

Bee Dance

Skills: Visual Arts, Language Arts, Science

Objective: The student will construct bee puppets and use them to act out some bee behaviors.

Background

Honeybees are social insects. They depend on one another for survival. Bees live in groups called colonies. A colony can have tens of thousands of bees. There is only one queen in each colony. She is the mother of the colony, laying more than 1,800 eggs a day. She has to lay that many eggs, because worker bees only live a few weeks during honey-making season in the spring and summer.

Bees make honey from nectar. Nectar is a sweet liquid found inside flower blossoms. The bees collect the nectar and carry it to the colony in pouches within their bodies. The secret ingredient that turns nectar into honey is bee "spit." Chemicals in the bees' saliva help change the nectar into sugars. The nectar/saliva mixture is then stored in the beeswax comb by the workers. The younger bees fan the nectar with their wings until much of the water has evaporated. Then they put wax caps on it and save it to eat in the winter. Beekeepers harvest honey just like any other crop. When they take honey from a hive, they are very careful to leave enough so the bees can survive the winter.

One bee would have to make 154 trips, carrying tiny amounts of nectar from the flower to the hive, just to make one teaspoonful of honey. If one bee had to make a pound of honey all by herself, she would have to spend 160,000 hours and make 80,000 trips. That would be the same as flying around the world three times. One worker bee actually makes only one-twelfth of a teaspoon of honey in her lifetime. But working together, a colony of bees may bring in as much as 50 pounds of nectar in a day and make 200 or 300 pounds of honey in a year.

Honeybees communicate through their movements. They attract the attention of other bees and let them know where to find nectar using movements that look like a dance. The movements show the other bees which way to

P.A.S.S.

PRE-KINDERGARTEN

Creative Skills—1.1,3,5,6
Oral Language—1.1,2; 2,3,4,5
Literacy—7.1,2,3
Life Science—3.1,2,3

KINDERGARTEN

Writing—3.1,2,3
Life Science—2.1,2,3

GRADE 1

Reading—4.1,2,3
Oral Language—1.1,2; 2.1,2; 3.1,2
Life Science—2.1,2
Social Studies—2.3; 5.2

GRADE 2

Reading—3.1,2,3
Oral Language—1.1,2; 2.1,2,3; 3.1,2
Life Science—2.1,2
Social Studies—2.3; 5.2

GRADE 3

Reading—2.1,2,3,4
Oral Language—1.1,2; 2.1,6; 3.1,2
Life Science—2.1,2,3

GRADE 4

Reading—1.1,3; 2
Life Science—3.1,2,3

GRADE 5

Oral Language—1.1,2; 2.1,2,3,4,5,6,7; 3.1,2
Life Science—2.1,2

GRADE 6

Life Science—4.1,2

Materials

scissors
construction paper
glue
craft sticks

go and how far. The bees usually move in the form of a figure eight. Slow dancing means the nectar is far away. Fast dancing means it is nearby.

Beeswax comes out in white flakes from glands under the bee's abdomen. The wax is white at first but gradually turns a golden color. About 8 million pounds of beeswax is used in the US each year. People use beeswax to make candles, lipsticks, lotions, shoe polish, crayons, chewing gum, and floor wax. In the past sculptors used bleached bee's wax to hide mistakes in their sculptures. The best sculptors were proud to say their statues were "sine cera," or without wax. That is where we get the word "sincere."

When one bee colony gets too crowded the bees split up and start a new colony. The workers begin to raise a new queen. When it is almost time for the new queen to hatch, the old queen will gather several thousand bees to go away with her. This is called "swarming." The bees fly in circles around the queen until she lands. The other bees land around her, clinging to each other in a great heap. When the swarm has settled it sends out scouts to find a new home. When bees are swarming, they will not attack, because they have no home to protect.

Honeybees will sting only if they are frightened or harmed. If you are stung you should remove the stinger immediately by scraping it off with a fingernail or any straight-edged instrument. Do not try to pull it out, because this will force more venom into your skin. A worker bee will die a few hours after stinging, because the stinger has a barb at the point which the bee cannot pull out once it is stuck in your skin.

Honeybees are very important to the farmer. Before any kind of plant can produce fruit, its flowers must be pollinated. Bees pollinate flowers as they fly from one to another, gathering nectar. Pollen is sticky and clings to the honeybee's body. When the bee flies to the next flower, the pollen will rub or fall off. In places where there aren't enough pollinating insects, growers sometimes bring in bees to do the job for them. If all the honeybees disappeared, about one-third of all the foods we eat today would disappear as well.

Visual Arts/Music

1. Have students make bee puppets.
 - Draw the outline of a shoe on a sheet of paper. Each student will need three outlines of the same shoe.
 - One outline will represent the body of a bee, with the toe end serving as the stinger and the heel end serving as the bee's head.
 - Cross the other two outlines, and glue them behind the body to serve as wings. Place the toe ends of the wings toward the heel end of the body.
 - Have students color their puppets to look like bees.
 - Give each student a wooden craft stick to glue to the back of his or her puppet.
2. Have students make free form drawings as you play Rimsdy-Korsokoff's "Flight of the Bumblebee."

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Science

1. Read and discuss background material.
2. Have students use the bee puppets to act out directions for the rest of the class to follow to find honey that has been hidden in the classroom or on the playground. Remind students that bees move in the form of a figure eight and that slow dancing means the nectar is far away and fast dancing means it is closer.
3. Bring in a honeycomb dripping with honey—enough so all the students can try it.
4. Provide honeycomb wax, and let students try chewing it.
5. View a beecom online.

Language Arts

1. Have students write a play, depicting a colony of bees swarming, from the time they decide to divide to the time the new colony finds a new home. Have students act out the play, using the puppets.

Social Studies

1. Divide your class into groups of four or five, and provide one packet of honey to represent nectar for each group. Have each group hide its nectar and draw a map showing another group how to find it.
2. Invite a beekeeper to your class, and ask him or her to bring some of the equipment he uses.

Motor Skill

1. Have a water relay to help student understand how much work it takes for a bee to gather enough nectar to make honey. Students should use teaspoons or eye droppers to transfer one cup of water from one container to another one some distance away. Use a stopwatch to keep accurate time. To add suspense to the relay, play a recording of “Flight of the Bumblebee” as the students race.

Extra Reading

Heller, Ruth, *The Reason for a Flower*, Putnam, 1992.
Ryder, Joanne, *Dancers in the Garden*, Sierra, 1992.

Vocabulary

colony—a population of plants or animals in a particular place that belong to one species

drone—a male bee (as of the honeybee) that does not have a sting and gathers no honey

fertilize—to unite with in the process of fertilization

honey—a thick sugary material prepared by bees from the nectar of flowers and stored by them in a honeycomb for food

pollen—a mass of tiny particles in the anthers of a flower that fertilize the seeds and usually appear as fine yellow dust

nectar—a sweet liquid given off by plants and especially by the flowers and used by bees in making

pollinate—to place pollen on the stigma of

queen bee—the mother of a bee colony

sperm—a mobile male gamete that has a long and thin or rounded head and a long thin tail that acts as a flagellum

swarming—a great number of honeybees leaving together from a hive with a queen to start a new colony elsewhere; also : a colony of honeybees settled in a hive