**Arizona Grown Specialty Crop Lesson Plan**

**LEVEL:** Grades K-3

**SUBJECTS:** Science, Language Arts, Math

**AZ ACADEMIC STANDARDS:** SC00-S1C1, SC00-S1C3, LS-R2, LS-R5, LS-F1, LS-F2, 1AV-R2, 1AV-F1, 1AV-F2, 1AV-F4

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**BRIEF DESCRIPTION**

Students learn two popular dances honeybees perform to communicate with other honeybees.

**OBJECTIVES**

The students will:
- understand how and why honeybees communicate within their society.
- practice the circle dance and the wag-tail dance.
- locate special treat bag according to honeybee communication.

**ESTIMATED TEACHING TIME**

1 class period (45 minutes)

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**MATERIALS**

One to two bags of treats (candy, cookies, honey sticks, raisins, etc.), several bags with odd items (paperclips, stapler, rubber bands, markers, etc.), yarn, two large poster papers, pen

**VOCABULARY**

hive, worker bee, forager bee, nectar, flower, receptors, feelers, Circle Dance, Wag-Tail Dance

**RELATED LESSONS**

How Busy are Bees? Buzzing Bee’s Wardrobe To Bee or Not to Bee Those Busy Buzz’n Worker Bees

**SUPPORTING INFORMATION**

When a worker bee is three weeks old it changes jobs and becomes a forager bee. Forager bees are the bees that zip from flower to flower searching for the sweet juices, called nectar, for honey making. A forager honeybee can visit up to 10,000 flowers a day. All the nectar she collects in her entire lifetime can make only about one teaspoon of honey. When a forager bee returns to the hive, she tells the other bees about her important discoveries. Honeybees communicate by using special movements called dances to tell other bees where to find a new location of flowers full of nectar or a place to build a new hive. The bee will dance on the honeycomb, while the other bees feel the dancing bee and learn where to find the food. By smelling the dancing bee and getting a taste of her load of nectar, the other bees can tell what type of flower she has visited. Different dances are used when the food is close by or far away from the hive. Bees have receptors on their feelers and legs which they use to feel the dance. There are several bee dances, but the most common are the circle dance and the wag-tail dance. Circle Dance The forager honeybee circles in one direction, turns around, and circles back the other way. This dance tells the other forager bees to look for new flowers anywhere within 300 feet of their hive. The worker bees must fly out in many directions looking for the flowers. Wag-Tail Dance This dance tells other forager bees that the flowers are further than 300 feet away. The bee dances a half circle in one direction, turns, and runs straight while wagging her abdomen. Then she dances a half circle in the other direction. These two half circles form a figure eight. The direction she dances while...
SUPPORTING INFORMATION (cont’d)
wagging her tail tells where the flowers are in relation to the sun. If the food is in the same direction as the sun, the bee runs straight up the comb. If the food is to the left or right of the sun, the bee changes the dance direction by the correct amount to the left or right of the upright line. The distance between the hive and the food is communicated by the speed of the dance and the buzzing sound made by the dancing bee. The faster the bee dances, the closer the food. The bees know exactly where to fly because the wag-tail dance shows both the distance and location of the flowers.

GETTING STARTED
Prepare ten brown paper lunch bags with various objects such as paper clips, pens, staplers, etc. Fill one bag with special treats for the students to keep or eat. Cut a large length of yarn to make a huge circle around several desks. Label an area in the middle of the room as the honeycomb. Tape a sun to the wall north of the top of the comb. Place a pen in an area away from students.

PROCEDURES
Session 1
1. Tell the class that you are going to select one person to retrieve your special pen without using words to explain where it is located. Select student and complete task using gestures, body language, hand signals, and facial expressions.
2. Explain how bees communicate where food is located. Draw two diagrams with directions for both dances. Allow students to practice the dances. Student volunteers may challenge the class to guess their dance.
Session 2
3. After practicing dances, turn the activity into a game in which students work in a group to locate special treats in bags.

Classroom set-up: Place ten bags, one which contains the special treat, on different tables/desks. (Make sure you remember which table has the special treat.) Outline desks with a yarn border to represent the 300 feet mark from the hive.

Students are divided into small groups (2-4 depending on the class size). The teacher demonstrates one of the dances to a particular group of students. That group watches the dance then goes to the bag that represents the location from the dance. Teacher may need to repeat the dance. Once the group has found the correct bag, special treat bag, the teacher will mix the bags up again for the next group to try.

4. When all the groups have found the correct bag, follow-up with a class discussion about the ease or difficulty of communicating through dance.

EVALUATION OPTIONS
Students should be observed participating in the activity and classroom discussion.

EXTENSIONS AND VARIATIONS
Students in second and third grade may communicate where the bag is by completing the dance for small groups. (Instead of the teacher demonstrating)

RESOURCES
Insects: Mailbox Grades 1 - 3, Published by The Education center, Inc., NC, 2000.

National Honey Board. 390 Lashley Street, Longmont, CO 80501-6045; www.honey.com
The Honey Files: A Bee’s Life, A Teaching Guide, Produced by the National Honey Board

CREDITS
Insects: Mailbox Grades 1 - 3, Published by The Education Center, Inc., NC, 2000.

EDUCATORS’ NOTES
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