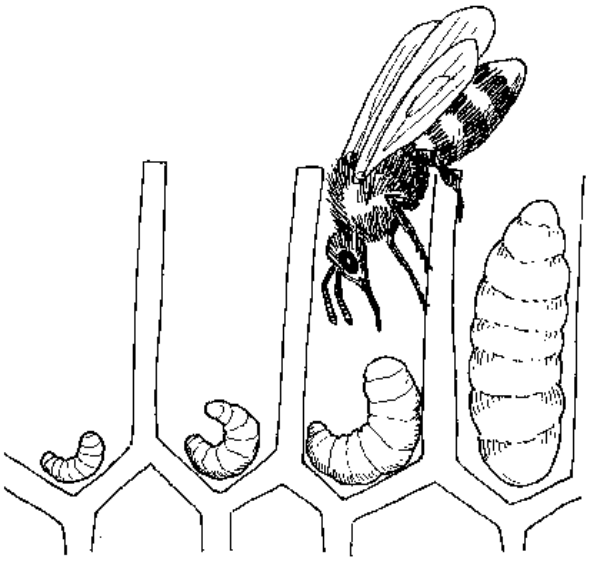
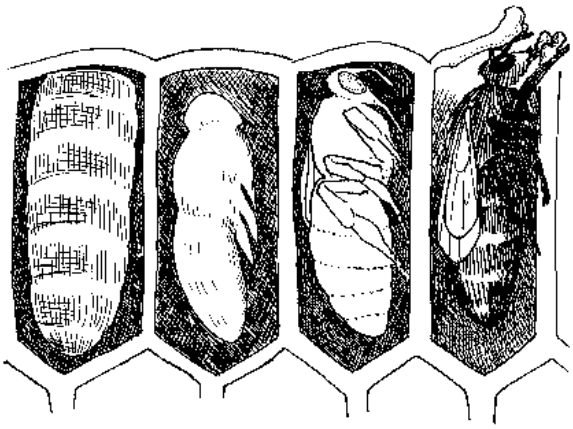
Field Trip to a honey bee farm



THE LARVAE

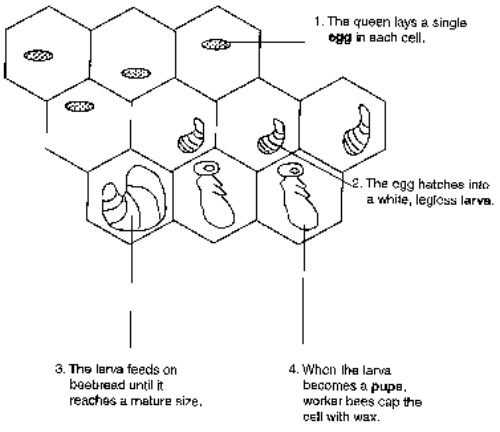
ACTIVITY SHEET 14



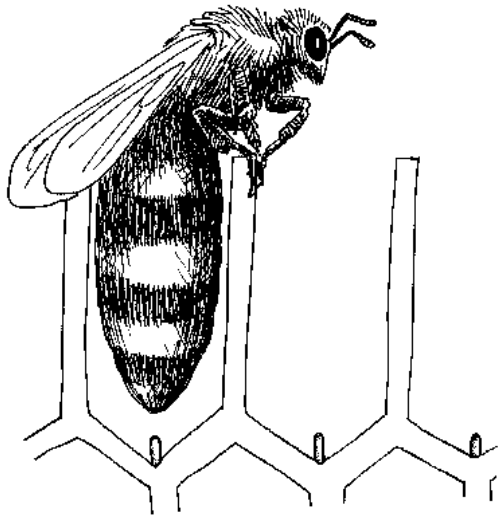
THE PUPAE

ACTIVITY SHEET 15

Stages of Immature Bees Within the Comb



ACTIVITY SHEET 16



THE QUEEN BEE AND HER EGGS

ACTIVITY SHEET 13

Honey Bee Senses

Smell: Bees "smell" many things. Guard bees sit or hover near the hive entrance and "smell" other bees trying to enter the hive. If the bees don't have the correct odor of that particular hive they are expelled. The new virgin queens produce a special odor called a sex pheromone to attract drones during the mating flight . Bees also use odors to help locate their hive, or their new home after swarming. To humans this pheromone smells lemony.

When a bee stings, she releases an odor called an alarm pheromone to alert others to the danger. This alarm pheromone smells like bananas and attracts other bees to come to the defense of the hive. This pheromone stays on clothing, so if you are stung you should wash your clothing before wearing it again.

The queen bee has her own pheromones in addition to the smell she produces when ready to mate. The queen also maintains behavioral control of the colony by a pheromone known as the "queen substance." As long as it is being passed around, the message in the colony is that "we have a queen and all is well." When a beekeeper wants to requeen a colony by introducing a queen from another source, he or she must place the queen in a cage within the colony for up to five days in order for the worker bees to get used to her odor.

Sight: Honey bees and people do not see eye to eye. Humans see the colors of the rainbow; red, orange, yellow, green, blue, indigo, violet (otherwise known as ROY-G-BIV). Although honey bees have a fairly broad color range, they do not see red and can only differentiate between six major categories of color, including yellow, blue-green, blue, violet, and ultraviolet. They also see a color known as "bee's purple," a mixture of yellow and ultraviolet. Differentiation is not equally good throughout the range and is best in the blue-green, violet and bee's purple colors.

Taste: Honey bees have been found to be able to distinguish between sweet, sour, bitter and salt, and thus have a sense of "taste." Bees are more sensitive to salts than humans, but less sensitive to bitter flavors.

Touch: Honey bees use their antennae to gauge the width and depth of cells while constructing comb. They also communicate via touch during bee dances.

Honey Bees and Their Homes

Honey bees live in large family groups called colonies. A full-sized colony at the height of the growing season contains an average of 60,000 individual bees. Honey bees tended by beekeepers live in wood boxes called hives.

The central structure of the colony is the wax comb. It is made up of six-sided, white wax chambers or cells. The cells vary in size according to the purpose. Smaller chambers are for raising female worker bees, larger ones are for raising male drones. Queen chambers are the largest. The comb is made of beeswax, a substance secreted from worker bee abdominal glands. The wax is secreted as tiny flakes, which are then chewed and molded into cells. Other construction in and around the hive is done with propolis, a sticky substance bees manufacture from tree and plant resin. The comb contains the stored honey and is home for the immature bees.

Honey bees usually build their comb in a protected area or cavity with an access hole the size of a pencil eraser or larger. Wild (feral) honey bees nest in enclosed areas such as a hole in a tree if possible, but sometimes they will construct comb out in the open on a thick branch of a tree or under rock outcroppings. The elaborate exposed combs full of amber-colored honey they construct can be very beautiful.

Africanized honey bees are far less selective than European honey bees about where they will set up a colony. They will occupy a much smaller space than the European honey bee. They also seem to prefer to nest closer to the ground. Water meter boxes, mail boxes, animal burrows, trash, debris, even an empty soda pop can could be viewed as "home" to Africanized honey bees.

Honey bees move from site to site by swarming . A portion of the bees leave the colony with the old queen and take up residence in a new location. Africanized honey bees tend to swarm more often than European honey bees, and are also more likely to abscond. When bees " abscond" they all take off to find a new nest, rather than just a portion of the workers leaving. Bees typically abscond when they sense a threat to their colony or when foraging opportunities have almost been exhausted in the present location. Africanized honey bees have been selected over centuries to survive in areas where scarcity of resources is common and absconding is the only alternative if the colony is to survive.

Questions

1. What is the name of the farm you visited?

2. What are the names of the beekeepers?

3. How many hours a day of work does beekeeping require?

4. What is the hardest part of the beekeeper's job?

5. What kinds of bees do they keep? Any specific species? Why?

6. What is royal jelly and what do you do with it?

7. Why did you decide to start making honey?

8. How can you use honey apart from eating it?