

# Does Color Affect Taste?

Allie K, Isabel K, Keira M and Scarlett C, Marlborough School, Los Angeles CA

## Abstract

Our research project was how color affects taste. We conducted this experiment to see how our brain tricks us into bringing things we already know into things we don't. In this experiment we tried to figure out how our past knowledge of flavor is reflected when seeing certain colors. We got 4 cups of jello with 4 different colors (red, blue, purple, and orange) but with no flavoring. Our independent variable is the 4 different colors of jello and our dependent variable is the flavor our participants think the jello is while looking at the color. When we gave the cups to the participants, 35.7% of them believed there was no flavor but the other 64.3% were manipulated into thinking there was a flavor. Some problems were that we had very few participants and some of the participants may have heard about this kind of experiment where they are asked to answer questions with no answer. Overall, our hypothesis was proven to be true although the process could've been better.

## Introduction

Our research project was based on the idea of how color affects taste, or how our minds manipulate us to think that it does. We came up with this idea because we thought it was interesting how people often categorize certain colors with certain flavors, such as red to cherry, blue to blueberry, yellow to lemon, and so on. An article written by Charles Spence talks about an experiment conducted where people were asked to describe what they tasted when dealing with different colors of food coloring. The article states, "Adding green food colouring decreased people's detection threshold for sourness, while at the same time increasing the threshold for the detection of sweetness. The addition of yellow colouring reduced the detection threshold for both sourness and sweetness, while the addition of red colouring reduced the threshold for the detection of bitterness". This article has run a similar experiment to ours, however, there are many articles written about this topic and all of them contradict each other, so we decided to take matters into our own hands and try it out for ourselves.

## Purpose

We are asking this question to see how people's past perceptions of the flavor's different colors stand for and how it links back to another flavor or color. We are conducting this experiment to compare student's past knowledge of flavors relates to the flavor they mark a drink of. We want to see if people's view of color manipulates their sense of taste to see if artificial coloring is significant in food. If a restaurant chose to dye certain foods a different color, people would most likely choose not to eat it because they already have an assumed color for the food. If food services were aware of this information, they would be more likely to keep their foods their natural color because it would attract more business and people would be more likely to order that menu item if it wasn't discolored, because oftentimes people link certain colors with certain objects/plants/diseases that don't belong in food.

## Materials and Methods

To begin our project we made unflavored gelatin colored with four different food dyes: purple, red, orange and blue. We collected some plastic cups, pencils, and notecards to set up our experiment. After we collected our materials, we sent an email to the 7th and 8th grades to get participants for our project. On the day of the experiment, our participants came in at various times during lunch. They were presented with four different cups with different colored gelatin and a notecard with a list of the colors of gelatin. The middle schoolers tried each color of gelatin and with their pencils wrote down the flavor they perceived each color to be. For example, the red gelatin might taste like cherry. If the participants didn't perceive any flavor, they would record "nothing".

## Results

We represented our results in pie charts shown below. We noticed that there is a drastic difference between the purple and orange, vs. the red and blue flavors. This led us to the conclusion that there are more possible flavors linked with the colors red and blue!

## Discussion

Our research question asked if color affected someone's taste. As displayed in the pie charts, it is visible that the color of the gelatin affected most of our participants' taste. A lot of them associated certain colors to certain flavors which caused them to be manipulated. For example, if the color is red, the participants associated it with a common red flavor - cherry or strawberry. Our Red and Blue pie charts had many more perceived flavors than the Purple and Orange pie charts because of previous experience in terms of what flavors are associated with different colors. Red and Blue has many more flavor possibilities than orange or purple which are commonly associated with one flavor. Our experiment would have been more accurate if we had more participants so it is possible that our data would change somewhat. Our participants' prior exposure to flavors and colors could have altered the experiment as well. As a follow up experiment, we would re-do our project by getting a larger group of participants and making more jello. We would also include a control group with regular clear jello as well as our four colored gelatins.

## Acknowledgments

We would like to thank all of our seventh and eighth grade student volunteers, as well as Ms. Crowley and Dr. Ponzio.

## Bibliography

"COLOR-CODED - MATCHING TASTE WITH COLOR." *US Fed News Service, Including US State News*, Nov 17, 2018. ProQuest, <https://search.proquest.com/docview/2134275456?accountid=3672>

"Does Color Affect Taste?" *Science Film Festival*, [www.goethe.de/resources/files/pdf184/sff-activity\\_does-color-affect-taste.pdf](http://www.goethe.de/resources/files/pdf184/sff-activity_does-color-affect-taste.pdf). Accessed 10 Dec. 2019.

*How Color Affects Your Perception of Food*. Konica Minolta, Konica Minolta Sensing Americas, [sensing.konicaminolta.us/blog/how-color-affects-your-perception-of-food/](http://sensing.konicaminolta.us/blog/how-color-affects-your-perception-of-food/). Accessed 9 Dec. 2019.

