

Bee Dance

Objective

Students will construct bee puppets and use them to act out some 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 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

Oklahoma Academic Standards

PRE-KINDERGARTEN

English Language Arts—
1.R.1,2,3,4; 2.R; 3.R.4;
4.R.1,2; 6.R; 7.R; 1.W.1,2;
2.W; 3.W; 7.W

KINDERGARTEN

English Language Arts—
1.R.1,2,3,4; 2.R.1,3; 3.R.4;
4.R.1,2; 6.R.1,2; 7.R.1,2;
1.W.1,2; 2.W.1,2,3; 3.W;
6.W.2; 7.W.1,2
Science—LS1.1; ESS3.1

GRADE 1

English Language Arts—
1.R.1,2,3,4; 2.R.1,3; 3.R.4,5;
4.R.1,3; 6.R.2,3; 7.R.1,2;
1.W.1,2; 2.W.1,2; 3.W.1;
4.W.1,2; 6.W.2,3; 7.W.1,2
Science—LS1.1,2
Social Studies PALS—
1.A.1,2; B.4,5,6; 2.A.2; B.6;
C.7,8; 3.A.1,2
Social Studies Content—3.1
Visual Art—3.2

GRADE 2

English Language Arts—
1.R.1,2,3,4; 2.R.1,2,3;
3.R.5,6,7; 4.R.1,3; 6.R.2,3;
7.R.1,2; 1.W.1,2; 2.W.1,2;
3.W.1; 4.W.1; 6.W.2,3;
7.W.1,2
Science—LS2.2
Social Studies PALS—
1.A.1,2; B.4,5,6; 2.A.2; B.6;
C.7,8; 3.A.1,2
Social Studies Content—3.1
Visual Art—3.2

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 making a plant or animal capable of growing and developing

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

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

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

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

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.

Honeybees are important to us, too. If all the honeybees disappeared, about one-third of all the foods we eat today would disappear as well.

English Language Art

1. Read and discuss background and vocabulary.
2. Hand out copies of the Reading Page.
—Divide the class into groups. Assign each group one section of the Reading Page. Students will answer the questions and present the information to the class.
3. Students will use the bee puppets from the Visual Art activity included with this lesson 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.
4. Students will work in groups to write plays depicting a colony of bees swarming, from the time they decide to divide to the time the new colony finds a new home. Students will use puppets from the Visual Art activity included with this lesson to act out their plays.

Science

1. Honeybees are important pollinators for many of the foods we eat every day. Students will use online search engines to find a list of foods that need honeybees for pollination.
—List the foods students found on the board.

- Poll students to find out which foods students eat regularly.
- Students will graph the results of their poll.

Visual Art

1. Students will 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.
 - Students will color their puppets to look like bees.
 - Give each student a wooden craft stick to glue to the back of his or her puppet.

Social Studies

2. Divide your class into groups of four or five, and provide one packet of honey to represent nectar for each group.
3. —Each group will hide its nectar and draw a map showing the other groups how to find it.

Extra Reading

- Cole, Joanna, and Bruce Degen, *The Magic School Bus: Inside a Beehive*, Scholastic, 1998.
- Edom, Helen, *Science With Plants*, Usborne, 2007.
- Gibbons, Gail, *The Honey Makers*, HarperCollins, 2000.
- Mound, Laurence, *Insect* (DK Eyewitness Books), DK Children, 2007.
- Schaefer, Lola M., Pick, *Pull, and Snap: Where Once a Flower Bloomed*, Greenwillow, 2003.
- Tagliaferro, Linda, *The Life Cycle of a Sunflower*, Capstone, 2007.

Materials

scissors
construction paper
glue
craft sticks

Ag in Your Community

Invite a local beekeeper to your class and ask him or her to bring some of the equipment used in beekeeping.

Nectar Relay

Have a water relay to help students understand how much work it takes for a bee to gather enough nectar to make honey. Students will 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 Rimsky-Korsokoff’s “Flight of the Bumblebee” as the students race.

Name _____

Bee Dance

HOW BEES MAKE HONEY

Bees make honey from nectar in the spring and summer. 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. They carry tiny amounts of nectar from the flower to the hive. One bee would have to make 154 trips to make one teaspoonful of honey. The secret ingredient that turns nectar into honey is bee “spit,” or saliva. 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.

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 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.

1. What is this passage about?
2. What are the supporting details?
3. What turns nectar into honey? How?
4. What are the steps for making honey?
5. Why do the younger bees fan the nectar?
6. How do bees communicate?
7. What does slow dancing mean? What does fast dancing mean?



Name _____

Bee Dance

HONEYBEES WORK TOGETHER

Honeybees 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. The queen lays more than 1,800 eggs a day. She has to lay that many eggs because worker bees only live a few weeks.

If one bee had to make a pound of honey all by herself, she would have to make 80,000 trips. That would be the same as flying around the world three times. But working together, a colony of bees may bring in as much as 50 pounds of nectar in a day.

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.

1. What is this passage about?
2. What are the supporting details?
3. How many queens are in each colony?
4. Why do queens have to lay so many eggs?
5. Why is it important for the bees in the colony to work together?
6. List the steps for starting a new bee colony when the colony gets too crowded?
7. Bees sting when they are swarming. True or False. Why, or why not?



Name _____

Bee Dance

BEES ARE IMPORTANT TO THE FARMER — AND TO YOU!

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. But delicious honey is not the only benefit we get from honey. 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.

Honeybees are important to us, too. If all the honeybees disappeared, about one-third of all the foods we eat today would disappear as well. This includes some of your favorite foods, like apples, peaches, nectarines, pears, okra, strawberries, avocados, green beans, cherries and broccoli.

1. What is this passage about?
2. What are the supporting details?
3. List the steps bees take when they are pollinating flowers.
4. How much honey do beekeepers leave in the hive when they harvest the honey? Why?
5. Why are honeybees important to farmers?
6. What do farmers do when they don't have enough pollinating insects for their crops?
7. Why are honeybees important to you?

