

## Photo Description



A small insect with orange and black colors sits on a white flower with a bright yellow center. The insect has long thin legs and antennae that help it move and sense its surroundings. The flower has many white petals arranged in a circle around the yellow middle part.

## Scientific Phenomena

The anchoring phenomenon shown is animal-plant interaction for survival needs. The insect is visiting the flower to obtain nectar, which provides energy and nutrients it needs to survive. This represents a mutualistic relationship where both organisms benefit - the insect gets food while potentially helping the plant by transferring pollen as it moves between flowers. This behavior demonstrates how animals have evolved specific structures (like the insect's mouthparts and legs) that help them obtain resources from their environment.

## Core Science Concepts

1. Animal Body Parts and Functions: The insect has specialized body parts including legs for walking, antennae for sensing, and mouthparts for feeding that help it survive in its environment.
2. Plant Structures: The flower has specific parts - petals to attract insects, and a nectar-rich center that provides food for visiting animals.
3. Basic Needs of Living Things: Both the insect and plant demonstrate how living things have needs (food, water, shelter) that must be met for survival.
4. Animal Behaviors: The insect exhibits feeding behavior by visiting flowers, showing how animals use behaviors to meet their survival needs.

### Pedagogical Tip:

When introducing insect body parts, use the "head, thorax, abdomen" structure but connect it to familiar concepts like "head for thinking and eating, middle for moving, back for digesting" to make it relatable to first graders.

### UDL Suggestions:

Provide multiple ways for students to explore this concept by offering magnifying glasses for visual learners, allowing tactile exploration with plastic insect models, and incorporating movement activities where students can "fly" like insects to different flower stations around the classroom.

### Zoom In / Zoom Out

**Zoom In:** Inside the flower's yellow center, there are tiny structures called stamens that produce yellow pollen dust. When you look very closely with a magnifying glass, you can see this pollen sticking to the insect's legs and body. The pollen grains are so small you can't see them with just your eyes—they're much, much tinier than a grain of sand! This pollen is what helps flowers make seeds.

**Zoom Out:** This single flower and insect interaction is part of a much larger pollinator network in gardens and natural areas. Flowers, insects, birds, and other animals all depend on each other in their community. When pollinators visit many flowers in an area, they help all those plants make seeds and fruits, which feeds birds, squirrels, and other animals. This creates a connected web of life where everyone depends on everyone else to survive.

### Discussion Questions

- What body parts does the insect use to move around on the flower? (Bloom's: Apply | DOK: 2)
- How do you think the insect's long legs help it when visiting flowers? (Bloom's: Analyze | DOK: 2)
- What would happen if flowers didn't have bright colors or sweet nectar? (Bloom's: Evaluate | DOK: 3)
- Why do you think the insect chose to visit this particular flower? (Bloom's: Analyze | DOK: 2)

### Potential Student Misconceptions

1. Misconception: "The insect is eating the flower."

Clarification: The insect is drinking the sweet juice (nectar) from inside the flower, not eating the flower petals themselves. The flower stays alive and healthy after the insect visits.

2. Misconception: "All insects on flowers are bad for plants."

Clarification: Some insects like this one help flowers by moving pollen around and making seeds. These insects are helpful friends to plants! (Note: Some insects do eat plants and can be harmful, but many are beneficial.)

3. Misconception: "The insect and flower have no connection to each other."

Clarification: The insect and flower need each other—the insect gets food from the flower, and the insect helps the flower make new flowers by spreading pollen. They are friends that help each other!

### Extension Activities

1. **Insect Body Parts Sorting:** Provide pictures of various insects and have students sort them by observable features (number of legs, presence of wings, body segments). Students can create a class chart showing common insect characteristics.
2. **Flower Investigation Station:** Set up a learning station with real flowers (or detailed pictures) where students use magnifying glasses to observe and draw different flower parts. Include flowers of different colors and shapes to discuss why variety might be important.
3. **Design an Insect:** Have students design their own insect using craft materials, focusing on what body parts their insect would need to get food, move around, and stay safe. Students can explain how each part helps their insect survive.

### Cross-Curricular Ideas

1. Math Connection: Create a flower petal counting activity where students count the white petals on different flowers (real or pictured) and compare amounts. Students can sort flowers by "more petals," "fewer petals," and record data on a simple chart or graph.
2. ELA Connection: Write or dictate a "day in the life" narrative from the insect's perspective. Prompt: "Tell the story of the insect visiting three different flowers to find food. What does it see, smell, and taste?" Students can illustrate their stories to create a class book.
3. Art Connection: Create a flower and insect collage using colorful tissue paper, construction paper, and natural materials. Students can design their own flowers with different petal arrangements and add insects they've observed or imagined visiting them.
4. Social Studies Connection: Discuss how gardeners and farmers depend on insects to grow food. Take a classroom walk around the school grounds (or view pictures) to spot pollinators and discuss how communities benefit from healthy gardens and natural spaces.

### STEM Career Connection

1. Beekeeper/Pollinator Manager: These scientists and farmers work with bees and other insects to help plants grow. They take care of bees, learn about which flowers the bees like best, and help make sure there are enough pollinators in gardens and farms so we can have fruits and vegetables to eat. Average salary: \$45,000–\$55,000 per year
2. Botanist (Plant Scientist): Botanists study plants and learn how they grow, what insects help them, and how to keep plants healthy. They might work in gardens, greenhouses, or research labs to discover new things about flowers and how insects visit them. Average salary: \$60,000–\$75,000 per year
3. Entomologist (Insect Scientist): These scientists study insects like the one in the photo! They learn about what insects eat, how they move, where they live, and how they help or hurt plants and people. Some entomologists help protect gardens from harmful insects while keeping helpful insects safe. Average salary: \$65,000–\$85,000 per year

### NGSS Connections

- Performance Expectation: 1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.
- Disciplinary Core Ideas: 1-LS1.A - All organisms have external parts that they use to perform daily functions
- Crosscutting Concepts: Structure and Function - The shape and stability of structures of natural and designed objects are related to their function

### Science Vocabulary

- \* Antennae: Special body parts on an insect's head that help it smell, feel, and hear things around it.
- \* Nectar: Sweet liquid inside flowers that insects and other animals like to eat.
- \* Petals: The colorful parts of a flower that help attract insects and other animals.
- \* Insect: A small animal with six legs, three body parts, and usually wings or antennae.
- \* Pollinator: An animal that helps plants make seeds by carrying pollen from flower to flower.

### External Resources

Children's Books:

- The Very Hungry Caterpillar by Eric Carle
- National Geographic Readers: Insects by Gail Tuchman
- From Caterpillar to Butterfly by Deborah Heiligman