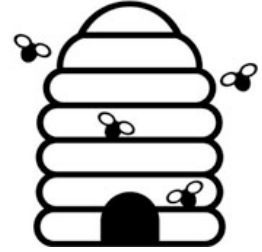




Save the Honey Bees!



3rd – 5th Grades
Pre-Trip

Summary of Field Trip

Students will have the opportunity to explore various aspects of the wonderful world of the Honey Bee. Students will be guided through 4 different stations, each one focused on a different topic. In the first station students will work with some of our great Bee Building Volunteer Teachers and have the chance to examine a live bee colony at work and see how honey is made. In the second station students will observe the various products that we use everyday that have honey in them or need bees to be made. At the third station students will be working together to create a honey bee craft that they will be able to bring home. Finally, in fourth station students will receive packets of bee-friendly flower seeds and a sample of Haagen Dazs Vanilla Honey Bee ice cream. In addition, on our grounds, we have a Honey Bee Garden that features flowers that promote bee pollination, that students can visit.

Vocabulary

Honey	Drones	Exoskeletons
Beeswax	Comb	Hatch
Insects	Mate	Thorax
Pollen	Life Cycle	Abdomen
Colonies	Life Span	Swarm
Beekeepers	Larva	Groom
Hive	Pupa	Stingers
Worker bee	Nectar	Scout Bees
Queen	Invertebrate	

Objectives

- *Students will be able to define various vocabulary terms having to do with honey bees.
- *Students will be able to verbally or in writing, explain how important honey bees are to our own lives and how we could not live without them.
- *Students will be able to list the different products that people get from honey bees.
- *Students will be able to describe verbally or in writing, how honey bees came to be in America.

Massachusetts Frameworks

Life Science (Biology) 3-5

Structures and Functions

3. Recognize that plants and animals go through predictable life cycles that include birth, growth, development, reproduction, and death.

Grade 3 Learning Standards

- 3.4 Explain how the Puritans and Pilgrims differed and identify early leaders in Massachusetts, such as John Winthrop; describe the daily life, education, and work of the Puritans in the Massachusetts Bay Colony. (H, E, C)

Grade 5 Concepts and Skills

1. Identify different ways of dating historical narratives (*17th century, seventeenth century, 1600s, colonial period*). (H)
2. Interpret timelines of events studied. (H)

Background Information

The honey bees that produce most of the honey we eat are not native to North America. Early European settlers brought them here in the 1600s so they would have a steady supply of the sweetener they were accustomed to eating back home.

The Aztecs and Mayans in Mexico and Central America ate honey from bees native to America, but those bees did not produce as much honey as the European bees.

The natives on the east coast sweetened their food with maple syrup, the sap they found in maple trees. These people called the European honeybees “white man’s flies”.

Bees must have the help of other bees to make honey. One bee would have to make 154 trips, carrying tiny amounts of nectar from the flower to the hive, just to make one teaspoon full of honey. If one bee has to make a pound of honey all by herself, it would take her 160, 00 hours and 80,000 trips. That would be like flying around the world three times. One worker bee actually only makes 1/12 a teaspoon of honey in her lifetime. But working together, a colony of bees may bring in as much as 40 pounds of nectar in a day and make 200-300 pounds of honey in a year.

Flowers need bees’ help as well. Bees have fine hairs on their legs and bodies. They collect pollen on these fine hairs as they fly in and around flowering plant sipping nectar into their honey stomachs. They pass pollen from leg to leg and pack it into pollen baskets located on their hind legs. Bees need the nectar to produce honey, and flowers need the pollen the bees bring from other plants so they produce seeds. Bees also use pollen as an alternate food source.

By being good partners to flowers, honeybees also act as very good partners for farmers. Most of our major food crops start as flowering plants that rely on the honeybees and other insects for pollination. Through pollination

honeybees help to produce larger crops. They increase the yield of fruit, vegetables and other crops by 25 to 30 percent. If not for the honeybees our food supply would decline. One-third of food eaten in the US depends on pollination.

United States Department of Agriculture – Agriculture in the Classroom -- <http://www.agclassroom.org/>

Student Connections

Start by writing the word “partnership” on the board and ask student to think of their own definition for the word. What are some famous partnerships? In a partnership, is one partner more important than the other? Why are partnerships important? When do we work in a partnership? (school, sport teams etc.) Then have students create a list of partnerships in nature (worm and soil) and direct students to the partnership of bees and flowers.

Pre-Trip Lessons/Activities

(Use some or all of these to help introduce the topics before you join us at the Fair)

1. Label the different parts of both a honey bee and of a hive. Become familiar with the different parts and terms.
 - Cut out the parts of a honey bee and paste them together to make a whole bee. (see worksheets)
2. Demonstrate pollination by drawing the outline of two large flowers on the chalkboard. Fill in one of the flowers with colored chalk. Roll a cotton ball around in the colored chalk and then rub the cotton ball on the other flower. Explain that the fine hairs on the bee’s legs and body act like the fine fibers on the cotton ball to pick up pollen from one flower and deposit it on anther as it moves from flower to flower gathering nectar.
3. Have students write stories about how they think the early settler carried bees over on ships to this continent. How did the bees live/survive? How did the people live with the bees?
4. Have students create a “pollen cycle”. Where does the pollen start and what are steps it goes through to become the food we eat?
5. Have students imagine they are moving someplace far away like the settlers who came here from Europe. The settlers liked honey so much they were willing to carry bee hives with them on a long and crowded ocean voyage. Ask students what food they like so much they would go to great trouble to take it with them across the ocean. Have students write a story about their journey with their favorite food source. Have them include a picture of how they would transport their food source.

Resources

Children's Books:

Allen, Judy. Are You a Bee. Boston: Kingfisher Publications, 2001.

Glaser, Linda. Brilliant Bees. Brookfield: The Millbrook Press, 2003.

Wallace, Karen. Busy Buzzy Bee. New York: DK Publishing Inc., 1999.

Fowler, Allan. Busy, Buzzy Bees. Chicago: Scholastic Inc., 1995.

Gibbons, Gail. The Honey Makers. New York: Morrow Junior Books, 1997.

Cole, Joanna. The Magic School Bus Inside a Beehive. New York: Scholastic Inc., 1996.

Sexton, Colleen. The Life Cycle of a Bee. Minneapolis: Bellwether Media, 2010.

Rau, Dana Meachen. Buzz, bee, buzz!. New York: Marshall Cavendish Benchmark, 2008.

Smallman, Steve. The Very Greedy Bee. Wilton: Tiger Tales, 2007.

Teacher Resources:

Young, Ruth. Guide for using The magic school bus inside a beehive in the classroom. Westminster: Teacher Created Materials, 2001.

Ilona. A short history of the honey bee: humans, flowers, and bees in the eternal chase for honey. Portland: Timber Press, 2009.

National Honey Board – www.nhb.org/

United States Department of Agriculture – Agriculture in the Classroom -- <http://www.agclassroom.org/>