



The Bee

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If you cross a meadow on a summer day, you will hear lots of humming or buzzing. Thousands of honey bees! They will be feeding on colorful flowers—gathering pollen (protein) and nectar (sugar) and using their tongue to blend it into food that they carry to the hive to store. The buzzing you hear is the communication of the honey bee to fellow hunters that it has found a good source of food. The better the source, the louder the buzzing. This buzzing is caused by fast vibrations of the bee's small wings, approximately 11,000 times per minute. And the brighter the color of the flower and the more fragrant, the louder the bee buzzes, telling fellow workers it has found a really good source. Who says that bees don't "talk"?

The bee uses its tongue to mix nectar and pollen and stores this paste in a pocket in its abdomen. When the pocket is full, the bee flies back to the nest to deposit it in a small wax cell of the hive. The expression "busy as a bee" is apt, because the bee makes many forays out, as far away as one to eight miles, to obtain this food. You ask, "What do fragrant flowers have to do with the bee's work?" When the bee returns to the hive to deposit the food, it gives off a smell that is unique to this hive. The queen bee then rubs her body against the food, giving a distinct scent to the colony. This scent is called a pheromone. The pheromone is a safety measure for all bees of the colony, since it signals to the bees where home is. It also warns bees not from the colony to keep away. Since workers may wander up to eight miles away in search of food, this scent helps guide them back home. These scents are called "pheromones."

Bee communication is also required in the building of the hive. Cooperation in the hive is necessary. Bees build the colony of wax cells in a precise manner. Do they have one bee who is the "engineer"? We do not know, but some form of communication is required. Hives are precise in measure and structure. Each



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job in a hive is specialized, and workers know their exact part in the construction. The colony makes a honeycomb of thousands of perfect hexagons arranged in upright sections, leaving spaces (or corridors) in between for bee movement. Since the hive is built by teams who work together, we ask "How do they cooperate?" We do not know, and scientists are studying this complex small creature to find out.

We do know that bees "dance," yes, dance! This is another form of communication that the bee uses. This dance is done in connection with locating good sources of nectar. It is called a wiggle dance, since the bee uses its abdomen to wiggle; the better the source of food, the faster it wiggles. To understand the dance draw the figure 8 (two circles). Where the circles touch, the bee hovers in the air and signals to other bees whether to fly to the left or the right to find the flower. Scientists believe this is done in relation to an angle to the sun. The "dancing" makes a buzzing sound, and this tells other bees how close they are to the flower. The closer to the flower, the faster and louder the buzzing. What an amazing insect!