

## Photo Description



This image shows a bright pink flower with a long, thin structure sticking up from its center that has yellow dust-like particles and round balls at the tip. The colorful petals and the special center part help the flower make seeds and attract insects and animals that help it grow.

## Scientific Phenomena

Anchoring Phenomenon: Why do flowers have colorful petals and sticky, dusty parts in the middle?

Flowers are structured this way to attract pollinators—*insects, birds, and other animals*—that help plants reproduce. The bright pink petals catch the attention of pollinators, while the stamen (the male part shown in the photo with the yellow pollen) produces pollen grains. When pollinators visit the flower to drink nectar or collect pollen for food, pollen sticks to their bodies and gets transferred to other flowers. This process, called pollination, allows plants to create seeds and make new plants. The round structures at the tip of the stamen will eventually develop into seeds if pollination is successful.

## Core Science Concepts

1. Flower Parts Have Different Jobs: Flowers have multiple parts, each with a specific function. The petals attract pollinators, the stamen produces pollen, and the pistil (female part) receives pollen to make seeds.
2. Pollination is Essential for Plant Reproduction: Plants depend on pollinators—*bees, butterflies, hummingbirds, and wind*—to move pollen between flowers so seeds can form and new plants can grow.
3. Adaptation and Structure: The bright colors, sweet smell, and nectar of flowers are adaptations that have evolved to attract the specific animals that pollinate them most effectively.
4. Interdependence in Ecosystems: Flowers and their pollinators have a mutually beneficial relationship; plants provide food (nectar and pollen), and animals help plants reproduce.

### Pedagogical Tip:

Use the "flower dissection" approach cautiously with third graders. Rather than cutting flowers, have students use hand lenses to observe the stamen and pistil *in situ*. This preserves wonder, allows repeated observation, and prevents student frustration with delicate structures. You might bring in extra flowers specifically for careful disassembly, modeling how to gently separate petals and identify parts before students try independently.

### UDL Suggestions:

Provide multiple means of representation by offering: (1) a large, labeled diagram of flower parts that students can reference; (2) real flowers to observe directly with hand lenses; and (3) a digital animation showing how pollen moves from flower to flower. For engagement, allow students to choose how they document their observations: drawing, writing, or dictating to a peer or adult. This honors diverse learning preferences and language levels.

## Discussion Questions

1. What do you think the yellow, dusty powder (pollen) on the stamen is used for? (Bloom's: Infer | DOK: 2)
2. Why do you think flowers are so colorful and pretty instead of being plain green like leaves? (Bloom's: Evaluate | DOK: 3)
3. If there were no bees or butterflies to visit flowers, what might happen to the plants? (Bloom's: Analyze | DOK: 2)
4. How do you think the pollen gets from one flower to another flower that might be far away? (Bloom's: Create | DOK: 3)

## Extension Activities

1. Flower Observation Station: Set up a table with 2–3 different types of real flowers (roses, tulips, hibiscus, sunflowers) and hand lenses. Students rotate through, sketching the flowers and labeling the stamen, petals, and pistil using a provided diagram. Record observations: What colors do you see? Do all flowers smell the same? How many petals does each flower have?
2. Pollinator Simulation Game: Create a classroom activity where students act as pollinators. Give each student a small paintbrush or cotton swab and dust one flower model with washable paint or powder. Students "visit" other flower stations around the room, transferring the dust between flowers. Afterward, discuss what they learned about how pollen moves and why it matters.
3. Flower Life Cycle Documentation: Have students plant fast-growing flowers (like zinnias or marigolds) in small pots or a class garden bed. Over 4–6 weeks, have them photograph and sketch the progression from seed to sprouting, flowering, and pollination. Create a visual timeline showing the stages and predict when seeds will develop.

## NGSS Connections

Performance Expectation:

3-LS1-1: Develop models to describe that organisms have unseen parts that perform specific functions necessary for survival.

Disciplinary Core Ideas:

- 3-LS1.A (Structure and Function): Students learn that flowers have specialized parts that perform distinct functions in reproduction.
- 3-LS4.C (Adaptation): Students explore how flower structures (colors, shapes, scents) are adaptations that attract pollinators.

Crosscutting Concepts:

- Structure and Function: Understanding that a flower's form (bright petals, pollen-producing stamen) directly supports its function (attracting pollinators and reproducing).
- Systems and System Models: Recognizing that flowers are part of larger ecosystems where plants and pollinators interact.

## Science Vocabulary

\* Stamen: The male part of a flower that makes yellow pollen (the dusty powder).

\* Pollen: Tiny grains of dust made by flowers that help make new seeds.

\* Pollinator: An animal like a bee or butterfly that carries pollen from flower to flower.

\* Petals: The colorful leaves of a flower that help attract pollinators.

- \* Pistil: The female part of a flower that catches pollen and makes seeds.
- \* Adaptation: A special feature or behavior that helps a plant or animal survive and do well in its environment.

### External Resources

Children's Books:

- The Reason for a Flower by Ruth Heller (beautifully illustrated explanation of flower reproduction)
- From Seed to Plant by Gail Gibbons (clear diagrams and accessible text about plant life cycles)
- Flowers by Ology (part of the Ology series; engaging, interactive information)

YouTube Videos:

- "How Plants Make Seeds" by Crash Course Kids — A 4-minute, kid-friendly video explaining pollination and seed formation with clear animations. URL: [https://www.youtube.com/watch?v=YDr\\_-wB1vf4](https://www.youtube.com/watch?v=YDr_-wB1vf4)
- "The Incredible Journey of the Pollen Grain" by National Geographic Kids — A 3-minute animated short about how pollen travels from flower to flower, visually engaging for third graders. URL: <https://www.youtube.com/watch?v=cjP2ZsHD5C0>

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Teacher Notes: This lesson builds on third graders' natural curiosity about nature and aligns with their developing ability to understand how organisms depend on each other. Use the real flower image and hands-on activities to anchor abstract concepts like pollination. Encourage outdoor observation of real flowers and insects to deepen understanding and foster environmental stewardship.