How Do We TASTE?

No, do not bite your little sister to find out. Instead, think about sweet hot fudge . . . salty, crunchy, munchy chips . . . sour, puckery lemons . . . a juicy, meaty hamburger . . . and (yech) bitter brewed tea. From these five basic tastes—sweet, salty, sour, savory, bitter—come all the flavors that we humans know and love (or hate). But how do we taste them?

It all starts with your tongue. Check out your tongue in a mirror and notice its soft, velvety texture. Look more closely and you may see that it is actually covered with tiny points of flesh that give it a kind of shag-carpet look. Scattered around, mostly at the front, along the edges, and toward the back, you may see little bumps in various shapes. Inside these bumps are your taste buds, each one a collection of cells that are specially equipped to pick up the sweet, sour, bitter, savory, or salty flavors of the food you are chewing. (You also have taste buds on the roof of your mouth and inside your cheeks.) Humans are born with about 10,000 of these tiny taste-bud sense organs, and they work so hard that your body replaces them about every two weeks.

Other Taste Buddies

But taste buds don't do all the work. Suppose you are enjoying a spoonful of peanut butter. Remember that shag carpet on your tongue? Each of those tiny tabs of skin is actually designed to help your tongue feel the food in your mouth. They signal wildly to your brain about the thick, smooth, sticky substance that covers them. As you chew, the saliva in your mouth begins to digest the peanut butter with a special chemical. Soon, nothing remains but microscopic particles of peanut butter. These come into contact with your taste buds, where special cells identify the taste of salt and the sweet taste of sugar (which are usually added to peanut butter). Nerves send this information on to your brain. At the same time, molecules carrying the fragrance of the peanut butter waft up through your nose, and scent detectors report the smell to your brain. Almost instantly, your brain gets all these messages and interprets them to recognize the flavor. WOW, it says, PEANUT BUTTER!

Thought your tongue was only good for sticking out? Read on. It helps you enjoy your favorite foods.

The combination of these characteristics—a food's basic tastes, the way it smells, and the feel of it in your mouth, along with its temperature and appearance—gives the food you eat its flavor. Believe it or not, smell accounts for about 85 percent of how something tastes.

If you try to eat your peanut butter sandwich while you are holding your nose (which isn't easy), you won't taste much.

Why Taste at All?

Why is the tasting process so complicated? Just so we can enjoy our food? There's more to it than that. In all animals, including humans, tasting does two important jobs: it warns us about bad foods and it attracts us to good ones. When our ancient ancestors roamed the forests and fields, hunting and gathering their dinner, they needed a way to tell poisonous plants from healthy ones, or whether a piece of meat was spoiled. In general, poisonous plants have a strong bitter flavor that both animals and people know to avoid. Because the taste buds on the back of the tongue are most sensitive to bitterness, even if you start to eat something bad, you have one last chance to gag and spit it out before you swallow. Similarly, spoiled food often tastes sour, warning us not to eat it. Sourness can also mean a food is not ripe and therefore not good to eat.

On the other hand, foods that contain certain amino acids, which are the building blocks of the proteins that our bodies require, have a savory, sort of meaty taste that humans like. Likewise, a pleasant, sweet taste is common in foods that are high in calories, which we need for energy. Early humans learned that sweet and savory tastes meant healthy foods. As a result, we still favor these tastes today. Indeed, human babies are born with a taste for sweetness to make sure that they will eat their first food, milk, which contains natural sugars.

Different Tastes for Different Folks

The world is full of wonderful things to eat. You probably have favorite foods and others you aren't so fond of. You and your best friend may disagree about what's better: chocolate mint ice cream or caramel vanilla. Why do our tastes differ so much? Tongues and taste buds are all the same, right? And the real stumper: Who does like the taste of broccoli anyway?

As scientists try to figure out how our sense of taste works, they are discovering that different people probably taste things differently because they have more or fewer taste buds. Most people, with an average number of buds, are medium tasters and enjoy a range of flavors and foods. (They, most likely, enjoy broccoli.) Certain people can't taste at all, which means that they probably don't enjoy eating anything and so may not be getting enough nutrition through their food. Their tongues have as few as 11 taste buds per square inch.

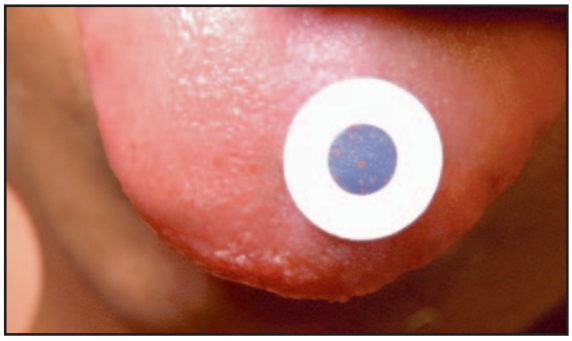
A frog's tongue actually faces the back of the mouth. It can flip forward and out in a split second to catch passing insects. The taste buds are located under the tongue.

Bees have taste buds in their legs and antennae to help them locate the nectar they love as they walk around a flower blossom.

Test Your Taste

About one in four people is a supertaster. Are you? Here's how to find out. You'll need a cotton swab, some blue food coloring, and a plastic reinforcement for three-hole binder paper. A magnifying glass might help, too.

1. **Stand in front of the bathroom mirror and swipe a small drop of the food coloring on the front of your tongue with the cotton swab. Don't get the food coloring on anything else because it will stain.**



2. **Rinse your mouth with clean water.**
3. **Place the reinforcement over the patch of food coloring on your tongue. Look closely in the mirror. (Use the magnifying glass if you need to.) The food coloring has turned most of the area blue, but the pink bumps you see (called papillae) contain taste buds.**
4. **Count the number of papillae inside the ring. If you have more than 25, you are probably a supertaster.**

A third group of people are known as supertasters. These individuals can have 100 times more taste buds per square inch than nontasters do. This makes them extremely sensitive to certain tastes, and even temperatures, of food. Supertasters don't usually like spicy foods, and bitter or sour foods can have a very strong or unpleasant taste to them. Sweets may be just too rich tasting. Supertasters may not enjoy healthy foods such as grapefruit, broccoli, or celery because the taste is too strong.

Adapted from an article by Meg Moss

Catfish are equipped with taste buds all over their bodies to help them locate and identify food at the murky bottom of the lake. Their "whiskers," or barbels, alone have over 20,000 taste buds.

But don't worry; a little salt can make even supertasters enjoy their broccoli.

Chocolate? Yes, but without added sugar, it tastes bitter. It's good for cooking.