

## Photo Description



A small green tree frog sits on a bright green leaf. The frog has smooth, wet-looking skin and large, round eyes with dark pupils. Its body blends in perfectly with the green color of the leaf, making it hard to spot at first glance.

## Scientific Phenomena

This image demonstrates camouflage as an anchoring phenomenon. The tree frog's green coloration allows it to blend seamlessly with its leafy environment. This adaptation occurs because frogs with better camouflage are more likely to survive predator attacks and reproduce, passing on their color traits to offspring. Over many generations, natural selection has favored frogs whose skin color matches their habitat.

## Core Science Concepts

1. Adaptation: Physical features that help animals survive in their environment, like the frog's green skin color matching leaves
2. Camouflage: A survival strategy where animals blend into their surroundings to hide from predators or prey
3. Habitat Requirements: Frogs need moist environments because they breathe partially through their skin
4. Predator-Prey Relationships: The frog's camouflage helps it avoid being eaten while also helping it catch insects

### Pedagogical Tip:

Use the "I Notice, I Wonder, It Reminds Me Of" thinking routine to help students make detailed observations before jumping to explanations. This builds their scientific observation skills.

### UDL Suggestions:

Provide magnifying glasses or zoomed-in images for students who need visual support, and encourage students to use gestures or drawings to express their observations about camouflage.

## Zoom In / Zoom Out

1. Zoom In: At the cellular level, specialized cells called chromatophores contain pigments that give the frog its green color. These cells can sometimes change the amount of pigment to adjust the frog's coloration.
2. Zoom Out: This frog is part of a larger rainforest ecosystem where camouflage is common among many species. The entire food web depends on these predator-prey relationships, and the frog serves as both predator (eating insects) and prey (for birds and snakes).

### Discussion Questions

1. What advantages does the frog's green color give it in this environment? (Bloom's: Analyze | DOK: 2)
2. How might this frog's survival change if it lived in a desert instead of a forest? (Bloom's: Evaluate | DOK: 3)
3. What other animals can you think of that use camouflage, and how does their camouflage match their habitat? (Bloom's: Apply | DOK: 2)
4. If you were designing a robot frog for this environment, what features would you give it and why? (Bloom's: Create | DOK: 3)

### Potential Student Misconceptions

1. Misconception: Frogs can change color on purpose like chameleons.  
Clarification: Most frogs cannot actively change their color; they are born with colors that match their habitat.
2. Misconception: The frog chose to be green to hide better.  
Clarification: Individual animals don't choose their traits; these develop through natural selection over many generations.
3. Misconception: All frogs are green.  
Clarification: Frogs come in many colors depending on their habitat - some are brown, red, or even brightly colored to warn predators.

### Cross-Curricular Ideas

1. ELA - Animal Adaptation Stories: Students write a short fictional story from the frog's perspective, describing how its green color helps it survive in the forest. They could use descriptive language to paint a picture of the frog's daily life hiding on leaves and catching insects.
2. Math - Camouflage Patterns and Measurement: Students measure the length of different leaves in the classroom or schoolyard, then compare them to the size of a tree frog. They could create a bar graph showing the sizes of various leaves and estimate how many frogs could fit on each one.
3. Art - Camouflage Collage: Students create their own camouflaged animal using colored paper, markers, and natural materials (leaves, twigs, grass). They design an animal that would blend into a specific habitat like a forest, desert, or ocean, explaining their color and pattern choices.
4. Social Studies - Rainforest Communities: Students research where tree frogs live around the world and locate these rainforests on a map. They can learn about the people and cultures living in rainforest regions and discuss why protecting these habitats is important for both animals and humans.

### STEM Career Connection

1. Wildlife Biologist: Wildlife biologists study animals like frogs in their natural habitats. They observe how animals survive, what they eat, and how they interact with their environment. Some wildlife biologists help protect endangered animals and their homes. Average Salary: \$68,000
2. Zookeeper: Zookeepers care for frogs and other animals in zoos and wildlife centers. They feed the animals, clean their habitats, and help visitors learn about them. Many zookeepers also help breed endangered frogs to protect them from extinction. Average Salary: \$32,000

3. Environmental Engineer: Environmental engineers design and build ways to protect animal habitats and keep nature healthy. They might create wetlands for frogs to live in, or design systems to keep forests and water sources clean. Average Salary: \$96,000

### NGSS Connections

- Performance Expectation: 3-LS4-3: Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
- Disciplinary Core Ideas: 3-LS4.C - Environmental changes affect organisms, 3-LS4.D - Variation of traits over time
- Crosscutting Concepts: Cause and Effect, Structure and Function
- Science Practice: Constructing explanations and designing solutions

### Science Vocabulary

- \* Adaptation: A special feature that helps an animal survive in its home.
- \* Camouflage: When an animal's colors or patterns help it blend in and hide.
- \* Predator: An animal that hunts and eats other animals.
- \* Prey: An animal that gets hunted and eaten by other animals.
- \* Habitat: The natural place where an animal lives and finds everything it needs.
- \* Environment: All the living and non-living things around an organism.

### External Resources

Children's Books:

- What Color Is Camouflage? by Carolyn Otto
- Frog and Toad Are Friends by Arnold Lobel
- The Magic School Bus Hops Home: A Book About Animal Habitats by Patricia Relf