Predator and Prey

Life Science | Lesson Guide

2nd Grade

Photo Description

A green dragonfly sits on a plant with its four clear wings spread wide. You can see the dragonfly's big eyes and long thin body. The dragonfly is resting near green leaves that look like they might catch water.

Scientific Phenomena

This image shows the Anchoring Phenomenon of animal adaptations for survival. The dragonfly demonstrates multiple structural adaptations that help it survive in its environment. Its large compound eyes provide excellent vision for hunting prey, its four independently-moving wings allow for precise flight maneuvers, and its choice to rest on this particular plant may be related to hunting strategy or habitat needs. The plant appears to be a pitcher plant, which represents another survival adaptation - carnivorous plants that have evolved to obtain nutrients from insects rather than just soil.

Core Science Concepts

1. Animal Body Parts and Functions: Dragonflies have special body parts that help them survive, including large eyes for seeing, strong wings for flying, and legs for catching prey.

2. Habitats and Survival: Animals choose specific places to live and rest that help them find food, stay safe, and meet their basic needs.

3. Plant and Animal Interactions: Some plants and animals live in the same spaces and may interact with each other in different ways.

4. Observable Characteristics: Scientists can learn about living things by carefully observing their body parts, colors, and behaviors.

Pedagogical Tip:

Use the "See-Think-Wonder" thinking routine with this image. Have students first observe what they see, then think about what they know, and finally wonder about questions they have. This builds scientific observation skills.

UDL Suggestions:

Provide magnifying glasses for students to examine the image more closely, and offer both verbal descriptions and drawing opportunities for students to express their observations in multiple ways.

Zoom In / Zoom Out

1. Zoom In: The dragonfly's compound eyes are made up of thousands of tiny lenses that work together to detect movement and see in almost all directions at once. Each tiny lens captures a small piece of the picture.

2. Zoom Out: This dragonfly is part of a larger wetland ecosystem where many plants and animals depend on water and each other. Dragonflies help control mosquito populations and serve as food for birds, frogs, and fish.

Discussion Questions

1. What do you notice about the dragonfly's body parts that might help it survive? (Bloom's: Analyze | DOK: 2)
2. Why do you think the dragonfly chose to land on this particular plant? (Bloom's: Evaluate | DOK: 3)
3. How are the dragonfly's wings different from a bird's wings? (Bloom's: Compare | DOK: 2)
4. What questions do you have about how dragonflies use their big eyes? (Bloom's: Create | DOK: 2)

Potential Student Misconceptions

1. Misconception: All insects are bad or scary.
   Clarification: Many insects like dragonflies are helpful because they eat mosquitoes and other pests that bother people.

2. Misconception: Dragonflies can sting or bite people.
   Clarification: Dragonflies cannot sting and rarely bite humans. They are harmless to people and focus on catching smaller insects.

3. Misconception: All plants just need soil and water to survive.
   Clarification: Some plants, like the pitcher plant in the image, have adapted to get extra nutrients by trapping and digesting insects.

Cross-Curricular Ideas

1. Math - Counting and Patterns: Have students count the dragonfly's body parts (2 eyes, 4 wings, 6 legs) and create simple addition problems. Students can also draw and count the patterns on the dragonfly's wings using graph paper to explore symmetry.

2. ELA - Descriptive Writing: Ask students to write or dictate sentences describing what they see in the photo using sensory words (shiny, delicate, green, smooth). Create a class "Word Wall" of descriptive words they discover, then use these words in simple stories about the dragonfly.

3. Art - Mixed Media Wings: Have students trace and cut out dragonfly wing shapes from clear cellophane or tissue paper, then decorate them with markers or watercolors. Display them in a window so light shines through, mimicking how real dragonfly wings are transparent.

4. Social Studies - Habitats Around Us: Connect to students' local environment by discussing wetlands and water habitats in your region. Take a nature walk (if possible) to observe insects and plants near water, or create a classroom wetland habitat display with pictures and information.

STEM Career Connection

1. Entomologist (Insect Scientist): An entomologist studies insects like dragonflies to learn how they live, what they eat, and how they help our world. They might work in nature centers, museums, or universities. They use magnifying glasses and special equipment to observe tiny insects up close. Average Annual Salary: $65,000 USD

2. Wildlife Photographer: A wildlife photographer takes pictures of animals and plants in nature, just like the photo you're looking at! They use special cameras and spend time outdoors waiting to capture amazing moments. Their photos help teach people about animals and nature. Average Annual Salary: $35,000 USD

3. Environmental Scientist: An environmental scientist studies how plants and animals live together in their habitats and works to keep nature healthy. They might protect wetlands where dragonflies live or help restore damaged ecosystems. Average Annual Salary: $72,000 USD

NGSS Connections

Performance Expectation: 2-LS4-1 - Make observations of plants and animals to compare the diversity of life in different habitats.

Disciplinary Core Ideas:
- 2-LS4.D - There are many different kinds of living things in any area, and they exist in different places on land and in water.

Crosscutting Concepts:
- Patterns - Patterns in the natural world can be observed and used as evidence.

Science Vocabulary

* Adaptation: A special body part or behavior that helps an animal survive in its home.
* Compound eyes: Eyes made of many tiny parts that work together to see very well.
* Habitat: The natural home where an animal lives and finds everything it needs.
* Predator: An animal that hunts and eats other animals for food.
* Carnivorous: A living thing that gets nutrients by eating meat or other animals.

External Resources

Children's Books:
- Dragonfly by Cynthia Rylant
- Are You a Dragonfly? by Judy Allen
- National Geographic Readers: Flies by Laura Marsh