

THE BUZZ ABOUT BEES

KINDERGARTEN-SECOND

Life Science TEKS

<i>Kindergarten:</i>	K.9A, K.9B, K.10A, K.10B
<i>First Grade:</i>	1.9A, 1.9B, 1.9C, 1.10A, 1.10B
<i>Second Grade:</i>	2.9A, 2.9B, 2.9C, 2.10A, 2.10B, 2.10C

Life Science Vocabulary

adaptations, adult, animals, bee, classify, drone, egg, environment, flower, food chain, habitat, head, eyes, interdependence, larva, leaves, living, metamorphosis, nectar, needs, nonliving, nutrients, offspring, organisms, pollen, pollination, produce, pupa, queen bee, seed, shelter, species, survival, worker bee

Pre-Show Activity

Pre-Show Lesson: The Buzz About Bees

Materials:

Flowers with pollen, hand lenses, black pipe cleaner

Per group: 2 different colors of cake sprinkles or colored sugar, 2 coffee filters, 1 Styrofoam cup, pen, black pipe cleaner

Procedure:

1. Ask students how they would feel or act if you told them there was a bee in the room. Lead a discussion about how they would act and why. Students are probably going to talk about how bees sting. Remind students that this is an adaptation bees have that helps them defend themselves, but that bees will not usually sting you unless they feel threatened. A bee can only sting once and then it dies. Ask students if bees are helpful to us in any way. Lead students to realize the importance of bees in pollination and food production.

- Why do bees go to flowers? **Answer:** They collect pollen and nectar for food.
- How does this help the bees? **Answer:** They cannot survive without food.

- Does this hurt the flower or help the flower? **Answer:** It helps the flower because the bees spread pollen which flowers need in order to make seeds.
- Lead students to see that both organisms depend on each other.

3. Show students some actual flowers with pollen on them. Let them observe the pollen with a hand lens. Demonstrate what happens when a bee's fuzzy body rubs against the pollen by rubbing a black pipe cleaner on the anther where the pollen is. Explain how pollen gets moved from flower to flower and why that is important. Ask students what adaptations the bee has to help it collect and move pollen. Ask students what adaptations the pollen has to enable the bee to move it.

4. Play the Pollination Game.

Materials:

Per group: 2 different colors of cake sprinkles or colored sugar, 2 coffee filters, one Styrofoam cup, pen, black pipe cleaner

Procedure:

1. Students will use a pen and draw a bee hive picture on the Styrofoam cup. They can also draw a flower on each coffee filter.
2. Students will make a bee for their group using the black pipe cleaner. They might want to leave a stem sticking out in order to hold the bee.
3. Put a spoonful of one color of sprinkles on one coffee filter in each group. Wipe off the spoon and put a spoonful of the other color of sprinkles in the other coffee filter. There should only be one color of sprinkles on each coffee filter.
4. Talk about the model with the students.
 - a. What do the coffee filters represent? (flowers)
 - b. What does the colored sugar represent? (pollen)
 - c. What does the cup represent? (bee hive)
 - d. What is in a bee hive? (queen bee, drones, eggs, larvae and pupa)
 - e. What does the pipe cleaner represent? (bee)
 - f. Can the flower make seeds? Why or why not? (No, they need pollen from a different flower.)
 - g. What do the bees in the hive need to survive? (pollen)

- h. Explain that it is the job of the worker bees to get the pollen and nectar. The black pipe cleaner bee is a worker bee.
5. Tell students that when you say go, they are going to use the bee to go out and collect pollen and bring it back to their hive. The more pollen they collect, the larger and more successful hive they will have. One person in the group will be the bee. Students will take turns being the bee by passing the bee to the person on their right when the teacher says switch. Once everyone has had a turn and you notice that the pollen is mixed on the flowers stop the game.
6. You may want to walk around and visually check to see which group collected the most pollen and has the most successful hive.
7. When students finish, they should notice that both flowers have both colors of pollen. Discuss this with the students.
 - a. Can the flower make seeds now? Why or why not?
 - b. Did the bees purposely try to help the flowers?
 - c. Did the flowers purposely try to help the bees?
 - d. How do bees depend on plants?
 - e. How do plants depend on bees?
 - f. What are some ways that plants may get pollinated other than by bees?
 - g. How do we depend on plants?
 - h. How do we depend on bees?
 - i. Are bees good or bad?
8. Introduce the word “interdependence” to the students.
9. Show a video that demonstrates pollination. There are many available on YouTube.

Post-Show Enrichment Activities

Activity One: Three Facts and a Fib

Older students will write three facts and a fib demonstrating what they learned about bees from the museum presentation. They will write three true statements and one that is not true, but sounds like it could be. Younger students can write or draw one fact and one fib. Allow students time to share their writing with each other and see if their classmates can guess the fib.

Activity Two: Bee Food Chain

Students can create a bee food chain in their science notebooks. This should start with the sun. The sun's energy goes to a plant (with pollen on it). The pollen goes to the bee. The bee gets eaten by a bird, black bear, dragonfly, etc. Introduce the words producer and consumer.

Activity Three: Waggle Dance

1. Take the students outside and have them stand in the "hive", which can be under a tree in the school yard.
2. Assign one student to be the queen, a few to be drones, and possibly some to be pupa/larva. The rest are worker bees. Have the worker bees close their eyes while one or two scout bees go out to hide a fake flower in the school yard. The scout bees are mimicking going out to search for nectar and pollen.
3. When the scout bee returns, the worker bees open their eyes as the scout bee wiggles his/her body (arthropod abdomen) in the direction of the food source.
4. The other worker bees fly out of the hive and try to find the hidden flower in the direction of the waggle dance. If they cannot find it, they can come back to the scout bee for more direction, but the scout bee can only communicate by moving his/her torso.
5. When they find the flower, everyone pretends to take a sip of nectar, then returns to the hive to feed the bees in the hive.

Activity Four: Metamorphosis

Students will show the life cycle of a bee by drawing it on a paper plate or in their science notebook. See Appendix A-1 for the life cycle. Be sure to introduce the words egg, larva, pupa and adult. Discuss each stage of the life cycle with the students. Also, introduce the word metamorphosis. Have students work in groups to create a skit to demonstrate the stages of a bee's metamorphosis.

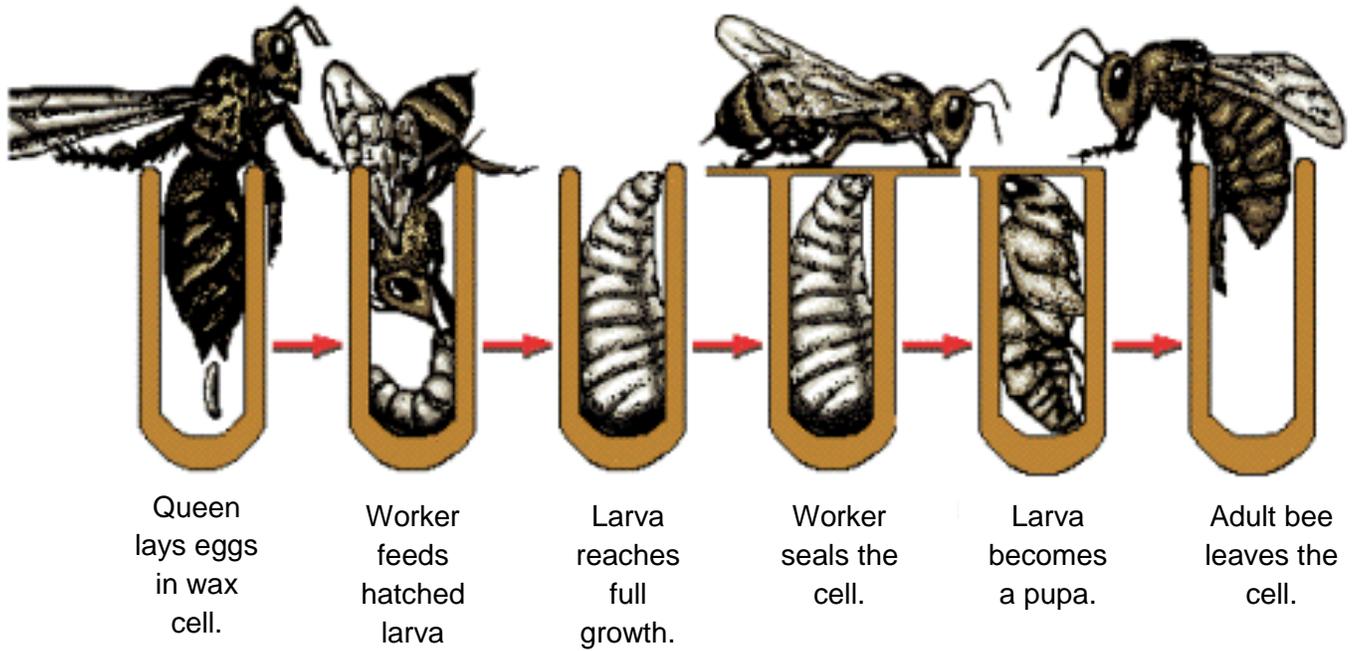
Activity Five: Bee and Flower Interdependence

1. Run the drawings in Appendix A-2 on cardstock.
2. Each student should get a bee and a flower card. Do not cut the bee and flower apart.
3. Fold the card on the line in the middle. See Appendix A-3 for example.
4. Place the fold over the top of the eraser end of the pencil and tape it together so it stays together.

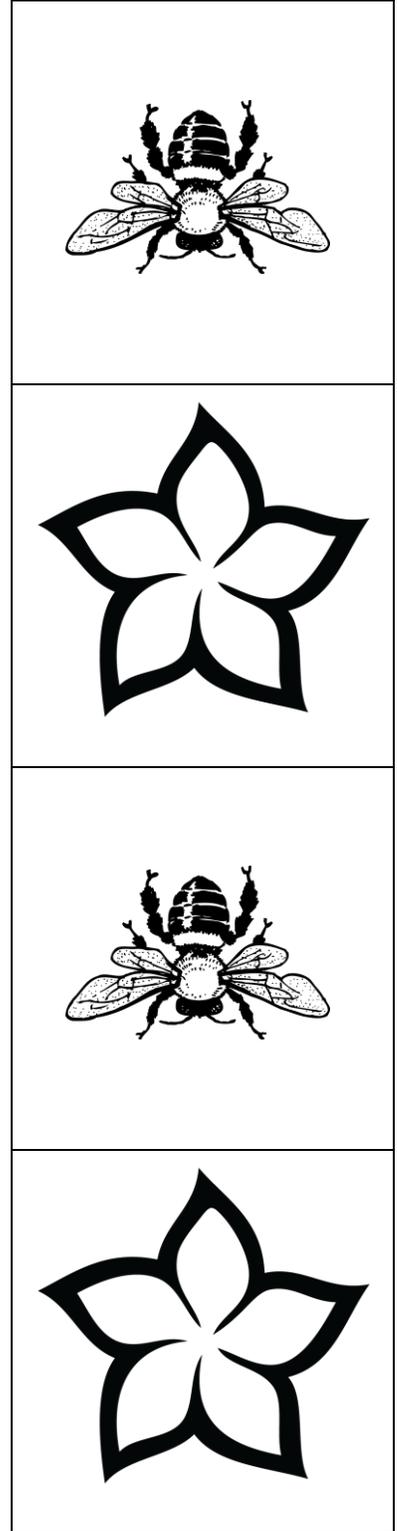
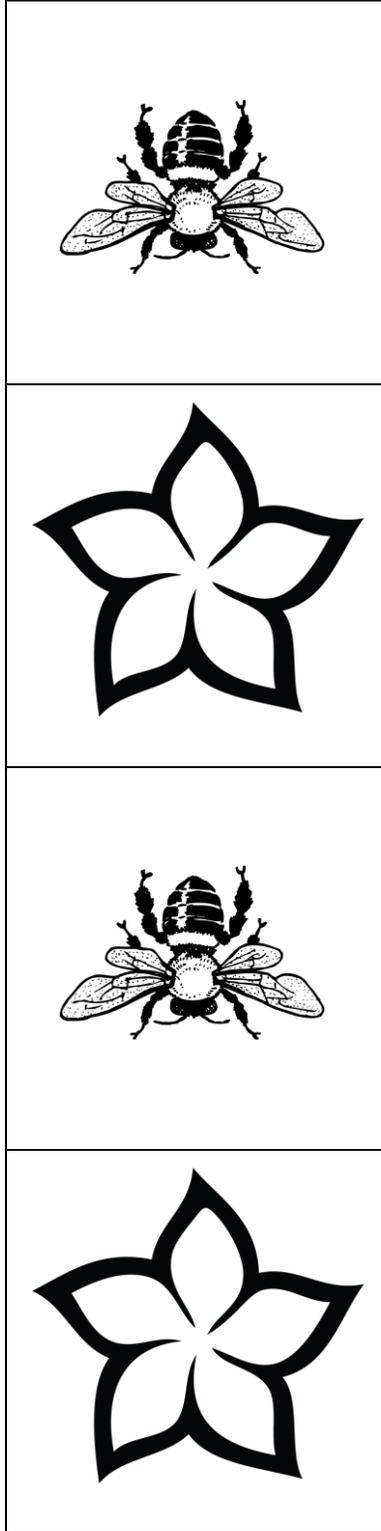
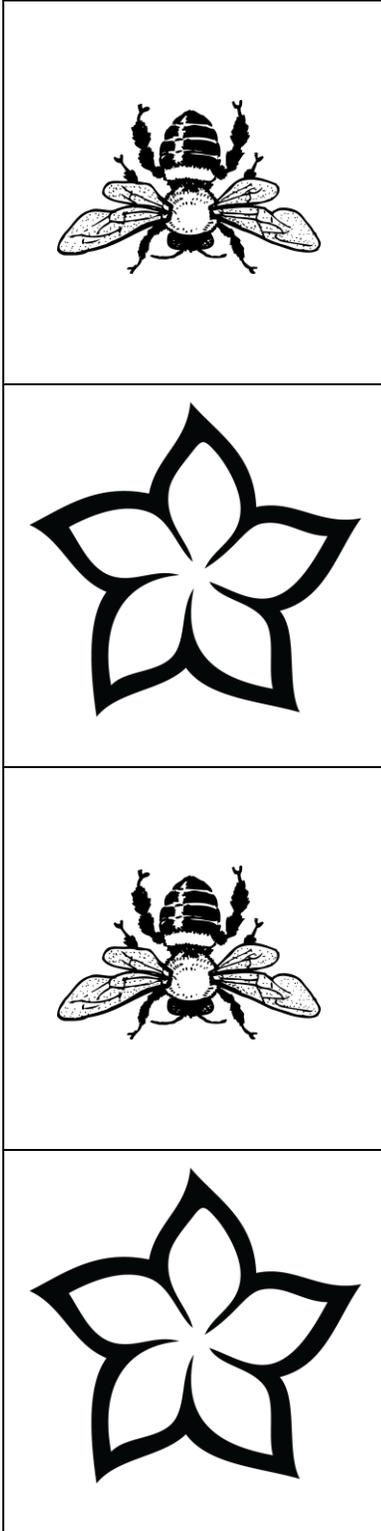
When the pencil is rotated, it will appear that the bee is in the flower. This demonstrates the idea of persistence of vision. When we see an image, it persists for about 1/16 of a second. If another image appears within that time, we will see both. Thus, the bee appears to be in the flower. This also demonstrates the interdependence of the bee and the flower.

Appendix

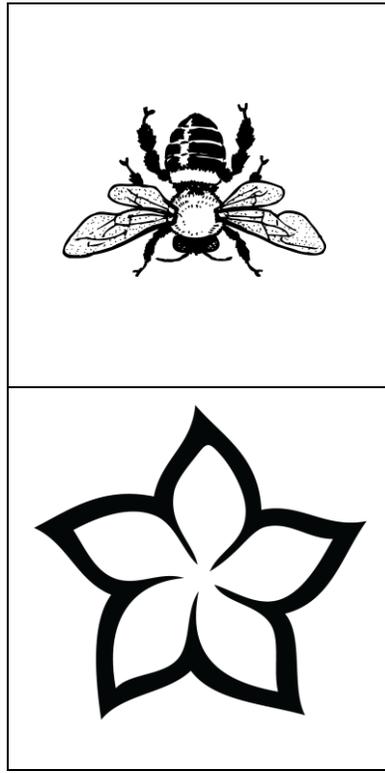
A-1



<http://getbuzzingaboutbees.com/a-guide-to-honey-bees/life-cycle-of-the-honey-bee>



A-3



← Fold here.