



A Honey of a Bee



photos courtesy Elizabeth Walsh, Texas A&M University

Are you a honey lover? September is National Honey Month, so The Mini Page talked with an expert about the hard-working insects that supply us with the sweet treat: honeybees!

So you say you like honey?

We know that honey is made by bees. But how do they turn flower nectar into honey?

Bees gather **nectar**, a sweet liquid, from flowers in a special pouch called a **honey stomach**. Their bodies produce chemicals called **enzymes** that are added to the nectar.

A bee flies back to the colony and **regurgitates** (re-GUHR-juh-tates), or vomits, the nectar. Another bee eats the regurgitated nectar, adds more enzymes, then vomits it again into a cell of the honeycomb.

Then the real work begins! Nectar has a lot of water in it. But honey is only about 18 percent water. The bees use their wings to fan the nectar, which dries it out and makes it thicker.

Once a cell is full of honey, the bees seal it with beeswax. The stored honey provides food for them during the winter, when there are no flowers producing nectar.

A bee's world

Honeybees are **social** insects, which means they work together as a **colony**. Within each colony, there are three types of bees:

- **One queen.**

A queen lives from one to four years and can lay up to 2,000 eggs each day!

- **Tens of thousands of workers.**

Workers are the female bees we see flying from flower to flower, gathering nectar. They are the daughters of the queen. They live only 30 to 60 days.

Workers have many jobs: They care for the **brood**, or baby bees. They keep the hive clean and build new cells. They gather food and guard the hive.

- **A few thousand drones.**

These male bees mate with a queen from a different colony. They live just 30 to 40 days.



Left to right: worker, queen and drone honeybees.

Feeding the world

Bees might seem small, but they play a huge role in our ecosystem.

Experts say one-third of the food we eat has been pollinated by bees. That means that out of every three bites you take, one has been affected by bees. How can this be?



Of course, fruits and vegetables have flowers that are pollinated by insects, including bees. But consider a glass of milk. Milk comes from cows, but the food that cows eat has to be pollinated. Without bees, we wouldn't have cows' milk!

Bees in trouble

As our climate changes, bees are having to adjust. For example, flowers bloom at different times of the year than they used to. Flooding washes away nectar from flowers and keeps bees in the hive. During droughts, plants produce fewer flowers and less nectar.

Bees are also threatened by chemicals used on plants and by the tiny **varroa mite**, which can destroy whole colonies.

Bee stings

Experts say bees won't attack if they are left alone. Workers sting to defend their colony. If you see a bee, don't panic. Just let it bee!

Resources



On the Web:

- youtu.be/x7cX2cjFunw
- youtu.be/IE-8QuBDkkw

At the library:

- "The Case of the Vanishing Honeybees" by Sandra Markle

Productive bees

When bees collect nectar, they also transfer **pollen** from the male part of a plant to the female part. This allows the plant to grow and reproduce itself. This process is called **pollination**. Without pollination, plants

wouldn't continue to grow.

Large farms use bees to pollinate crops. Tractor-trailer trucks haul up to a million hives to farms and orchards all over the United States each year for pollination services.

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Try 'n' Find

Words that remind us of honeybees are hidden in this puzzle. Some words are hidden backward or diagonally, and some letters are used twice. See if you can find:



BEESWAX, CELL,
CLIMATE, COLONY,
DRONE, DROUGHT,
ENZYMES, FAN,
FLOWERS, HONEYBEE,
HONEYCOMB, MITE,
NECTAR, POLLINATE,
QUEEN, RAIN,
REGURGITATE, STING,
STOMACH, WORKER.

W	F	E	H	P	J	B	E	E	S	W	A	X	W	V
H	L	M	N	C	O	N	M	Q	Z	M	Y	K	O	E
D	O	R	C	Z	A	L	E	O	U	N	I	L	R	E
Y	W	B	L	E	Y	M	L	C	C	E	I	T	K	B
N	E	G	I	N	L	M	O	I	T	Y	E	A	E	Y
O	R	N	M	O	B	L	E	T	N	A	E	N	R	E
L	S	I	A	R	N	A	F	S	S	A	R	N	J	N
O	X	T	T	D	D	R	O	U	G	H	T	V	O	O
C	O	S	E	T	A	T	I	G	R	U	G	E	R	H

Cook's Corner

Pie Plate Tomato Pizza

You'll need:

- 1 prepared pie crust
- 2 tablespoons Dijon mustard
- 1 cup grated Swiss cheese
- 2 medium tomatoes, sliced

- salt and pepper to taste
- 6 slices pre-cooked bacon

What to do:

1. Spread mustard on bottom of pie crust. Sprinkle grated cheese on top of mustard.
2. Top with a layer of sliced tomatoes.
3. Salt and pepper tomatoes as desired.
4. Bake in a 350-degree oven for 35 minutes, until slightly browned. Crumble bacon slices on top of tomatoes. Makes 6 slices.



* You'll need an adult's help with this recipe.

Puzzling

Unscramble the words below that remind us of honeybees.



cntare	_____
oynocl	_____
ndeor	_____
lnepol	_____

Answers: nectar, colony, drone, pollen

Mini Jokes



Ian: Why did the fireplace need a doctor?

Kevin: Because its chimney had the flue!

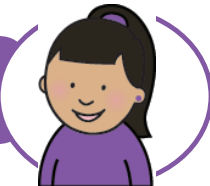
Eco Note



True or False: Scientists have found that some bugs (such as cockroaches and honeybees) are so smart that they get together and vote on where to live! (True!)

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Thank You



The Mini Page thanks Dr. Juliana Rangel, assistant professor of apiculture at Texas A&M University, for help with this issue.

Teachers:

For standards-based activities to accompany this feature, visit: bbs.amuniversal.com/teaching_guides.html

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