

# The Taste Test

*The world of taste in color*

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7<sup>th</sup> Period Science

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## Acknowledgements

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*THANK YOU!!!!*

# Purpose of Project

What got me interested in taste was the idea of someone drinking a purple Sprite.

Weird huh? Then I wondered, what would that person taste? Would s/he taste Sprite, or maybe a grape soda? So I started researching how color could affect taste.

My library research project was about taste and looking at connections between things like smell and taste. Smell is important to taste because it can protect you from bad things (my dog's food!) and lead you towards good things (pumpkin pie).

There are also connections between seeing and tasting. I learned that a rare disease called synesthesia causes the people who have it to see something, and idea or a number, for example, as a certain color. But not many people have synesthesia and many people still think of flavors as having colors. So would they taste different things depending on the color?

I read about some experiments that connected color and taste by having testers drink or eat something such as cookies or soda and making the color look like or look different from the flavor of the cookies or soda. In some experiments, I read that kids and adults actually tasted different things when the color changed. So I decided to do an experiment that would see if people really did think a consumable item such as 7-Up tasted different because it was red, blue, or maybe even green! I really thought about it and made a hypothesis that people actually would taste something different if it was a certain color. They would think "Hey, my favorite cherry soda looks like that! I bet it is cherry flavored!" Then they would tell their taste buds to taste cherry.

# Experimental Design

I chose to do a taste test. This test would help me see if color would affect people's perception of taste. I also set this up as a controlled experiment. This meant that I wanted one group, called an experimental group, to see and taste something in order to understand how seeing and tasting were connected. I compared this to another group, called a control group, where everyone tasted the same thing, but didn't see it. I chose the taste test because I could compare differences between a group that both saw and tasted as well as one that only tasted. This could help me understand the role of seeing in influencing taste.

To conduct the actual experiment, I asked my math teacher's permission to have kids in two of his classes participate. The kids in each class could decide if they would participate or not. The students were all middle school aged and were taking 6<sup>th</sup> grade math during the 1<sup>st</sup> or 2<sup>nd</sup> period of the day. The kids in the 1<sup>st</sup> period class were my experimental group and the kids in the 2<sup>nd</sup> period class were my control group.

First, I made what I called taste sheets. These were small sheets of paper with a question asking the taster/student what they thought the drink, which I called the Secret Solution tasted like. The answer choices were Water, Cherry, Lemon, and Strawberry. I also asked for the name of each kid, but when I did the experiments I told them not to write their name and instead write whether they were a boy or girl. I changed the name item during the experiment because I didn't want the kids to feel called out and wanted to keep answers private. You can see my taste sheet in more detail on the next page.

Then I made the actual Secret Solution drink. I used two ingredients, 7-Up and red food coloring. With these two ingredients, I secretly mixed about  $\frac{1}{4}$  of a cup of 7-Up and 3 drops of red food coloring in a small Dixie cup. Then I gave the 1<sup>st</sup> period class one of these mixtures.

Each student who wanted to participate got one small Dixie cup of the mixture and a taste sheet. After they drank the Secret Solution, they filled out their taste sheet and handed it back to me.

For the 2<sup>nd</sup> period, I did the same thing except I asked them to drink the Secret Solution with their eyes closed. This was my control group. That way they couldn't see the color of the mixture. They also filled out the same taste sheet as the 1<sup>st</sup> period group.

I did not tell either group what the Secret Solution actually was.

## List of Materials

### Items used (see picture below):

Three 16.9 ounce bottles of 7-UP brand soft drink

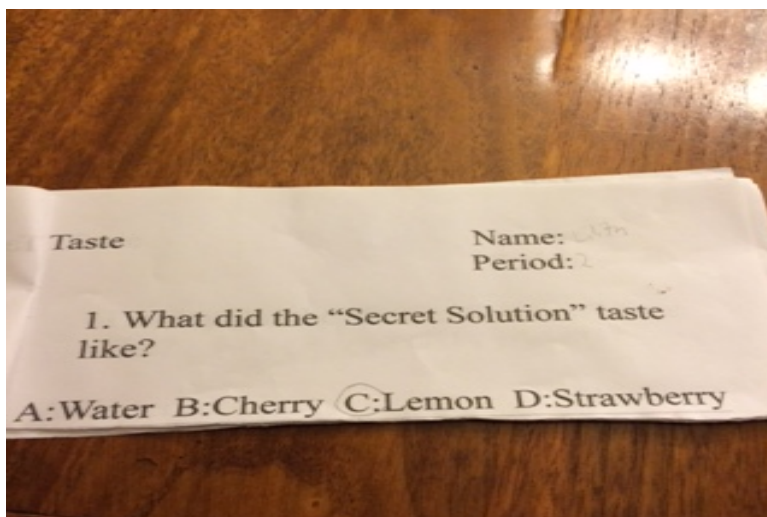
Red food coloring

22 small disposable cups (Trader Joe's gave these to us!)



### Documents used:

Taste Sheet (see picture below)



## Date and Location of Study

This experiment was conducted in Mr. Golda's classroom (room #106) in Jefferson Middle School on November 22, 2015.



# Data

## *1<sup>st</sup> period experimental group taste sheet*

What did the Secret Solution taste like?					
	Boy/Girl	Water	Cherry	Lemon	Strawberry
Respondent #1	Girl			✓	
Respondent #2	Other/Girl?			✓	
Respondent #3	Girl			✓	
Respondent #4	Boy		✓		
Respondent #5	Girl	✓			
Respondent #6	Boy				✓
Respondent #7	Boy		✓		
Respondent #8	Boy			✓	
Respondent #9	Girl				✓
Respondent #10	Girl		✓		
Respondent #11	Boy	✓			
Respondent #12	Boy	✓			
Respondent #13	Boy		✓		
Respondent #14	Boy		✓		
Respondent #15	Boy			✓	
<i>Totals</i>	6 Girls/9 Boys	3	5	5	2

6 girls responded and 9 boys responded as well. 3 Girls thought the Secret Solution was Lemon, 1 girl thought Water, 1 Girl thought Cherry, and 1 girl thought Strawberry. For the boys, 2 thought Lemon, 2 thought water, 4 thought Cherry, and 1 thought Strawberry.

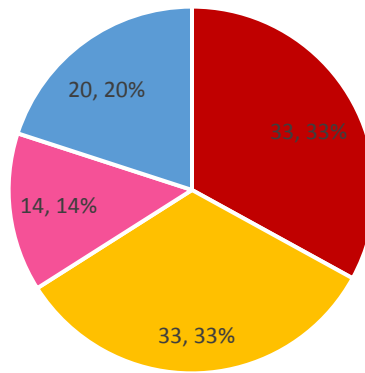
## *2<sup>nd</sup> period control group taste sheet*

What did the "Secret Solution" taste like?					
	Boy/Girl	Water	Cherry	Lemon	Strawberry
Respondent #1	Boy	✓			
Respondent #2	Boy				✓
Respondent #3	Girl			✓	
Respondent #4	Girl		✓		
Respondent #5	Boy		✓		
Respondent #6	Girl			✓	
Respondent #7	Boy		✓		
<i>Totals</i>	3 Girls/4 Boys	1	3	2	1

4 boys responded and 3 girls as well. 2 girls thought the Secret Solution was Lemon, and 1 other tasted cherry. For the boys, 1 thought the Secret Solution was water, 2 thought Cherry and one other tasted strawberry.

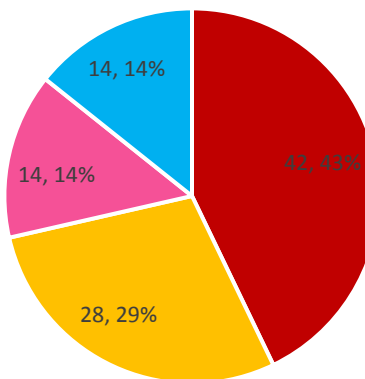
# Results and Conclusions

**What Kids Thought the Secret Solution Tasted Like**  
Experimental Group



■ Cherry ■ Lemon ■ Strawberry ■ Water

**What Kids Thought the Secret Solution Tasted Like**  
Control Group



■ Cherry ■ Lemon ■ Strawberry ■ Water

My hypothesis was not proven completely correct. My hypothesis was that kids in the experimental group would taste Cherry because the Secret Solution drink was red and that the control group would taste lemon because they couldn't see the color of the drink.

It turns out that 5 kids out of 15 in my experimental group thought the Secret Solution was Cherry and another 5 thought it was Lemon. Of the rest, 3 thought the Secret Solution was Water and 2 thought it was Strawberry. Even though 1/3 of the kids met my hypotheses, 2/3 did not. My experiment was like one of the experiments on the taste website. They used Sprite and different colors, but got different results that did not clearly show color connecting to taste.

One interesting thing about the experimental group is the 2 kids who thought the drink tasted like Strawberry. Red is also the color of real life strawberries so maybe those kids were showing a relationship between what they saw and what they tasted.

In my control group, funny things happened. 4 out of 7 kids thought the Secret Solution tasted like Cherry, and 3 out of 7 thought it tasted like lemon. This confused me because they didn't see the drink and I wondered if they tasted wrong. One possibility was that they sneaked a peek and I couldn't do anything to stop them from seeing the color of the drink.

Now to the boys and girls themselves. Could they have tasted the drink differently? After all most girls thought lemon and the boys mostly thought cherry. I didn't do any research on that, but that could make a difference. Maybe boys connect color and taste more than girls.

## Obstacles and Limitations

Some of the problems I encountered were with the taste sheet. I was afraid that my results would change because people would influence other people. So I told them not to talk to each other or else their results would not be valid. Yet I am afraid that maybe 1 or 2 people whispered, but hopefully that didn't happen.

Another problem was that some kids may have seen that I was dyeing 7-Up. I tried to solve this by going and getting a small tri-fold and mixing the Secret Solution behind it so kids couldn't see me.

Another issue I realized after the experiment was that if you do a taste sheet like mine, you should probably not use strawberry as a choice because it is red just like cherry. I only counted cherry as valid responses for seeing and tasting, but anything with a red color could show a relationship between seeing and tasting. It would have been better to use flavors such as orange or grape that people associate with different colors. If you fix these problems, or if you don't have them, this could be a better experiment.

# Applications of Project

My project, quite strangely, could help pranksters! They could dye some new milk yellow to gross someone out or turn somebody's cookie green and the person being pranked would be afraid to consume these items. So for the Pranksters out there, have fun! More seriously, you could color poisonous things so they look bad to discourage kids from eating them. Will this help okra?? (Dramatic music plays). No. Nothing can save okra.

Also my project also could matter to some companies that can make people possibly want to buy their product because it's a certain color. They could do a survey on the people who like their products and ask them their favorite colors. Then the company can make the product the color(s) the public liked. This also could help parents whose children don't like a certain drink or food, such as milk. Parents could color it a different and fun color so the kids might taste something else.

## Further Research

For people interested in recreating or doing this project with somebody, try and add a more variety of colors and flavors, this could help the people who are tasting the drink get an exact taste down, not just Cherry, Lemon, Water, or Strawberry. Also you could see if people who didn't know the drink well could describe the drink. That was going through my mind.

There are some things like that that you can learn more about, just by doing this experiment with older people. Do they taste the same as young ones, or not. As people get older, they lose taste buds. I was doing this experiment on 11 and 12 year olds, but it should vary with much older people, such as 50-80 years old.

You can also test if boys and girls taste differently. There were differences that I noticed between girls and boys and what flavor they thought it was. So you could do this experiment many more times to replicate it and see if in fact boys and girls tasted differently. Those are just some questions that you could consider asking if you do this or something like it.

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