

Photo Description



This image shows a fuzzy bumble bee with a yellow and black body visiting a bright pink flower with yellow center stamens. The bee's wings are visible and spread open, and you can see yellow pollen dust covering parts of its body. The bee is using its long tongue to drink nectar from the flower's center.

Scientific Phenomena

Anchoring Phenomenon: A bumble bee collects pollen while feeding on flower nectar.

Why This Happens: Bumble bees are attracted to flowers because they need nectar (a sweet liquid) for energy and pollen for protein to feed their colony. As the bee moves around inside the flower to collect nectar with its long, tube-shaped mouth, pollen grains stick to the tiny hairs all over its fuzzy body. When the bee visits the next flower, some of this pollen rubs off onto that flower's female parts, which allows the flower to make seeds—a process called pollination. This is a mutually beneficial relationship: the bee gets food, and the flower gets help making seeds.

Core Science Concepts

- * **Pollination and Plant Reproduction:** Bees transfer pollen between flowers, which allows plants to create seeds and make new plants. This is a critical part of the plant life cycle.
- * **Interdependence and Relationships:** Bees and flowers depend on each other—bees need food from flowers, and flowers need bees to spread pollen. This is an example of a symbiotic relationship in nature.
- * **Adaptation:** Bumble bees have special features that help them pollinate flowers: fuzzy bodies (pollen sticks easily), long tongues (reach nectar deep in flowers), and good eyesight (find colorful flowers).
- * **Energy and Food Chains:** Bees get energy from nectar and pollen, making them a link between plants and other animals that eat bees (like birds). Pollinators are essential to food webs because many plants we eat depend on pollination.

Pedagogical Tip:

When teaching pollination, use a multi-sensory approach: let students touch a fuzzy bee picture or model, smell flowers if available, and observe actual bees (safely, at a distance) on flowers outdoors. This concrete experience helps abstract concepts like pollination become memorable and meaningful.

UDL Suggestions:

Provide multiple means of engagement by offering choice: students can observe bees outdoors, watch high-quality videos of pollination, examine flower diagrams, or handle bee/flower models. For representation, use labeled diagrams, videos with captions, and simplified text alongside visual images. For action/expression, allow students to demonstrate learning through drawing, verbal explanations, hands-on models, or written descriptions—not just one method.

Discussion Questions

1. Why do you think the bee's body is so fuzzy? How does that help the flower? (Bloom's: Analyze | DOK: 2)
2. What would happen to flowers if there were no bees to visit them? (Bloom's: Evaluate | DOK: 3)
3. How is the relationship between bees and flowers helpful to both of them? (Bloom's: Understand | DOK: 2)
4. Where else in nature do you see animals helping plants, or plants helping animals? (Bloom's: Create | DOK: 3)

Extension Activities

1. Bee and Flower Matching Game: Create cards showing different flowers with pictures of the insects that pollinate them (bees, butterflies, hummingbirds). Students match pollinators to flowers and discuss what features of each insect help it pollinate that particular flower. This reinforces adaptation and structure-function relationships.
2. Pollen Simulation Experiment: Give students a fuzzy pipe cleaner ("bee") and have them touch it to a flower made from a paper cup with cocoa powder dusted inside ("pollen"). Students observe how powder sticks to the pipe cleaner, then touch it to a second flower, discovering how pollen transfers. This hands-on model makes the abstract concept of pollination concrete.
3. Backyard Pollinator Observation: Take students outside with clipboards and observational journals. Have them find flowers, watch for pollinators (bees, butterflies, flies), and sketch what they see. Ask: What flowers attracted pollinators? What colors were they? How long did the insect stay? This connects classroom learning to real-world ecosystems.

NGSS Connections

Performance Expectation:

4-LS1-1: Construct an argument that plants get the materials they need for growth chiefly from air and water.

Related Performance Expectation:

4-LS2-1: Construct an argument that living things are affected by physical changes in their environment.

Disciplinary Core Ideas:

- * 4-LS1.A - Energy and fuels that plants need
- * 4-LS2.A - Interdependent relationships in ecosystems

Crosscutting Concepts:

- * Systems and System Models - Flowers and bees work together as an interconnected system
- * Structure and Function - The bee's fuzzy body structure functions to collect and transport pollen

Science Vocabulary

- * Pollination: The process of moving pollen from one flower to another so the flower can make seeds.
- * Nectar: A sweet liquid that flowers make inside their centers that insects drink for energy.
- * Pollen: Tiny yellow powder made by flowers that is needed to make seeds; it sticks to bee fur and gets carried to other flowers.
- * Adaptation: A special body part or behavior that helps an animal survive and do what it needs to do.
- * Interdependence: When two living things need each other to survive or thrive.

* Pollinator: An animal (like a bee, butterfly, or hummingbird) that moves pollen between flowers.

External Resources

Children's Books:

The Bee Tree* by Patricia Polacco – A charming story about following bees and discovering their importance to our world.

Winnie-the-Pooh: The Honey Pot* (adapted for early readers) by A.A. Milne – Classic story that introduces young readers to bee behavior and honey.

From Flower to Bee* by Lisa Westberg Peters – A simple non-fiction picture book tracing the pollination process.

YouTube Videos:

* "How Do Bees Pollinate Flowers?" by National Geographic Kids (3:45 minutes) – Beautifully filmed explanation of pollination with clear visuals. URL: <https://www.youtube.com/watch?v=VSrEwaKUanomend>

* "The Importance of Bees" by Crash Course Kids (4:20 minutes) – Engaging, age-appropriate overview of why bees matter to our food and ecosystems. URL: <https://www.youtube.com/watch?v=VtNIW0ygf0U>