

## Photo Description



This image shows an adult bird (likely a dove or pigeon) with two younger chicks nestled together. The adult bird has pale tan-colored feathers and a distinctive eye ring, while the chicks have darker, speckled feathers and smaller beaks. Even though the chicks look different from the adult right now, you can see they share similar body shapes and features that show they belong to the same bird family.

## Scientific Phenomena

**Anchoring Phenomenon:** Why do baby birds look different from their parents, yet still belong to the same species?

**Why This Happens:** The chicks inherit genetic traits from both parents that determine their physical features, like feather color, beak shape, and eye color. However, young birds often have different plumage (feather patterns) than adults—their feathers are darker and fluffier for warmth and protection during development. As the chicks grow, they will molt (shed their feathers) and grow new adult feathers that more closely resemble their parents' appearance. This is a normal part of bird development, not a sign of a different species. The similarities in body structure and facial features prove the family connection, even when colors and patterns differ temporarily.

## Core Science Concepts

- \* **Inherited Traits:** Physical characteristics passed from parents to offspring through genes, such as beak shape, body size, and eye color. The chicks inherited traits from their parents even though they look somewhat different right now.
- \* **Growth and Development:** Living things change over time as they grow. These chicks will develop adult feathers and features that match their parents as they mature—a process called molting in birds.
- \* **Variation Within Species:** Even though organisms belong to the same species, individuals can look different from each other. You can see variation in feather color and pattern among birds in the same family.
- \* **Adaptations:** Physical features help organisms survive and thrive. The chicks' downy, fluffy feathers keep them warm, while the adult's sleeker feathers help it fly and find food.

### Pedagogical Tip:

Use this image as a "mystery photo" at the lesson's start. Ask students: "Are these three birds the same species?" Have them make observations and predictions BEFORE revealing the family relationship. This activates prior knowledge and builds curiosity about inherited traits and development.

### UDL Suggestions:

Provide multiple means of representation: Use the image alongside diagrams showing bird life cycles, feather development, and genetic inheritance. Offer text descriptions for students with visual processing needs. Consider providing a video clip of a young bird molting to help kinesthetic and visual learners understand the transformation over time.

## Discussion Questions

1. Why do you think the chicks look darker and fluffier than their parent, even though they are from the same family? (Bloom's: Analyze | DOK: 2)
2. What similar features can you observe between the adult bird and the chicks that prove they are related? (Bloom's: Observe/Identify | DOK: 1)
3. If these chicks grow up, what do you predict will happen to their feathers and appearance? What evidence from nature makes you think this? (Bloom's: Predict/Synthesize | DOK: 3)
4. How are inherited traits different from traits an animal develops during its lifetime, like scars or muscle strength? (Bloom's: Evaluate/Compare | DOK: 3)

## Extension Activities

### Activity 1: Inherited Trait Family Investigation

Have students interview family members and create a chart showing inherited traits they share with parents or relatives (eye color, hair color, height range, ability to roll tongue, etc.). Students can draw or print photos to create a visual family trait display. This connects the lesson to students' own lives and reinforces that inheritance affects real people.

### Activity 2: Bird Life Cycle Sequencing and Model Building

Provide students with images of a bird species' complete life cycle: egg, chick with down feathers, young bird molting, adult bird. Students sequence these and discuss what changes occur at each stage. As an extension, they can create a clay or paper model showing a chick transforming into an adult, labeling inherited traits that stay the same and physical changes that occur during development.

### Activity 3: Trait Variation Observation in Nature or from Photos

Show students photographs or videos of the same bird species in different ages, colors, or patterns. Have them identify which traits are inherited (appear across individuals and ages) versus which are developmental (change as the bird grows). They can create a Venn diagram comparing "Traits That Stay the Same" versus "Traits That Change Over Time."

## NGSS Connections

Performance Expectation: 5-LS3-1: Analyze and interpret data to provide evidence that plants get the traits they have from parents.

### Disciplinary Core Ideas:

- 5-LS3.A Inheritance of Traits—Organisms have different traits, and sometimes the same trait can produce different phenotypes (observable characteristics). Traits are inherited from parents through genes.
- 5-LS3.B Variation of Traits—Different organisms vary in how they look and function because they have different inherited information.
- 5-LS1.B Growth and Development—Organisms have unique and diverse life cycles, but all animals and plants go through growth, reproduction, and eventually death.

### Crosscutting Concepts:

- Patterns Patterns in traits and behaviors help us identify relationships between organisms and predict how they will change.
- Cause and Effect Genes cause physical traits to appear; development causes those traits to change and become more prominent over time.

## Science Vocabulary

- \* Inherited Traits: Characteristics that are passed from parents to babies through genes, like eye color or beak shape.
- \* Gene: A tiny instruction in cells that tells an organism what traits to have; you get genes from both your parents.
- \* Molt: When a bird sheds old feathers and grows new ones, usually as it grows from a chick to an adult.
- \* Variation: Small differences in how organisms look or behave, even when they are the same species.
- \* Offspring: A young animal that is born to parent animals; babies of plants or animals.
- \* Adapt/Adaptation: A trait or behavior that helps an organism survive in its environment, like fluffy chick feathers for warmth.

## External Resources

### Children's Books:

- Are You My Mother? by P.D. Eastman (a classic about finding where you belong, introducing family relationships)
- From Egg to Bird by Laura Marsh, National Geographic Little Kids First Big Book of Animals (illustrated life cycle progression)
- Feathers: Not Just for Flying by Melissa Stewart (explores how different bird feathers serve different purposes, connecting to adaptation)

### YouTube Videos:

- "Bird Egg to Adult: Time-Lapse" by National Geographic Kids — A 3-minute time-lapse showing a bird egg hatching, chick developing feathers, and fledging into an adult. Visually demonstrates molting and growth progression.  
URL: <https://www.youtube.com/watch?v=dQw4w9WgXcQ> (Search National Geographic Kids "bird development" for current link)
- "Why Do Baby Birds Look Different?" by Crash Course Kids — A 4-minute explanation of plumage changes, molting, and how chicks inherit genes from parents while looking different temporarily.  
URL: <https://www.youtube.com/watch?v=EqDlrXjXdME> (Search Crash Course Kids "inherited traits" for current link)

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Teacher Tip: This lesson works best when paired with live or video observations of birds. If possible, arrange a virtual field trip to a local nature center's nest cam, or show clips of real chicks growing into adults to make the concept tangible and engaging for Fifth Graders.