

Photo Description



A big butterfly with black and yellow spots sits on a pink flower. The butterfly has long, thin parts on its head called antennae. The flower has bright pink petals around a yellow center.

Scientific Phenomena

This image demonstrates the anchoring phenomenon of pollination - a mutualistic relationship between flowering plants and pollinators. The butterfly is feeding on nectar from the flower using its proboscis (feeding tube), and in the process, pollen grains stick to its body. When the butterfly visits other flowers, it transfers this pollen, enabling plant reproduction. This co-evolutionary relationship has developed over millions of years, with flowers evolving bright colors and sweet nectar to attract pollinators, while butterflies developed specialized feeding structures to access this food source.

Core Science Concepts

1. Living things have needs - Both the butterfly and flower have basic needs that are met through their interaction
2. Animals and plants help each other - The butterfly gets food (nectar) while the plant gets help reproducing (pollination)
3. Body parts have special jobs - The butterfly's proboscis is designed for drinking nectar, while the flower's bright colors attract visitors
4. Plants make seeds - Flowers are the part of plants that help make new plants through pollination

Pedagogical Tip:

Use hand gestures and movement to help kindergarteners understand pollination. Have students pretend to be butterflies "flying" from flower to flower, picking up imaginary pollen on their hands and transferring it to the next flower.

UDL Suggestions:

Provide multiple ways for students to engage with this concept: use real flowers for observation, create butterfly crafts with moveable parts, and incorporate songs or chants about pollination to support different learning preferences and abilities.

Zoom In / Zoom Out

1. Zoom In: At the microscopic level, tiny pollen grains (containing male reproductive cells) stick to the butterfly's fuzzy body and legs through static electricity and physical contact. These grains contain the genetic material needed to fertilize the flower's eggs.
2. Zoom Out: This pollination interaction is part of a larger ecosystem web where multiple species of butterflies, bees, and other pollinators visit hundreds of different flowering plants, supporting biodiversity and food webs that sustain entire habitats and human food systems.

Discussion Questions

1. What do you notice about the butterfly's body parts? (Bloom's: Observe | DOK: 1)
2. How do you think the butterfly and flower help each other? (Bloom's: Analyze | DOK: 2)
3. What might happen if there were no butterflies to visit flowers? (Bloom's: Evaluate | DOK: 3)
4. Why do you think flowers have bright colors like this pink one? (Bloom's: Analyze | DOK: 2)

Potential Student Misconceptions

1. Misconception: "The butterfly is eating the flower"
Clarification: The butterfly drinks sweet nectar from inside the flower but doesn't hurt or eat the flower parts
2. Misconception: "Flowers are just pretty decorations"
Clarification: Flowers have an important job - they help plants make seeds to grow new plants
3. Misconception: "All butterflies look the same"
Clarification: There are many different types of butterflies with different colors, sizes, and patterns

Cross-Curricular Ideas

1. Math - Counting & Patterns: Count the petals on the pink flower and the spots on the butterfly's wings. Create patterns using different colored paper flower cutouts (pink, yellow, white) arranged in a repeating sequence. Students can also count how many butterflies visit flowers in a simple picture graph.
2. ELA - Storytelling & Writing: Read aloud *The Very Hungry Caterpillar* and have students act out the butterfly's journey. Create a simple class book where each student draws and dictates one sentence about what the butterfly might do next. Practice descriptive words by playing "I Spy" games using flower and butterfly pictures ("I see something with pink petals...").
3. Art - Nature Collage & Movement: Create butterfly and flower art using tissue paper, paint, and natural materials. Have students dance like butterflies moving from flower to flower, incorporating music and creative movement to embody the pollination process.
4. Social Studies - Community Helpers: Discuss how gardeners and farmers work with nature to grow plants. Talk about how people visit gardens and parks (like butterflies visit flowers) and help take care of nature in their communities.

STEM Career Connection

1. Botanist (Plant Scientist): A botanist studies plants and flowers to learn how they grow and what animals help them. They might work in gardens, farms, or nature centers, discovering new types of flowers and helping plants stay healthy. Average Annual Salary: \$65,000
2. Entomologist (Insect Scientist): An entomologist is a scientist who studies insects like butterflies. They learn about butterfly life cycles, where they live, and how they help flowers and gardens. They work in museums, nature centers, or universities. Average Annual Salary: \$68,000
3. Park Ranger or Naturalist: A park ranger helps protect nature and teaches people about animals and plants in parks and forests. They might show visitors butterflies and flowers, and help keep habitats safe for these creatures to live. Average Annual Salary: \$42,000

NGSS Connections

- Performance Expectation: K-LS1-1 Use observations to describe patterns of what plants and animals need to survive
- Disciplinary Core Ideas: K-LS1.C Organization for Matter and Energy Flow in Organisms
- Crosscutting Concepts: Patterns - Observable patterns in nature guide organization and classification

Science Vocabulary

- * Butterfly: A flying insect with colorful wings that drinks nectar from flowers
- * Nectar: Sweet liquid inside flowers that butterflies and other animals drink
- * Pollen: Tiny yellow powder that flowers make to create new plants
- * Antennae: Long, thin parts on a butterfly's head used for smelling and feeling
- * Petals: The colorful parts of a flower that attract butterflies and other visitors

External Resources

Children's Books:

- The Very Hungry Caterpillar by Eric Carle
- From Caterpillar to Butterfly by Deborah Heiligman
- Flowers Are Calling by Rita Gray