
SYNOPSIS:

The insect is both a fascinating subject of study and a potential threat to our food supply. In this program we enter the tiny, complex kingdom of the insect to learn how chemicals in their bodies help them to communicate and adapt to their world. We also discover how this knowledge is leading to new, natural ways to control pests and why these controls are essential for the protection of our crops.

CURRICULUM UNITS:

Agriculture
Botany
Chemistry
Ecology
Entomology
Life Science

CAREER OPPORTUNITIES:

Agriculturist
Biologist
Biochemist
Botanist
Entomologist
Exterminator
Environmental Scientist
Ecologist
Forester
Horticulturist
Landscape

BACKGROUND INFORMATION**& PROGRAM OVERVIEW:**

Discover how insects use internally produced chemicals called Pheromones, and other methods, to communicate and sense the world about them. Familiar species such as honeybees, butterflies, moths, and aphids are shown, as well as some insects with which the audience may be unfamiliar, the pine shoot moth and brown plant hopper.

The program also explains how scientists' study of insect communication has helped them develop ways of controlling insect pests without harming beneficial insects. You might initiate a discussion about insects and the ways in which they can be helpful, and are even necessary, in maintaining nature's balance. What could happen, for instance, if in trying to destroy a pest eating our crops, we also destroy an insect that is needed to pollinate those crops?

ISSUES AND CRITICAL THINKING:

- 1) Talk about characteristics common to all insects. Discuss the lifestyles of some insects, including complete and incomplete metamorphosis.
- 2) What is an entomologist?
- 3) What can be learned by studying insects in their own environment? What are some ways this knowledge can be used?
- 4) Can the class think of any other ways insects communicate, besides using pheromones?
- 5) Discuss how other animals communicate. Do any of them use pheromones? How do they communicate alarm, territorial rights, or mating?
- 6) Talk about how to avoid being stung by bees or wasps; and what one should do if he/she is stung.
- 7) After watching the video, can students describe how pheromones are used to prevent pests from attacking plants? Check with the local agricultural extension about the insect pests that can affect plants in your area, and how they are controlled.
- 8) Have students collect and write poems about insects.
- 9) As a class project, investigate the varieties of plants that attract butterflies and determine which will grow in your vicinity. Plan and plant a school butterfly garden.

GLOSSARY:

Abdomen- One of the three parts of the body of an insect: head, thorax, abdomen.

Adapt- To change or adjust for a different use or situation.

Alarm Pheromone- A substance secreted by an animal that signals danger to others of its kind.

Antennae- A pair of flexible, thread-like appendages on the head of an insect, used for touch and smell.

Aphids- Small, soft-bodied insects which feed by sucking sap from plants

Brown Plant Hopper- An insect which feeds on and harms rice plants.

Drone- A stingerless male bee, especially honeybee, whose only work is to mate with and serve the queen bee.

Fungus- A spore-bearing organism, neither plant nor animal, that lacks chlorophyll and cannot make its own food. Examples are yeasts, molds, smuts and mushrooms.

Glands- Organs which remove materials from the blood, or secrete substances such as pheromones.

Pheromone- A chemical substance secreted by an animal that causes a particular response in other animals of the same species.

Pine Shoot Moth- An insect which lays its eggs in certain pines, causing their trunks to grow in a very crooked fashion.

Queen Been- The fertile female head of a bee colony.

Wonders of Biology – Animals,
Insects, Plants & Fungi



K4503DVD

INSECTS USING CHEMISTRY



TMW MEDIA GROUP

2321 Abbot Kinney Blvd., Venice, CA 90291

(310) 577-8581 Fax (310) 574-0886

Email: sale@tmwmedia.com

Web: www.tmwmedia.com

Producers & Distributors of Quality Educational Media