

**Activity: Busy Bees**

**Grade Level:** Kindergarten

**Major Emphasis:** Animal Needs and Characteristics

**Major Curriculum Area:** Science

**Related Curriculum Areas:**

Refer to Outdoor Education Curriculum Matrix K-2

Social Studies

Mathematics

Language Arts



**Program Indicators :**

1. The student will develop the understanding that living things have anatomical parts that serve particular purposes and create a whole.
2. The student will develop the understanding that individuals interact with others to achieve common goals.

**Student Outcomes:** The student will:

1. listen and observe in order to describe how honeybees interact in their community. **(DL2,5)**
2. listen and observe in order to describe how honey is collected and used as a product. **(DL2,5)**
3. measure and mix ingredients to make a honey snack. **(DL2)**

**Readiness:**

1. Introduce vocabulary:
 

queen	drone (male)	worker (female)	community
pollen	nectar	honeybee	hive
2. Discuss the parts of a honeybee:
 

head	body (thorax and abdomen)	antennae	tongue
legs	wings	stinger	
3. Discuss communities and roles of individuals.

**Materials:**

- |                            |   |
|----------------------------|---|
| observation bee hive       | spoons  |
| bee plastomounts           | mixing bowls  |
| honeybee study prints      | honey   |
| beekeeping equipment:      | honeybee puzzle   |
| man-made hive, smoker,     | <u>Honeybees Busy Day</u> by Richard Fowler             |
| hive tool, bee brush,      | <b>Honey Milk Ball Supplies</b> (provided by teacher)   |
| decapping knife, extractor | graham crackers & plastic bags or graham cracker crumbs |
| beekeeper's clothing:      | powdered milk   |
| veils, coveralls, gloves   | peanut butter   |
| measuring cups             | waxed paper   |

## Procedures:

### Activity A: Hive Observation

1. Students should be seated on carpet squares in the hive observation area.
2. Using the honeybee study prints, introduce basic information about the honeybee including the three bee types (queen, worker, drone), their jobs in the honeybee community and bee body parts that they use to do their jobs. Refer to Supplement A for text.
3. Allow students to view bee plastomounts containing preserved bees.
4. Open the rotating observation hive and encourage the students to observe the hive. Assist students in finding the queen (who is marked), worker bees, worker bees entering and exiting the hive, fanning or carrying pollen on their legs. Depending on the time of year, it is difficult to locate drones, so it not recommended that much time be spent looking for them. In addition, have the students listen near a hive vent to hear the sounds of the bees. If available, additional hivesCa tree hive and outdoor man-made hivesCmay be observed at the Outdoor Education Center.

### Activity B: Bee Keeper

1. Using study print 12 and the beekeeper=s equipment, explain and demonstrate the purposes and techniques of beekeeping. Refer to Supplement B for text.
2. Show students the beekeeper=s veil, gloves and coveralls, discussing the need for protection from bee stings. Allow students to pretend to be beekeepers. Have them try on beekeeper=s veils and gloves and gently turn the handle of the extractor.

### Activity C: Honey Milk Balls

**Recipe** (serves up to eight students)

1/4 cup honey	1/4 cup peanut butter
1/2 cup powdered milk	3/4 cup graham cracker crumbs

1. Seat students at the table.
2. Discuss the honeybee as the producer of honey and the fact that people use honey. Preview the recipe using the recipe chart, assisting students in recognizing words, numbers and pictures.
3. Allow students to participate in measuring and mixing the ingredients. Encourage additional participation by having the group count the number of times each student stirs the mixture.
4. Give each student a square of waxed paper.
5. Give each student a spoonful of the mixture to form into a ball inside the waxed paper.
6. Encourage students to taste their honey milk ball.
7. If time allows, complete the honeybee puzzle, reviewing how bees use the various body parts and read Honeybee=s Busy Day.

**Summary:**

1. Name the three types of bees in the hive (queen, worker and drone) and describe their jobs.
2. Name a body part of the honeybee and tell how it is used.
3. Tell why honeybees are important to people.

**Follow-Up:**

1. Do a follow-up writing activity such as LEA or a journal entry based on the Busy Bee activity.
2. Make a honeybee puzzle. Refer to Supplement C.
3. Make a honeybee puppet. Refer to Supplement D.
4. Role-play the jobs of the worker bees in their community.
5. Label the parts of the honeybee. Refer to Supplement E.

**Extension:**

1. Allow students to taste honey and describe the taste. Create a web of other sweet foods. Have students identify a personal preference and graph their responses.
2. Use the concept of the bee community to foster a discussion of the roles of people in a family.
3. Investigate other animal communities.
4. Recreate a honeybee community using egg crates or cartons for the honeycomb and foam packaging peanuts as bees.
5. View [The Magic School Bus Gets Ants in its Pants](#); compare and contrast the ant and honeybee communities.

**Teacher Resources:**

## Books:

- < [\\*Honeybee Activity Book](#)
- < [\\*Honeybee Coloring Book](#)
- < [\\*Honeybee Guidebook](#)
- < [\\*The Life of the Honeybee](#), Fischer-Nagel, Heiderose and Andreas, Carolrhoda Books, Inc.
- < [\\*Honeybees](#), Lecht, Jane, National Geographic Society.
- < [Honeybees](#), Rowan, James, The Rourke Corporation, Inc.
- < [Honeybees Busy Day](#), Fowler, Richard, Harcourt, Brace & Co.

## Supplementary Material:

- < Honeybee Study Prints
- < Peabody Kit (Level K) - [A Bee Picture](#) and [A Animal Sounds](#).

## Hive Observation Text

- Print 1    Hive/Worker Bees    This is the home of the honeybee, the hive. Many bees live together as a community in one hive. There are three kinds of honeybees in the community. The ones pictured here are worker bees. Their job is to build the hive. They build it out of wax. The worker bees also take care of the baby bees that you can see growing in these cells.
- Print 2    Food Gathering    Another job of the worker bee is to visit flowers to gather food. They gather pollen, which looks like powder. See it on the bee's body. She will carry the pollen back to the hive in the pollen baskets on her legs. She will also gather nectar, the sweet juice of the flower. She drinks it with her long tongue, which is like a straw.
- Print 3    Food Sharing    When she gets back to the hive, she will feed some of the nectar to other bees because only some of the bees leave the hive to gather food. Some of the nectar will be saved and it will turn into honey.
- Print 4    Fanning    This worker bee is busy, too. She's fanning her wings to cool the hive.
- Print 5    Queen    Does one of these bees look different from the others? This is the queen and her body is longer than the other bees'. Her job is to lay eggs. Although there are many worker bees in the hive, there is only one queen.
- Print 6    Egg Laying    The queen in this picture is marked so she is easy to find. You can't see her long body because it's inside a cell where she's laying an egg. The worker bees around her are taking care of her. That's another one of their jobs.
- Print 7    Growth/Change    After the egg is laid, it changes and grows into an adult bee.
- Print 8    Queen Cell    This is a special cell called a queen cell where a baby queen is growing.
- Print 9    Hatching    This is a new bee hatching out of its cell. Hatching bees come out head first.
- Print 10    Drone    This is the third kind of honeybee in the community, the drone. This is a male or a boy bee. His job is to be the daddy bee. He has very large eyes and no stinger. Both the queen and workers have stingers.
- Print 11    Swarming    This is moving day. If the hive gets too crowded, the queen and half of the workers will leave. This is called swarming. They will wait on a branch while scout bees find a new home for them. Then they will move into a new home and start a new community. The bees in the old hive will have made a new queen.

Now that we have learned about bees from these pictures, let's look at the bee hive here and see if we can find what we learned about.

## Bee Keeper Text

Print 12 This is a beekeeper. He uses a man-made (made by people) hive for the bees and takes care of them. He does this so he can get something from the bees. Do you know what it is? It's honey. Remember, bees make honey from flower nectar. Describe his hat for me. It is called a ~~A~~veil. Why does he wear it?

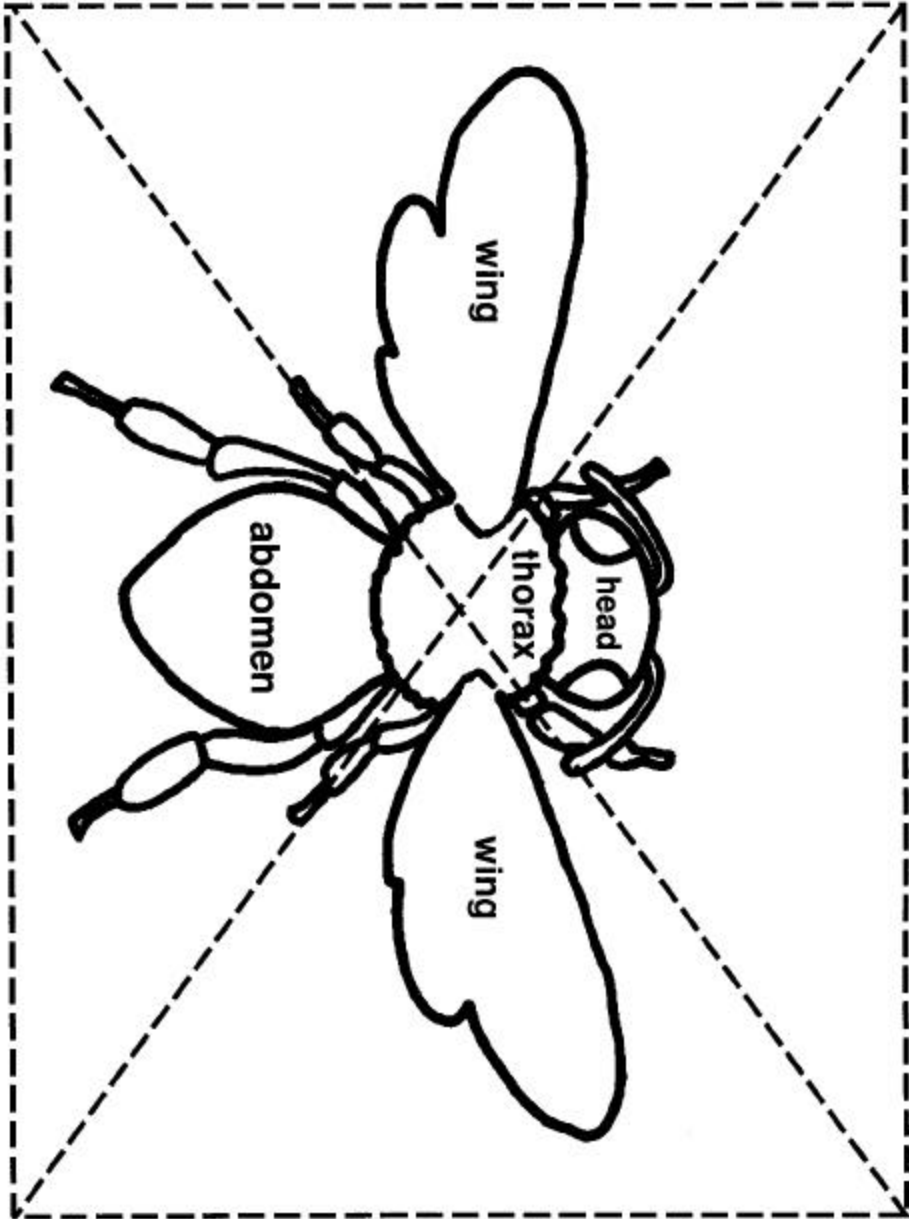
Let me show you how a beekeeper gets honey from a hive.

- |                 |   |
|-----------------|---|
| Man-made hive   | This is a man-made hive and this is the door for the bees to come and go.   |
| Smoker          | When the beekeeper wants to open the hive to get honey, he uses the smoker to make the bees safer to handle. He puts leaves or cloth and a lighted match in the smoker to start a fire. He then squeezes puffs of smoke into the door of the hive. This fools the bees and makes them think their house is in danger from fire. The worker bees fill their stomachs with honey just in case they have to fly to a new home and take food with them. When their stomachs are full of honey, they move more slowly and they are easier and safer to handle. |
| Hive Tool       | The beekeeper then opens the hive and takes out the frames using the hive tool. He needs this tool because the bees seal the hive with a sticky substance from trees.   |
| Bee Brush       | The beekeeper brushes the bees off of the frame and back into the hive.   |
| Decapping Knife | He then uses the hot decapping knife to remove the wax that covers the stored honey.  |
| Extractor       | The beekeeper then puts the frames in the extractor and turns the handle to spin the frames. The honey spins out and gathers in the bottom. The beekeeper can then drain the honey into jars from the spout.  |

When the beekeeper is finished, he puts the frame back into the hive, and the bees can reuse it.

# Honeybee Puzzle

- 1. Color the honeybee.
- 2. Cut on the dotted lines to make a puzzle.



## Honeybee Puppet

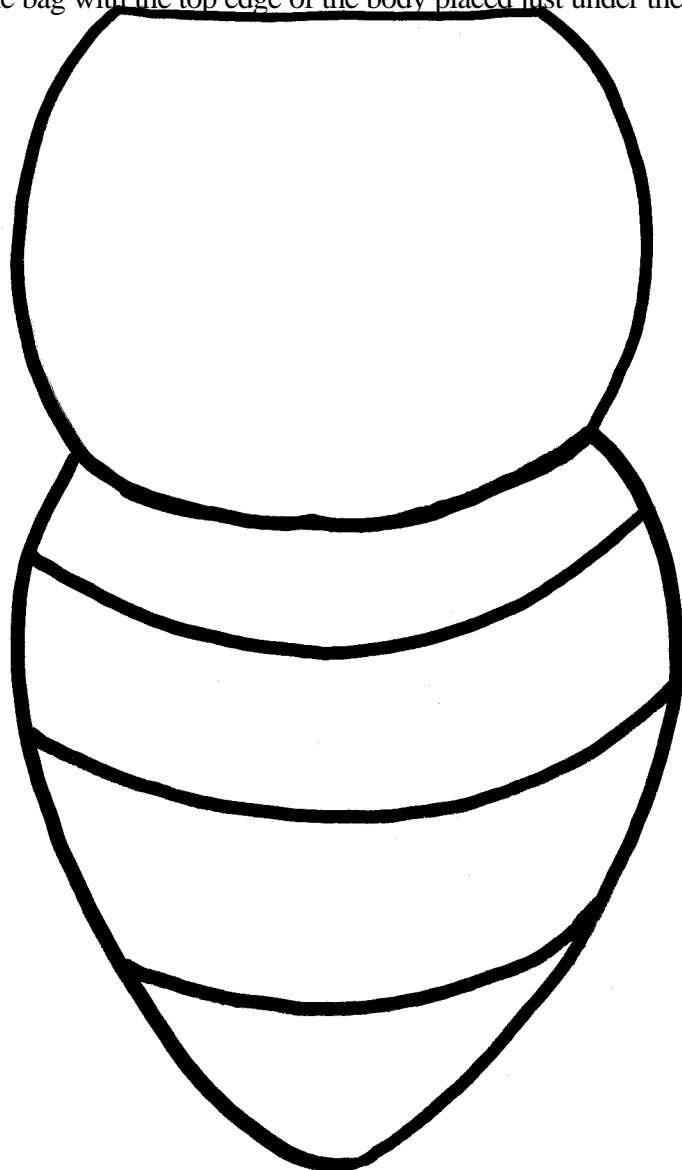
### Materials (per puppet):

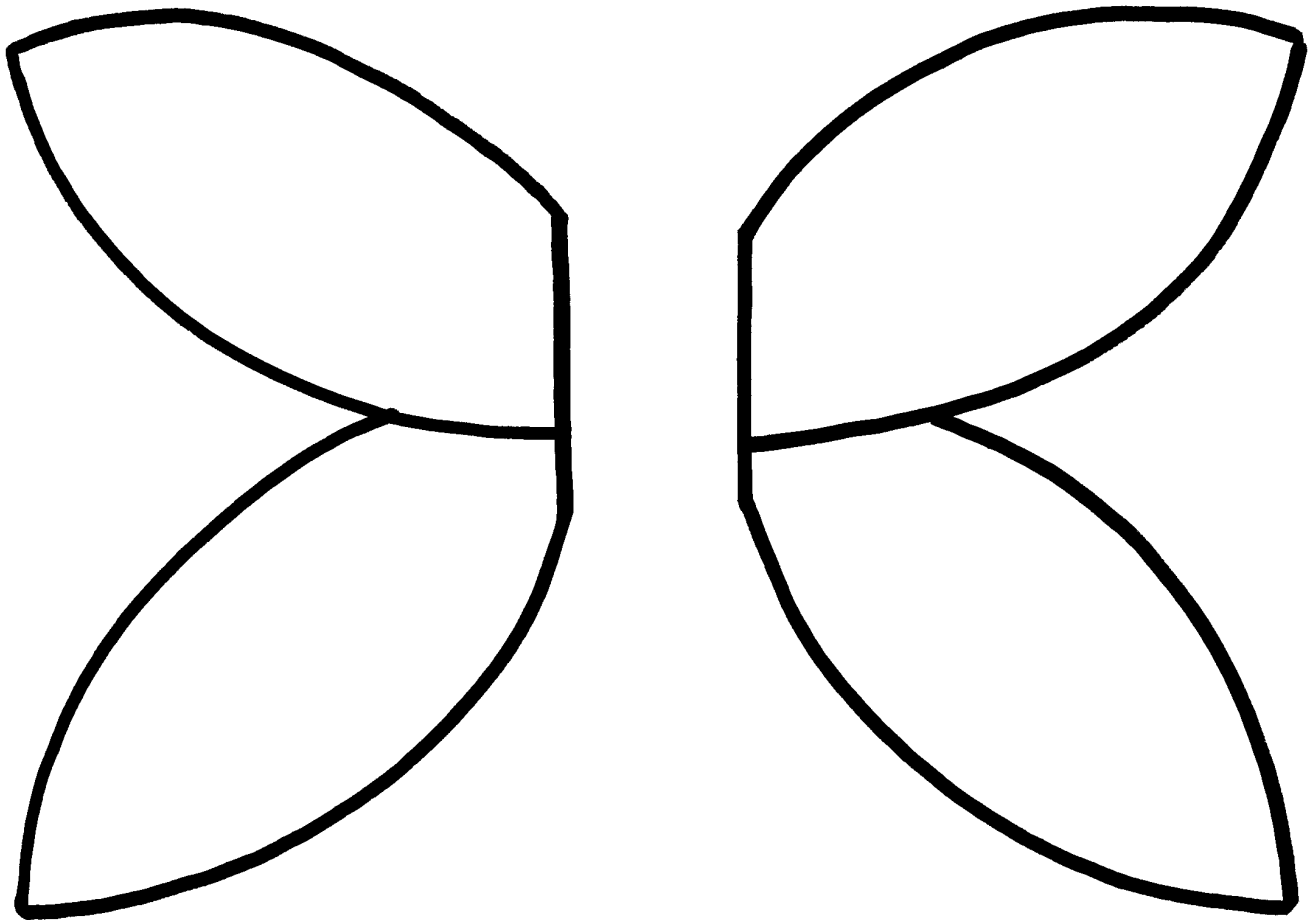
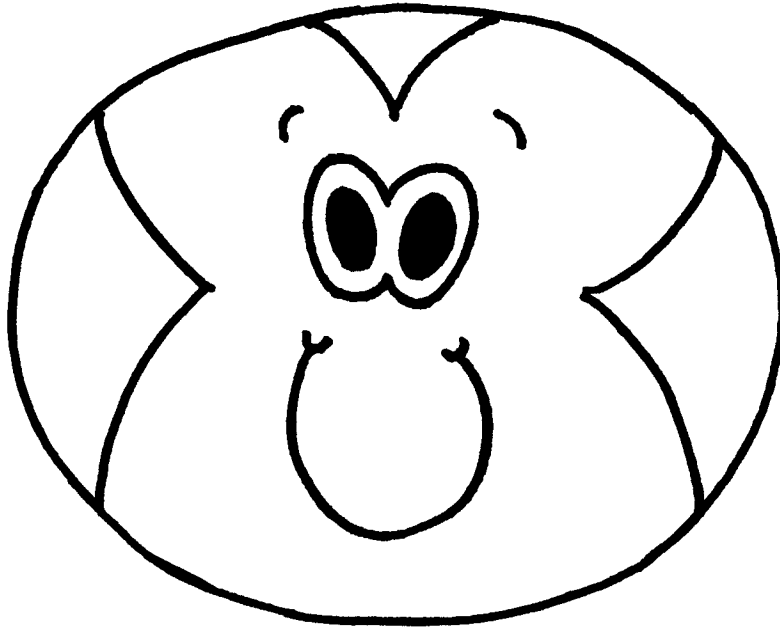
puppet parts (head, body, wings)  
brown or white lunch bag  
scissors  
glue

six strips of black construction paper (3/8" x 3 1/4") or  
6 black pipe cleaners for legs  
two small strips or black pipe cleaner for antennae

### Procedure:

1. Color the puppet parts.
2. Cut out the puppet parts.
3. Glue the head to the bottom of the bag.
4. Glue the six legs to the back of the thorax.
5. Glue the wings to the back of the thorax.
6. Glue the completed body to the long part of the bag with the top edge of the body placed just under the flap of the bag.
7. Glue two antennae to the top of the head.





## Honeybee Labeling

1. Cut labels on dotted lines.
2. Glue labels on lines to correct parts.

**head**

**thorax**

**abdomen**

**wing**

**leg**

**antenna**

