

## Photo Description



This image shows a dove or pigeon resting on the ground among dried leaves and twigs. The bird has soft gray and brown feathers with darker stripes on its wings and back. Its round black eye and small dark beak are clearly visible as it sits quietly in what looks like a natural forest floor setting.

## Scientific Phenomena

The Anchoring Phenomenon illustrated here is animal camouflage and adaptation. This dove's coloring and pattern represent a survival strategy where the bird's feathers have evolved to blend with its environment. The muted browns, grays, and striped patterns help the bird become nearly invisible against fallen leaves, twigs, and forest debris. This camouflage occurs because over many generations, birds with better camouflage were more likely to survive and reproduce, passing these protective traits to their offspring.

## Core Science Concepts

1. Animal Adaptations: Physical features like feather color and patterns help animals survive in their environment by providing protection from predators.
2. Camouflage: Animals use coloring, patterns, and body shapes that match their surroundings to hide from both predators and prey.
3. Habitat Requirements: Birds need safe places to rest, nest, and find food, often choosing locations where their natural camouflage works best.
4. Inherited Traits: The dove's coloring is passed down from parent birds to their babies through genes, not learned behavior.

### Pedagogical Tip:

Use this image as a "Where's Waldo" style activity - have students point out exactly where the bird's colors and patterns match the background. This helps them actively observe rather than passively look.

### UDL Suggestions:

Provide magnifying glasses or zoomed-in image sections for students who need visual support, and allow students to trace the bird's outline with their finger to better distinguish it from the background.

## Zoom In / Zoom Out

1. Zoom In: At the microscopic level, the bird's feathers contain specialized cells called melanocytes that produce pigments (colors). These cells create the specific brown and gray patterns we see by depositing different amounts of melanin in each feather.

2. Zoom Out: This dove is part of a larger forest ecosystem where many animals use camouflage strategies. The forest floor provides habitat for countless species, and camouflage helps maintain the balance between predators and prey throughout the entire food web.

### Discussion Questions

1. What specific colors and patterns do you notice on this dove that help it blend with the forest floor? (Bloom's: Analyze | DOK: 2)
2. How might this dove's appearance be different if it lived in a snowy mountain environment instead of a forest? (Bloom's: Synthesize | DOK: 3)
3. Why do you think some birds have bright, colorful feathers while others like this dove have dull colors? (Bloom's: Evaluate | DOK: 3)
4. What other animals can you think of that use camouflage to survive, and how is their camouflage similar to or different from this dove's? (Bloom's: Compare | DOK: 2)

### Potential Student Misconceptions

1. Misconception: Animals can change their colors whenever they want to match their surroundings.  
Clarification: Most animals are born with their camouflage colors and cannot change them. Only a few special animals like chameleons can change colors.
2. Misconception: Animals choose to have camouflage colors.  
Clarification: Animals inherit their colors from their parents through genes. They don't choose their appearance any more than you choose your eye color.
3. Misconception: Camouflage only helps animals hide from enemies.  
Clarification: Camouflage helps both prey animals hide from predators AND helps predator animals sneak up on their prey.

### Cross-Curricular Ideas

1. ELA - Writing Connection: Have students write a "day in the life" narrative from the dove's perspective, describing how its camouflage helps it survive throughout the day. Students can practice descriptive writing by using sensory words to describe the forest floor environment.
2. Math - Data and Graphing: Create a class chart showing different animals and their camouflage colors. Students can sort animals by habitat (forest, desert, snow, ocean) and graph which colors appear most often in each environment. This reinforces sorting, categorizing, and basic data representation skills.
3. Art - Pattern and Design: Have students create their own camouflage patterns using natural materials (leaves, twigs, soil, bark) on paper or fabric. They can design patterns for imaginary animals living in different habitats (rainforest, desert, arctic), combining art with scientific thinking about how environments shape animal appearance.
4. Social Studies - Conservation Connection: Research and discuss why protecting forest habitats is important for birds like doves. Students can learn about local wildlife conservation efforts in their community and how habitat loss affects camouflaged animals that depend on specific environments to survive.

### STEM Career Connection

1. **Biologist/Wildlife Scientist:** Wildlife biologists study animals like doves in their natural habitats to understand how they survive and adapt. They observe camouflage, migration patterns, and eating habits to help protect endangered species. This job involves a lot of outdoor fieldwork, photography, and research. Average Annual Salary: \$65,000 - \$75,000
2. **Zookeeper:** Zookeepers care for animals in zoos and wildlife centers, including birds. They study animal behavior, create habitats that match natural environments, and educate visitors about adaptations like camouflage. They use their knowledge of animal needs to keep animals healthy and safe. Average Annual Salary: \$28,000 - \$35,000
3. **Nature Photographer/Documentary Filmmaker:** Nature photographers and filmmakers capture images and videos of wild animals in their habitats, often specializing in documenting camouflage and survival strategies. Their work teaches people about animal adaptations and helps protect wildlife by showing how amazing nature is. Average Annual Salary: \$45,000 - \$70,000

### 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 and habitats, 3-LS4.B - Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving
- Crosscutting Concepts: Cause and Effect, Structure and Function

### Science Vocabulary

- \* **Camouflage:** Colors and patterns that help an animal blend in with its surroundings to hide.
- \* **Adaptation:** A special feature that helps an animal survive in its environment.
- \* **Habitat:** The natural place where an animal lives and finds everything it needs to survive.
- \* **Inherited trait:** A characteristic passed down from parent animals to their babies.
- \* **Predator:** An animal that hunts and eats other animals.
- \* **Environment:** All the living and non-living things that surround an animal in its habitat.

### External Resources

Children's Books:

- What Do You Do With a Tail Like This? by Steve Jenkins and Robin Page
- Hiding in Plain Sight: Animals That Are Hard to See by Diane Swanson
- Animal Camouflage by Janet McDonnell