

The Purple Cabbage Science Experiment



First Grade





Testable Question & Prediction



Testable Question: To find out what will happen if I put different kinds of things (transparent liquids/white powder) into a cup of purple cabbage water, how will the cabbage water change its color?



Prediction: I don't know if the purple cabbage water will change its color or not, so I decide to test them one by one.

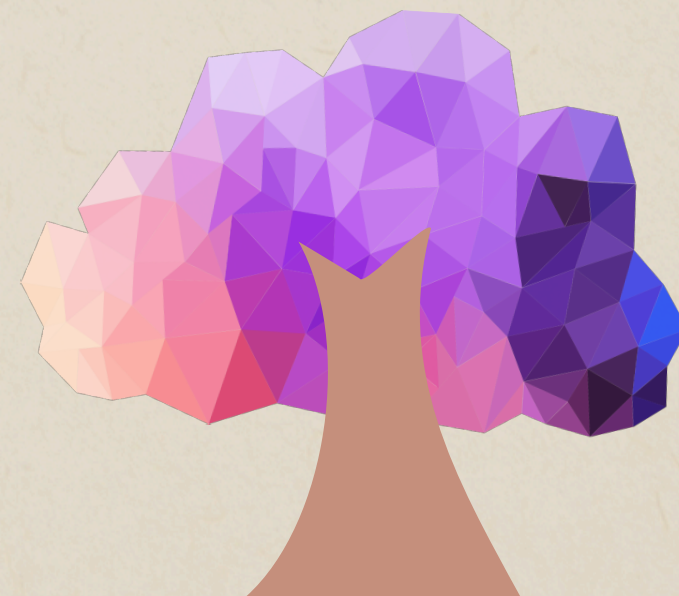




Procedure (1/2)

Material

- ❑ One head of purple cabbage
- ❑ A Sharp knife
- ❑ A Pot to boiled water
- ❑ A Measuring cup
- ❑ Several clear glasses
- ❑ Household transparent liquids/ white powder to test (white vinegar, lemon juice, baking soda, salt, sugar, soaps...
- ❑ Something to stir with

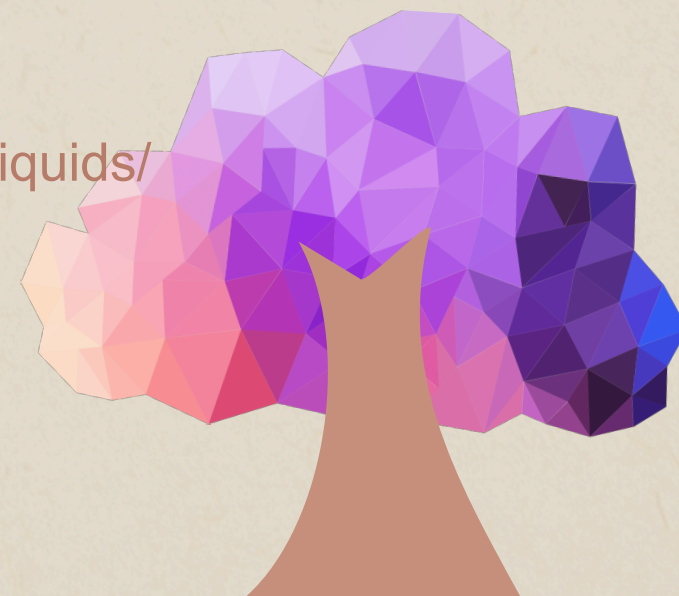




Procedure (2/2)

Procedure

- ❑ Take the purple cabbage and have an adult help cut off.
- ❑ Have an adult boil a pot of water and place the cabbage pieces in.
- ❑ Strain the water out into a measuring cup and let cool.
- ❑ Pour some cabbage water into clear glasses and add different liquids/
powder to test.
- ❑ Gently stir or swirl the solution and see what happens.





Background



I chose this project because...it looks pretty.



In my research I found out that...if I put acid or base things into the purple cabbage water, it will turn into different colors.



This project is important because... in this way I can find out anything if it is base or acid.





Constant Conditions



Independent Variable: Household transparent liquids/
white powder to test



Dependent Variable: The maybe different color changes of _____
the purple cabbage water



Constant Conditions: Same purple cabbage water;
same clear glasses

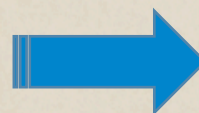
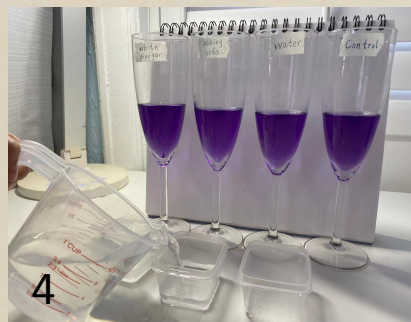
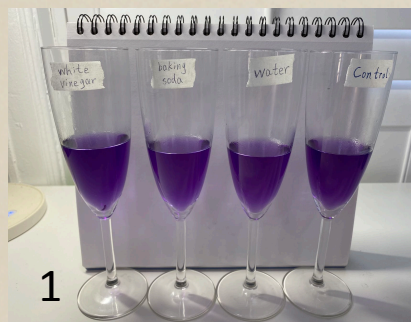




Data and Trials (1/3)

Trial 1: I already knew from a kiwico experiment that substances can be divided into different categories like acid, base or neutral (white vinegar is acid, baking soda is base, water is neutral), the aim of this experiment is to find out what color will the purple cabbage water turn into, when I put acid, base and neutral substances respectively into it. I left one glass unadded anything as a control group.

Procedure



Result



From left to right: white vinegar, baking soda, water and control



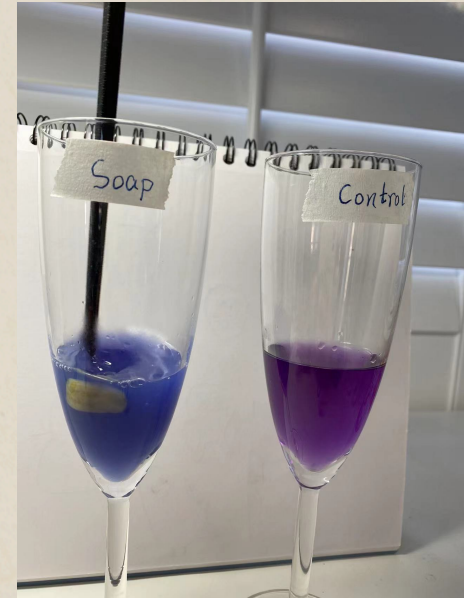
Data and Trials (2/3)

Trial 2: In the second trial, I started to test other household substances. Lemon juice, salt, liquid hand soap and hand sanitizer.



From left to right: Lemon juice, salt, liquid hand soap, hand sanitizer and control

Trial 3: To my surprise, the liquid hand soap is neutral?! Dad suggested me try something similar to the liquid hand soap to test, so I picked the laundry soap.



From left to right: laundry soap and control



Data and Trials (3/3)

What I found from the purple cabbage experiment is...

Household substances	pH Value
White vinegar	acid
Baking soda	base
Water	neutral
Lemon juice	acid
Salt	neutral
Liquid hand soap	neutral
Hand sanitizer	neutral
Laundry Soap	base





Conclusion and Reflection

- 💧 I found out that...when I put different things into the purple cabbage water, the color will change differently.
- 💧 I was surprised that...some of the colors didn't change much.
- 💧 If I did this project again...I want to test with saliva! (Kind of yucky, but I really want to know! 😅)



**THANKS FOR
YOUR TIME**

