

SCIENCE FESTIVAL FACILITATOR'S GUIDE



It's All in the Taste Buds

1. Make sure you have the materials you need.

- Hard candies of various flavors

2. Quick “insider info” about this experiment:

The science of smell has two components that combine with taste. This means that when we eat something, there are three parts to perceiving different flavors.

- Part 1: Smell—Orthonasal (ortho – upright/proper + nasal - nose)
 - Sniffing in
 - Our bodies activate this when we catch the aromas of the food we are about to eat or when we sense a perfume.
- Part 2: Smell—Retronasal (retro back/behind + nasal – nose)
 - Chewing food
 - Our bodies activate this from the back of the mouth as vapors from the food we are chewing begin to stimulate the cells in our nose.
- Part 3: Taste Buds
 - Taste buds are located on the tongue and help us to determine the texture of our food.
 - We also distinguish if food is sweet, salt, sour, bitter or umami with only the use of our taste buds.

3. Prepare your station.

- Distribute various flavors of hard candy around the table for participants to choose from.

Questions to ask participants before they start:

- What part of our bodies do we taste with? (Students will probably say the mouth or tongue.)
- Are you sure? What if I told you it was your nose?
- Let's test our theory!

Instructions:

Please read each set of instructions out loud. Make sure that you direct the correct person to complete each assigned task.

- **Student:** Close your eyes and hold your nose like this (demonstrate pinching your nose closed so that you can't smell).
- **Adult:** Feed your partner one of the hard candies, without telling them the flavor or color.
- **Student:** Try to guess what flavor and color the candy is without letting go of your nose. (Give them several minutes, so the candy has a chance to dissolve in their mouth. This will give them enough time to detect the flavor.)

Repeat activity, with the adult and the student switching roles.

- **Both:** Is there any change in the taste of the candy from the beginning to the end of the experiment? Talk to your partner about what you're tasting, and any changes you notice.

How It Works:

Much of what we perceive as "taste" is due to our sense of smell. At first, you probably couldn't tell the specific flavor of the candy—you might have just noticed that it was sour or sweet. As the candy dissolved, you may have noticed that it got easier to identify the specific taste. This is because molecules are released as the candy dissolves. Those molecules traveled up a passage at the back of your throat to your nose.

We can only taste five different true tastes—sweet, sour, salt, bitter and umami. It is smell that lets us experience the complex flavors we associate with our favorite foods.

Vocabulary:

Nasopharynx: The "back door" that connects your nose and mouth.

Real-World Application:

Have you ever made someone laugh when they were in the middle of taking a drink, and they wound up shooting milk out of their nose? If so, you probably saw a good

demonstration of this connection between the nose and mouth!

If you have ever been sick and had a stuffy nose you may have noticed food isn't as tasty this is because taste comes from our sense of smell. Sometimes people have long-term loss of smell and lose the ability to taste.

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