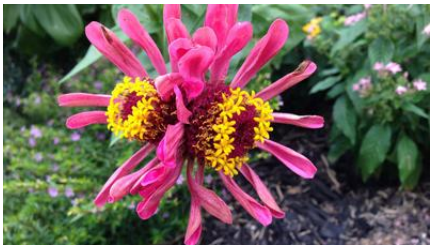
Genetic Mutation

Life Science | Lesson Guide

Kindergarten

Photo Description



This bright pink flower has long petals around the outside and a big, yellow center full of bumpy parts. You can see many smaller pink flowers growing nearby in the garden. The flower shows us how plants can have different colors and interesting patterns that help bees and bugs find them.

Scientific Phenomena

Anchoring Phenomenon: Why do flowers have different colors and patterns?

This flower displays color variation and structural diversity in plant parts. Scientifically, the bright pink petals and contrasting yellow center exist because of pigments (colored chemicals) in the plant's cells. The flower has evolved these bright colors to attract pollinators like bees and butterflies, which help the plant make seeds. The bumpy yellow center (stamens and pistils) contains the flower's reproductive parts. This is a perfect example of adaptation—how plants change their appearance to survive and reproduce in their environment.

Core Science Concepts

* Plant Parts Have Different Jobs: Flowers have petals (colorful), stamens (yellow bumpy parts), and other structures that each do something special. The bright colors help attract insects.

* Colors Come from Nature: Flowers make their own colors using special materials inside their cells. Different plants make different colors to stand out in gardens and nature.

* Patterns Help Living Things: The pink-and-yellow pattern isn't random—it helps insects find the flower so they can carry pollen and help make new plants.

* Plants Grow in Communities: This flower grows among many others of different colors and sizes, showing how gardens and nature have lots of variety.

Pedagogical Tip:

For Kindergarteners, focus on direct observation and sensory exploration. Ask children to notice colors, count petals, and describe what they see BEFORE explaining why. This builds their observation skills and keeps them engaged. You might say, "Let's look really carefully. What colors do you see?" rather than jumping to explanations of pollination.

UDL Suggestions:

Multiple Means of Representation: Provide real flowers (or high-quality images) for students who need tactile or visual support. Use color-coded charts showing flower parts (pink = petals, yellow = center). Multiple Means of Engagement: Allow students to draw flowers, sort flower pictures by color, or act out being a bee visiting flowers. Multiple Means of Expression: Let students show understanding through drawing, verbal descriptions, or arranging flower pictures—not just written work.

Discussion Questions

1. What colors do you see in this flower? Why do you think flowers might have bright colors? (Bloom's: Understand | DOK: 2)

2. How is this pink flower the same as other flowers you've seen, and how is it different? (Bloom's: Analyze | DOK: 2)

3. If this flower didn't have its yellow center, what do you think might happen? (Bloom's: Evaluate | DOK: 3)

4. What do you think visits this flower, and why would they come? (Bloom's: Analyze | DOK: 2)

Extension Activities

1. Flower Color Sorting: Bring in pictures or real flowers of different colors. Have students sort them by color families (pinks, yellows, purples, etc.). Ask them to notice what colors are in their garden or neighborhood. This builds observation and categorization skills.

2. Create a Flower Collage: Provide tissue paper, construction paper, and natural materials. Have students tear or cut pieces to create their own flower with petals and a center. Encourage them to choose colors they like and talk about why they picked those colors.

3. Bee Visitor Game: Act out being a bee visiting flowers. Hide small objects (pollen) in flower pictures around the classroom. Students "fly" to flowers and collect pollen, learning how pollinator movement helps plants. Connect this to the idea that pretty flowers attract helpful visitors.

NGSS Connections

Performance Expectation:
K-LS1-1: Use observations to describe patterns of what plants need to grow.

Disciplinary Core Ideas:
* K-LS1.A (Structure and Function: Plants have parts that help them grow and survive)

Crosscutting Concepts:
* Patterns (Flowers show patterns in color and structure)
* Structure and Function (Different flower parts do different jobs)

Science Vocabulary

* Petal: The colorful leaf-like parts of a flower that you can see on the outside.

* Center (or Stamen): The bumpy yellow part in the middle of the flower where seeds start to grow.

* Pollinator: An animal like a bee or butterfly that visits flowers and helps them make new plants.

* Flower: A special plant part that is usually colorful and pretty and helps make new seeds.

* Pattern: A repeating design or arrangement, like pink petals around a yellow center.

External Resources

Children's Books:
The Reason for a Flower* by Ruth Heller (explores why flowers are colorful and why insects visit them)

Planting a Rainbow* by Lois Ehlert (shows flowers in different colors growing in a garden)
From Seed to Plant* by Gail Gibbons (illustrates how flowers become seeds)

YouTube Videos:
* "What Do Flowers Do?" by National Geographic Kids (2 min)—Simple, colorful explanation of flower parts and their jobs. https://www.youtube.com/watch?v=xmZfV0Yq0nA

* "Flowers and Bees" by Crash Course Kids (4 min)—Age-appropriate introduction to how flowers attract pollinators. https://www.youtube.com/watch?v=8s4v3-R-eLQ