Praying Mantis

Life Science | Lesson Guide

Kindergarten

Photo Description

This image shows a praying mantis, a green insect with long, folded front legs that look like arms folded in prayer. You can see its large eyes looking forward, its thin body, and its spiky legs. There are colorful flowers (pink and yellow) blurred in the background, showing where this insect lives in nature.

Scientific Phenomena

Anchoring Phenomenon: Why does the praying mantis hold its front legs up in that special way?

The praying mantis holds its front legs folded and raised because these legs are specially adapted for hunting. This posture allows the mantis to quickly grab and hold onto prey (like insects) that fly or crawl nearby. The legs have sharp spikes that help grip food. This is an example of structural adaptation—the mantis's body shape is perfectly designed for its role as a predator in the garden ecosystem. The mantis stays very still in this position until an insect comes close enough to catch.

Core Science Concepts

1. Adaptation: Praying mantis legs are specially shaped and positioned to help the insect catch food. The spiky texture and folded position are body features that help it survive.

2. Predator and Prey Relationship: The praying mantis is a predator (an animal that hunts other animals). The insects it catches are its prey. This is an important relationship in nature's balance.

3. Camouflage: The mantis's green color helps it blend in with plants and flowers, making it harder for prey to see it coming—and harder for larger predators to spot the mantis.

4. Habitat: Praying mantises live in gardens, meadows, and areas with plants and flowers where insects gather. They need flowers and vegetation to hunt successfully.

Pedagogical Tip:

For Kindergarteners, use hand motions to demonstrate the praying mantis's hunting position. Have students fold their own hands like the mantis and practice the "striking" motion slowly. This kinesthetic connection helps young learners internalize the concept of adaptation without relying on abstract thinking.

UDL Suggestions:

Multiple Means of Representation: Show the image on a large screen AND provide a tactile model or stuffed animal praying mantis students can touch and manipulate. Some Kindergarteners are visual learners; others need tactile input. Additionally, use colored overlays or adjust screen brightness for students with visual processing differences.

Multiple Means of Engagement: Allow students to choose whether they want to: (a) act out being a praying mantis hunting, (b) draw/paint the insect, or (c) listen to a recorded story about a mantis's day. Choice increases engagement for diverse learners.

Zoom In / Zoom Out

Zoom In: Cellular Level
If we could look super duper close at the praying mantis's spiky legs using a special magnifying tool called a microscope, we would see that the legs are made of millions of teeny-tiny parts called cells. These cells work together to make the leg strong and pointy. Inside each cell are even smaller parts that help the leg move and grip. The sharp spikes on the legs are made of a hard material called chitin (KY-tin)—it's like the insect's own suit of armor! This material is super tough but also lightweight, which helps the mantis move quickly to catch its food.

Zoom Out: Garden Ecosystem
When we zoom way out and look at the whole garden or meadow where the praying mantis lives, we see a big connected system called an ecosystem. The praying mantis is just one animal in this system. The flowers in the photo attract bees, butterflies, and other insects. Those insects come to drink nectar and eat pollen. The praying mantis hides on the plants and eats those visiting insects. Bigger animals like birds might eat the praying mantis. When the mantis dies, it becomes part of the soil that helps plants grow. Everything is connected in a circle—plants, insects, predators, and even the soil itself!

Discussion Questions

1. What do you think the praying mantis's front legs help it do? (Bloom's: Understand | DOK: 1)
2. Why might the green color of the praying mantis be helpful when it's hunting insects on plants? (Bloom's: Analyze | DOK: 2)
3. If a praying mantis didn't have those spiky legs, how might its life be different? (Bloom's: Evaluate | DOK: 3)
4. Where do you think praying mantises find food, and why do they live in those places? (Bloom's: Analyze | DOK: 2)

Potential Student Misconceptions

Misconception 1: "The praying mantis is praying to something."
Clarification: The praying mantis is NOT actually praying like people do. Its front legs just look like folded hands. The name "praying" mantis came from how humans saw the folded legs, but the mantis is really just holding its legs in a special hunting position to catch insects. It's a cool coincidence that it looks like praying!

Misconception 2: "All insects are bugs, and bugs are small animals."
Clarification: While praying mantises are insects (and insects ARE a type of small animal), not all bugs are insects. Also, some students think the praying mantis is "mean" or "bad" because it eats other insects. Scientists help us understand that eating other animals is just how nature works—the mantis is a hunter, which is an important job in the garden!

Misconception 3: "The praying mantis can see very far away like humans can."
Clarification: The mantis has huge eyes that are great at seeing movement nearby, but it cannot see very far away like people with binoculars can. The mantis's big eyes help it spot insects that move close by. If an insect doesn't move, the mantis might not notice it!

Extension Activities

1. Praying Mantis Pose & Hunt Game: Have students move around the classroom like praying mantises, practicing the hunting position with their arms folded. Call out "prey!" and have students slowly "strike" at imaginary insects. Discuss: Did moving slowly help them be sneakier? Why might that be important for a real mantis?

2. Create a Mantis Habitat Collage: Provide magazines, colored paper, and real or artificial flowers. Students cut and glue images to create a garden scene where a praying mantis might live. Label what the mantis needs: flowers (for insects to visit), sunshine, and shelter. This connects habitat needs to survival.

3. Observation Journal Drawings: If available, show a live praying mantis (in a clear container with proper care) or a high-quality video clip. Have students draw what they observe, focusing on the folded legs, large eyes, and long body. Encourage them to label body parts and write or dictate one thing the mantis's body helps it do.

Cross-Curricular Ideas

Math Connection: Counting and Patterns
Display the image and have students count the praying mantis's legs (six total). Ask: "How many pairs of legs does it have?" (3 pairs) Create a simple pattern activity: "The mantis has 2 front legs for hunting, 4 back legs for walking. What if we had two mantises? How many hunting legs altogether?" Use manipulatives (blocks, counters) to represent mantises and solve simple addition problems. This connects to K.CC and K.OA standards.

ELA Connection: Descriptive Language & Storytelling
Read aloud a picture book about insects (see resources above), then have students dictate or write simple sentences describing the praying mantis. Focus on sensory words: "The mantis is green. It has pointy legs. Its eyes are big and round." Create a class "Mantis Word Web" on chart paper with descriptive words radiating from a central image. Students can also create a simple story: "One day, a mantis was waiting on a flower. A butterfly came close. Snap! The mantis caught it!" This supports K.W.1 and K.SL.4.

Art Connection: Camouflage Artwork
Provide green paper, paint, and natural materials (leaves, flowers, twigs) and have students create a "hidden mantis" collage or painting where the praying mantis blends in with the garden background. Discuss how hard it is to spot the mantis when it's hidden—just like in real life! Students can paint or draw a mantis on green paper with flowers around it. Display and play a "Spot the Mantis" game. This connects to visual arts standards and reinforces the adaptation concept.

Social Studies Connection: Community Helpers & Gardeners
Explain that gardeners and farmers care for plants and gardens where insects like the praying mantis live. The praying mantis actually helps gardeners by eating insects that damage plants! Show pictures of different community helpers (gardeners, farmers, park rangers) and discuss how they protect and care for natural habitats. Students can draw themselves as a "Garden Helper" or "Nature Protector." This introduces K.1 social studies concepts about community roles.

STEM Career Connection

Entomologist (Insect Scientist)
An entomologist is a scientist who studies insects like praying mantises. They observe how insects live, what they eat, where they make their homes, and how they help or hurt gardens and farms. Some entomologists work in museums showing people cool insects; others work outside in nature catching and studying bugs. They use magnifying glasses and special tools to look closely at insects. If you love bugs and asking questions like "Why does the mantis look like that?" you might become an entomologist!
Average Annual Salary: $65,000–$75,000

Pest Control Specialist / Agricultural Technician

A pest control specialist helps keep gardens and farms healthy by managing insects that hurt plants. They know that praying mantises are helpful bugs because they eat the bad bugs that damage crops! These workers might release praying mantises into gardens instead of using chemicals. They study which insects are helpful and which ones hurt plants, then find the best ways to keep gardens healthy and safe. It's like being a "bug matchmaker" for the garden!
Average Annual Salary: $55,000–$70,000

Museum Educator / Science Interpreter
A museum educator works at zoos, natural history museums, or nature centers and teaches visitors (especially kids!) about animals like the praying mantis. They might show live insects to classroom groups, answer questions about how mantises hunt, and help people understand why insects are important. They use photos, live animals, videos, and activities to make science exciting and fun. If you like teaching other kids and sharing your love of nature, this job might be perfect for you!
Average Annual Salary: $45,000–$60,000

NGSS Connections

Performance Expectation:
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; plants need sunlight, water, and minerals; animals need food, water, and air.
- K-LS1.C All animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals use their body parts in species-specific ways to seek food, water, and shelter, and to avoid danger.

Crosscutting Concepts:
- Structure and Function The praying mantis's leg structure directly supports its function (hunting).
- Patterns Students can observe patterns in how predators and prey interact in nature.

Science Vocabulary

* Praying Mantis: A large insect with long legs and folded front arms that hunts other insects for food.
* Predator: An animal that hunts and eats other animals.
* Prey: An animal that is hunted and eaten by another animal.
* Adaptation: A body part or behavior that helps an animal survive and find food.
* Camouflage: Colors or patterns on an animal's body that help it hide by blending in with its surroundings.
* Habitat: The place where an animal lives and finds everything it needs to survive.

External Resources

Children's Books:
- The Praying Mantis by Nathaniel Lachenmeyer (National Geographic Little Kids First Big Book of Bugs)
- Bugs by Gail Gibbons (clear illustrations and simple text perfect for K students)
- The Very Busy Spider by Eric Carle (while not exclusively about mantises, it features various garden insects and habitats)

Teacher Notes: This image is an excellent entry point for Kindergarteners to explore animal adaptations, habitats, and food chains in a concrete, observable way. The praying mantis's distinctive posture and hunting behavior capture children's imagination while introducing rigorous science concepts aligned with NGSS K-LS standards.