

Honey Making Simulation



After reading the book *The Beeman* by Laurie Krebs, discuss the roles of bees as well as the following terms:

Nectar- a sweet liquid secreted by flowers of various plants

Pollen- the fine, powder-like material produced by the anthers of flowering plants

Hive- a container for housing honeybees; a colony of bees

Colony- a large group of honeybees living together in a hive

Cell- a hexagonal chamber built of beeswax for brood rearing and storage of honey and pollen

Egg- laid by a queen bee, this is the first stage in the life cycle of a honeybee

Larva- this is the second life stage of a honeybee, its job is to eat and grow

Pollination- the transfer of pollen from the anther to the stigma of a plant

Directions: Have the students act out the steps of the honey-making process:

- 1. Forager bees collect nectar from flowers using their straw-like mouth part called a proboscis. As they suck up the nectar, pollen sticks to their legs and body. Forager bees visit up to 100 flowers to fill their stomachs with nectar.** Place small cartons or containers of milk, which represents flowers with nectar, randomly throughout the classroom with a parent volunteer/assistant. Assign half of the students to stand in one corner of the classroom to represent worker bees that stay in the hive. Assign the other half of the students to be foragers. Provide each forager with a 3-ounce cup. Instruct them to visit the flowers where the parent volunteer/assistant will pour a small amount of milk into their cup. When their cup is half-full, they will fly back to the hive.
- 2. When the forager bees are full with nectar, they fly back to the hive and regurgitate the nectar into the mouths of other worker bees. Special enzymes in the stomachs of the bees change the nectar into runny, watery honey. The worker bees spit the honey into the waxy honeycomb.** Have the foragers travel to the "hive" and give their cup of "nectar" (milk) to one of the worker bees. Have parent volunteers/assistants add 1 teaspoon of instant pudding mix to each milk cup. The pudding mix represents the enzymes that turn the nectar into honey.
- 3. The worker bees use their wings as fans to evaporate the water from the honey. This makes the honey thicker.** Provide the worker bees with a spoon or stir-stick to mix the milk and pudding mix for 1 minute. Allow the mixture to sit and thicken for 5 minutes.
- 4. The worker bees close up the honeycomb with wax to protect the honey. They use the honey as food for the winter. Lucky for us, they make about 2-3 times more honey than they need so we get to eat it too!** Have the parent volunteers/assistants use a

can of whipped cream to cover the pudding, representing the wax cover. Provide each student with a spoonful of the pudding to show that the bees all share the honey and some is left over. Beekeepers can take some of the honey, but cannot not take all of the honey or the bees will not have enough to eat throughout the winter. The bees all have an important piece in the job of creating honey and all share the product.

*This activity was taken from the National Ag In the Classroom Curriculum Matrix

