We Are Flowers

Written by Mrs. Bolger's kindergarten class, Roxbury Central School

Lessons and Activities – GRADE K-2

The hands-on activities for this fun call-and-response song highlight the important and specialized role of bees as plant pollinators.

Whereas most Harvest of Songs activities are designed to work independently, it's best if the activities for this song are done sequentially.

Activity 1 ***How Can We Be Like A Bee?***

Students create a Pretend Pollinator Garden, and imagine themselves as bees pollinating plants.

Activity 2 ***How Does A Bee's Body Help It To Thrive?***

Students learn about the bee's proboscis (which helps the bee carry nectar to the hive) and test out different tools to see which one most closely mimics the proboscis.

Activity 3 ***How Do Bees And Flowers Help Each Other?***

Using a straw and pipe cleaner, students make simulated bees and try "pollinating" flowers in their Pretend Pollinator Garden.

BIG IDEAS

- Form and Function
- Interdependence Among Pollinators, Plants, & People

These Roxbury School students are excited about their school's garden!
It was kindergarteners at this school who wrote the *We Are Flowers* song!

For more information, or if you experience any problems with downloads, please contact info@harvestofsongs.com.

Activity 1
GRADE K-2

We Are Flowers

How can we be like a bee?

Time 40 minutes

BIG IDEAS

- Interdependence — Pollinators and Plants

STANDARDS

NYS Science Standards

- LE 3.1a, 3.1b
- LE 3.1c
- PS 3.1b, 3.1c

CCLS

- Literacy.RL.K.1, 1.1, 2.1
- Literacy.RL.K.10, 1.10
- Literacy.RI.K.1, 1.1, 2.1
- Literacy.RI.K.3, 1.3, 2.3
- Literacy.SL.K.1, 1.1, 2.1
- Literacy.SL.K.2, 1.2, 2.2
- Literacy.L.K.4, 1.4, 2.4
- Literacy.L.K.6, 1.6, 2.6

YOU WILL NEED

- A bunch of live flowers
- Paper plates
- Crayons, colored pencils or watercolor paints
- Audio system for listening to the song *We Are Flowers*
- Book: *The Reason For a Flower* by Ruth Heller

Bees and other pollinators are an essential part of our food system. Without them we would have no fruits and flowers. From peas to zucchinis, and apples to mangoes, we need bees! Understanding this special relationship between people, plants, and bees is key to seeing bees as important players in our food system. This lesson is part 1 of three lessons on the relationship between bees and flowers.

ACTIVITY: Day 1

1. Listen: *We Are Flowers*
2. Engage: "What do you think flowers are for?"
3. Inform: Read *The Reason for a Flower* by Ruth Heller.
4. Reflect: "If you were a flower, what would your job be?" Using the book as a resource, discuss the various ways that plants get pollinated.
5. Imagine and Connect: "If you were a bee, what would you do?" Invite one or two students to act out being a bee—buzzing about, searching for a flower (offer a pre-made paper plate version or a living flower), and then another flower, until it flies off to another garden or back to the hive.
6. Create a Pretend Pollinator Garden: Carefully look at the live flowers to talk about all the different parts that a bee could see. Give each student a paper plate, crayons, colored pencils or watercolor paints, to create individual flowers.
7. Be a Bee: Assemble the flowers together to create a Pretend Pollinator Garden. Review what bees do to pollinate plants. Students can take turns, 3 at a time, being bees, flying into the garden, visiting each flower to collect pollen, and then flying off to return to the hive.

Activity 1
GRADE K-2

We Are Flowers

How can we be like a bee?

EXTENSION

Flower & Bee Anatomy

Using the provided illustrations, label the anatomy of flowers and bees with your class.

Flower anatomy

- stamen
- anther
- filament
- pistil
- stigma
- ovary
- petal
- sepal
- stem

Bee anatomy

- proboscis
- wing
- stinger
- abdomen
- thorax
- head
- antennae
- legs
- pollen baskets

TEACHER TIP

Your young students will deepen their empathy for and understanding of the critical roles that bees and flowers play in our human ecosystem and food system be **being** *bees and flowers. The power of dramatic play is critical here, especially when teaching against the fear of bees that is part of our popular culture. Take note of the phrasing of the questions in this lesson, putting students "in the shoes" of the garden players:* **"If you were a flower, what would your job be?" and "If you were a bee, what would you do?"**

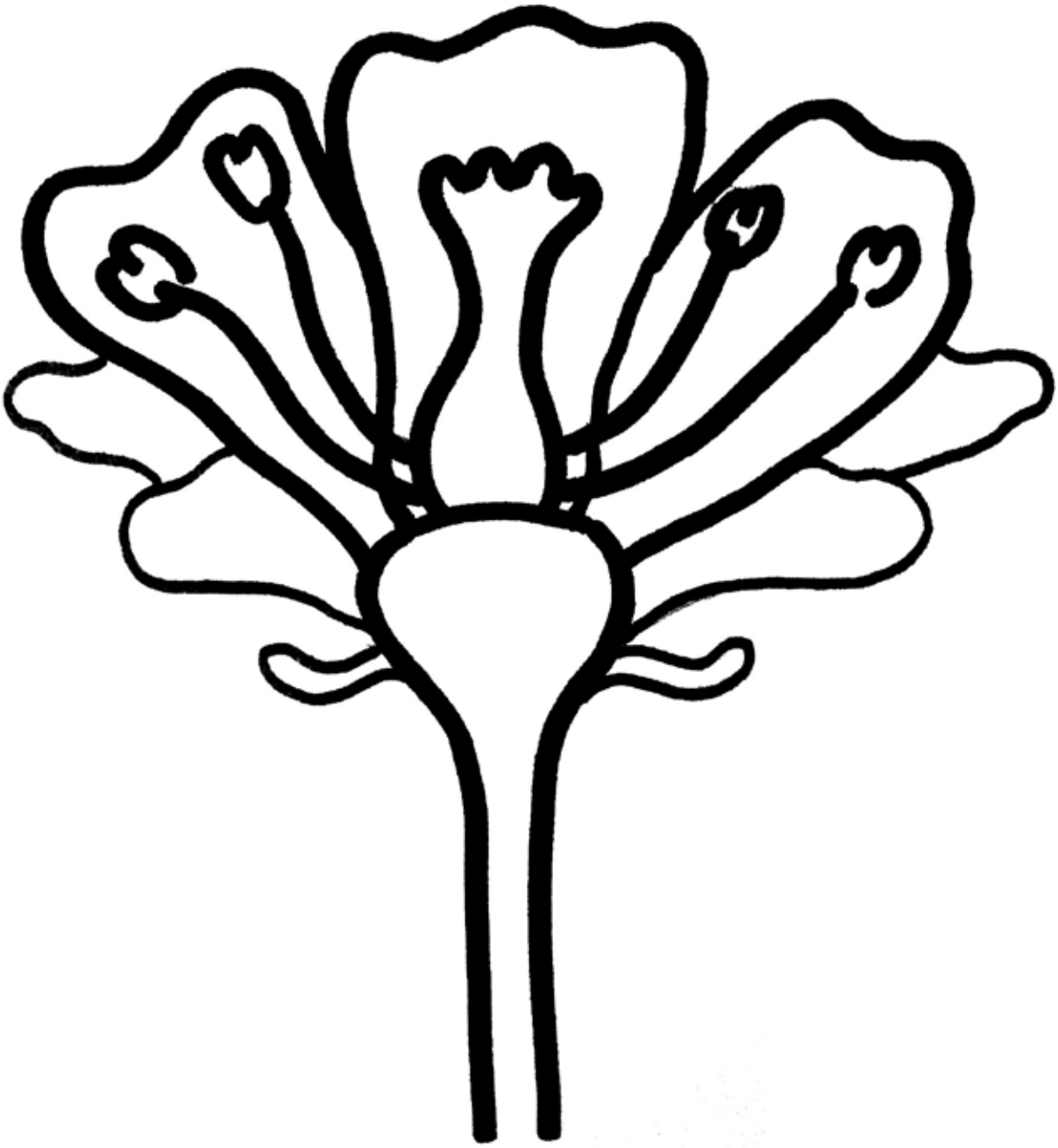
FOLLOW-UP

Plant a Pollinator Garden

Start a pollinator garden in your classroom from seed. Seed packets that are collections of pollinator-inviting flowers are available from various seed companies, including Hudson Valley Seed Library. Placing seeds in peat pellets under a grow lamp is one possible classroom set-up. Move them outside after they've developed 2 pairs of leaves. You may be able to direct sow these seeds outside in the springtime.

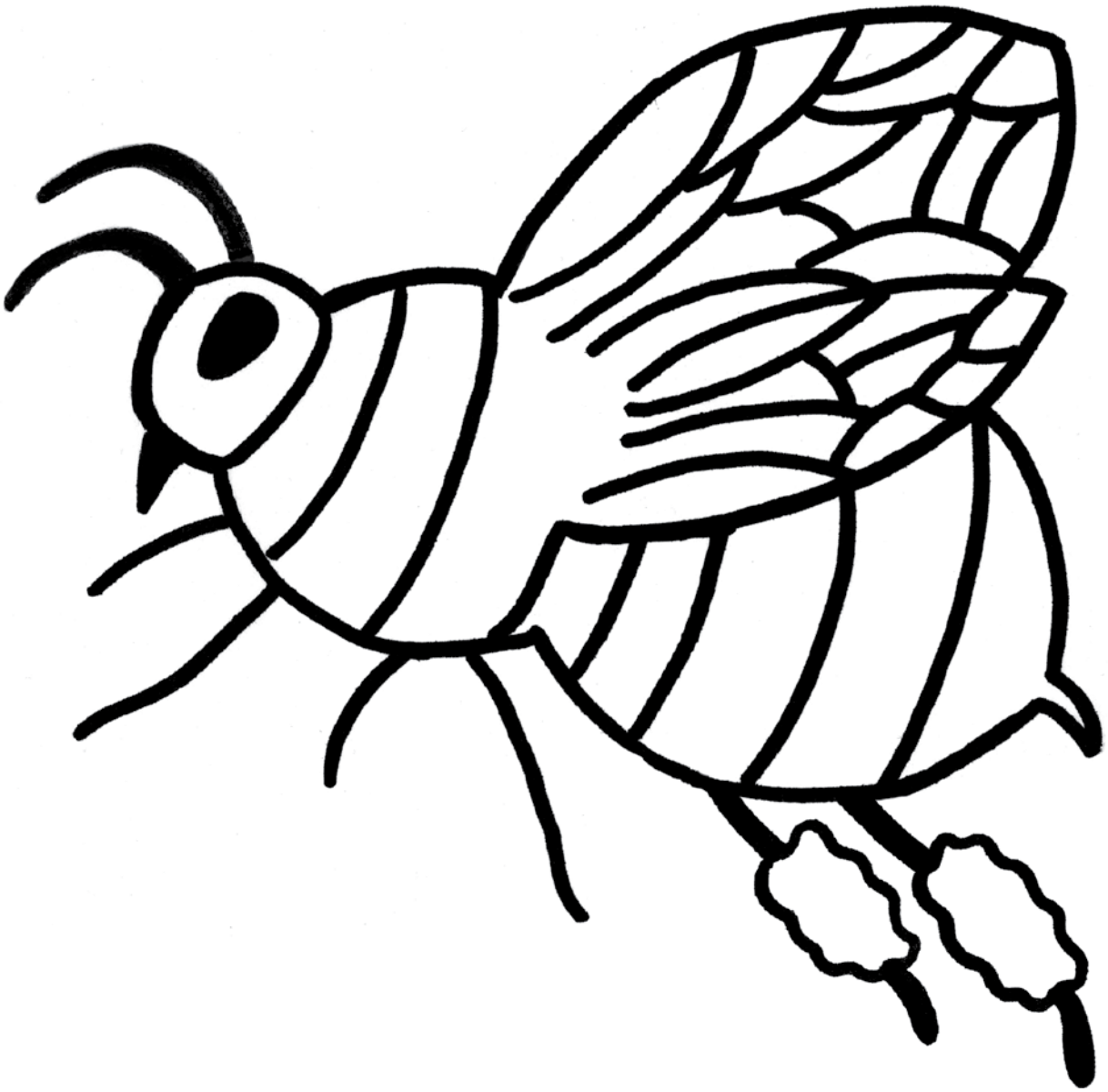
Activity 1
GRADE K-2

Flower Anatomy



Activity 1
GRADE K-2

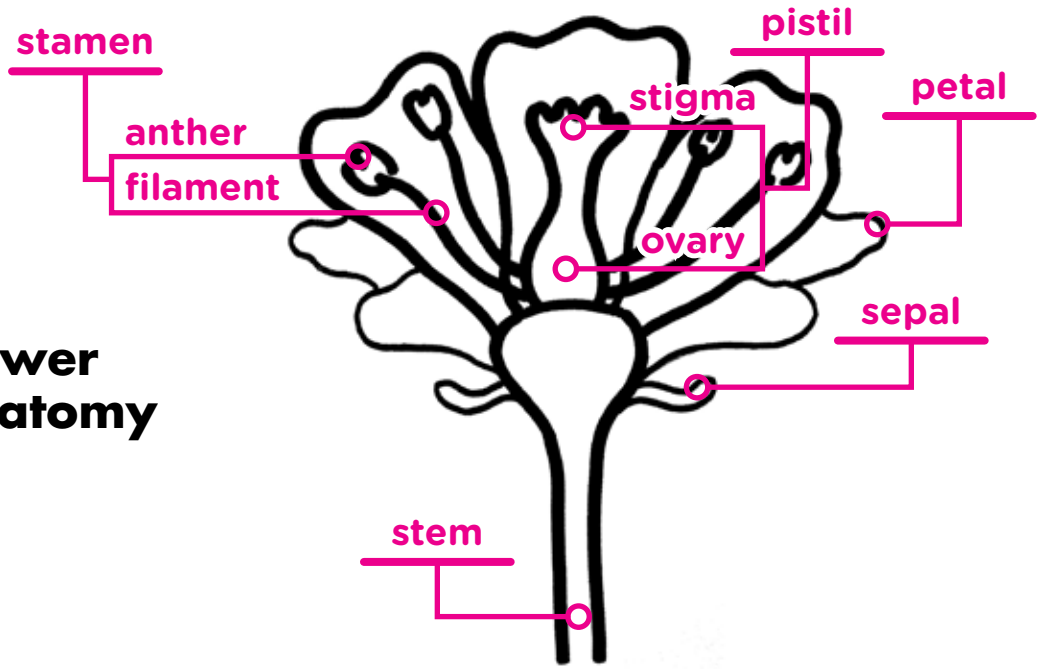
Bee Anatomy



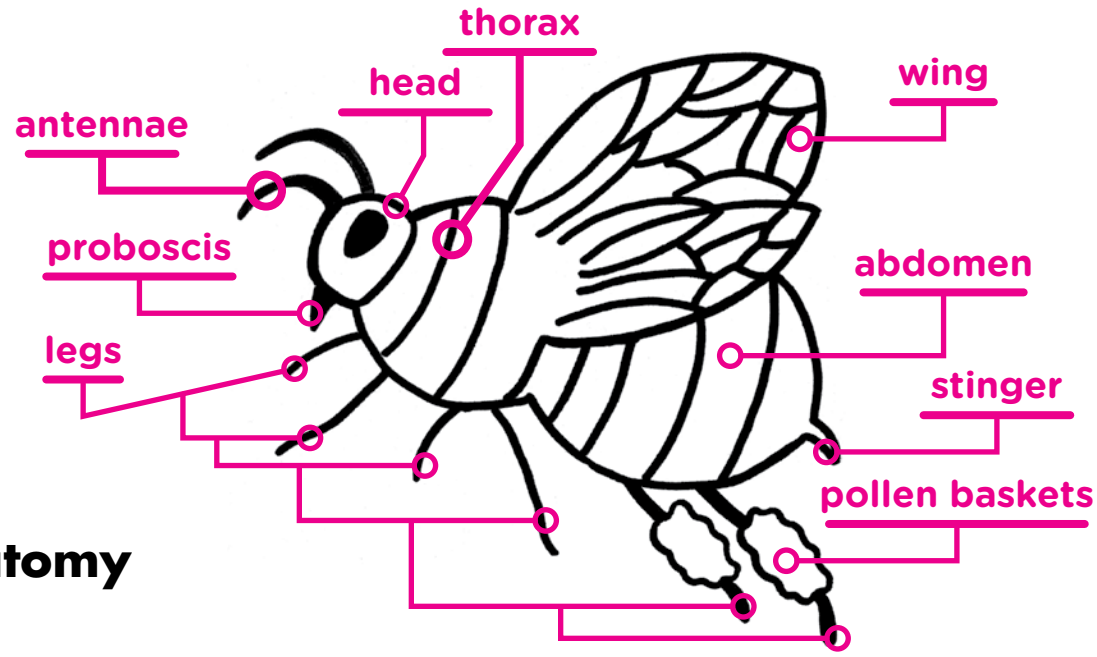
Activity 1
GRADE K-2

Anatomy Answer Guide

Flower Anatomy



Bee Anatomy



Activity 2
GRADE K-2

We Are Flowers

How does a bee's body help it to thrive?

Time 50 minutes

BIG IDEAS
- Form & Function
- Interdependence

STANDARDS
NYS Science Standards
- LE 3.1a, 3.1c
- PS 3.1b
- PS 3.2c

CCLS
- Literacy.SL.K.1, 1.1, 2.1
- Literacy.SL.K.3, 1.3, 2.3
- Literacy.L.K.4, 1.4, 2.4
- Literacy.L.K.6, 1.6, 2.6
- Literacy.W.K.8, 1.8, 2.8
- Literacy.W.K.7, 1.7, 2.7

YOU WILL NEED
- "Nectar" — food coloring and water in one or two pitchers
- "Hives" — 4-5 vessels for holding water
- Popsicle sticks
- Pipe cleaners
- Straws
- Best Proboscis Sheets (see attached)
- Pencils

All animals have specialized traits that help them to live in their natural environment. This activity explores one particular trait of bees, their proboscis. What would the best form be for a bee's proboscis? Students will find that out through this exploration.

STUDENTS WILL UNDERSTAND
- Plants and animals have specialized structures that help them to thrive.
- Bees have a proboscis, the long structure that allows it to suck out nectar from a flower and carry it back to the hive.

ACTIVITY Day 2
1. Recall: "What do bees need from flowers?"
2. Inquire: "Bees have a specialized tongue they use for collecting and carrying nectar back to the hive. The bee colony uses the nectar for making honey, their food. This special tongue is called a proboscis. What do you think the best form would be for a bee's proboscis?"
3. Predict: "Let's conduct a Best Proboscis Contest. I have three tools that could mimic the form of a bee's proboscis. Remember, the function is to carry nectar from the flower to the hive." Hold up the three candidates: a pipe cleaner, a popsicle stick, and a straw. "Think silently for a moment to yourself and make a prediction about which tool would make the best proboscis and why." Hand out the Best Proboscis Sheets for the students to fill out.

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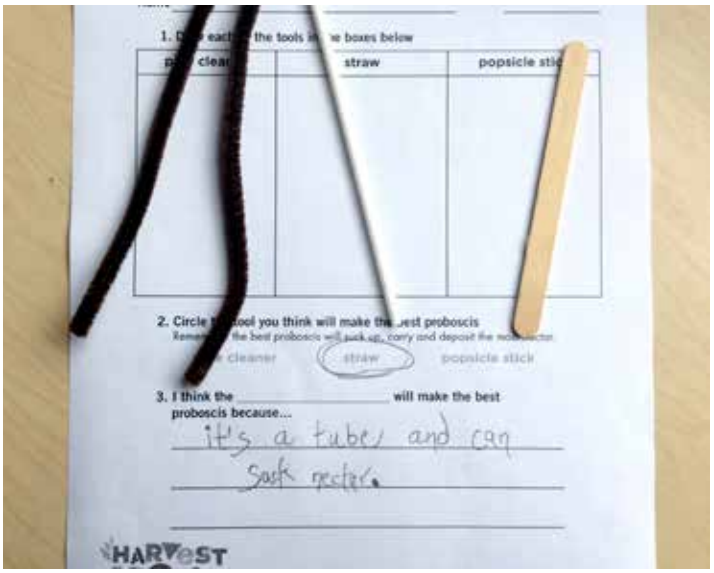

Activity 2
GRADE K-2

We Are Flowers

How does a bee's body help it to thrive?

How Many Flowers?
A honeybee visits between 50 and 100 flowers during one collection flight from the hive. In order to produce 1 pound of honey, 2 million flowers must be visited, which means 10 million flower visits to make the 5 pounds of honey pictured here.

That's a lot of flowers!

ACTIVITY continued

4. Test: "After you've completed your predictions, come and try one tool at a time to see which one can most successfully carry nectar. You must try each tool." After students complete the tool tests, they should complete the recording side of the Best Proboscis sheet.
5. Reflect: 5. Reflect: "If you were a bee, which tool would you choose for your proboscis? Why?"

TEACHER TIP

Set-Up: *Place your hives around the room. These will serve as vessels to collect the nectar transported during the exploration. Put your nectar in the center of the room so that your students can travel back and forth between the nectar containers and the hives easily. Choose vessels that will not easily topple over as students put their proboscis tools in them, attempting to collect and deposit nectar. For this activity you will need about ¼ cup of nectar per student. You might want to put your paper plate flowers from Day 1 around the nectar containers to mimic the garden where a bee would find nectar.*

Sipping Nectar: *Students should not use their mouths to suck up nectar through the straws. Encourage them to use their fingers only. Undoubtedly, a few of your students will have prior experience with using the capillary action of a straw by putting a finger over the top hole of the straw before immersing it in liquid and then releasing the finger to suck liquid into the straw.*

Conclusion: *Confirm your students' conclusion by sharing this bit of bee information: A bee's proboscis is a like a hollow tube that sucks nectar that the bee brings back to the hive to make honey.*

Best Proboscis

Prediction Sheet

Name _____ Date _____

1. Draw each of the tools in the boxes below

pipe cleaner	straw	popsicle stick

2. Circle the tool you think will make the best proboscis
   Remember: the best proboscis will suck up, carry and deposit the most nectar.

   pipe cleaner straw popsicle stick

3. I think the _____ will make the best proboscis because…

   _____

   _____

   _____

Best Proboscis

Recording Sheet

Name _____ Date _____

1. Circle one

I found out that the best tool for a bee's proboscis was the

pipe cleaner straw popsicle stick

2. Draw a picture of the tool in action as a proboscis

3. I think that this is the best proboscis because…

_____

_____

_____

Activity 3
GRADE K-2

We Are Flowers

How do bees and flowers help each other?

Time 40 minutes

BIG IDEAS
- Interdependence — Pollinators, Plants & People

STANDARDS
NYS Science Standards
- LE 3.1a, 3.1b, 3.1c
- PS 3.1b
- PS 3.2c
- LE 4.1b
- LE 5.1a
- LE 5.2a

CCLS
- Literacy.SL.K.1, 1.1, 2.1
- Literacy.SL.K.3, 1.3, 2.3
- Literacy.L.K.4, 1.4, 2.4
- Literacy.L.K.6, 1.6, 2.6
- Literacy.W.K.8, 1.8, 2.8

YOU WILL NEED
- A small collection of fruits
- Paper plate flowers (from How Can We Be Bees?)
- Audio system for listening to the song We Are Flowers
- "Nectar"— food coloring and water in small cups
- "Pollen"— 1-2 drops food coloring per 1 tsp of baking soda; make 4-5 different colors of pollen, enough so that each student will have 1 tsp of pollen (**Keep the pollen moist until use.)
- Masking tape
- Pipe cleaners
- Straws

This is the third lesson in the We Are Flowers series about the interdependence between bees, flowers and people. This lesson illustrates these connections through play, art, discussion and exploration.

STUDENTS WILL UNDERSTAND
- Plants and animals have specialized structures that help them to thrive.
- Pollinators and plants depend on each other.
- Humans depend on pollinators.

ACTIVITY Day 3
1. Engage: "How does a fruit come to be?" Present your collection of fruits to stimulate student thinking. Offer some pieces of fruit up for a bit of tasty inspiration. Allow students to share their ideas and knowledge about the process of growing fruit—from the perspective of farmer, eater and plant.
2. Connect: Help students to recall and understand that flowers need to get pollinated in order for a plant to develop a fruit. Explain that pollination is something a bee, wind, or other animals do when it moves a flower's pollen from one part of the flower into a central part, causing the flower to develop into fruit.
3. Reflect: "Who works to help fruit to grow?"
4. Recall: "We have our own Pretend Pollinator Garden that we created together. If you were a bee, how would you help pollinate the flowers?" "How do the flowers help the bees?"
5. Behave like bees: "Today we are going to make our own bees to pollinate our Pretend Garden. What are the parts that make up a bee's body?"

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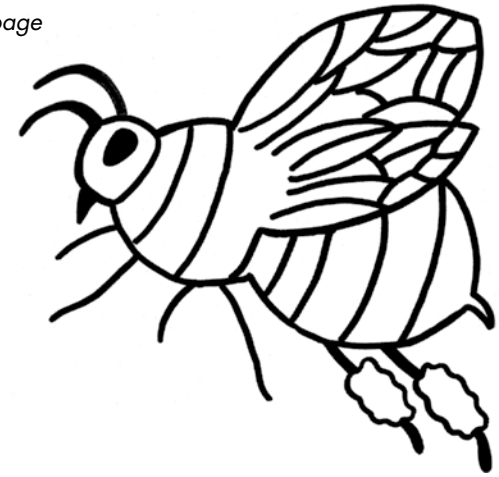

Activity 3
GRADE K-2

We Are Flowers

How does a bee's body help it to thrive?

EXTENSION

Pollen Basket

"What makes a better pollen collector?" Test out several leg-shaped textures for their pollen-collecting power. Try a pencil, a straw, and a pipe cleaner. "What characteristics make one a better pollen collector than another? Why?"

Thursday, September

Dear Bees,

We thank you for pollinating the plants and trees, and for making yummy honey.

Today, we made a fruit salad with apples, pears, raspberries, and melons. We added some honey, too.

Thank you for giving us all those fruits. They're so tasty and yummy!

Your friends,
Ms. Clarke's First Graders

ACTIVITY Day 3 continued

6. Inform: As students mention parts of a bee, bring together your materials and begin building your bee out of pipe cleaners, a straw, and tape. As you are assembling the legs, mention that this fuzzy part of the bee is called the "pollen basket." If any key parts of a bee's anatomy are left out of the discussion, be sure to introduce them here while building your replica of a bee. Then send each student off to build his or her own bee. See attached document "Be a Bee Visual Guide Part 1" for detailed instructions.
7. Think and Prepare: Set the paper plate flowers in four "garden stations" around the room. Review the parts of the flower that students included in the paper plate flowers. "What else do bees and flowers need for pollination? What are the bees looking for?" Following the students' cues, add pollen to your Pretend Garden by sprinkling 1 tsp. of the pollen mixture onto each paper flower. Secure a cup of "nectar" to the center of each flower. Note: For visual impact, make sure that each flower at a single garden station has different colored pollen.
8. Enact: Assign a small group of students to one garden station. There should be the same number of flowers, students and bees at each garden station. Students will act as bees, collecting nectar and pollinating each flower at their station with their pipe cleaner bees. Listen to We Are Flowers as your Pretend Pollinator Garden comes to life! See attached document "Be a Bee Visual Guide Part 2" for detailed instructions. Optional: Set up "hives" in different areas of the room for bees to deposit their nectar.
9. Observe and Reflect: "What did you notice about the action in your gardens? How did the bees affect the flowers? How did the flowers affect the bees?"

TEACHER TIP

Flowering plants need pollinators to create fruit and reproduce. Bees sip nectar from the flowers and collect pollen in the process. They need these flowery resources to take care of and insure the continuity of the bee colony. People need both pollinators and flowering plants to maintain a healthy food system. While this lesson is rich in vocabulary and scientific knowledge, the most important piece to emphasize is the interactions between species. Humans are incredible forces of nature, but we would never thrive without the many seen and unseen helpers from nature. Although we typically connect the pollination of flowers with fruit production, many common vegetables are also flower-borne and most of the seeds with which we plant our gardens require pollination of their flowers before seeds can be produced for next year's crop. Pollinators are powerful!

Harvest of Songs is a collaboration between Farm Catskills and Story Laurie.

Can you be like a bee?

Visual Guide Part 1: Making the Bee

The Ingredients:

- Straws* - one per bee
- Masking tape
- Water
- Food coloring
- Baking soda
- Fuzzy sticks (aka pipe cleaners) - one per bee
- Paper plates (decorated to look like flowers)
- 1 oz. condiment cups

*The small ones commonly found in school cafeterias are perfect!

Attach a piece of masking tape to the middle of the straw, leaving enough tape overhang to later prevent the fuzzy stick/pipe cleaner "body" from sliding around while your bee is sipping nectar.

Fold the fuzzy stick in half. Make it into a "V" shape and hang it over the straw, right next to the piece of tape. Wrap the closed end of the fuzzy stick back & around the straw. Make sure you don't wrap it too tightly, or it might interfere with your bee's ability to sip nectar.

Spread the two "legs" out a bit, and bend them slightly so that the bee's proboscis (the mouth part, touching the table in the photo on the right above) will be able to sip nectar while the fuzzy legs gather pollen from your flower-decorated plate.

Can you be like a bee?

Visual Guide Part 2: Pollinating!

This bee's legs are collecting pollen while the proboscis sips nectar. (Hold the bee body with two fingers, while a third finger caps the tail end of the straw, creating capillary action so the nectar can enter the straw.)

Allow each bee to visit 3-4 flowers at their table, so they can be sure to spread pollen from flower to flower.

In nature, most pollen is white, cream, yellow or orange. For this activity, we chose to use very distinct colors so that students can readily see whether or not their pollination attempts are successful. Here we see that green pollen from another flower at this table ended up on this yellow pollen flower. Pollination success!