

**4-H at
HOME**



4-H Pollinator

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POLLINATORS ISSUE

The Honey Bee



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TO BEE OR NOT TO BEE... YOU WILL BE A BEEKEEPER



That's right folks! You are going to dive deep into the world of bees, and after you do a few fun activities, you'll have the knowledge you need to become a junior beekeeper. Along the way, you will learn so many cool things about bees! Even if you do not own bees (not many of you probably do) you will learn a lot about things about wax, honey, and the biology of bees. There have been many people throughout the ages who have kept bees, including Thomas Jefferson, Leo Tolstoy, actor Henry Fonda, and even Benjamin Franklin (and the fictional character of Sherlock Holmes).

LET'S START

The first thing we need as a beekeeper is to have a honey bee name. You can be creative and write it on a strip of paper that you tape to your shirt like a name tag. Here are some example names: Buzzing Brandon, The Bee Whisperer, Stinging Steve - you get the idea.

“

A SPOONFUL OF HONEY WILL CATCH MORE FLIES THAN A GALLON OF VINEGAR.”

- BENJAMIN FRANKLIN

DID YOU KNOW?

The art of beekeeping has been around for thousands of years. Even the ancient Egyptians had jars of honey. And because honey never gets rotten and bacteria never grows on it, honey is still good even after a very long time. In fact, they found jars of honey from the ancient Egyptians that were still good to eat! Yum.

TOP REASONS TO BE A BEEKEEPER

- Beekeeping means you get to be close to nature.
- Studying bees is studying science.
- Bees are a really vital part of ecosystems around the world.
- Taking care of bees teaches you responsibility.



HONEY BEES ARE IMPORTANT FOR OUR FOOD



THANKS TO BEES, WE HAVE FOOD!

Next time you go to the grocery store, look around. So much food! And all of it was made possible by pollination, which is when pollen is transferred from one flower to another to help the plant grow seeds for reproduction. In fact, honey bees are responsible for a third of the food that we eat. Imagine that! If you divided your food into three equal parts, one of those is thanks to the bees.

BEE KEEPERS ARE IMPORTANT FOR GROWING FOOD

As a beekeeper your role is very important. Beekeepers transport bees for pollination to many different places in the US. They go to California in February for the almond trees, then to Washington in April for the apple orchards, and to Maine in May for the blueberries, and so on.



HONEY BEE BIOLOGY



BEES ARE VERY HAIRY

Being hairy helps bees inadvertently capture pollen from the flowers they land on. Pollen sticks to their hairs, in part because bee hairs have little branches in them – similar to the barbules on bird feathers – and those branches help to snag the pollen.



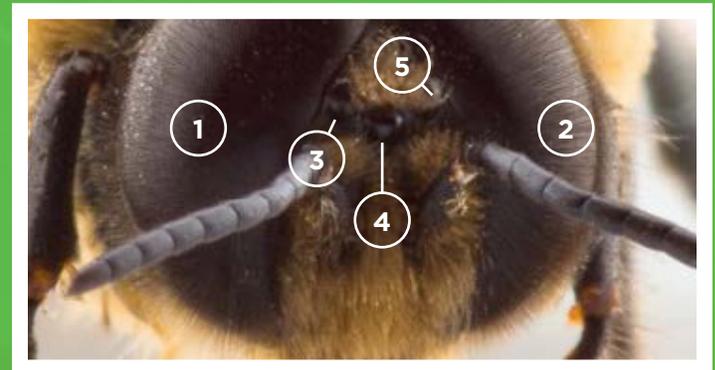
HAIR ON THE EYES

Bees even have hair on their eyeballs. These tiny hairs help them to know the wind direction and how fast they are flying. **Super cool!**



BEES HAVE FIVE EYES

They have two main compound eyes located on the sides of their head made up of thousands of smaller tubes; these eyes are called ommatidia. And they also have three smaller eyes, called ocelli, located on their foreheads.



PROBOSCIS

The proboscis is the tongue of the bee, used like a straw to suck up fluids such as nectar, honey, or water.



MAKE YOUR OWN

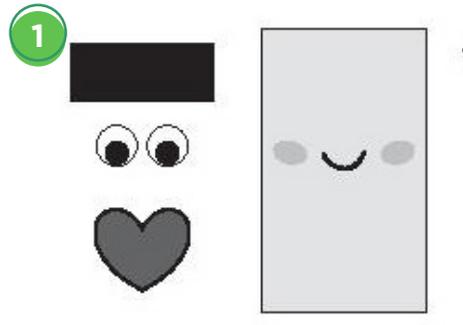
Craft Honey Bee

ABOUT THE ACTIVITY

You will be creating a honey bee using things you can find around your house, including a toilet paper roll, construction paper, pipe cleaners, glue, scissors, markers, and googly eyes, if you have them.

DID YOU KNOW?

There can be over 60,000 bees in one hive? That's a lot of Bees! It takes 12 Honey bees their whole lives just to make 1 teaspoon of honey.

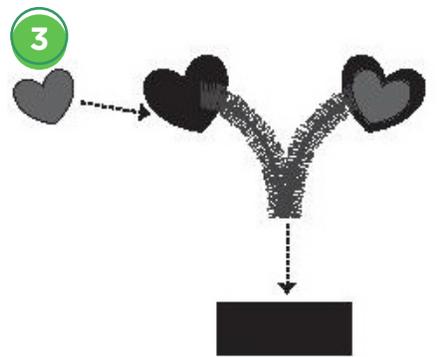
STEP 1:

Tape or glue a strip of yellow construction paper around your toilet paper roll. If you don't have yellow construction paper, you can simply color your roll with a yellow marker. construction paper, use markers to color your paper.



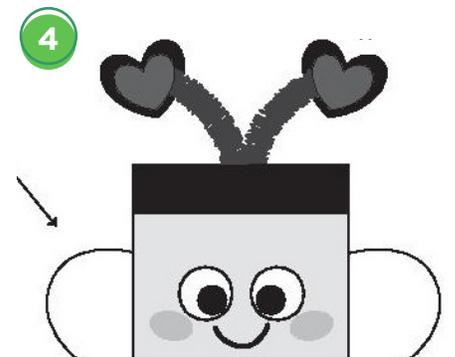
STEP 2:

Using the picture as a guide, trace and then cut out wings, black strips and red hearts (and also slightly larger black hearts); if you don't have black or red construction paper, use markers to color your paper.



STEP 3:

Fold the pipe cleaner in half and glue the black hearts on the ends.



STEP 4:

Using the picture above as your guide, glue on the black strips, eyes, hearts and wings.

Source: © 2019 Oriental Trading Post

THE HONEY TASTE TEST

Honey is one of the foods that the honey bee produces. They store honey in combs for later use. Honey has different flavors depending on the types of flowers that the bees visit. Humans can also add flavors to the honey as well. If possible, the next time you or your parents go to the store, buy small containers of each of the four kinds of honey listed below - orange, buckwheat, wildflower, and clover blossom. Then get ready to taste! As a beekeeper your job is to taste the honey for flavor and quality. For Round 1 you will choose between the first two flavors then choose between the next two and write your favorite in the yellow for Round 2. Then decide your favorite flavor and post in the pink block.



ROUND 1

ROUND 2

FINAL

ORANGE

- VS -

BUCKWHEAT

WILDFLOWER

- VS -

CLOVER BLOSSOM

.....

.....

.....



HONEY BEE FACTS



HONEYCOMB

Honeycombs are hexagonally shaped cells that hold honey and bee larvae. The hexagon is the strongest known shape, so the honeycomb is a very secure place!



WAX GLANDS

The honey bee's abdomen has special glands that secrete wax, which bees use to help them build and repair their comb. This all happens when the bee is in the "house bee" stage.



BEES CAP CELLS

Honey bees also use wax to seal the cells filled with larva or honey. When they are covered they are called capped. Capped cells tell the beekeeper that the honey is ready.



HONEY FROM THE COMB

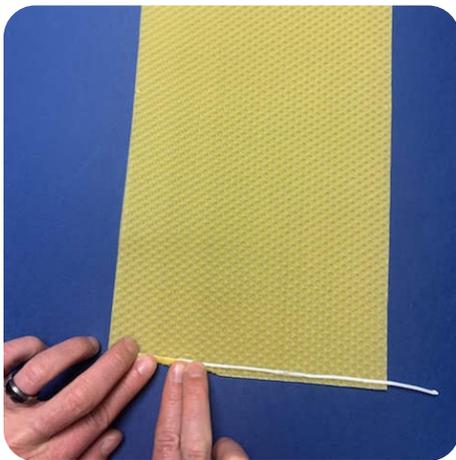
Often beekeepers will sell honey with the wax comb. People will chew on the comb and swallow the honey. **Yum!**

MAKING A

WAX CANDLE

ABOUT THE ACTIVITY

Now that you have learned about how honey bees make wax, now you get to make your own rolled wax candle! You'll need wax sheets and wicks - things that you can usually buy at a grocery store, a craft store, or online. Then, follow these simple steps:



STEP 1:

place the wick along the short edge of the wax sheet. Allow the wick to stick out a few inches. This will be the top of the candle. Then fold the wax over the wick tightly.



STEP 2:

Start rolling the candle tightly so that there is no space between each roll.



STEP 3:

Once it is all rolled, press firmly on the edge of the wax so that it sticks to the rest of the candle.

Source: [The Honey Files A Teaching guide](#), National Honey Board 1, 1409 Business Park Circle, Suite 210 Firestone, CO 80504
www.honey.com, Penn State Extension Beekeeping 101

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