouflage: Colors or patterns on an animal's body that help it hide from other animals.
* Adapt: To change or have special features that help an animal survive in its home.
* Insect: A small animal with six legs, three body parts, and usually wings.
* Antennae: Long, thin feelers on an insect's head that help it sense the world around it.

External Resources

Children's Books:
- Praying Mantis by Melissa Stewart (National Geographic Little Kids First Big Book Series) – Simple, beautifully illustrated facts.
- The Praying Mantis by Augusta Goldin (Let's Read and Find Out Science) – Clear text with engaging illustrations.
- Insects by Gallimard Jeunesse (First Discovery Books) – Interactive die-cut pages showing insect anatomy, including mantises.

YouTube Videos:
- "Praying Mantis: Nature's Ninja" (National Geographic Kids, ~5 minutes) – Age-appropriate footage of mantis hunting behavior with clear narration. https://www.youtube.com/results?search_query=national+geographic+kids+praying+mantis

- "Praying Mantis Facts for Kids" (Homeschool Pop, ~3 minutes) – Simple animations and facts perfect for First Grade attention spans. https://www.youtube.com/results?search_query=homeschool+pop+praying+mantis

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Teacher Note: This lesson celebrates how animals are wonderfully designed for their specific roles in nature. First graders find praying mantises fascinating—leverage that genuine curiosity to deepen their understanding of adaptation, structure, and ecological relationships. The image provides an excellent "hook" for inquiry-based learning!