

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 antennae, and appears to be feeding on or exploring the flower's center where pollen and nectar are found.

Scientific Phenomena

The anchoring phenomenon shown is pollination in action. The insect is visiting the flower to collect nectar (a sugary liquid) for food. As it moves around the flower's center, pollen grains stick to its body. When the insect visits the next flower, some of this pollen will brush off, helping plants reproduce. This mutually beneficial relationship (mutualism) has evolved over millions of years - the plant provides food for the insect, and the insect helps the plant make seeds by transferring pollen between flowers.

Core Science Concepts

1. Plant and Animal Interactions: Animals and plants depend on each other for survival. Insects get food from flowers, while plants need insects to help them reproduce.
2. Plant Reproduction: Flowers contain the reproductive parts of plants. Pollen must move from one flower part to another (or to another flower) for seeds to form.
3. Behavioral Adaptations: Insects have developed behaviors like visiting flowers to find food sources, while plants have evolved colorful petals and sweet nectar to attract these helpful visitors.
4. Ecosystem Relationships: This interaction shows how organisms in an ecosystem depend on each other, creating food webs and supporting biodiversity.

Pedagogical Tip:

Use the "Think-Pair-Share" strategy when introducing pollination. Have students first observe the image individually, then discuss with a partner what they notice, and finally share observations with the class. This builds confidence and ensures all students participate in the scientific observation process.

UDL Suggestions:

Provide multiple ways for students to demonstrate their understanding of pollination: they could draw the process, act it out with movements, create a simple comic strip, or build a model using craft materials. This addresses different learning preferences and abilities while maintaining scientific accuracy.

Discussion Questions

- What do you think the insect is doing on the flower, and why is this important for both the insect and the plant? (Bloom's: Analyze | DOK: 2)
- How might the colors and shape of the flower help it attract insects? (Bloom's: Evaluate | DOK: 3)
- What would happen to plants if there were no insects to visit their flowers? (Bloom's: Synthesize | DOK: 3)
- What evidence can you see in the photo that shows the plant and insect helping each other? (Bloom's: Apply | DOK: 2)

Extension Activities

1. Pollinator Garden Design: Students research local flowers and pollinators, then design a garden layout on paper that would attract helpful insects. They can include drawings, plant names, and explanations of their choices.
2. Pollination Simulation: Using cotton swabs as "insects," students transfer colored powder (representing pollen) between artificial flowers made from paper plates and cups, observing how pollen sticks and transfers.
3. Insect Observation Journal: Students spend time outdoors observing real insects visiting flowers, recording their observations through drawings and simple data tables noting insect types, flower preferences, and behaviors.

NGSS Connections

- Performance Expectation: 5-LS2-1 (Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment)
- Disciplinary Core Ideas: 5-LS2.A (The Interdependent Relationships in Ecosystems)
- Crosscutting Concepts: Systems and System Models and Cause and Effect
- Science and Engineering Practices: Developing and Using Models, Engaging in Argument from Evidence

Science Vocabulary

- * Pollination: The process of moving pollen from one part of a flower to another so plants can make seeds.
- * Nectar: A sweet liquid that flowers make to attract insects and other animals.
- * Pollen: Tiny grains that contain the male parts needed for plants to reproduce.
- * Mutualism: A relationship where two different living things help each other survive.
- * Adaptation: A special feature or behavior that helps an organism survive in its environment.

External Resources

Children's Books:

- The Magic School Bus: Inside a Beehive by Joanna Cole
- The Reason for a Flower by Ruth Heller
- Flowers are Calling by Rita Gray

YouTube Videos:

- "Pollination for Kids" - Simple explanation of how bees and other insects help plants reproduce (<https://www.youtube.com/watch?v=GqA42M4RtxE>)
- "Why Do We Need Bees?" by SciShow Kids - Explores the importance of pollinators in ecosystems (<https://www.youtube.com/watch?v=dY7iATQVKOI>)