**BICARB AND VINEGAR FAIR TEST**

**Question:** What type of vinegar is the most reactive with bicarb?

**Aim:** To determine what type of vinegar is the most reactive with bicarb

* Watch You Tube clip: ‘Fair Test Investigation’ <https://www.youtube.com/watch?v=OoGkCtrFYQY>

**Hypothesis:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ vinegar is the most reactive type of vinegar with bicarb

**Safety:** \* Safety glasses to be worn \* Do not eat or drink the chemicals

**TEACHER NOTE - For next gen or academic class, use this experiment to focus on identifying variables. In this case delete the variables named in the table on the left, and identify each of these as a class discussion or homework… Delete this b4 printing!!**

* Independent: Type of vinegar
* Dependent: Height of bubbles/foam
* Controlled: - Amount of bicarb
* Amount of vinegar
* Temperature of vinegar
* Same person doing measurements

**Variables:**

**Materials:**

* 3 x 100ml beaker
* white board marker
* spatula
* scale
* sodium bicarbonate
* 30ml white vinegar
* 30ml red wine vinegar
* 25ml balsamic vinegar
* Thermometer (optional)

**Method:**

1. Mark each beaker with whiteboard marker labelled

* white vinegar
* red wine vinegar
* balsamic vinegar

1. Measure 25ml of each vinegar in a measuring cylinder and pour into appropriate labelled beaker.
2. Weigh 3g of sodium bicarbonate in weighing boat.
3. Add the sodium bicarbonate to white vinegar.
4. Observe the reaction and mark the level the reaction bubbles to.
5. Repeat for red wine and balsamic vinegar.
6. *Optional: record temperature change in vinegars when bicarb is added.*

**Results:**

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|  | **Height of Bubbles (cm)** | | | |
| **Type of Vinegar** | Trial 1 | Trial 2 | Trial 3 | **Average** |
| Red |  |  |  |  |
| White |  |  |  |  |
| Balsamic |  |  |  |  |

**Graph Results** (bar graph) – include fully labelled axes, appropriate scale and title

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**Type of Vinegar**

**Height of Bubbling (cm)**

**Conclusion** In the first paragraph, describe the main conclusion(s) you can make from the result. Support this data by referencing some data from the table or the graph. Compare the vinegars using relative values (% differences) if you can.

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| **TEACHER NOTE - For next gen or academic class, this can be independent work with lots of feedback on their work, or use as guided practice by having a class discussion about the (greyed) instructions and demonstrating what relative values are and why they are valuable when comparing data. For a “mainstream” class, delete the reference to relative values.** |
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Look at the amount of variation in the trials for each vinegar. This will allow you to judge the amount of error. State the amount of error that occurred (as little, significant, great deal). Support this statement by referencing the variation in the data, again using relative values if you can. Describe how to improve the method for the experiment.

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