Name: _____ Date: _____

Inside the Hive: Nectar Becomes Honey

Circle group

A honeybee visits many flowers on one trip. She sips nectar, a sweet, watery liquid. She keeps it in a honey stomach. This is a special stomach, apart from her food stomach. She carries the nectar home to the hive. But nectar is not honey yet. It is thin and full of water, and it would spoil fast. The colony must change it.

In the hive, the forager passes the nectar mouth to mouth to a younger worker bee. The bees add enzymes from their bodies. The enzymes break the complex sugar into simpler sugars. This gives honey some of its sweetness and helps it keep.

Next, the bees must get rid of extra water. They spread drops of nectar in the wax cells of the honeycomb. The water can escape into the air. Other bees fan their wings. This pushes warm air through the hive and dries the nectar. When the honey is thick, the bees seal the cell with wax.

Honey has little water. It is thick, and few microbes can grow in it. So it can feed the colony all winter, when no flowers bloom. Beekeepers take only some honey and leave enough for the bees.

Questions

1. Where does a honeybee carry nectar home?

_____

_____

2. What do the enzymes do to the sugar?

_____

_____

3. How do the bees dry the nectar?

_____

_____

4. What do the bees use to seal a finished cell?

_____

_____

5. Why does the colony need honey in winter?

_____

_____

6. Why does nectar spoil faster than honey?

_____

_____

Words to know

nectar: the sweet liquid inside flowers
forager: a bee that goes out to find food
enzymes: natural substances that cause chemical changes
honeycomb: the wax cells where bees store honey
colony: a large group of bees living together

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Inside the Hive: Nectar Becomes Honey

Triangle group

A honeybee visits dozens of flowers on a single trip, sipping a watery, sugary liquid called nectar. She stores it in a special stomach, separate from her food stomach, called a honey stomach, and carries it home to the hive. But nectar is not honey yet. It is thin, contains a lot of water, and would spoil quickly. The colony must change it.

Back in the hive, the forager passes the nectar mouth to mouth to a younger worker bee. During these handoffs, the bees add enzymes from their bodies. The enzymes break the complex sugar in nectar into simpler sugars, which gives honey part of its sweetness and helps it keep.

The next job is to get rid of extra water. The bees spread drops of nectar into the wax cells of the honeycomb, where a large surface lets water escape into the air. Other workers stand near the cells and fan their wings, pushing warm air through the hive to speed up drying. When the honey is thick enough, the bees seal the cell with a cap of wax.

Honey with little water is thick and resists spoiling, because few microbes can grow in it. That is why it can feed the colony through winter, when no flowers bloom. Beekeepers take only part of the honey and leave enough for the bees.

Questions

1. Where does a honeybee carry the nectar on her trip home?

_____

_____

2. What do the enzymes do to the sugar in nectar?

_____

_____

3. How do the bees get rid of extra water in the nectar?

_____

_____

4. What do the bees use to seal a finished cell?

_____

_____

5. Why does the colony need stored honey in winter?

_____

_____

6. Why does nectar spoil more easily than honey?

_____

_____

Words to know

nectar: the sweet liquid inside flowers
forager: a bee that goes out to find food
enzymes: natural substances that cause chemical changes
honeycomb: the wax cells where bees store honey
colony: a large group of bees living together

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Inside the Hive: Nectar Becomes Honey

Square group

On a single foraging trip, a honeybee visits dozens of flowers, sipping a watery, sugary liquid called nectar. She stores it in a special organ known as the honey stomach, which is separate from the stomach she uses for her own food, and carries it back to the hive. Nectar, however, is not yet honey. It is thin, it contains a great deal of water, and it would spoil quickly, so the colony must transform it.

Once inside the hive, the forager passes the nectar mouth to mouth to a younger worker bee. During these handoffs, the bees add enzymes produced by their own bodies. The enzymes break the complex sugar in nectar down into simpler sugars, which contributes to honey's sweetness and helps it keep for a long time.

The next task is to remove the surplus water. The bees spread droplets of nectar across the wax cells of the honeycomb, where the large exposed surface allows moisture to escape into the air. Other workers station themselves near the cells and fan their wings, driving warm air through the hive and hastening the drying. Once the honey has become sufficiently thick, the bees seal each cell with a cap of wax.

Honey that contains little water is thick and resists spoilage, because very few microbes can grow in it. That is why it is able to sustain the colony through winter, when no flowers bloom. Beekeepers harvest only a portion of the honey and leave enough behind for the bees.

Questions

1. Where does a honeybee carry the nectar on her way back to the hive?

_____

_____

2. What effect do the enzymes have on the sugar in nectar?

_____

_____

3. How do the bees remove the extra water from nectar?

_____

_____

4. What do the bees use to seal a cell of finished honey?

_____

_____

5. Why does the colony depend on stored honey during winter?

_____

_____

6. Why does nectar spoil more readily than honey does?

_____

_____

Words to know

nectar: the sweet liquid inside flowers
forager: a bee that goes out to find food
enzymes: natural substances that cause chemical changes
honeycomb: the wax cells where bees store honey
colony: a large group of bees living together

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: Inside the Hive: Nectar Becomes Honey

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: Inside the Hive: Nectar Becomes Honey

Easier · 199 words · Flesch-Kincaid grade 3.5

1. In her honey stomach.
2. They break the complex sugar into simpler sugars.
3. They spread it in the comb cells and fan their wings.
4. Wax.
5. No flowers bloom then, so there is no nectar to find.
6. Nectar has much more water, and microbes can grow in it.

Triangle: Inside the Hive: Nectar Becomes Honey

This passage · 224 words · Flesch-Kincaid grade 6.2

1. In her honey stomach.
2. They break the complex sugar into simpler sugars.
3. They spread it in the comb cells and fan their wings to dry it.
4. A cap of wax.
5. No flowers bloom then, so there is no nectar to collect.
6. Nectar has much more water, and microbes can grow in it.

Square: Inside the Hive: Nectar Becomes Honey

Harder · 251 words · Flesch-Kincaid grade 8.2

1. In her honey stomach, which is separate from her food stomach.
2. They break the complex sugar down into simpler sugars.
3. They spread it across the comb cells and fan their wings to dry it.
4. A cap of wax.
5. No flowers bloom then, so no nectar is available.
6. Nectar contains much more water, which allows microbes to grow.