

## Photo Description



A small insect with orange and black coloring sits on a white daisy flower with a bright yellow center. The insect has long, thin legs and appears to be feeding or resting on the flower petals. This shows how insects and flowers work together in nature.

## Scientific Phenomena

The anchoring phenomenon shown here is pollination - the process where insects visit flowers to collect nectar or pollen for food, and accidentally transfer pollen between flowers. This happens because flowers produce sweet nectar that attracts insects, and as the insect moves around the flower to feed, pollen grains stick to its body. When the insect visits the next flower, some pollen rubs off, helping plants reproduce. This mutually beneficial relationship has evolved over millions of years.

## Core Science Concepts

1. Mutualistic Relationships: Both the insect and flower benefit - the insect gets food (nectar/pollen) while the flower gets help with reproduction through pollination.
2. Animal Behaviors for Survival: Insects exhibit feeding behaviors that help them obtain energy and nutrients needed for survival and growth.
3. Plant Reproduction: Flowers are plant reproductive structures that use colors, scents, and nectar to attract pollinators.
4. Interdependence in Ecosystems: Plants and animals depend on each other for survival - many plants need insects for pollination, while insects need plants for food.

### Pedagogical Tip:

Use the "Think-Pair-Share" strategy when introducing pollination. Have students first think individually about why insects might visit flowers, then discuss with a partner, and finally share ideas with the class. This builds understanding gradually.

### UDL Suggestions:

Provide multiple ways to represent pollination concepts: use physical gestures (students can "fly" like insects between flower stations), visual diagrams, and real flower/insect specimens or high-quality photos to accommodate different learning preferences.

## Discussion Questions

1. What do you think the insect is doing on the flower, and why? (Bloom's: Analyze | DOK: 2)
2. How might this flower be different if no insects ever visited it? (Bloom's: Evaluate | DOK: 3)

3. What features of the flower do you think attract insects? (Bloom's: Apply | DOK: 2)
4. If all the insects disappeared from an area, what might happen to the flowers? (Bloom's: Synthesize | DOK: 3)

### Extension Activities

1. Flower Investigation Station: Provide magnifying glasses and real flowers (lilies, sunflowers) for students to examine parts and look for pollen. Have them draw and label what they observe.
2. Pollinator Movement Simulation: Set up "flower stations" around the classroom with different colored paper flowers. Students act as pollinators, collecting small pieces of colored paper (pollen) that stick to cotton balls attached to their hands, transferring between flowers.
3. Design a Flower: Challenge students to create their own flower design that would attract pollinators, considering color, shape, and scent. Have them explain their design choices.

### NGSS Connections

Performance Expectation:

- 3-LS4-3: Construct an argument that some animals form groups that help members survive

Disciplinary Core Ideas:

- 3-LS2-1: Being part of a group helps animals obtain food, defend themselves, and cope with changes
- 3-LS4-B: Environmental changes affect organisms and their habitats

Crosscutting Concepts:

- Cause and Effect: Students can identify that insects visiting flowers causes pollination
- Systems and System Models: The flower-insect relationship is part of larger ecosystem interactions

### Science Vocabulary

- \* Pollination: When pollen moves from one flower to another to help plants make seeds
- \* Nectar: Sweet liquid that flowers make to attract insects
- \* Pollen: Tiny yellow powder that flowers need to make new plants
- \* Attract: To make something want to come closer
- \* Reproduce: When living things make new babies or offspring
- \* Interdependence: When different living things need each other to survive

### External Resources

Children's Books:

- The Magic School Bus Plants Seeds by Joanna Cole
- The Reason for a Flower by Ruth Heller
- National Geographic Readers: Buzz, Bee! by Tori Kosara

YouTube Videos:

- "Pollination for Kids" by SciShow Kids - Simple explanation of how pollination works with animated examples (<https://www.youtube.com/watch?v=2OTlthzjKCQ>)
- "How Do Flowers Attract Pollinators?" by Crash Course Kids - Explores flower features that attract insects with real footage (<https://www.youtube.com/watch?v=BeCft4Ov6Ps>)