Harvest of the Month NEBRASKA HONEY LESSON #1 HOW HONEY IS MADE

Ask: What insect makes honey?

Say: Did you know that there are three different types of bees in a beehive? The queen bee lays eggs. Drone bees, who don't have stingers, mate with the queen bee. And worker bees, which are the most common type of bee, collect nectar and pollen to make beeswax.

Ask: How do you think worker bees collect nectar?

Say: Bees collect nectar from flowers using their long tongues to suck up the sweet liquid. When they suck up the nectar, they store it in a second stomach called a "honey stomach."

Ask: Once the bees have nectar, how do you think they turn it into honey?

Say: When a worker bee's honey stomach is full, they head back to the hive and pass the nectar to other bees through their mouths. The bees that receive the nectar will chew it for 30 minutes. After chewing, the bees pass the nectar to new bees! Then, the new bees continue chewing the nectar for 30 minutes before they pass it along again.

Ask: What is the chewing doing to the nectar inside of a worker bee's mouth?

Say: The chewing is like a mixer and an oven at the same time. The bees are using their mouths to heat up the nectar and add certain elements from their saliva that break down the honey into something that is easy to digest. That is what turns the nectar to honey. Once the nectar has turned to honey, the bees will store it in honeycombs made of wax. When the honey is in the honeycombs, the bees will start fanning the honey by flapping their wings.

Ask: What do you think is happening to the honey as the bees flap their wings?

Say: The bees are flapping their wings to cool down the honey which allows it to thicken. When the honey is ready, the bees will seal the honeycomb by putting beeswax over the top like a lid.

ACTIVITY: HONEY TASTE TEST

Say: Today, we are going to taste test various kinds of honey produced from nectars of different plants.

Ask: What do you think are some plants and flowers that bees could collect nectar from?

Say: Today, we will try honey that comes from (list the flavors you have selected for this activity).

Directions: Give each student a piece of paper and a writing utensil. Have students divide the paper into four quadrants by drawing a horizontal line across the middle of the page and a vertical line across the middle of the page. Label each quadrant with one of the honey types. Tell students not to taste

MATERIALS NEEDED

- 4 honeys of varying flavors (most common are clover, alfalfa, and wildflower) - You can get these in sticks or in a container.
- Spoons
- Piece of paper for each student
- Writing utensil for each student

the honey until you tell them. Give each student a honey stick or spoon with honey of one flavor. As you are passing out the honey, ask the following questions to keep students engaged:



Ask: What color is the honey?

Ask: What does it smell like?

Directions: After all students have the first flavor of honey, have them taste it. On their piece of paper, have them draw an emoji that best represents what they thought of the honey in the corresponding quadrant (smiley face, frowny face, etc.) Repeat this process for each honey type.

Ask: Which was your favorite and why?

Ask: What was the difference between the one you liked most and the one you liked least?

ALTERNATIVE ACTIVITY: HONEYCOMB HEXAGONS

Ask: What shape makes up honeycomb?

Say: Hexagons! The prefix, or start, of the word hexagon is "hexa-".

Ask: Do you know how many sides a hexagon has?

Say: Six! The prefix "hexa-" means six. It turns out that bees are excellent builders, and they build hexagons when creating honeycomb! Bees like to build perfect hexagons with all six sides having equal lengths. Hexagons can be next to each other without having empty space in between. The hexagon

MATERIALS NEEDED

- One copy of the honeycomb cutout per student (cardstock works best)
- Scissors
- Tape or glue sticks

cells are the ideal shape for bees to store honey. Today we are going to build like bees. We will cut out, fold, and tape together our honeycomb piece and then partner with friends in our group to create a block of honeycomb.

Directions: Pass out a honeycomb cutout and a pair of scissors to each student. Have the students use the scissors to cut out the shape, being careful not to cut off the tabs. Then, have students create a crease on each dotted line. Then, fold along each dotted line in the same direction to make a 3D hexagonal tube. Put a small amount of glue or tape on the tabs and connect the tabs with the last panel to hold the hexagonal shape. Connect the hexagons to make your own honeycomb!

Ask: What do you notice about where the hexagons connect? Why do you think bees might use hexagons instead of circles or squares?

Say: Bees use hexagons instead of other shapes because they fit together without gaps, and they can use less wax when building. A hexagon provides structural strength so that the honeycomb can hold the weight of the honey that is stored.

ADDITIONAL ACTIVITIES

- How Bees Turn Nectar into Honey video from Flow Hive youtu.be/YFXamn5cia4?si=kn3qnaQPiLqDM7gj
- Honeybee: The Busy Lives of Apis Mellifera by Candace Fleming, Neal Porter Books, 2020.
- The Way of the Hive: A Honey Bee's Story by Jay Hosler, HarperAlley, 2021.
- Bracelet Making Use beads and string to create a "Save the Bees" bracelet.









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