Amphibian

Life Science | Lesson Guide

1st Grade

Photo Description

This image shows a gray tree frog sitting on a white surface with two smaller frogs nearby. You can see the frog's bumpy, warty skin, four short legs with special sticky toe pads, and its large eyes. Frogs are amphibians—animals that live both in water and on land.

Scientific Phenomena

Anchoring Phenomenon: Why do frogs have bumpy skin and sticky toe pads?

Frogs have developed special adaptations over millions of years that help them survive in their environments. The bumpy, warty texture on their skin helps them blend in with tree bark and rocks (camouflage), which keeps them safe from predators. Their sticky toe pads have tiny ridges that create suction, allowing them to climb smooth surfaces like leaves, branches, and even walls. These adaptations are examples of how animals' bodies are perfectly designed for where and how they live.

Core Science Concepts

* Adaptations: Special body parts or behaviors that help animals survive in their homes. Frogs' sticky feet and bumpy skin are adaptations.

* Life Cycles: Frogs go through big changes as they grow—from tiny eggs to tadpoles (with tails!) to adult frogs. This is called metamorphosis.

* Habitats: Frogs need both water (ponds, streams) and land (trees, bushes, grass) to live. These places give frogs food, water, and shelter.

* Animal Classification: Frogs are amphibians, which means they live part of their life in water and part on land—different from fish, reptiles, mammals, and birds.

Pedagogical Tip:

For First Graders, use direct sensory language when discussing frog characteristics: "Feel this bumpy texture—that's like frog skin!" or "Look at those sticky toe pads—they're like tiny suction cups!" Concrete, touchable comparisons help young learners connect abstract concepts to their real-world experiences. If possible, let students gently touch a frog (with clean, wet hands) or handle a model frog to build tactile understanding.

UDL Suggestions:

Multiple Means of Representation: Provide images, videos, and real specimens (if accessible) to show frog characteristics. Use labeled diagrams highlighting the sticky toe pads and bumpy skin. Some students may benefit from enlarged close-up photos of frog feet.

Multiple Means of Action & Expression: Allow students to demonstrate their learning by drawing frogs, acting out a frog's jumping motion, creating clay frog models, or arranging picture cards to show a frog's life cycle instead of writing.

Multiple Means of Engagement: Invite students to share personal frog experiences (sounds they've heard, frogs they've seen). Play frog call recordings to build emotional connection and curiosity.

Discussion Questions

1. What body parts do you see on this frog that help it survive? (Bloom's: Remember | DOK: 1)
2. Why do you think the frog's skin is bumpy instead of smooth like a human's skin? (Bloom's: Analyze | DOK: 2)
3. Where do you think this frog lives, and why would it need both water and land? (Bloom's: Evaluate | DOK: 3)
4. If a frog's sticky toe pads didn't work, what problems might the frog have? (Bloom's: Analyze | DOK: 2)

Extension Activities

Activity 1: Frog Jumping Competition
Students create paper frogs using origami or paper folding. Then they decorate them and race their frogs by gently flicking them to make them "hop" across the classroom floor. This kinesthetic activity helps students understand how frogs move and build excitement around the topic.

Activity 2: Tadpole to Frog Life Cycle Sequencing
Provide picture cards showing the frog life cycle (eggs !' tadpole !' tadpole with legs !' froglet !' adult frog). Students arrange the cards in order and discuss what changes happen at each stage. You can add a painting or drawing component where students illustrate one stage of the cycle.

Activity 3: Five Senses Frog Exploration Station
Set up a sensory station with frog-related items: bumpy rocks (to feel like frog skin), pictures of frogs in different habitats, frog call recordings to listen to, toy frogs in water and on land. Students rotate through the station and discuss what they observe using their senses.

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 (food, water, air, shelter). Frogs need ponds/water and plants/insects for survival.
- 3-LS2.D Being part of a community means an organism may serve a role (predator, prey, decomposer). Frogs eat insects and are eaten by snakes.

Crosscutting Concepts:
- Structure and Function The frog's sticky toe pads (structure) allow it to climb and stick to surfaces (function).
- Patterns Frogs show patterns: they lay eggs in water, tadpoles swim, then adults hop on land.

Science Vocabulary

* Amphibian: An animal that lives part of its life in water and part on land, like a frog.

* Adaptation: A special body part or behavior that helps an animal survive in its home.

* Camouflage: Colors or patterns on an animal's body that help it blend in and hide from danger.

* Tadpole: A young frog that lives in water and has a tail, before it turns into an adult frog.

* Metamorphosis: The amazing change an animal goes through as it grows (like when a tadpole becomes a frog).

* Habitat: The place where an animal lives, like a pond, forest, or garden.

External Resources

Children's Books:
- The Tadpole and the Frog by Shira Evans (explores life cycle with simple text)
- Frog and Toad Are Friends by Arnold Lobel (classic friendship stories featuring frogs)
- From Tadpole to Frog by Wendy Pfeffer (informative life cycle book with illustrations)

YouTube Videos:
- "Tadpole to Frog Life Cycle" — National Geographic Kids
  A short, engaging 3-minute animation showing the complete metamorphosis of a frog with clear visuals for young learners.
  https://www.youtube.com/watch?v=SZ2Gv-QGKQ4

- "Frog Calls and Facts for Kids" — Crash Course Kids
  An age-appropriate 5-minute video featuring real frog footage, frog calls, and fun facts about different frog species.
  https://www.youtube.com/watch?v=7EwbNzSYqPg

Teacher Note: This lesson builds foundational understanding of animal adaptations and life cycles. First Graders benefit from hands-on exploration, so incorporate real frog observations (live specimens or high-quality videos) whenever possible. The focus should remain on observable features and basic survival needs rather than complex taxonomic details.