

# Social Bees

## **Social bees are bees that live together as a family.**

They share the work of building a nest, foraging for food and caring for young. Honey bees and bumble bees are examples of social bees.

## **Honey bees live in hives.**

Honey bees live together in a hive. A hive is an above-ground structure where a group of bees **nest** (live) together. A hive can be made by people, or it can be made by bees in the wild. Inside the hive, honey bees use wax to make honeycomb. It has cells honey bees use to raise their young and store honey and pollen. Each cell is a hexagon (6 sided).

**What do superheroes have in common? They all have superpowers!** 10

**Can you guess what honey bees' superpower is? They make and store honey!** 23

In fact, they are some of the only bees that can! Honey making is 37

an amazing process. First, older worker bees collect nectar 46

from flowers. They swallow the nectar and fly back to the 57

hive. There, they spit it out and pass it off to another, 69

younger worker bee. The younger bee takes the 77

nectar and swallows it herself. This process is called 86

**trophallaxis** (tro-ful-AK-sis). The younger bee travels to an open section of honey comb 99

and spits the nectar out into an open honeycomb! Ewwwww! How can something so 113

gross taste so good? Well, the bees' spit has special chemicals called **enzymes**. As the 128

nectar sits in the honeycombs, the enzymes make its sugars easier to **digest** (break 142

down when they are eaten). 147

Younger worker bees take turns fanning the nectar with their wings. This causes water 161

in the nectar to **evaporate** (dry up and change to gas). The nectar becomes sweeter and 177

stickier. After a few days, it turns into honey. Unlike nectar, which can easily **spoil** (go 193

bad), honey can stay good to eat for a long time if it doesn't get wet. 209

Next, the worker bees cover the honey in the honeycombs with wax. Do they do this 225

to keep it warm? No! The wax keeps water out of the honey. That's important because 241

the honey is the bees' food. All winter, when there are no flowers blooming and it is too 259

cold to go outside, they will eat it for energy. Storing honey allows bees to stay active 276

year round! Have you ever seen honey bees flying on a warm day in December? They 292

aren't out to play! They are probably pollinating an early crop like almonds. 305

**Honey bees don't wear masks or fight crime. But now you know why they're superheroes!** 318

## *Fluency Tracker*

Day 1 \_\_\_\_\_, Day 2 \_\_\_\_\_, Day 3 \_\_\_\_\_, Day 4 \_\_\_\_\_, Day 5 \_\_\_\_\_



## Honey bees making honey and more!

1 During the spring and summer, older worker bees leave the hive to search for flowers within five miles of the hive.



2 These worker bees collect nectar from up to 100 flowers per flight! By visiting these flowers they also pollinate them. Many of these pollinated flowers become the food we eat!



3 They swallow nectar and store it in their honey stomach. Once full of nectar and pollen, they fly back to the hive.



4 They pass the nectar from their stomach to a younger worker bee who swallows it into their stomach. The younger worker bee takes it and spits it into an open honeycomb cell.



5 Younger worker bees fan the nectar, so water evaporates. The nectar gets thicker and begins turning to honey.



6 They cap the honey with wax to keep it from spoiling so that they can eat it throughout the winter.



7 Honey can be harvested for people to eat. Beekeepers leave some honey in the hive for the bees, too!

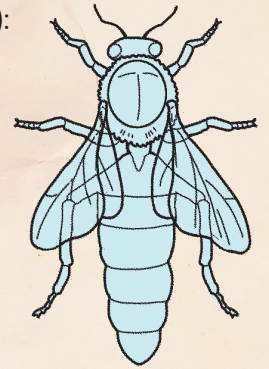


## Who is in the hive?

These three types of bees play different roles in the hive. Honey bees living in a hive have a caste system made up of a queen bee, drones and worker bees. Each relies on the others to keep the hive healthy.

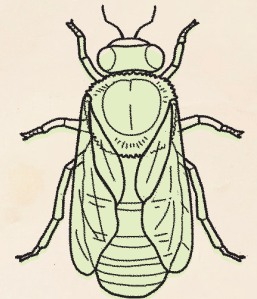
### Queen bee (about 1 inch long):

The queen is the mother of all the bees in the hive. Her job is to lay eggs to make more bees. Most queen bees leave the hive only once in their life, when it's time to mate.



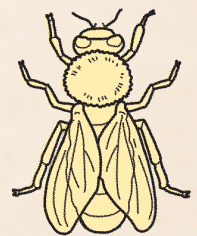
### Drones (about 3/4 inch long):

Male honey bees are called drones. They are produced in the summer and their job is to mate with queens from other hives. They do not have a stinger, don't work or gather food and are fed by worker bees.



### Worker bees (about 1/2 inch long):

Worker bees are all female and have different jobs depending on their age. When they are young, they start off cleaning the hive and then caring for and feeding young larvae. In their last stage of life, they become foragers, bringing in nectar and pollen to feed the bees in the hive. They use a figure-eight dance called a *waggle dance* to communicate. It tells other bees the direction and distance away from the hive to a flower patch.



1 inch = 25.4 millimeters



Aster

**Fun Fact!** The color, flavor, texture and smell of honey changes depending on which flowers the nectar comes from. To make a pound of honey, about 2.6 million flowers must be visited!

Visit [FoodHero.org](http://FoodHero.org) for great tasting recipes with honey in them!

