

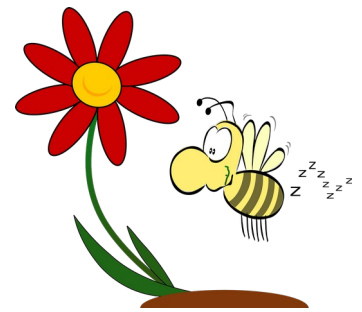
## Pollination – A Sticky Situation! *Colored chalk and cotton balls version*

**OVERVIEW:** Pollination is a sticky situation. In this active lesson, students learn how pollination works by using colored chalk to simulate pollen and cotton balls to simulate bees. Students color the centers of paper flowers with different colored chalk. Then each student takes a cotton ball to simulate a bee. The students land their cotton balls gently on the different colored chalk-covered centers of the paper flowers, to observe how the “bee” accumulates “pollen.”

**GRADES:** PreK-3

**OBJECTIVES:** The student will be able to:

- Explain what pollen is and the reason for pollination.
- Describe the process of pollination by bees.
- Explain why bees participate in the pollination process.



**MATERIALS:**

Copy of flower picture for each student

Sticks of chalk in five different colors (Divide the class into groups of five. You will need one of each of the five colors for each group.)

One cotton ball for each student

*Bees Really Get Around* worksheet for each student

**PROCEDURE:**

Start a class discussion about flowers and bees. Ask students what they know about bees. Ask students why they think bees visit flowers.

Show the very amusing Stop Motion Science Animation for Kids Youtube video *Pollination Lesson*: [www.youtube.com/watch?v=zy3r1zIC\\_IU](http://www.youtube.com/watch?v=zy3r1zIC_IU).

Read and discuss a book about bees such as:

*Are You A Bee?* Judy Allen and Tudor Humphries

*Honey in a Hive*, Anne Rockwell

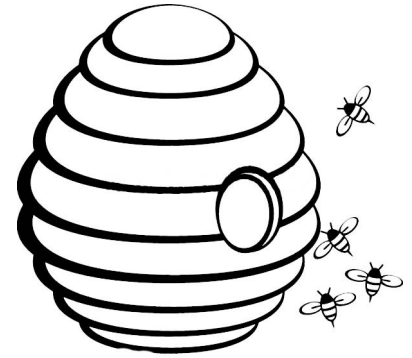
*The Honey Makers*, Gail Gibbons

*The Flight of the Honey Bee*, Raymond Huber

*Gives Bees a Chance*, By Bethany Barton

Review pollination for the class: Flowers need to exchange pollen in order to be able to make seeds. Since flowers can't move, they need help from pollinators. Deep in their petals, flowers produce a sweet sugary nectar that pollinators like bees, birds, butterflies, and other insects love to eat. When pollinators visit the flowers, they brush up against the pollen, which is very sticky.

*Important teachers' note: Most pollinators that visit flowers eat the nectar the flowers produce in their petals. The nectar is the lure to encourage pollinators to visit the flowers. A few pollinators, like beetles or mites, will eat pollen, but most don't. Honey bees collect both nectar and pollen, but pollen is only used as food for their young. Nectar is what is used to make honey.*



Think about stepping in wet, sticky mud. Your mother doesn't want you to walk in the house in those muddy shoes, because with each step, some of that mud will fall off. That's the way pollination works. Pollinators visit a flower and get covered with sticky pollen. Then when they visit the next flower, some of that sticky pollen falls off. This is pollination, which allows the flower to make new seeds.

Tell students that today they are going to act out pollination to see how it works. Divide students into groups of five and give each student a picture of a flower. Distribute five different colors of chalk to each group of students. Tell each of the five students in a group to select one color of chalk. (To prevent arguments over colors, tell students to close their eyes and take a piece of chalk.) Tell students to color the circle in the middle of the flower with their piece of chalk. Distribute a cotton ball to each student. *Optional:* Distribute a *Bees Really Get Around* to each student.

Demonstrate how the cotton ball will act as a bee that lands in the middle of a paper flower. Tell students that one at a time, they will take their bee and land gently on the middle of each of the five flowers in their group. Each student should gently place their bee to the side until everyone has a turn landing on the flowers. Students then should examine their cotton balls to see what pollen they have picked up. Ask students to discuss in their groups what happened in their groups.

Bring the whole class together and ask students to describe what happens when pollinators like bees visit flowers.

### EVALUATION:

Students draw a sequence of pictures or write a sequence of sentences that explain how bees pollinate flowers.

Completed *Bees Really Get Around* sheet

## EXTENSIONS:

Share the background sheet *The Buzz About Bees* to teach students more about honey bees.

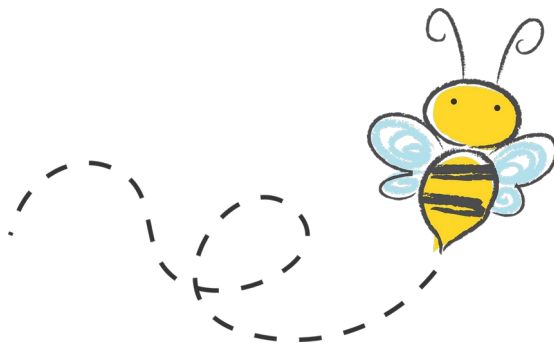
Investigate the life cycle of bees in the hive – from larva, to pupa, to adult bee.

Compare honey bees to other pollinators such as butterflies or hummingbirds.

## New Jersey Learning Standards

Science: PreK: 5.2.1, 5.3.1    K: LS1.C    1:LS1.A    2:LS2.A    3:LS1.B

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# The Buzz About Bees

## Fun facts about honey bees

Honey bees live in hives. There are three types of bees in the hive:

1) Queen: One queen runs the whole hive. Her only job is to lay the eggs that will become the hive's next generation of bees. A queen can lay up to 1,500 eggs every day.

2) Drones: These are the male bees. They mate with queen.

3) Workers: Workers are all female bees. Their job is to find food (pollen and nectar from flowers) for the hive. They also clean the hive, make the honey, take care of the offspring, and groom and feed the queen. Workers are the only bees most people ever see flying outside the hive.



Bees collect two things from flowers:

1) Nectar is food for honey bees and other pollinators such as flies, wasps, butterflies, hummingbirds, and bats. Honey bees take nectar back to their hives and use it to make honey. Nectar is a very sweet, sugary liquid that is made by the flowers to attract pollinators. The nectar is deep inside the flower petals, so that pollinators will have to brush up against the flower parts that hold the pollen. Flowers need pollinators to move the pollen from the male part to the female part before they can make seeds.

2) Honey bees also collect pollen. They mix it with nectar to form beebread, which they feed to their larva (baby bees).

Collecting food is a big job. The worker bees must gather enough food to feed the hive in warm weather and to store food for cold weather when there are no flowers. A honey bee hive uses 50 to 75 pounds of pollen each year. Worker bees must visit two million flowers to make one pound of honey. Bees are such great workers that they produce two or three times more honey than the hive needs. That's why people can harvest honey and eat it too. To share information about the best food sources, when a worker returns to the hive it performs dances to show others how to find flowers.

# Bees Really Get Around!

*Scientist*

When my bee  
landed on a flower...

*What I saw today...*

Bees need  
pollen to...

*What I learned  
today...*

Flowers need  
to share pollen  
so they can...

