

How Insects Communicate

Lesson Plan

Grade Level: 6-8

Curriculum Focus: Insects

Lesson Duration: One class period

Student Objectives

- Investigate the various ways in which insects communicate
- Invent a “mouthless” language and use it to communicate

Materials

- Discovery School video on *unitedstreaming: Insects: Facts and Folklore, Inquiring Minds: Things with Wings* and *Beetlemania*
Search for this video by using the video title (or a portion of it) as the keyword.

Selected clips that support this lesson plan:

- Why Bugs Bug Us: Of Legs, Size, and Personal Space
- Busy Bees
- Say It and Spray It: Beetle Communication

- Research materials about insects
- A computer with Internet access

Procedures

1. Ask students to describe the kinds of sounds they have heard insects making. You might have them imitate a bee and a cricket.
2. Ask students how they made their “insect sounds.” Point out that although students were able to imitate insect sounds by using their mouths or throats, insects do not make sounds with either of those body parts.
3. Review with students what they know about insects. How do they make sounds? Make sure your students understand that insects make sounds in two ways – by moving their wings very quickly, as a bee or housefly does, or by rubbing their legs together, as a cricket or cicada does. (The term for an insect’s rubbing its legs together to make a buzzing or chirping sound is stridulation.)
4. Ask students if they can think of any examples of insects using sound for communication. One important example is bees guiding other bees to the hive, or nest.

5. Divide your class into small groups, asking each group to devise a method of communication using only sounds produced by using parts of their bodies other than their mouths.
6. When each group has devised its method, members should demonstrate what they have developed for the class.
7. While one member of each group is blindfolded, select a “hive” somewhere in the classroom. Then time how long it takes for the other members of each group to guide their blindfolded partner to the hive by using only their new method of mouthless communication.
8. When each group has made its attempt, discuss the advantages and disadvantages of this form of communication. Why is it better suited for insects than for humans?

Assessment

Use the following three-point rubric to evaluate students' work during this lesson.

- 3 points: group worked cooperatively; groups interacted constructively with the class as a whole; group members participated actively in post-activity discussion
- 2 points: group members worked satisfactorily together; group's interaction with the class as a whole was unsatisfactory; group members participated to some extent in post-activity discussion
- 1 point: group members were able to work together to some extent; group's interaction with the class as a whole was unsatisfactory; group members failed to participate in post-activity discussion

Vocabulary

angiosperm

Definition: A flowering plant.

Context: Angiosperms became very abundant at the end of the Jurassic period.

compound eye

Definition: An eye made up of many small separate visual units.

Context: Dragonflies have large compound eyes.

exoskeleton

Definition: An external, supportive, armorlike covering on an insect.

Context: Insects must shed their exoskeletons to grow.

insect

Definition: A member of a class of arthropods with a well-defined head, thorax, and abdomen, and only three pairs of legs.

Context: An adult insect usually has three body segments referred to as the head, thorax, and abdomen.

nectar

Definition: A sweet liquid that is secreted by flowering plants; the chief raw material of honey.

Context: The sugar content of nectar can vary from flower to flower.

pollen

Definition: A mass of microspores in a seed plant appearing usually as a fine dust.

Context: Pollen is produced in the male part of a flower.

Academic Standards

National Academy of Sciences

The National Science Education Standards provide guidelines for teaching science as well as a coherent vision of what it means to be scientifically literate for students in grades K-12. To view the standards, visit <http://books.nap.edu>.

This lesson plan addresses the following science standards:

- Life Science: Structure and function in living systems; diversity and adaptations of organisms

Mid-continent Research for Education and Learning (McREL)

McREL's Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education addresses 14 content areas. To view the standards and benchmarks, visit <http://www.mcrel.org/>.

This lesson plan addresses the following national standards:

- Science – Life Sciences: Knows about the diversity and unity that characterize life.
- Science – Life Sciences: Understands how species depend on one another and on the environment for survival.
- Science – Life Sciences: Understands the basic concepts of the evolution of species.

Support Materials

Develop custom worksheets, educational puzzles, online quizzes, and more with the free teaching tools offered on the Discoveryschool.com Web site. Create and print support materials, or save them to a Custom Classroom account for future use. To learn more, visit

- <http://school.discovery.com/teachingtools/teachingtools.html>