

## Photo Description



This flower shows two different colors on the same plant—bright pink petals on the outside and a yellow center with dark red stamens. The flower is surrounded by green leaves and other smaller flowers in a garden. Scientists can see how flowers come in many different colors, shapes, and patterns, even when they are the same type of plant!

## Scientific Phenomena

**Anchoring Phenomenon:** Why does this flower have two different colors?

This flower displays natural variation in traits—a foundational concept in heredity and genetics. The pink petals and yellow center with burgundy stamens are predetermined by the plant's genes (the instructions that tell a plant what to look like). Different parts of the flower receive different genetic instructions, just like how some people have brown eyes and others have blue eyes. This is not a mutation in the traditional sense, but rather an example of distinct coloration patterns that are normal and intentional in this flower variety. The color difference helps attract pollinators (like bees and insects) to the flower so they can help the plant make seeds.

## Core Science Concepts

1. **Traits and Variation:** Living things have different characteristics (traits) like color, size, and shape. No two flowers are exactly alike, even on the same plant.
2. **Plant Parts Have Different Functions:** Different parts of a flower have different jobs. The colorful petals attract insects, while the yellow center (stamens and pistil) are the parts that make seeds.
3. **Patterns in Nature:** Flowers often have patterns—like this one with pink outer petals and a yellow center. These patterns help us identify and classify plants.
4. **Adaptation and Survival:** Bright colors help flowers attract pollinators (insects and other animals) that help the plant reproduce and survive.

### Pedagogical Tip:

For First Grade learners, use the "Notice, Wonder, Investigate" routine. Start by asking students what they NOTICE about the flower (colors, shapes, parts), then what they WONDER about it (Why is it pink AND yellow? Who visits this flower?). This builds observational skills before diving into explanations. Avoid heavy genetics terminology; instead use simple words like "instructions" or "plant recipes."

### UDL Suggestions:

**Multiple Means of Representation:** Provide close-up photos, a real flower (if possible), and a simple diagram with labels. Some students may learn better by touching real petals or examining the flower with a magnifying glass.

**Multiple Means of Action & Expression:** Allow students to draw the flower, use colored blocks to show the pattern, or sort flower pictures by color rather than requiring only one type of response.

**Multiple Means of Engagement:** Connect to student interests: "Do you like pink or yellow better? Why do you think this flower has BOTH colors?"

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### Discussion Questions

1. What colors do you see on this flower, and where are they? (Bloom's: Remember | DOK: 1)
2. Why do you think this flower might have a bright yellow center in the middle? (Bloom's: Analyze | DOK: 2)
3. If a bee visits this flower, what do you think it might be looking for? (Bloom's: Infer | DOK: 2)
4. Look at other flowers in the garden. What do they have in common with this pink flower, and how are they different? (Bloom's: Compare | DOK: 3)

### Extension Activities

1. Flower Color Sorting Walk: Take students on a nature walk or show pictures of flowers in different colors. Have them sort by color into groups, then count which color appears most often. This builds observation and data skills.
2. Design Your Own Flower: Provide colored paper, markers, and craft supplies. Ask students to create their own flower with two or more colors, just like the zinnia in the photo. Have them explain why they chose those colors and where they put them.
3. Pollinator Hunt: Place the flower photo in the classroom. Over several days, ask students to find and draw or collect pictures of insects (real or from magazines) that might visit this flower. Create a class chart: "What visits our flower?"

### NGSS Connections

Performance Expectation: 1-LS1-1 - Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.

Disciplinary Core Ideas:

- 1-LS1.A - Structure and Function (flower parts help with pollination)
- 1-LS3.A - Inheritance of Traits (organisms have traits; some traits are passed down)

Crosscutting Concepts:

- Patterns - Colors and shapes follow patterns in nature
- Structure and Function - Different flower parts have different purposes

### Science Vocabulary

- \* Trait: A characteristic or feature of a living thing, like its color, size, or shape.
- \* Petals: The colorful leaf-like parts of a flower that we see first.
- \* Stamens: The yellow parts in the center of a flower that make pollen.
- \* Pollinator: An animal (like a bee or butterfly) that carries pollen from flower to flower to help plants make seeds.
- \* Variation: Differences between living things, even when they are the same kind.
- \* Pattern: A repeated design or arrangement of colors, shapes, or parts.

### External Resources

Children's Books:

- Flowers by Loretta Holland (National Geographic Little Kids)
- The Tiny Seed by Eric Carle
- From Seed to Plant by Gail Gibbons

YouTube Videos:

- "Why Are Flowers Colorful?" - Crash Course Kids (2:36)

<https://www.youtube.com/watch?v=vhV-r8B1gfE>

A simple explanation of how flower colors attract pollinators and help plants survive.

- "Parts of a Flower" - National Geographic Kids (3:15)

<https://www.youtube.com/watch?v=s-fUC7nKNhI>

Animated introduction to flower structure with clear visuals for young learners.

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Teacher Notes: This lesson emphasizes observable traits and natural variation—the foundation for later genetics learning. Use the flower as a real-world anchor to make abstract ideas concrete. Encourage curiosity and observation above memorization at this grade level!