

Material Preparation

MATERIALS

- bee puppet
- magnifier
- honeybee in resin
- 15 sheets of 9" x 12" construction paper in assorted colors
- glue or clear tape
- masking tape
- sheets of cardstock, poster board or file folder
- real flower (a daisy works well)
- five paper plates (9" diameter)
- five different colors of glitter
- cotton ball

For each child and a set for the teacher:

- two sandwich bags
- handful of yellow play dough
- craft stick
- four paper clips
- six 1.5" black pipe cleaners
- two 1.5" red pipe cleaners
- four bee wings (use sheets of cardstock to cut ovals or use *Bee Wing Template*)
- *Ask Me About Bees* sticker

TEMPLATES AND PHOTOGRAPHS

- *Flower Petal Stencil*
- *Bee Wing Template* (optional)
- *Honeybee* photograph
- *Bee and Pollen* photograph

PREPARE IN ADVANCE

- Follow the *Flower Petal Stencil* instructions to create five paper flowers.
- Place materials for each child in two sandwich bags. In first bag, place a handful of yellow play dough. In second bag, place four bee wings, two 1.5" red pipe cleaners, and one craft stick.
- Construct one bee model using same materials the children will use. Use a craft stick to secure three balls of play dough in a row.



Bee Model

SET UP THE LESSON AREA

- Use masking tape to create a hexagon shape on the floor where the lesson will take place, big enough for a child to sit on each side of the hexagon.
- Place the paper flowers on the floor throughout the classroom.
- Pour glitter onto each flower plate, one color per plate.
- Place the following materials in the ECHOS lesson area: bee puppet, honeybee in resin, magnifier, 1.5" black pipe cleaners, real flower, and cotton ball.



OBJECTIVE

Children will investigate how a honeybee's legs help transfer pollen from flower to flower.

EXCITE

1. Gather the children in the ECHOS lesson area. Invite them to sit around the hexagon shape on the floor. **Today I brought something special to show you.** Ask the children to close their eyes. Place the puppet on your hand and move around the children, making a buzzing sound. **Don't open your eyes. Can anyone tell me what's buzzing?**
2. After a few seconds tell the children to open their eyes. **Yes, it's a bee.** **Let's buzz together.** Make the buzzing sound with the children.

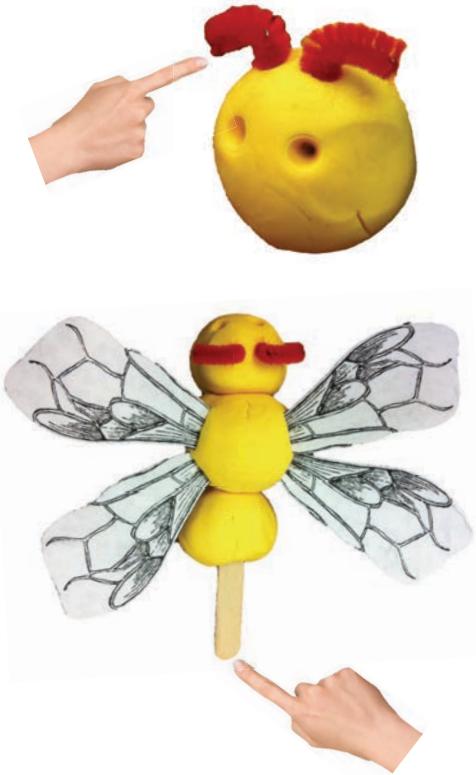


INTRODUCE

1. **Have you ever seen a bee? How small are bees? I am going to show you a type of bee called a *honeybee*.** Hold up the honeybee in resin and the magnifier. Model how to use the magnifier. **Let's observe the honeybee using the magnifier just like I did. Now it's your turn.** Give each child a turn, then collect the bee in resin and the magnifier.
2. Display the *Bee Picture*. **Bees are so small that I brought a big picture of a bee so we can see it better.** Point to each part of the bee's body as you say: **A bee's body has three main parts: the head, the *thorax* and the *abdomen*.**
3. **I made a model of a bee's body.** Show the children your completed bee model. **Today you are going to make a bee model just like this one.**



4. Point to the red pipe cleaner antennas on the head of your bee model. **A bee's head has two things that stick out called *antennas*. Let's say that together, antennas [an-ten-uhz]. Wiggle two fingers over your head to mimic a set of antennas. Bees use their antennas to smell. Where do you think the bee's mouth is? Yes, on its head, just like ours.**
5. Point to the thorax on your bee model. **Do you see something on this bee that helps it fly? Point to the wings. How many *wings* do you see? Yes, a bee has four wings—two on each side.**
6. **The third part of the body, the biggest part, is the abdomen. It has a *stinger*. The stinger is on the bottom of the abdomen. Bees only sting when they sense danger. It's not a good idea to try to catch a bee. Does anyone know what you should do if a bee lands on you? You need to be very quiet and still, like a statue, until it flies away. I'm going to teach you a new song about a bee.** Lead the children in the following song to the tune of "*Baby Bumble Bee*" while modeling the hand movements.



I'm looking at a tiny honeybee,

(Thumb and forefinger on both hands together to make circles and held up close to eyes)

Won't you come, and take a look with me?

(Pretend to call friends to look at the bee)

I'm looking at a tiny honeybee,

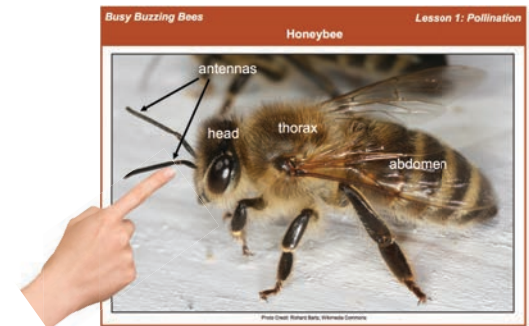
(Thumb and forefinger on both hands together to make circles and held up close to eyes)

I'll stay still... so she doesn't sting me!

(Hands at side)

EXPLORE

1. Bring the children to a table. Point to the *Honeybee* photograph and say: **How many main body parts does a bee's body have? Yes, three. Does anyone remember what the parts of a bee's body are called? Yes, the head, thorax and abdomen.** Distribute the bags of bee model materials to each child. **Let's start making our bees.**
2. **Start by rolling three balls and sticking them together. I will help you connect them with a craft stick.** Provide about 5-10 minutes for all children to complete this activity. Assist the children as they use the craft stick to connect the three balls of play dough. **When you're ready, you may add the antennas and wings.**
3. Ask the children to hold up their bees. Accept whatever they create. **Great job, but oops, I think we forgot something!** Put the bee puppet on your hand. **What did we forget? Wiggle the legs of the puppet. That's right, the legs. How many do you see? Let's count together.** Point to each leg as you count together with the children. **One, two, three, four, five, six. How many legs do bees have? Yes, they have six legs. How many legs do we have? Yes, two.**
4. **Let's feel the bee's legs on my bee puppet.** Prompt children to notice that bee legs feel fuzzy. Hand out six 1.5" black pipe cleaners per child. Count aloud as you give each child the pipe cleaners. **Real bees have hair on their legs that feel fuzzy, too. How do the pipe cleaners feel? Are they smooth? Are they fuzzy? Let's finish our bees by putting on the legs. How many go on each side? Yes, there are three on each side.** Insert legs on the thorax of the bee model.



5. Reveal the real flower. **Let's examine a real flower.** Rub the cotton ball on the inside of the real flower and show the children. **This powder is what bees get all over their hairy legs when they land on a flower. It's called *pollen*.** Let's look at a picture. Display the *Bee and Pollen* photograph. **The little yellow dots on the bee's legs are the pollen.**
6. Point to the paper flowers. **Do you see the paper flowers around the room? Each flower has glitter in its center.** Show the children a cup of glitter. **We'll pretend the glitter is pollen. Your job is to fly your bee from flower to flower. Gently land on the glitter, the pretend pollen. What part of the bee lands on the flower? Yes, the bee's legs.** Model the procedure by flying your bee from flower to flower in the classroom.
7. **Now we're ready to work like busy, buzzing bees.** Invite the children to leave the table and start gathering pollen. Encourage the children to make buzzing sounds. Allow 3-5 minutes for this activity. Then, ask the children to return to the hexagon-shaped "hive."
8. **Look at your bee's legs. What do you see?** Accept pollen or glitter as a response. **Why did the pretend pollen stick to your bee's legs?** Guide the children to notice that the pipe cleaners are fuzzy, just like the bee's legs are hairy.
9. **Why do you think there are different colors of pollen on your bee's legs? Yes, because your bee stopped at different types of flowers. The pollen from one flower has mixed with the pollen from another flower.**
10. **This is how bees help flowers spread their pollen from flower to flower. That's called *pollination*.** That's a long word. Can you say pollination? [pol-uh-ney-shuhn]. **Pollination is important for flowers. Most flowers need pollination so that more flowers can grow.**



NOTE: Some of the glitter may not stick or may fall off the pipe cleaners or “bee’s legs.” Do not add glue to the pipe cleaners (“bee’s legs”) to make the glitter stick. Describe for children how the glitter or “pollen” falls off the bee’s legs and body and lands on other flowers to make pollination possible.

INTERACT

Interact to accommodate children’s individual needs and strengths. Use these suggested strategies as needed:

- Some children may need help constructing their bee model. Provide assistance when needed or have them ask a friend for help.
- While the children are moving around the room with their bee model they may get overly excited. Encourage the children to use slow walking feet during this time.

OUTCOMES

1. Regroup the children in the ECHOS lesson area. **What did we discover today?** Listen to the children’s responses. If needed, use suggested prompts to elicit key concepts and vocabulary. Encourage responses from everyone.

- **Where do bees find pollen?**
- **How do bees collect pollen?**
- **Can you name some parts of a bee’s body?**

2. Give each child an *Ask Me About Bees* sticker.



Remind the children to tell their family something they have learned about bees.

3. After you have completed *Lesson #1: Pollination* with all the children in your classroom, add the ECHOS materials suggested below to your science area to encourage exploration.

VOCABULARY

- abdomen
- antennae
- honeybee
- pollen
- pollination
- stinger
- thorax
- wings



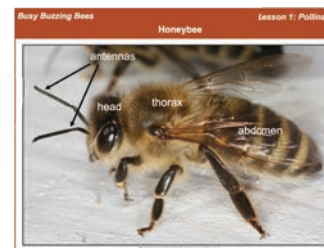
bee puppet



honeybee in resin
and magnifier



bee models



Honeybee photograph

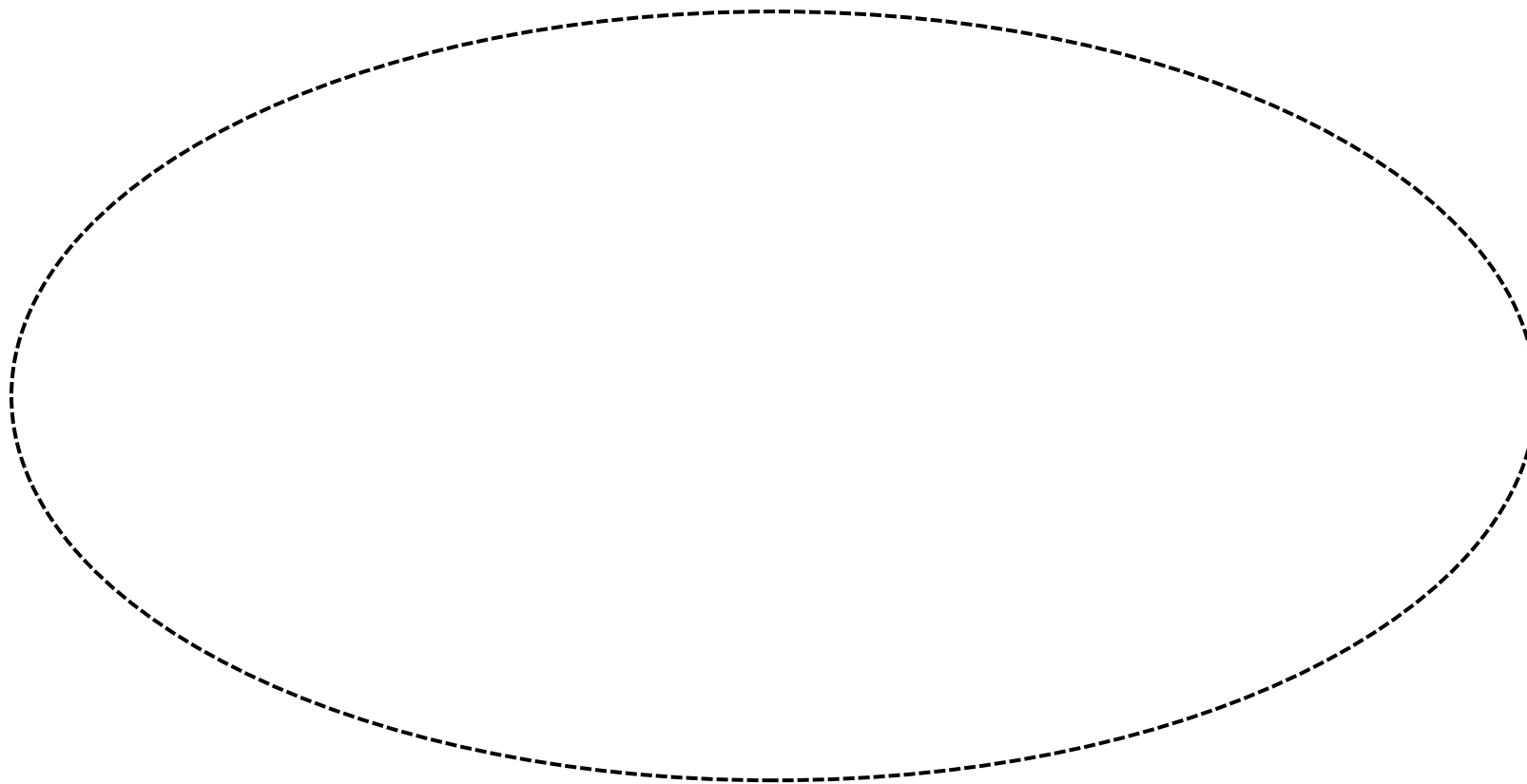
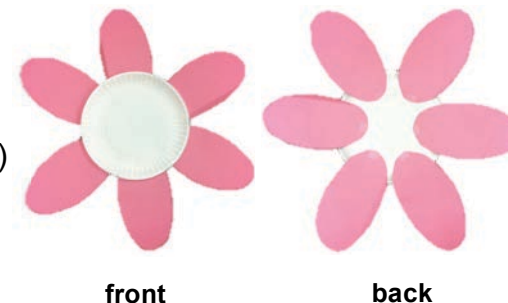


Bee and Pollen photograph

Flower Petal Stencil

Instructions:

1. Make one photocopy of this page.
2. Cut along the dotted lines to create a stencil.
3. Choose five different colors of 9" x 12" construction paper to make five different colored flowers. (For each flower, you will need three pieces of construction paper of the same color.)
4. Use the stencil to trace two petals onto each sheet of construction paper.
5. Cut out the petals.
6. Use a stapler or tape to secure six petals of the same color in a circular shape on the bottom of the paper plate as shown on the figure to the right.



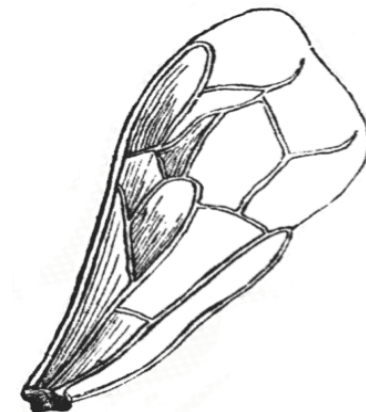
Bee Wing Template

Instructions: *This Template is optional. You can also cut ovals out of cardstock paper or a file folder and follow steps 4-5.*

1. Make one photocopy of this page per child.
2. Cut along the edges of each wing.
3. Glue each wing to a piece of cardstock, file folder, or poster board to reinforce them.
4. Cut out each wing once more. Each child will need four wings.
5. To reinforce the wings, tape an opened paper clip on the back as shown at right.
The metal edges will make it easier to insert into the play dough.



wing with paper clip



Honeybee

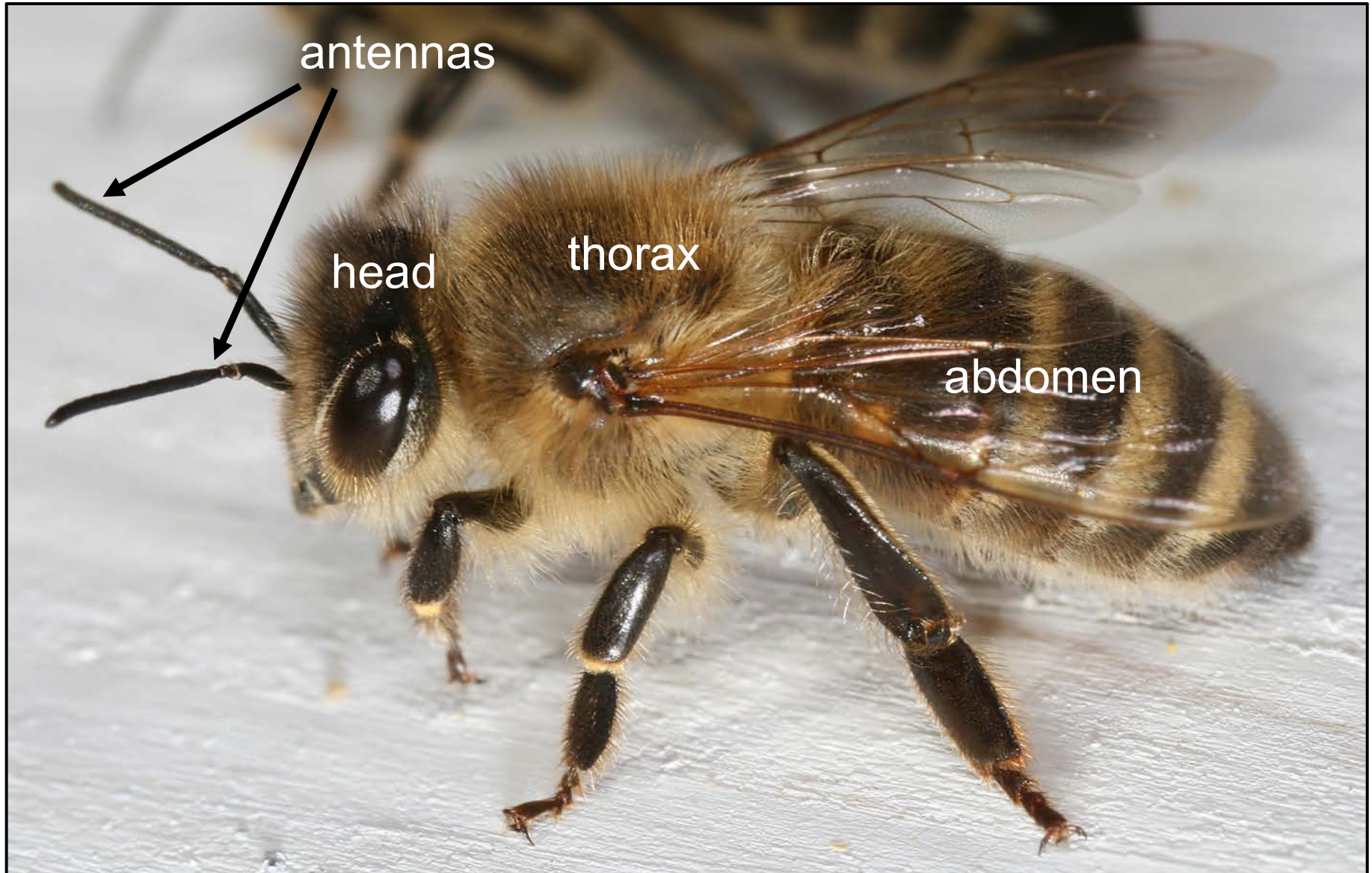


Photo Credit: Richard Bartz, Wikimedia Commons

Bee and Pollen



Photo Credit: Joaquim Alves Gaspar, Wikimedia Commons

Flower Petal Stencil

Instructions:

1. Make one photocopy of this page.
2. Cut along the dotted lines to create a stencil.
3. Choose five different colors of 9" x 12" construction paper to make five different colored flowers. (For each flower, you will need three pieces of construction paper of the same color.)
4. Use the stencil to trace two petals onto each sheet of construction paper.
5. Cut out the petals.
6. Use a stapler or tape to secure six petals of the same color in a circular shape on the bottom of the paper plate as shown on the figure to the right.



front

back

