

Does color affect taste?

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Acknowledgements

I thank my parents for helping me with the test, dying the foods and getting the supplies I needed. I also thank Mrs. Yee for helping me set up my paper.

Purpose

The purpose of my investigation is to figure out if food coloring affects taste.

Hypothesis

If I offer people the same food in different colors, then they will choose food colored yellow more than any other color because it is more appealing to the eye.

Does color affect the taste of the food? Many people decide if they like food by how it looks. Sight is not a part of taste, it affects our perception.

There are cells that determine the flavors of food in taste buds located on the tongue and the roof of the mouth. Taste cells are activated when we eat and drink and flavor is realized.. Special chemicals called neurotransmitters signal the taste buds in the tongue. A message of taste moves from the taste buds in the tongue to the brain through cranial nerves. The signal is first received by areas in the brainstem, which connects the spinal cord with the rest of the brain. The signal then moves to the thalamus in the brain. The 5 tastes that are tasted on the tongue are sweet, sour, salty, umami and bitter. Umami determines the flavor of glutamates. Umami refers to a strong meaty taste and it was made by a Japanese scientist named Kikunae. The taste buds look like white and bright red with fluid filled blisters that are called papillae, you are not able to see them. The areas of the tongue that taste bitter are in the way back, sour is on the sides but in the back, lower sides are savory and the tip of your tongue tastes sweet. The taste buds are not just on your tongue they are on the roof of your mouth, on people's cheeks and even under your tongue. (parts of the tongue, n.d)

Odor messages travel to the primary olfactory cortex, or the smell center of the brain that involves smell. The taste and odor signals meet, and produce the perception of flavor. Although smell plays the greater part in stimulating appetites, the sense of sight influences it as well. The sight of food triggers the taste buds along with other senses of touch, taste, smell and even hearing to an extent.

Red and yellow are the chief food colors that stimulate the taste buds and the appetite. Both of these bright colors grab our attention. The fast food industry believes this is effective—because it catches the eye. The color gray generally turns people away from the thought of food. The color black is used to cause a person's appetite to diminish.

The color brown tends to make people not feel very hungry or thirsty. The reason is that these colors represent death and decay throughout human history. These colors are perceived as something not good to eat.

Artificial food colorings were originally manufactured from coal tar, which comes from coal. Today most synthetic food dyes are derived from petroleum, crude oil and even bugs. They add artificial colors because it makes them more attractive and appetizing.

Food and drink are mostly identified by the senses of smell and sight, not taste. Food can be identified by sight alone—we don't have to eat a strawberry to know it is a strawberry. The same goes for smell, in many cases. To give the impression of a certain taste, flavor, or quality, food coloring or dyes are added to processed, packaged, and even fresh foods. Adding a red color to the skin of an apple may influence people into believing the apple is sweeter in taste. In a study published in the *Journal of Food Science*, researchers found that people confused flavors when a drink did not have the appropriate color. A cherry-flavored drink manipulated to be orange in color was thought to taste like an orange drink, and a cherry drink manipulated to be green in color was thought to taste like lime. “How color effects, 2020”.

Scientists also say that rounder shapes taste more sweet and bitter. Everytime you eat your brain takes information on what you like and dislike about food. (the way food

looks,2008[Online] The gustatory cortex is located in the cerebral cortex, which is the outer part of the brain. The gustatory cortex is made up of two small substructures that are found in two different lobes of the brain. These substructures are the anterior insula, located on the insular lobe, and the frontal operculum, on the frontal lobe. The insular lobe is found deep within the cerebral cortex, located under the frontal, parietal, and temporal lobes. The frontal lobe is located at the front of the brain, directly behind the forehead(washmuth.n.d) The area of the brain responsible for storing memories of new tastes is the Gustatory cortex. This area is responsible for formulating a memory of the place and time of the experience of food memory (science daily 2014). In the mouth, these tastes, along with texture, temperature, and the sensations from the common chemical sense, combine with odors to produce a perception of flavor. It is a flavor that lets us know whether we are eating a pear or an apple. (spd australia.n.d). In conclusion, based on my research I can say that color does affect how the food tastes. In the future, I will notice the color of food and look forward to seeing how different it may taste.

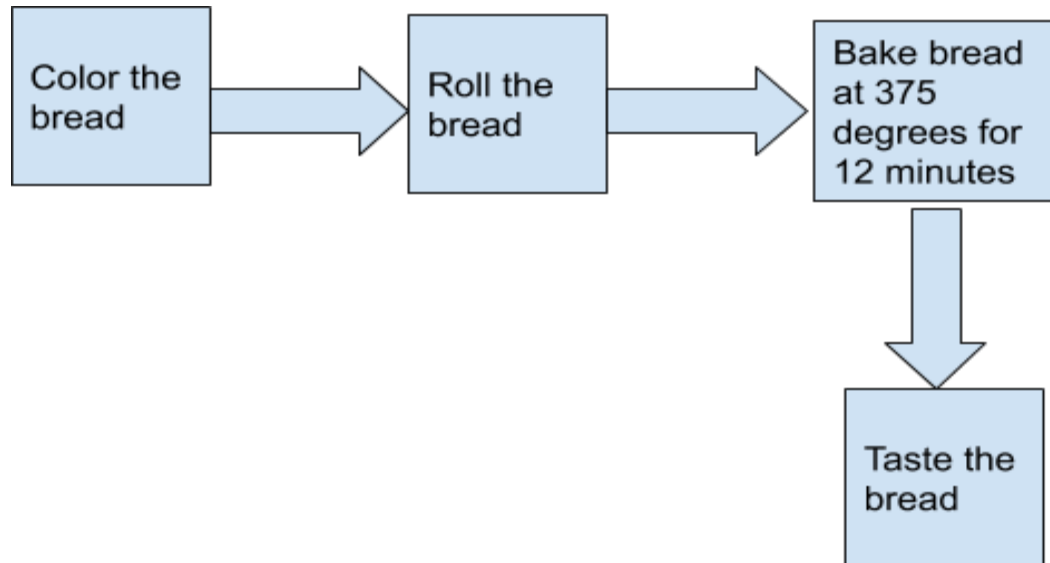
Materials

McCormick Assorted Food Color

Pillsbury Crescent Rolls

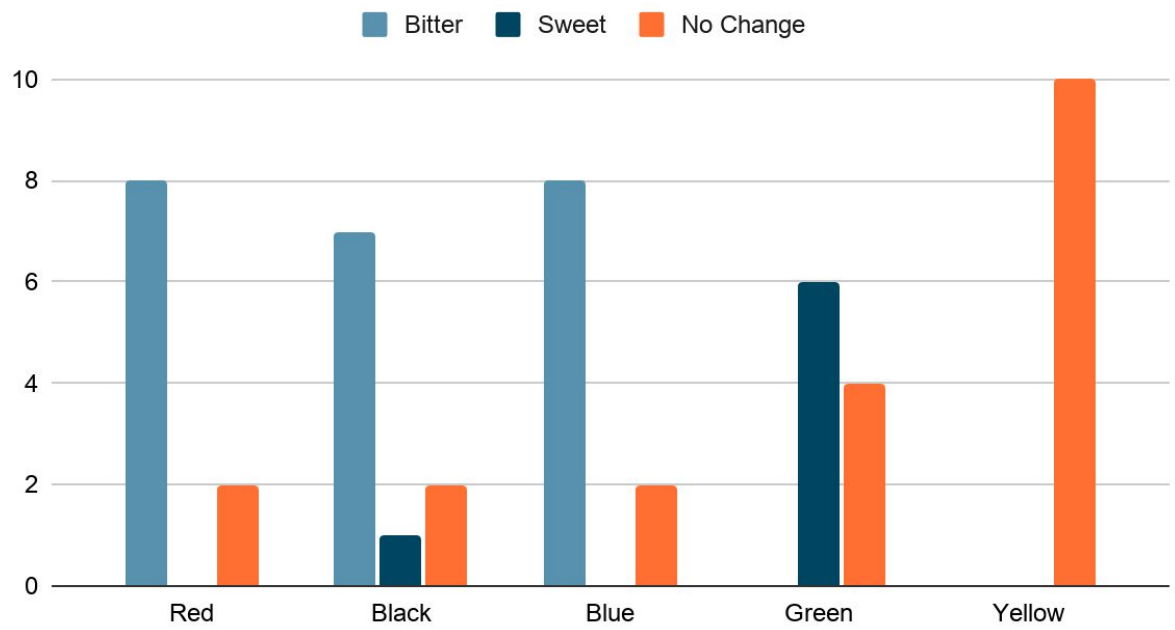
Procedure

I added the coloring to my bread and rolled it into a crescent. Next, I put the rolls into the oven at 375 degrees for 12 minutes. Then I broke the bread into smaller pieces and gave it to the people testing. Then they gave me their opinion about the taste.



Graphs

Changes of taste with color



Conclusion

In conclusion I can clearly state that the color of food affects taste. The hypothesis I made was right because out of all of the colors people said yellow tasted the better than all of the colors. I

was not really surprised by my results but it was interesting to see how it changes by just changing the color. I can now confirm that from my research and experiment that yellow is the preferred color.

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