



UNIT FOR WEEK 1

INSIDE THE HIVE



MEET THE HONEY BEE



ASK THE AUDIENCE

- Who has seen a honey bee outside of the hive?
- Has anyone heard stories or seen movies about bees?
- Has anyone ever seen a queen bee?

FUN FACTS ABOUT HONEY BEES

The honey bee has been around for about 30 million years.

Honey bees are one of the few bees with hairy compound eyes.

The honey bee's wings stroke over 200 times a second! This fast motion is what creates the distinctive honey bee buzz.

During honey production periods, spring and summer, a worker bee's life span is about 6 weeks.

The average honey bee will actually make only one twelfth of a teaspoon of honey in its lifetime... About the size of your pinky fingernail.

Bees die after they sting! The stinger has a barb that is attached to the abdomen; so, when they sting they lose part of their abdomen and die.

Honey bees can perceive movements that are separated by 1/300th of a second. Humans can only sense movements separated by 1/50th of a second. Were a bee to enter a cinema, it would be able to differentiate each individual movie frame being projected.

Queens will lay almost 2000 eggs a day at a rate of 5 or 6 a minute. Between 75,000-200,000 eggs are laid per year.

BEE HIVE MEMBERS

QUEEN: She is just that, the queen of the hive. There is only one queen in a colony of bees, and she serves as the central focus of the **colony**. She is a completely developed female and is the only honey bee that lays eggs. The queen is also the only honey bee without a barb on her stinger. This means that she can sting repeatedly without dying. This feature allows her to kill other queens who may venture into the hive.

While she starts out the same as all the other worker bees as a simple egg, the queen is cared for differently. When her egg is selected to become the queen, the **larva** is fed a rich diet of **royal jelly** (a milky, rich bee secretion) for the entire time that she is developing into a mature bee... a total of 16 days. This is the reason that her abdomen is 2-3 times larger than all of the other bees, for they only receive royal jelly for 3 days. Usually, the colony produces several queens for security of survival. If so, when the queens hatch, they fight to the death so that one queen lives to reign over the hive.

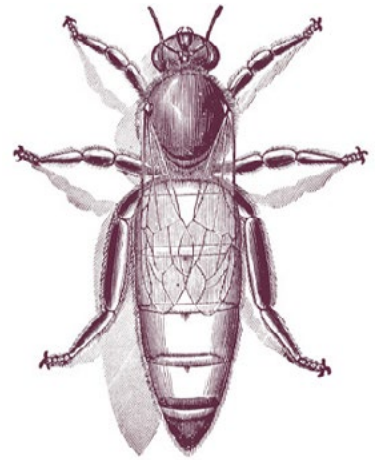
A queen's productive life span can be 3-5 years. She is usually born in the spring and will stay with her hive for an entire year; however, after a full year, she will leave her hive and start a new hive. The queen will **swarm** by taking about half of the colony with her, leaving the remaining bees with a newborn queen. This is the honey bees' way of expanding their population.

WORKER BEES: Worker bees are all female bees! They do have developed ovaries but do not normally lay eggs. Nearly all of the bees in a hive are worker bees. A hive consists of 20,000 - 30,000 bees in the winter, and 60,000 - 80,000 bees in the summer.

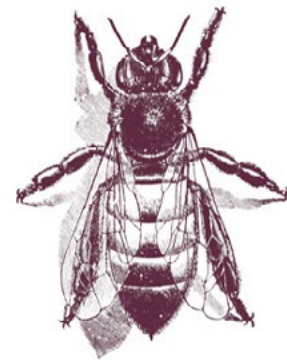
The worker bee has many different tasks within the hive. When a worker bee is born, her first job is to clean out the cell in which she was born. After that, her job and duties in the hive depend on her age.

The **nurse** duties are to care for the **brood**, the developing bees in various life stages. They protect the eggs, feed the larvae, and cover the cells for the pupae to develop. If the young are

LESSONS ON THE HONEY BEE

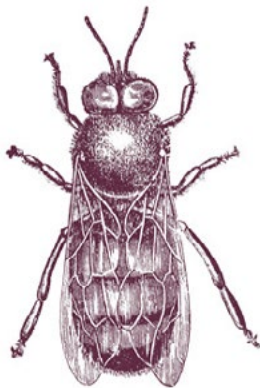


Queen Bee



Worker Bee

Days Old	Job Title
1-2	Cleans cells and keeps the brood warm.
3-5	Feeds older larvae, immature bees.
6-11	Feeds youngest larvae
12-17	Produces wax, builds comb, carries food, removes debris and dead bees from the hive.
18-21	Guards the hive entrance.
22+	Leaving the hive begins: pollinates plants, collects pollen, nectar.



Drone Bee

not healthy, they will not feed them. Housekeeping is a very important duty.

The workers will remove dead bees and anything that is not a part of the hive colony in order to prevent disease. They will also spend time building new combs cell-by-cell, organizing food stores, producing wax, producing royal jelly, secreting **propolis**, and making honey.

The **guard** duties are to protect the hive. With its stores of honey and brood, the hive is attractive to many other insects and bees from other hives, so the bees guard the entrance of the hive checking to see that an arriving bee is a member of the hive and not a robber. They also will sting anything that threatens the hive (like bears or people or other animals) and release a pheromone (a smell like bananas) that will alert other workers of the threat.

Finally, the worker bee will spend most of her lifetime gathering pollen and nectar from nearby flowering plants. A worker's life expectancy during the active summer months when they are producing honey is only 6 weeks (they literally work themselves to death); however, they can live for 4-9 months during the relatively inactive winter period.

DRONES: Drones are male bees that are made from unfertilized eggs. They are slightly larger and usually darker than the worker bees. They have bigger eyes and a thicker body. They actually do not serve a purpose within the hive itself. Drones are produced for the benefit of the greater honey bee population. They cannot mate with their own queen, their mother, but they do leave the hive and mate with queens who are on their voyage to create new colonies. After mating, the drone dies.

Drones make up a very small percentage of the total colony. There are only 300-3000 drones in a hive. These male bees are fed by the workers and allowed to stay in the hive during the summer, fruitful months. However, they are of no use once mating season is over; so, the drones are expelled from the hive in the autumn by the female worker bees.

Finally, drones do not have a stinger! You can safely handle a drone bee with no fear of getting stung.