



**GRADE 2**



# COAST <sup>TO</sup> CACTUS

## IN SOUTHERN CALIFORNIA

### Curriculum and Lesson Plan Resource Guide



**theNAT**  
SAN DIEGO NATURAL HISTORY MUSEUM





## Grade 2 Pollinators

### Essential Question

*How are insects and flowering plants dependent on each other?*

California has more than 1,900 native species of bees. In our deserts and in our backyards, flowers attract insects, such as bees, that feed on nectar. Bees also spread pollen as they move from flower to flower because pollen sticks to their legs and other body parts. This movement of pollen carried by bees is necessary for certain plants to produce seeds.



### Activity: Bee Pollination Model

Students will create a model of a bee and flower. Using their models, students will reenact the pollination process to learn about the relationship between pollinating insects and plants.

#### Materials

- Cinnamon or corn starch
- Black pipe cleaners (chenille stems)
- Large cotton balls (one for each student)
- Plastic cups (one for each student)
- Printed flower templates (one for each student)
- Scissors
- Clear tape

This activity is best done by students working individually, with guidance from the teacher. Students will complete their models individually and continue the activity exploration as a class. (See Page 2 for activity instructions.)

# Bee Pollination Model

## Key words

### Flower

The part of a plant that is often brightly colored, that usually lasts a short time, and from which the seed or fruit develops.

### Insect

A small animal that has six legs and a body formed of three parts and that may have wings.

### Model

A copy of something that helps describe an idea or how something works.

### Nectar

A sweet liquid produced by plants and used by bees in making honey.

## Before the activity

- Each student will be making one bee and one flower for this activity.
- For the bees, cut black pipe cleaners to approximately 3" in length. Cut enough pipe cleaners so that each student receives three pieces of pipe cleaner.
- Flowers and circles representing nectar can be cut out from the template before the activity. Make sure to cut a large X into the center of the flower.
- Before the activity begins, separate out the materials for each student.



## Activity

1. Ask students if they have ever seen a bee outside. **What was the bee doing?** Bees fly from flower to flower to feed on the flowers' nectar. Nectar is a sweet liquid produced by plants and used by bees in making honey. **Has anyone in class tasted honey before?** You can find pictures of bees on the *Explore the Region from Coast to Cactus* website. Visit [coasttocactus.sdnhm.org](http://coasttocactus.sdnhm.org) and search for "bees."

## NGSS Alignment for Grade 2

Performance expectation: 2-LS2-2

Science & Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and Using Models	<b>LS2.A:</b> Interdependent Relationships in Ecosystems	Cause and Effect Structure and Function

Interdisciplinary Common Core Connections: RI.2.3, RI.2.1, SL.2.2, SL.2.5

2. Explain to students that they will be making a model of a bee feeding on a flower. A model is not a perfect example of an event. It is a small copy of something that helps us understand science concepts and how things relate to each other.
3. Let your students know that everyone will be making a model bee and flower.
4. Guide your students in the bee model construction process. Each student will take a cotton ball and wrap each set of three pipe cleaners around the cotton ball to create the bee's legs.
5. Guide your students in the flower model construction process. Each student should use tape to attach the flower cutout to the top of the cup.
6. Have your students place the flower nectar into the bottom of their cups. Remind them that bees are trying to collect the nectar from flowers.
7. Sprinkle cornstarch or cinnamon into half of the students' cups to represent pollen.
8. Now the students get to pretend to be bees. Using walking feet, have your students carry their bees around the class and gather some nectar from the cups. They should dip their bees into the cup so the bees get covered with cornstarch or cinnamon.
9. After everyone has visited four or five flowers have them go back to their seats.
10. **What do students notice about their bees?** The bees should be covered in powder. This powder represents pollen. Pollen is a very fine dust that a plant produces. In order for a plant to produce seeds, pollen needs to move from one plant to another of the same kind. Insects, such as bees, help this happen when they move from flower to flower.
11. **What about the students whose cups didn't have any cornstarch or cinnamon? Do they have any in their cup after the bees flew around?**
12. Wrap up. Ask your students: **What do you think would happen if there were no bees?** The pollen wouldn't spread from flower to flower. **Why do the plants need bees?** They need the bees to spread pollen so they can make seeds. **What about the bees—what do they get from the plants?** The bees get nectar to make honey.



## Key words

### Pollen

The very fine, usually yellow, dust that is produced by a plant and that is carried to other plants of the same kind, usually by wind or insects, so that the plants can produce seeds.

### Pollination

To move pollen from one flower to another.

### Seed

A small object produced by a plant from which a new plant can grow.



### Extension

Ask students to think of other insects that might pollinate plants.

***Has anyone ever seen a butterfly or a beetle land on a flower?***

There are even some birds and bats that help pollinate plants.

### What will they learn?

During this activity, students develop and use a simple model that mimics how bees pollinate plants. Students learn the pollination process and demonstrate an example of bees pollinating plants. They also develop an understanding of the interdependence between insects and plants. Plants provide food for some insects like bees. While feeding, the bees pollinate the plants, helping them create seeds.

### Additional Resources

- Use the *Explore the Region from Coast to Cactus* website to learn more about the different habitats in the southern California region. Visit **[coasttocactus.sdnhm.org](http://coasttocactus.sdnhm.org)** to journey through coastal areas, mountains, and deserts, and to learn more about San Diego's amazing diversity of plant and animal life.
- Check out a specimen from our Nature to You Loan Library. Specimens related to this lesson include: Sphinx Moth, Hummingbird, Honey Bee with honeycomb (non-native), beetles, moths, butterflies. For more information visit **[sdnat.org/specimenssearch](http://sdnat.org/specimenssearch)** or contact the Loan Library at **[loanprogram@sdnhm.org](mailto:loanprogram@sdnhm.org)** or 619.255.0236.



