

## Photo Description



This image shows a honeybee landing on a purple flower called a scabious. The bee has fuzzy hairs all over its body that are covered with yellow pollen (a fine powder from flowers). You can see the bee using its long mouth part to drink nectar, which is sweet juice inside the flower. The bee is doing an important job for both itself and the flower!

## Scientific Phenomena

**Anchoring Phenomenon:** A bee pollinating a flower through the transfer of pollen.

**Why This Happens:** Bees visit flowers to collect nectar (food) and pollen (protein). As the bee moves from flower to flower, pollen sticks to its fuzzy body. When the bee lands on another flower, some pollen rubs off onto that flower's female parts. This pollen helps the flower make seeds. This is a mutualistic relationship—the bee gets food, and the flower gets help making seeds. This process is called pollination, and it's essential for plants to reproduce and make fruits and vegetables that humans eat.

## Core Science Concepts

- \* **Pollination:** The process of moving pollen from one flower to another, which helps plants make seeds.
- \* **Plant-Animal Relationships:** Some animals and plants depend on each other. Bees need nectar and pollen for food, while flowers need bees to spread their pollen.
- \* **Plant Reproduction:** Flowers produce pollen and need it to travel to other flowers so they can create seeds and grow new plants.
- \* **Adaptations:** Bees have fuzzy bodies and long mouth parts (called a proboscis) that help them collect nectar and pollen. Flowers have bright colors and sweet nectar to attract bees.

### Pedagogical Tip:

Use the "bee's eye view" strategy: Have students imagine they ARE the bee visiting the flower. Ask them to describe what they see, smell, and taste. This perspective-taking activates curiosity and helps students understand the bee's role in pollination more deeply than memorization alone.

### UDL Suggestions:

**Multiple Means of Representation:** Provide the image alongside a large labeled diagram showing the bee's body parts and the flower's parts. Some students benefit from tactile models—consider using a fuzzy pipe cleaner (bee) and a real flower or flower model for students to physically demonstrate pollination.

**Multiple Means of Action & Expression:** Allow students to show understanding through drawing, acting out pollination, building a model with craft materials, or explaining verbally instead of writing only.

**Multiple Means of Engagement:** Connect pollination to foods students eat (apples, almonds, blueberries) to increase relevance and motivation.

### Discussion Questions

1. What do you think would happen to the flowers if there were no bees to visit them? (Bloom's: Analyze | DOK: 2)
2. Why does the bee's body have to be fuzzy? What would happen if it were smooth like a rock? (Bloom's: Analyze | DOK: 2)
3. Look at the flower's bright purple color. Why do you think flowers have bright colors? (Bloom's: Infer | DOK: 2)
4. How is the bee helping the flower, and how is the flower helping the bee? Is this fair to both? (Bloom's: Evaluate | DOK: 3)

### Extension Activities

1. Pollinator Tracking Walk: Take students outside to observe different flowers and insects (bees, butterflies, ants). Have them use clipboards to draw or tally which insects visit which flowers. Discuss patterns they notice.
2. Flower Dissection & Pollen Observation: Provide large, colorful flowers (lilies work well). Let students carefully pull apart petals and use magnifying glasses to find and observe the pollen on the flower's stamen (male part). They can draw what they see.
3. Bee Dance Simulation: Teach students about the "waggle dance" honeybees use to tell other bees where flowers are. Have students work in small groups to create their own dance movements to show classmates where a "flower" is located in the classroom. This makes the invisible communication visible!

### NGSS Connections

Performance Expectation:

3-LS1-1: Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.

Disciplinary Core Ideas:

- \* 3-LS1.B Growth and Reproduction of Organisms
- \* 3-LS4.C Adaptation

Crosscutting Concepts:

- \* Systems and System Models (flower and bee as a system)
- \* Structure and Function (bee's fuzzy body allows pollen to stick)

### Science Vocabulary

- \* Pollination: The movement of pollen from one flower to another to help the flower make seeds.
- \* Pollen: A fine, powdery substance made by flowers that helps them create seeds.
- \* Nectar: Sweet juice inside flowers that bees and other insects drink for energy.
- \* Adaptation: A special body part or behavior that helps an animal or plant survive and do its job.
- \* Proboscis: The long, straw-like mouth part that bees use to drink nectar from flowers.

## External Resources

### Children's Books:

The Bee Tree\* by Patricia Polacco (a story about a girl who follows bees to find honey and learns about flower-bee relationships)

Pollinators\* by Jacqueline Adams (National Geographic Little Kids, introduces different pollinators and their jobs)

Are You a Butterfly?\* by Judy Allen (engaging question-format book about insect life cycles)

### YouTube Videos:

\* "How Do Bees Make Honey?" - Nat Geo Kids - A 5-minute animated video showing the complete journey of a bee collecting nectar and pollen, and how it becomes honey. Accessible and engaging for third graders. <https://www.youtube.com/watch?v=PFp7L0pOWvA>

\* "The Amazing Dance of the Honeybee" - TED-Ed - A 4-minute explanation of how honeybees communicate the location of flowers through their waggle dance, with clear animations. <https://www.youtube.com/watch?v=AeQcxd4oHDg>