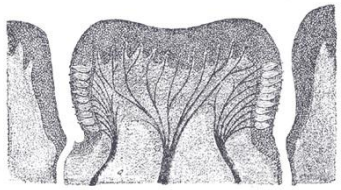
Name _____

The Sense of Taste

by Cindy Grigg



Answer the following questions **BEFORE** you read this book. It is okay if you do not know as much as you thought. Do the best you can!

1. **Does our sense of smell affect the taste of food?**

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2. **Why does our mouth water when we smell or see food?**

_____

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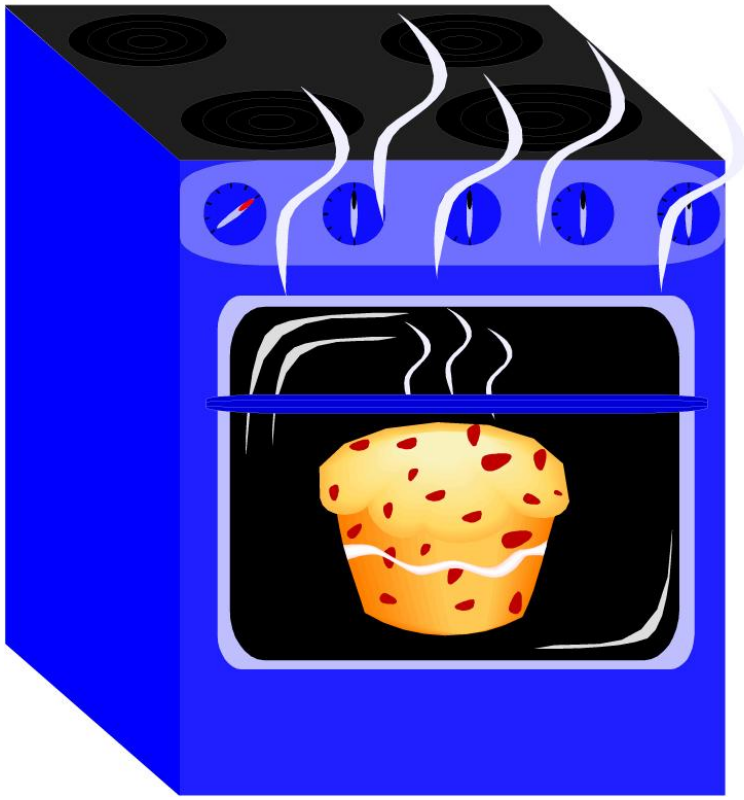
3. **Does food taste the same to everyone?**

_____

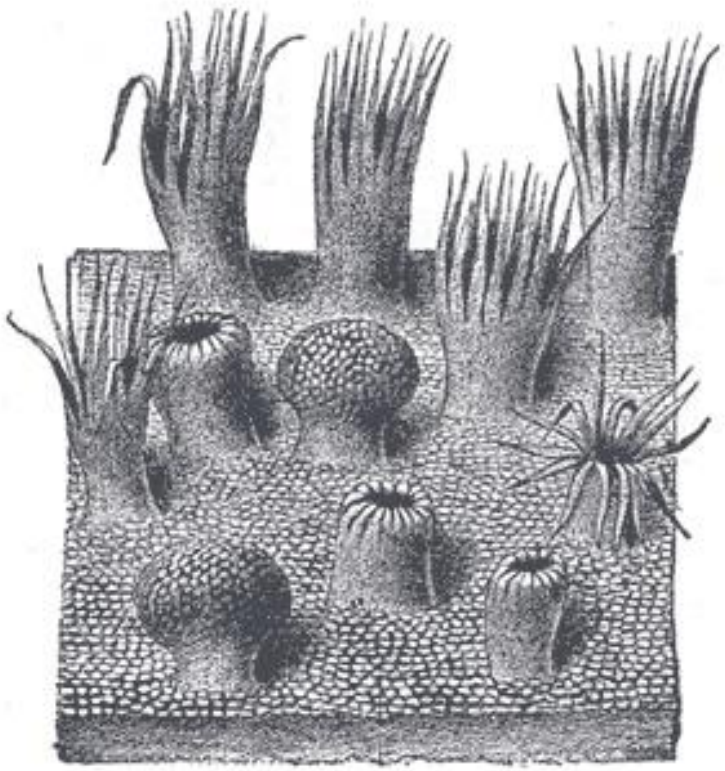


You come home from school, and, when you first open the door, you notice that your mom has been baking bread. It smells so good! Your mouth begins to water, and it seems as though you can already taste that warm bread. Did you ever wonder how we taste things?

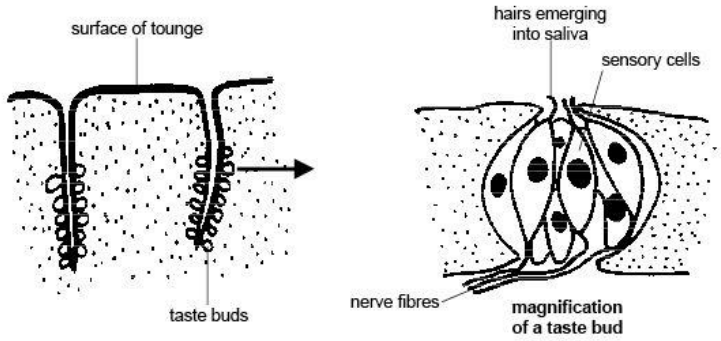
The sense of smell works with your sense of taste to help you taste food. Sometimes when you have a bad cold and a stuffed-up nose, you will notice that food just doesn't taste as good.

The next time you eat something, try shutting your eyes and holding your nose when you chew. You will find that it is very hard to taste the food. If you don't see or smell them, you can't tell the difference between eating an apple and an onion!

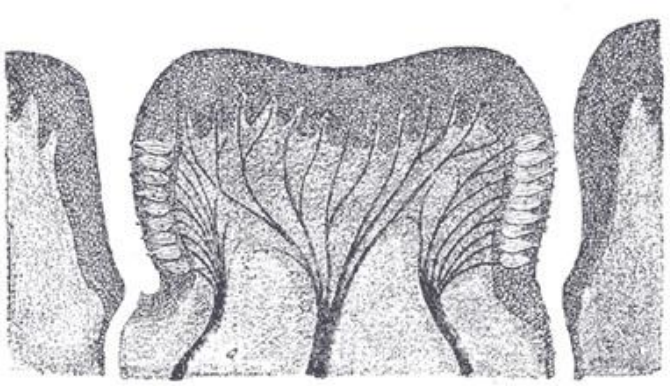
Your tongue is, or more specifically, your taste buds are, the sense organs for taste. Look in a mirror at your tongue and you will see little pink bumps all over the top of it. The larger bumps are called papillae (puh PIL ee).



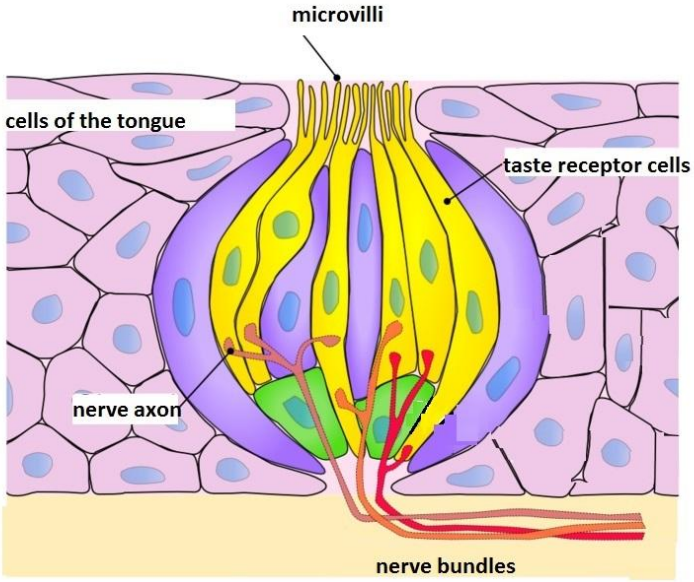
If you could look much closer, you would see that papillae come in different shapes. Some are dome-shaped. They look a little like mushroom caps. Some have tiny hair-like fingers called microvilli (mye-kro-VIH-lye). Microvilli can stand up tall, fan out, or even tuck down inside.



Each papilla (puh PIL uh) on your tongue has between one hundred and two hundred taste buds. An average person has about ten thousand taste buds on the tongue. When you smell food that is pleasing to you, your mouth begins to water. Without that saliva, you couldn't taste your food! When you put a bit of food into your mouth, your saliva begins to dissolve the food. As you chew, your teeth break the food into small pieces and grind it up so that more of it dissolves. Dissolved food enters the taste buds on the tongue through a pore in the center of them. Picture By Ruth Lawson. Otago Polytechnic.



Nerves inside the taste buds send messages to your brain about what you taste.



Taste buds have groups of receptor cells. These cells work so hard that they are replaced by your body about every two weeks. They are sensitive to chemicals from food dissolved in the saliva. We can taste flavors of bitter, salty, sour, sweet, and savory (called umami) and mixtures of them, as well. With spicy foods, your brain even detects the amount of pain you feel as part of the flavor you taste!

The papillae also help your tongue "feel" the food in your mouth, and they send messages to your brain so that you can tell the difference between eating crunchy celery sticks or creamy dip. The "mouth feel" of food is something else that we enjoy about eating, along with the taste of the food.

The temperature of the food must be pleasing to us also. We don't enjoy cold French fries nearly as much as warm ones, and foods meant to be served cold don't taste just right at room temperature.

Many different messages are sent to your brain to tell you about your food's taste and feel. Your eyes send messages about the appearance of the food. Your nose sends messages about the smell of it. Chemical messages from food dissolved in your saliva, the feel of textures, the temperature of the food in your mouth, and even a sense of pain from spicy foods all help you enjoy (or hate!) a certain food.

Some people seem to have different abilities when it comes to taste. Scientists say that all people on Earth can be divided into three taster groups. One of these groups is nontasters. They have only a few taste buds on their tongues' surfaces. They often use pepper and other strong seasonings to give their food flavor. About one out of every four people is in this group.

A second group is the supertasters. These people are super-sensitive to flavor. Their mouths feel more pain and heat than others, so they often do not like spicy foods. Supertasters have many, many more taste buds on their tongues. Many supertasters do not like sour tastes like grapefruit and orange juice. Chocolate may seem too bitter to eat. They may have to let their food cool before eating it. About one out of every four people is in the supertasters group. Interestingly, many chefs are supertasters.

About half of all people are medium tasters. They enjoy a wide range of foods because most foods do not taste too sour, salty, bitter, or sweet to them.

Which kind of taster are you? Do some food tasting with your friends and compare your sense of taste to theirs. Or you can even try counting your taste buds. Put one drop of blue food coloring on your tongue. Then take a sip of cold water and swish it around in your mouth. Spit out the water. Then take a piece of notebook paper and tear off a small piece that includes the hole punched in the paper. Put the paper on your tongue near the tip. Look in a mirror and count the raised bumps - the larger ones are the papillae - inside the hole. You are a supertaster if you have 30 or more. Nontasters have 15 or fewer papillae in that small space. Average tasters have between 15 and 30.

Older people lose some of their taste buds because their bodies can't replace these cells as fast as they wear out. As a result, some older people find that they now like many foods they didn't like when they were younger. They may also find that they need to add more spices, salt, and other seasonings to their food.

It is interesting that more than twice as many females than males are supertasters. People from Asia, Africa, and South America are more likely to be supertasters than those from Europe.

If you pour a glass of milk and it has spoiled, chances are that you'll smell the soured milk before it even gets into your mouth. But if it does, your sense of taste will tell you to spit it out! Our senses of taste and smell can keep us safe by preventing us from eating something that might make us sick.

So the next time you're enjoying your favorite foods, stop and thank your taste buds. Those little bumps on your tongue send messages to your brain. They keep you from eating things that might make you sick. They let you appreciate the salty crunchiness of popcorn and enjoy the sweet, smooth creaminess of ice cream. Your sense of taste makes eating fun!

Answer the following questions **AFTER** you have completed this book.

1. **Much of the taste of food actually comes from what other sense?**

_____

2. **An average person has about**

_____ **taste buds.**

_____

3. **How many flavors can we taste? List them here:**

_____

_____

_____

4. **More people are: (circle your answer)**

supertasters **medium tasters**

nontasters

5. **Compare and contrast the sense of taste to the sense of smell. How are they alike? How are they different?**

6. **You believe that the sense of taste is more important than the sense of sight, smell, touch, and hearing. Write a persuasive paragraph to convince others to agree with you.**