



CREST Bronze Award Investigation Planner!

Topic

What will your project be about?

- **We want to test the effects of vinegar with bi-carb**

What do you want to know about your topic?

- **Which types of vinegar fizzes the longest when mixed with bicarbonate soda?**

What do you want to test?

- **We want to test each vinegar to see which one will last the longest when an amount of bi-card is added to it**

Variables

Make sure that your test is a fair test

Independent Variable (the one thing that I will change)	Dependent Variable (what I am measuring)	Controlled Variables (what I will keep the same)
The type of vinegar	How long the vinegar fizzes	The amount of vinegar
		The amount of bi-carb
		The type of bi-carb
		The container we use

Hypothesis

- **I think that the white vinegar will fizz the longest. This is because she we used to make volcanos as kids we used white vinegar and it worked well. Also the other vinegars have other ingredients in them so I think the plain vinegar will work the best.**

Materials/Equipment

- **75ml of 3 types of vinegar (balsamic, white and Italian red wine)**
- **1 ice cream tub**
- **2 pipettes**
- **Bicarbonate soda**
- **3 beakers**

Materials/Equipment

- **We need to supply the Italian red wine vinegar, because the school doesn't own any. For scientific purposes.**

Materials/Equipment

What will we need?

- **Safety goggles**
- **Gloves**
- **Aprons**
- **These are not necessary but are good for when small things happen**

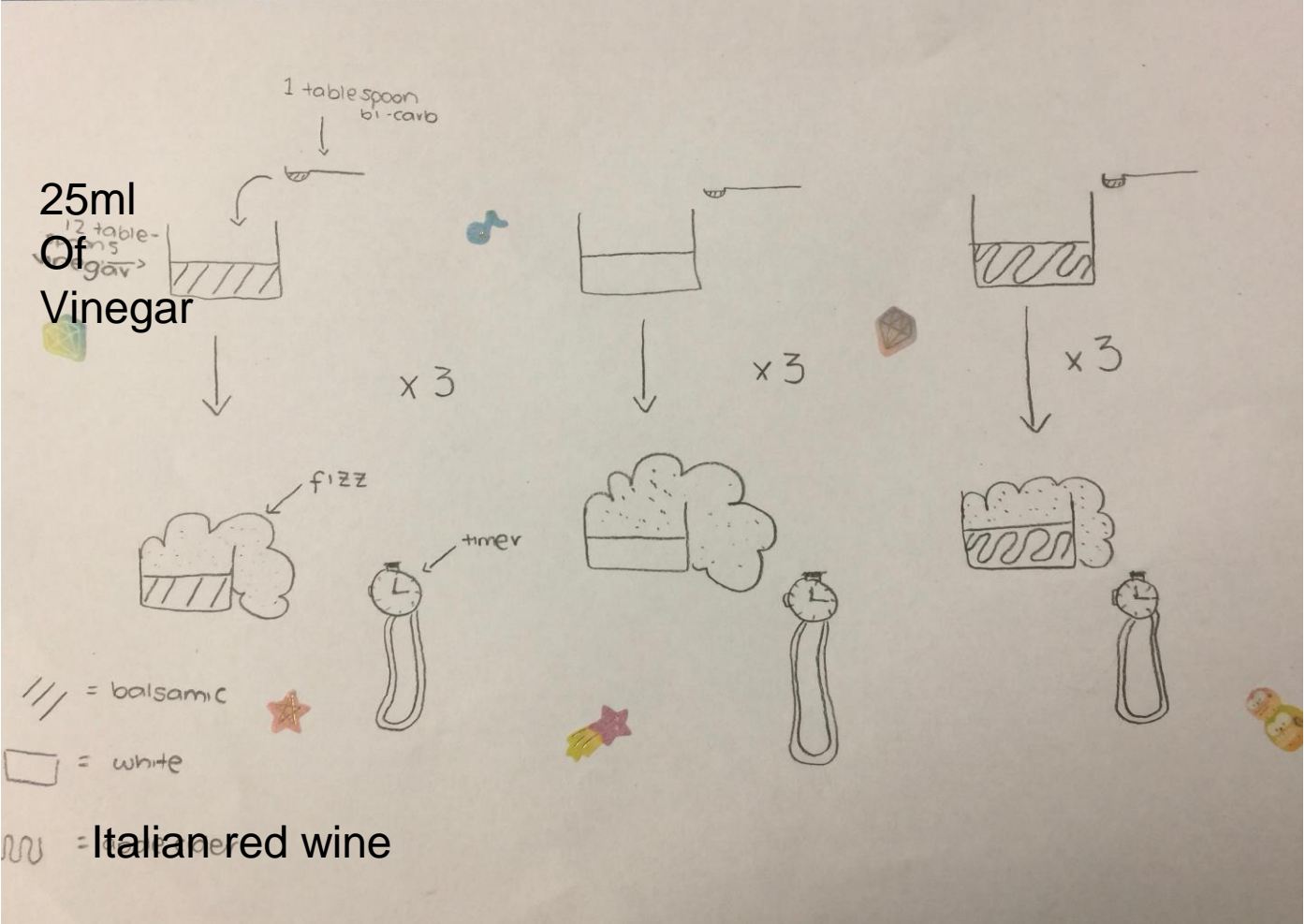
What will we need to perform the test?

- **1. We fill the container with with 25ml of vinegar**
- **2. Then we add 1 teaspoon of bi-carb**
- **3. Repeat 2 more times**
- **4. Do the same with the other vinegar types**

What will we do?

- **1. We measure out 25ml of vinegar**
- **2. We pour the vinegar into a beaker**
- **3. We add in 1 tsp of bicarbonate soda**
- **4. We timed how long the vinegar fizzed for, starting when we tipped the bi-carb in and finishing when the bubbles fell below the lip of the cup.**

Diagram



Safety

- **We have to make sure that no one gets any vinegar in their eyes.**
- **Also we don't want any vinegar in cuts**

How will we record our results?

- **We will make a table and then turn it into a graph**
- **In the table we will have the different times of how long the fizz lasts on each type of vinegar**

Our results

The 3rd test time of the white vinegar was invalid because we used a different packet of bi-carb and it made the results change.

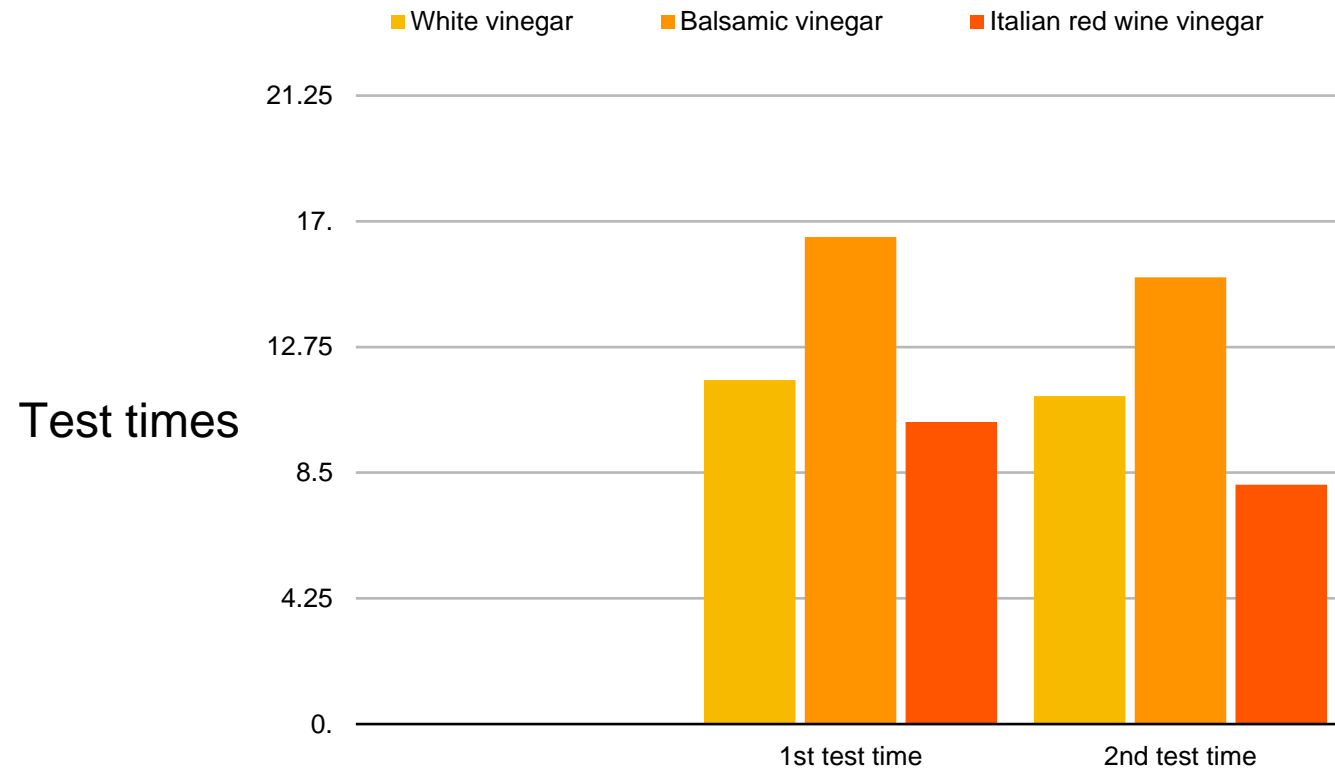
The Longest Fizzing Times

	White vinegar	Balsamic vinegar	Italian red wine vinegar
1st test time	11.63	16.47	10.21
2nd test time	11.09	15.10	8.09
3rd test time		15.65	9.07
AVERAGES	18.60	15.74	9.12

Log Book

Date Time	Notes
27/11/2018 9:15am	We found after the first test that our original amount of vinegar we used was too much. We then changed it to 25ml
27/11/2018 9:30	We needed more containers to hold the vinegar in
	We used 1 tsp of bi-carb

Graph



Discussion

- **The balsamic vinegar fizzes a lot longer than the white, but when we used a different bag of bi-carb it changed the result**
- **In the balsamic vinegar was a different ingredient to the white. It has wine vinegar and grape must so it reacts differently. The reason it reacts is because there is acid in the vinegars and the bi-carb has a chemical that reacts with it.**
- **We could get the timing more on point**
- **No food colouring (we didn't end up using it anyway)**

- **What were your findings?**
- **The the balsamic fizzes longer, in the test.**
- **I think that the balsamic fizzed longer because there is more of an acid base where as the white is a plain vinegar. Also we used a different bag of bi-carb half way through so it changed the results of the vinegar fizzing**

- **Was your hypothesis accepted or rejected?**
- **Rejected. We thought that the white would last longest but it was opposite**

- **What are the results useful for?**
- **Vinegar and bicarb is used to scrub away tough stains like coffee mugs and also is used for cleaning stainless steel. It is a natural way to clean your house and can even be used for cleaning the carpet.**