

Busy Bees

Standards of Learning

Science: 4.4

Objective

The student will be able to:

- identify the steps in pollination
- identify the importance of bees to agriculture

Materials

- paper plates
- circle template (about 6.5 inches in diameter), split into quadrants
- green construction paper
- crayons/colored pencils/markers
- brads
- tape

Background Knowledge

Pollination is the transfer of pollen from the male flower part to the female flower part. The male part is called the anther and contains the pollen grains. The female part is called the pistil and contains the stigma, which is sticky to collect the pollen grains. Pollination must occur in order for flowering plants to reproduce. Pollen grains can be transferred by wind, water, bees, butterflies, other insects, birds, and bats. Bees are attracted to fragrant flowers and the nectar and pollen in these flowers. The bee stops at a flower to suck the nectar and the pollen grains get stuck to the bee's body. Then, when the bee moves to another flower, the pollen grains are transferred from the first flower to the second. The second flower is then pollinated.

Insects are needed to pollinate a variety of fruits, vegetables, and legumes. Common products include tomatoes, onions, blueberries, cherries, pears, sunflowers, pumpkins, broccoli, carrots, squash, cucumbers, lettuce, potatoes, oranges, lemons, limes, mustard seed, vanilla, sugar, almonds, watermelon, and apples. In fact, about one-third of the human diet is derived directly or indirectly from insect-pollinated plants. About 80% of these are pollinated by bees. Within Virginia about 80 of Virginia's most popular crops, valued at about \$80 million, rely on pollinators.

Procedure

1. Write the following journal prompt on the board: "Do you think bees are helpful or harmful? Describe." Have students brainstorm and write their answers down, and then ask for some to share.
2. Write the term, "pollination," on the board. Using the background knowledge above, discuss that this is a way that bees help people. Have students brainstorm a list of the foods that they eat which are pollinated by bees.
3. Pass out circle templates (circle divided into 4 quadrants) and art supplies. Have students cut out the circle and then illustrate and narrate the pollination cycle on the four sections.
 - a. The bee is looking for food.
 - b. The bee lands on a flower and is sipping nectar. Pollen gets stuck on its body.
 - c. The bee flies off looking for more food.



- d. It lands on a new flower with pollen from the last flower. The pollen rubs off on the new one.
4. Pass out paper plates (you may choose to buy various colored plates or have students color them). Using a brad, attach the circle to the middle of the plate.
5. Use green construction paper to make the flower's stem and leaves. Attach with tape.
6. Have students get with a partner and tell the pollination story to each other using their completed cycles.
7. Conclusion: revisit the opening journal prompt. Ask students if they would like to add to or change their answers. Why?

Extension

Discuss how bees often face a negative reputation. Challenge students to change this public perception by creating posters or performing skits, which advertise the positive role bees play in pollination (thus allowing fruits and vegetables to grow).

Additional lessons, activities, and worksheets can be downloaded from the National Honey Board's website, <http://www.honey.com/consumers/kids/honeyfiles.asp>.

References

Lesson adapted from Kansas Agriculture in the Classroom, www.ksagclassroom.org.

Visit AITC's bee themed [newsletter](#) for information and to see a sample of the finished product.

