Dragonfly

Life Science | Lesson Guide

1st Grade

Photo Description

A dragonfly sits on a piece of wood. The dragonfly has big blue eyes and clear wings. Its body has yellow and black stripes.

Scientific Phenomena

This image represents the Anchoring Phenomenon of animal body parts and their functions. The dragonfly's large compound eyes allow it to see in almost all directions at once, helping it hunt for food and avoid predators. Its transparent wings can move independently, allowing for precise flight control including hovering and flying backwards. The striped pattern on its body may help with camouflage or species recognition.

Core Science Concepts

1. Animal Body Parts Have Special Jobs - The dragonfly's eyes, wings, and body are each designed for specific survival needs
2. Living Things Need Food and Safety - The dragonfly's features help it catch small insects to eat and escape from danger
3. Animals Live in Different Places - Dragonflies live near water where they can find food and lay eggs
4. Animals Have Different Patterns - The stripes and colors help dragonflies recognize each other

Pedagogical Tip:

Use the "See, Think, Wonder" routine with this image. Have students first observe what they see, then share what they think is happening, and finally ask questions about what they wonder. This builds observation skills and scientific curiosity.

UDL Suggestions:

Provide magnifying glasses for students to examine the image details more closely. Create tactile wing models using clear plastic sheets so students can feel the thin, transparent texture while learning about wing function.

Zoom In / Zoom Out

1. Zoom In: Each of the dragonfly's compound eyes contains thousands of tiny lenses that work together to create a mosaic view of the world, allowing them to detect the smallest movements of prey or predators.

2. Zoom Out: Dragonflies are part of freshwater ecosystems where they help control mosquito populations, connect aquatic and terrestrial food webs, and serve as indicators of healthy water environments.

Discussion Questions

1. "What do you notice about the dragonfly's eyes and how might they help it?" (Bloom's: Analyze | DOK: 2)

2. "How are a dragonfly's wings different from a bird's wings?" (Bloom's: Compare | DOK: 2)

3. "What would happen if a dragonfly didn't have such big eyes?" (Bloom's: Evaluate | DOK: 3)

4. "Where do you think this dragonfly lives and why?" (Bloom's: Apply | DOK: 2)

Potential Student Misconceptions

1. Misconception: "Dragonflies are scary and will hurt people"
   Reality: Dragonflies cannot sting or bite humans and are actually helpful because they eat mosquitoes

2. Misconception: "All insects have the same kind of eyes"
   Reality: Dragonflies have compound eyes made of many parts, while some insects have simple eyes

3. Misconception: "Dragonflies are the same as butterflies because they both have wings"
   Reality: Dragonflies have thin, clear wings that stick out straight, while butterflies have colorful wings that fold up

Cross-Curricular Ideas

1. Math Connection: Count the stripes on the dragonfly's body and create a bar graph showing how many students counted the same number. Students can also measure the length of dragonfly wings using non-standard units like paperclips or blocks.

2. ELA Connection: Read "Are You a Dragonfly?" and have students create a simple sentence frame: "A dragonfly uses its _____ to _____." Students can illustrate their sentences and create a classroom dragonfly fact book to share with families.

3. Art Connection: Paint or draw dragonflies with transparent wings using watercolors and tissue paper. Create a collaborative mural of a pond ecosystem showing dragonflies, water plants, fish, and other animals that live near water.

4. Social Studies Connection: Discuss where dragonflies live around the world and locate ponds, lakes, and rivers on a map. Talk about how different communities protect water habitats where dragonflies and other animals live.

STEM Career Connection

1. Entomologist (Insect Scientist): An entomologist studies insects like dragonflies to learn how they live, what they eat, and how to help them survive. They work outdoors near water and in laboratories with microscopes. Average Salary: $63,000/year

2. Wildlife Photographer: A wildlife photographer takes pictures of animals like dragonflies in their natural habitats. They use special cameras and lenses to capture amazing details, just like the photo shown! Average Salary: $32,000/year

3. Aquatic Biologist: An aquatic biologist studies animals and plants that live in water and the ecosystems they belong to. They help keep ponds and lakes healthy so dragonflies and other water creatures can thrive. Average Salary: $68,000/year

NGSS Connections

- Performance Expectation: 1-LS1-1 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs

- Disciplinary Core Idea: 1-LS1.A - All organisms have external parts that they use to perform daily functions
- Crosscutting Concept: Structure and Function - The shape and stability of structures of natural objects are related to their function

Science Vocabulary

* Compound eyes: Eyes made of many small parts that work together to see
* Transparent: Something you can see through, like clear glass
* Predator: An animal that hunts other animals for food
* Camouflage: Colors or patterns that help animals hide
* Habitat: The place where an animal lives and finds what it needs

External Resources

Children's Books:
- Dragonfly by Emery Bernhard
- Are You a Dragonfly? by Judy Allen
- Dragonflies by Gail Gibbons