

# The Apple Experiment

Science fair Project by Bernie

# Testable Question

Which liquid will keep the apples white the longest.

# Prediction

I predict that the Gatorade will keep the apple white the longest. Because it has sugar and salt.

# Procedure

1. Slice apples into six pieces
2. Pour 3 tablespoons of each liquid into each bowl. Make sure to get each apple wet.
3. Check apples every 15 minutes, log results. Use W for white, and B for brown
4. Flip apples after each 15 minute check
5. Continue observations until all apples are brown
6. Report results

# Background

I chose this project, because I thought it would be fun to see how fast the apples change colors. This project will teach me what a preservative is. I think it's important so we know which liquid makes the best preservative. In the future this will help us know which liquid will keep food fresh.

# Research

Definition of a Preservative: A substance used to preserve foodstuffs ,wood, or ,other materials against decay.

What makes a good natural preservative? According to WebMD, salt, honey, and some fruits make good preservatives.

On the website NDTV Food, the six best natural ingredients to preserve food are:

1. Garlic
2. Pink sea salt
3. Spicy ingredients
4. Lemon
5. Vinegar
6. Sugar

# Triles, Samples

I experimented five different kinds of liquid,Lemon juice,Pickle juice,Club soda,Gatorade and water.

# Constant conditions

**Independent Variable:** The independent variable is a cause in my experiment I am trying to figure out which liquid causes the apple not to turn brown. The independent variable is the liquid!

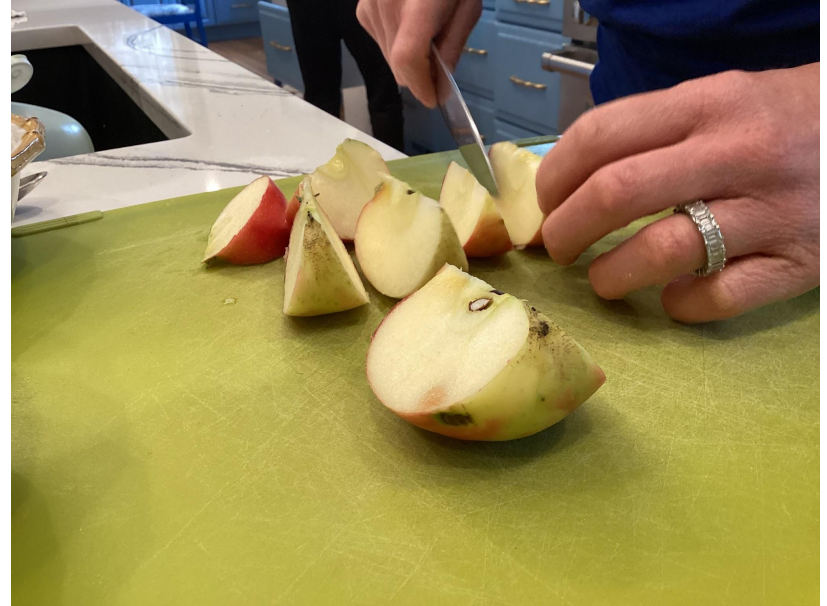
**Dependent variable:** The dependent variable is something that can change depending on the independent variable. In this experiment the dependent variable is the apples turning brown.

**Constant conditions:** The part that doesn't change. There are lots of Constant conditions in this experiment the bowl, the apple, the amount liquid.



# Data and identification

## My mom cutting apples.



# Data and identification

Me writing information



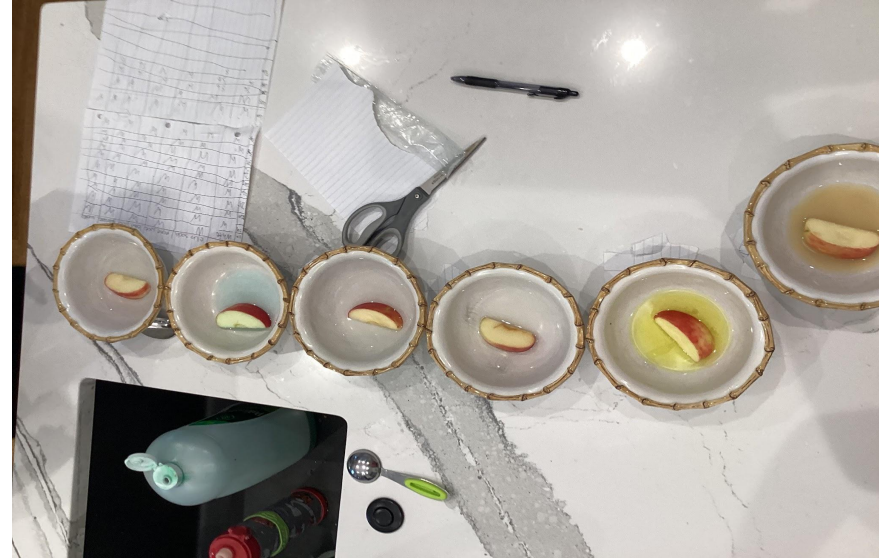
# Data and identification

Me standing next to the apples

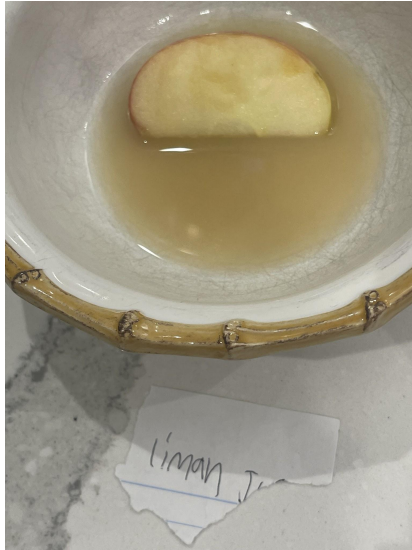


# Data and identification

Mid experiment



# Data and identification



Lemon Juice



Club Soda

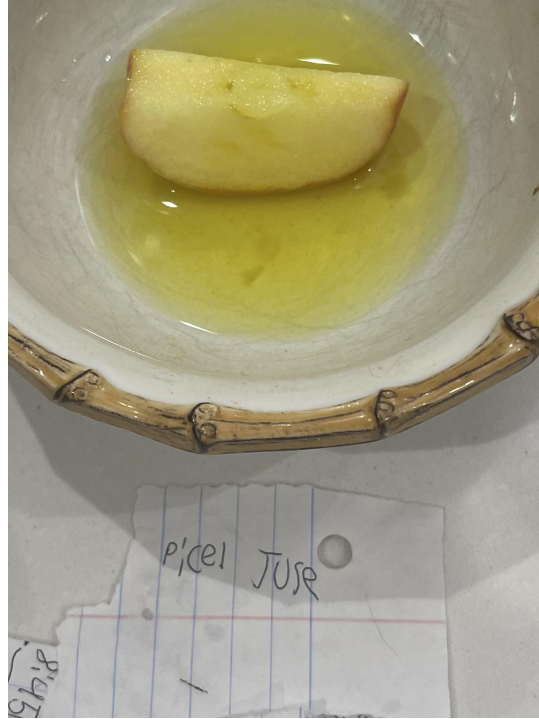


Gatorade

# Data and Identification



Water



Pickle Juice



# Data and Identification

My log. I did the project on March 5th. I started the project at 1:30 PM and ended at 7:15PM when only one apple slice was still white. I marked them this way:

W= White

SB= Slightly Brown

B= Brown

Time	Water	Club Soda	Apple Juice	Lemon Juice	Gatorade
1:30	White	W	W	W	W
1:45	W	W	W	W	W
2:00	W	W	W	W	W
2:15	W	W	W	W	W
2:30	W	W	W	W	W
2:45	W	W	W	W	W
3:00	W	W	W	W	W
3:15	W	W	W	W	W
3:30	W	W	W	W	W
3:45	W	W	W	W	W
4:00	W	W	W	W	W
4:15	W	W	W	W	W
4:30	SB	SB	W	W	W
4:45	SB	SB	W	W	W
5:00	SB	SB	W	W	W
5:15	SB	SB	W	W	W
5:30	SB	SB	W	W	W
5:45	SB	SB	W	W	W
6:00	SB	SB	W	W	W
6:15	SB	SB	W	W	W
6:30	SB	SB	W	W	W
6:45	SB	SB	W	W	W
7:00	SB	SB	W	W	W
7:15	SB	SB	W	W	W

# Conclusion and reflection

Conclusion: Pickle Juice won because it was the last apple with no brown spots on it. I was surprised because I thought it was going to be gatorade. I thought it was going to be gatorade because it has a lot of sugar and salt. But I think pickle juice won because it is salty, acidic and has vinegar,

Reflection: To continue my project i would start earlier so that I would have more time. I had to stop before everything was very brown because I have bedtime. I would use vinegar instead of water.



# Bibliography

Rana, Sarika. "6 Natural Kitchen Ingredients to Preserve Food without Using Food Additives." *NDTV Food*, 24 Aug. 2017, <https://food.ndtv.com/food-drinks/6-natural-kitchen-ingredients-to-preserve-food-without-using-food-additives-1741112>.

"Definition of Preserve." *Collins English Dictionary - Complete & Unabridged 2012 Digital Version*. 2012. [www.dictionary.com](http://www.dictionary.com)

Taylor, Martin. "What Are Natural Preservatives?" *Nourish by Web MD* 07, Nov. 2022 [www.webmd.com/diet/what-are-natural-preservatives](http://www.webmd.com/diet/what-are-natural-preservatives)