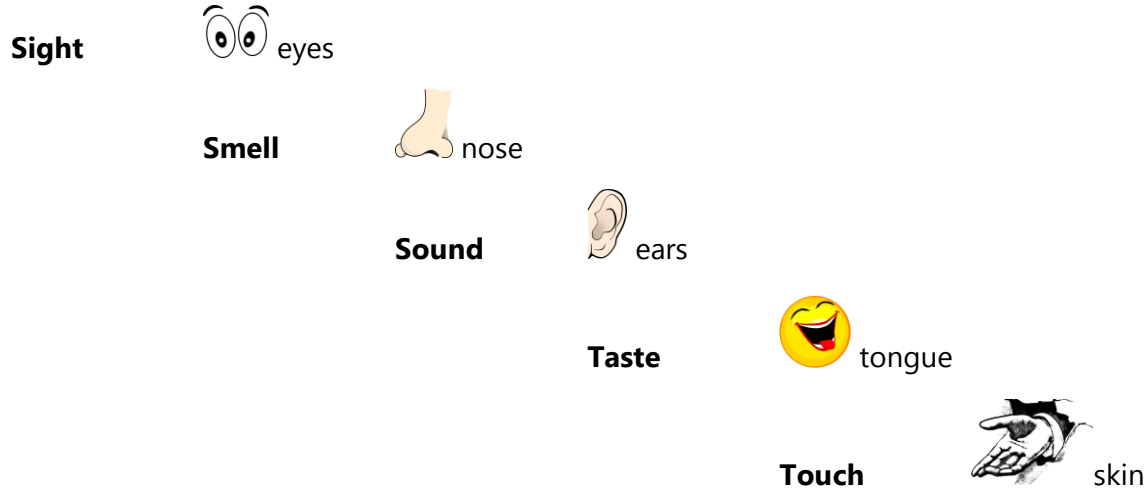


## TASTE AND SMELL

Taste and smell make up two of the five senses typically found among humans. The other senses, of course, are sight, sound, and touch. Our senses are associated with various organs that collect and relay information to the brain. They help us understand the **chemistry** (the form and function of basic elements and their compounds) that makes up the world around us.



Your senses work together as a team to form **perceptions** (understanding or recognition) about the chemicals in the air that we breathe and in the foods we eat. Even though taste and smell are experienced through separate senses, they are still closely connected.

Taste and flavor are related, but they are not the same thing. Most of what we think of as “taste” is actually “flavor”, a complicated mix that is a combination of a food’s taste, smell, and touch that we experience as a single sensation.

Smell detectors in your nose send signals to a collection of scents stored in your brain. This same area is also connected to memory, **emotions** (feelings) and thoughts. Together, they all help you recognize and identify the smell signals that your senses capture.

Humans can taste sweet, sour, salty, bitter, and savory (sometimes also called “umami” or “meaty”) flavors. While we are chewing or drinking, our taste cells also get to work to identify the flavor. These cells are located on your tongue and the roof of your mouth, and they also help us recognize other qualities like temperature, creaminess, and spiciness.

Think about what it’s like to bite into a sweet, juicy strawberry. The juices have a smell that you recognize as “strawberry”, and you experience that smell while also feeling the little bumps and seeds in the strawberry’s skin and tasting the strawberry’s distinctive flavor. You know that it’s a strawberry – not an apple or a grape or a pickle!





**sweet: candy**



**sour: lemon**



**salty: potato chips**



**bitter: coffee**



**savory: cheese**

Taste is also important in helping us detect certain nutrients and avoid **toxins** (substances that are harmful or poisonous). Sweet foods are usually rich in calories, and they can taste especially good when you are hungry and in need of extra calories. Bitter flavors warn us that some foods may be poisonous and are not safe to eat.

Sight isn't part of the sense of taste, but it does have an effect on our perceptions of taste. We can identify foods by the senses of smell and sight, not just taste. Some foods can be identified by sight alone or by smell alone. You don't have to eat a banana to recognize that a particular food is a banana. You can recognize a banana just by the way it looks or the way it smells.

### **ACTIVITY: Identify jelly bean flavors using your senses**

#### **Materials**

- Jelly beans with similar colors but very different flavors (red: cherry and cinnamon; yellow: lemon and pineapple; green: lime and green apple, brown: chocolate and cola, etc.)
  - A partner
1. Have your partner select 2 jelly beans of similar colors but different flavors. Ask them to show you the candy without telling you what the flavors are. Don't eat them yet!
  2. Predict what the flavor of the jelly bean is. Can you tell just by looking at it? Why did you guess that particular flavor?



3. Now, pinch your nose and hold your nostrils together so that you can't smell anything. Chew one of the jelly beans for a few seconds -- don't finish it. What do you taste? What flavor do you think you've just eaten?
4. Let go of your nose and chew normally now to finish the jelly bean. What do you taste now? Can you smell anything?
5. Repeat steps 2-5 with the second jelly bean. What did you taste or smell this time? Was one flavor easier to identify than the other? Did either flavor surprise you?

You can also try a blind taste test. Hold your nose, close your eyes, and ask your partner to give you different random flavors of jelly bean to sample.

- How easy is it to identify flavors just by taste alone?
- How about by taste and smell?
- Does knowing the color of the jelly bean influence your guesses? Why or why not?

Try the taste/smell test with other foods or drinks.

- Are there parts of the flavor that you can taste while you hold your nose?
- What differences do you notice when you let go of your nose and add the sense of smell back in?

You probably just tasted and recognized sweet or sour at first and maybe had trouble identifying the specific flavor of the jelly bean. If you were patient and paying close attention, then you noticed that while you were chewing you could eventually identify the flavor, even while holding your nose closed. That's because the scent molecules traveled through a passage at the back of your throat that connects to your nose!



## **ADDITIONAL RESOURCES**

### **Books from the Washoe County Library System:**

[\*Brain, Nerves, and Senses\*](#) by Steve Parker

[\*Cold, Crunchy, Colorful: Using Our Senses\*](#) by Jane Brocket

[\*The Magic School Bus Explores the Senses\*](#) by Joanna Cole

[\*My Five Senses\*](#) by Aiki

[\*Pool! What is that Smell?: Everything You Ever Needed to Know About the Five Senses\*](#) by Glenn Murphy



[The Sense of Taste](#) by Ellen Weiss

[Taste](#) by Patricia J. Murphy

[Tasting](#) by Helen Frost

[Tasting](#) by Grace Jones

[You Can't Taste a Pickle with Your Ear: A Book About Your 5 Senses](#) by Harriet Ziefert

**Videos:**

Peekaboo Kidz, "The Five Senses | The Dr. Binocs Show" <https://youtu.be/q1xNuU7gaAQ>

SciShow Kids, "Your Tongue: The Taste-Maker!" <https://youtu.be/C4rdqXXzPGU>

**Websites:**

The Nemours Foundation, KidsHealth®, All About Your Senses: Experiments to Try  
<https://kidshealth.org/en/kids/experiment-main.html>

PBS, Science Trek, Five Senses <https://www.pbs.org/video/science-trek-five-senses/>

