

CBA1 Extended Experimental Investigation

Does a larger volume
water stay warmer for
longer



Research and
planning

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My Experiment

- The experiment is to figure out “does a larger volume water stay warmer for longer ??”. This is related to cup of tea: if you leave a cup of tea for a while and come back it is usually colder
- Our experiment is to figure out if we leave a small cup and a large cup which one stays warmer the longest

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Our inspiration

- I made myself a cup of tea and brought it upstairs then I realized I didn't unplug the kettle so I left it upstairs and I went back down and unplugged the kettle . Unfortunately by the time I went back up my tea was cold and wasn't as nice .
- The point of the story is it got us thinking , “if my cup was a smaller would it have kept more heat “

Planning

- We need to know the measurements and variables : our variable was the different water measurements. We decided 300 ml and 600 ml and 10 minutes as measurements.
- What we were going to use as an substitution for the tea , we didn't use tea as it was more cost affective to use water .

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Safety

- During our experiment we were working with electrical appliances and boiling hot water . We needed to be careful boiling the kettle and pouring it . The correct way to do it was boil the water then carefully lift and pour it directly into the beaker

Possible Variables

- **Amount of water** : this was the variable we chose , we did 300ml and 600ml per beaker .
- **Amount of time we boiled it for** : we chose 10 minutes for both beakers but we could have done different amounts of time eg . 5 , 15, 7 minutes .

1. Outlines safety considerations.

2. Identified a variable to be measured.

3. Misidentifies a second variable.
Writes boiled when it is clear from method that left was intended.

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Equipment

- We used a kettle to boil the 300ml and 600ml of water to begin with .
- A timer set to 10 minutes .
- Beakers to hold the water and the thermometer to go see the beginning and end temperatures
- And water to boil .

Hypothesis

- My hypothesis was the larger beaker contained warmer water longer than the small beaker because the large beaker has more water , more heat and if my hypothesis is correct that means the heat left at the same gradual speed in both beakers . If that is the case the larger beaker needs more time to dispose all the heat since there's more .

4. Forms a testable hypothesis with justification

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Measurements
1. 300ml Beaker
2. 600ml beaker
3. 10 minutes



How we obtained Our Results

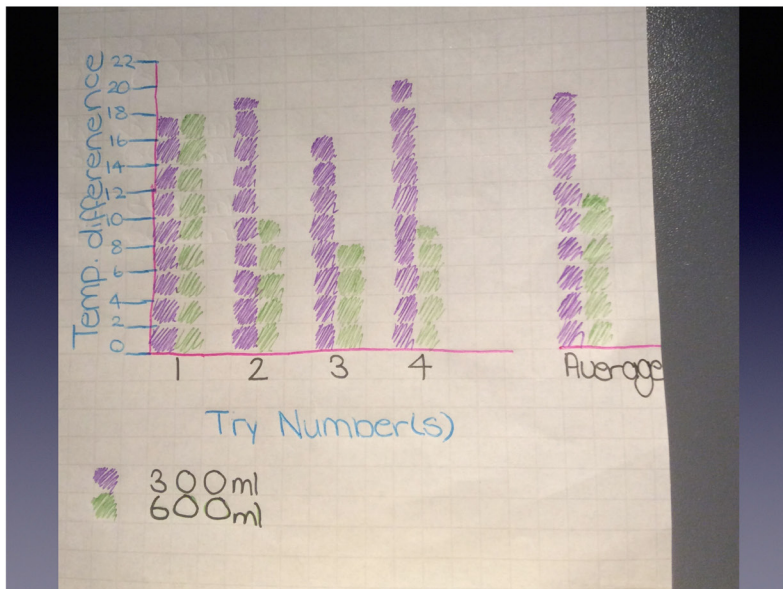
- We boiled the kettle and prepared the timer for 10 minutes
- We poured the water into the beakers into a 300ml and 600ml high .
- Watched it and found the highest temperature point and then waited 10 minutes and found out how much the temperature decreased.

5. Describes a safe
method to collect
data

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Data and results

6. Results are displayed on a simple chart but doesn't include units.



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Our results

- We did 4 of each test (both the 300ml and 600ml) . As you can see by the bar chart there was less heat on lost in the 600ml and more heat lost in the 300ml . That diagram illustrates the difference not the start or end temperature. There was an average difference of 7* (18.25-11.25) .

DATA		
	S.Temp.	E.temp
Try 1 [300ml	84°	66°
[600ml	80°	62°
Try 2 [300ml	84°	65°
[600ml	85°	75°
Try 3 [300ml	80°	64°
[600ml	82°	74°
Try 4 [300ml	84°	64°
[600ml	81°	72°

7. States a relationship between variables.

8. Records raw data.

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The data

- The way we recorded our data was we wrote down the highest point of each trial and its temperature after we left it and the thermometer alone for the 10 minutes we then calculated the difference and wrote out our own personal bar charts .

Analysis

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What id do differently

- I'd hope to get more planning done , by figuring out the best time space and water measurements .
- More time for more try's to get the most accurate and correct results
- To have more time to work on my write up .
- To achieve any of these myself and my group would need to more time efficient

Conclusion

- To base my results we have discovered that the larger amount of water could keep more heat referring it back to my inspiration the cup of tea . If you want to come back to your cup of tea your better of to have a bigger cup of tea for it to stay warm

9. Suggests some improvements.

10. Relates findings back to initial hypothesis.

Overall judgement:  In line with expectations