

Tasty Taste Buds

Overview: Did you know that your tongue can taste about 10,000 unique flavors? Our tongues take an organized approach to flavor classification by dividing tastes into the four basic categories of sweet, sour, salty, and bitter.

For this experiment, you will need a brave partner! They will be blindfolded and will be attempting to guess foods. Relying only on their sense of taste, they will try to determine what kind of foods you are giving them.

Materials

- partner
- blindfold
- water (one cup)
- plate
- lemon
- toothpicks (2)
- sugar cube (or some sugar)
- salty cracker
- piece of dark or bitter chocolate
- pencil

Experiment

1. (NOTE: Make sure your partner is not around for the first step!) Prepare a plate with a piece of lemon on a toothpick (minus the rind), a sugar cube, a really salty cracker, and a piece of dark chocolate, which will also be on a toothpick.
2. Blindfold your partner before they see the plate. Explain that you're going to give them food samples. Their job is to taste each sample, one at a time, and then determine whether the food is sweet, sour, salty, or bitter. After they have provided a category, see if they can tell you the specific flavor of the food. They should use the water between samples in order to rinse their mouth and prepare for the next food.
3. Record data and observations for each individual food item. Be sure to list each food, your partner's group classifications (sweet, sour, salty, or bitter) and what specific flavors that they note.

Tasty Taste Buds Data Table

Food	Group classification	Flavors noted?

Reading

When you put food in your mouth, saliva immediately begins to break it down. Saliva mixes with food and makes a solution, which then takes the food (and its flavor) to the taste pores. There, receptors determine the chemical structure and send this information to your brain, which then decodes and categorizes the taste. The exact nature of the secret code relayed between your taste receptors and your brain is still a mystery. Maybe someday you can help to figure out the science behind it!

Did you know that humans have about 7,500 taste buds? That's a lot compared to most chickens, which only have about 24, total. But it's a pretty small amount compared to catfish. They have over 175,000 taste buds! Can you imagine what your favorite dessert might taste like if you had that many? I wonder if it would be a good thing, or maybe too much information. Perhaps we are better off with our own perfect number of taste buds!

Exercises

1. How does saliva help with tasting?
2. What helps to decode the chemical structure of a food so that the brain can determine its taste type?
3. Why do foods sometimes become less strong as we age?

Answers to Exercises: Tasty Taste Buds

1. How does saliva help with tasting? (it makes a solution with the food we eat, which can be analyzed by our taste buds.)
2. What helps to decode the chemical structure of a food so that the brain can determine its taste type? (taste receptors or taste buds)
3. Why do foods sometimes become less strong as we age? (Our taste buds are replaced every couple of weeks and fewer of them get replaced as we grow older.)