Pelican

Life Science | Lesson Guide

1st Grade

Photo Description

A big brown bird called a pelican sits on a wooden post. The pelican has a very long beak and a big pouch under its mouth. It lives near the water where it catches fish to eat.

Scientific Phenomena

This image represents the Anchoring Phenomenon of structural adaptation for survival. The pelican's oversized bill and expandable throat pouch are specialized structures that have evolved specifically for catching and storing fish. The long, straight bill acts like a spear for diving into water, while the flexible pouch can hold multiple fish and drain water before swallowing. This demonstrates how an animal's body parts are perfectly designed to help it get food and survive in its environment.

Core Science Concepts

1. Animal Body Parts and Functions: Different animals have special body parts that help them survive, like the pelican's long beak for catching fish.

2. Habitat Requirements: Animals live in places that give them what they need - pelicans live near water because that's where their food (fish) lives.

3. Animal Behaviors: Pelicans have special ways of getting food, like diving into water and using their pouch to catch fish.

Pedagogical Tip:

Use hand gestures and body movements when teaching about animal adaptations. Have students pretend to be pelicans by making their arms into a long beak and "diving" for fish. This kinesthetic approach helps first graders remember how body parts match functions.

UDL Suggestions:

Provide multiple ways for students to show their understanding by offering choices: they can draw the pelican, act out how it catches fish, or build a model with clay. This supports different learning preferences and abilities while maintaining the same learning objective.

Zoom In / Zoom Out

Zoom In: The pelican's throat pouch contains special muscles that can squeeze out water while keeping fish inside. The pouch can stretch to hold up to 3 gallons of water and fish - that's like holding 12 water bottles!

Zoom Out: Pelicans are part of a coastal ecosystem food web. They help control fish populations and their droppings provide nutrients for plants. When pelicans are healthy, it means the ocean environment is healthy too.

Discussion Questions

1. "What do you notice about the pelican's beak that makes it different from other birds?" (Bloom's: Analyze | DOK: 2)

2. "How do you think the pelican's big pouch helps it get food?" (Bloom's: Apply | DOK: 2)

3. "What would happen if a pelican lived in a desert instead of near water?" (Bloom's: Evaluate | DOK: 3)

4. "What other animals have body parts that help them get food?" (Bloom's: Remember | DOK: 1)

Potential Student Misconceptions

1. Misconception: "The pelican stores fish in its pouch for later, like a lunch box."
   Reality: Pelicans drain water from their pouch and swallow fish right away. The pouch is for catching, not storing.

2. Misconception: "All birds have the same kind of beak."
   Reality: Different birds have different shaped beaks that match what they eat and where they live.

Cross-Curricular Ideas

1. Math - Measurement & Comparison: Have students measure different objects (straws, pencils, rulers) to compare them to a pelican's beak length. Create a simple bar graph showing "Things Shorter Than a Pelican's Beak" and "Things Longer Than a Pelican's Beak." This builds measurement skills while reinforcing the pelican's unique feature.

2. ELA - Descriptive Writing & Storytelling: Read aloud a picture book about pelicans, then have students draw a pelican and dictate or write simple sentences describing what they see. Use sentence frames like: "The pelican has a _____ beak. It uses its beak to _____." This develops vocabulary and writing skills connected to the adaptation concept.

3. Art - Nature Observation & Drawing: Provide students with images of different bird beaks (hummingbird, woodpecker, eagle, duck, pelican). Have students create a "Beak Collection" art project by drawing or painting different beaks and coloring them. Discuss how the shapes are different because birds eat different foods and live in different places.

4. Social Studies - Habitats & Maps: Locate where pelicans live on a world map or globe. Discuss coastal communities and how people and animals share ocean environments. Connect to local geography if pelicans live in or near your region, making the learning personally relevant.

STEM Career Connection

1. Ornithologist (Bird Scientist): An ornithologist is a scientist who studies birds. They watch pelicans and other birds in nature to learn how they live, what they eat, and how to keep them healthy. Some ornithologists work at zoos, wildlife centers, or universities. Average Annual Salary: $65,000 - $75,000 USD

2. Wildlife Photographer: A wildlife photographer takes pictures of animals like pelicans in their natural homes. They use special cameras to capture amazing moments, like a pelican diving for fish. Their photos help people learn about and care for animals. Average Annual Salary: $45,000 - $70,000 USD

3. Environmental Conservation Specialist: A conservation specialist protects animal habitats and keeps ecosystems healthy. They work to make sure pelicans and other water birds have clean water, safe places to live, and plenty of fish to eat. Average Annual Salary: $55,000 - $80,000 USD

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 - Structure and Function
- Crosscutting Concept: Structure and Function

Science Vocabulary

* Adaptation: A special body part or behavior that helps an animal survive
* Habitat: The place where an animal lives and finds everything it needs
* Beak: The hard, pointed mouth part that birds use to get food
* Pouch: A bag-like part under the pelican's beak that holds fish
* Predator: An animal that hunts other animals for food

External Resources

Children's Books:
- Pelican by Julie Dunlap
- About Birds: A Guide for Children by Cathryn Sill
- Beaks! by Sneed Collard III