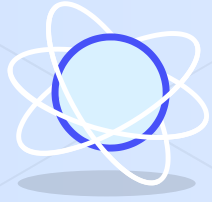


Tons of Temperatures: Which Cups are Best?

2nd Grade



Research Questions:



HOT

Which cup will keep
the hot liquid
hottest over 20
minutes?



COLD

Which cup will keep
the cold liquid
coldest over 20
minutes?





Hypotheses:

I think the ceramic cup will keep the hot liquid hottest because it holds coffee all the time. Why would it be different for hot liquid?

I also think the cold liquid will keep coldest in the paper cup because it is thinner so it will let in more cold air.



Research Plan:

1. Bring out four types of cups: plastic, glass, paper, and ceramic.
2. Add water to the cups
 - a. The cold water will come from the fridge
 - b. The hot water will be heated in an electric kettle
3. Measure the temperature of the water before it goes into the cups
4. Pour one cup of water into each cup
5. Wait 20 minutes
6. Measure the temperature of the water again
7. Determine which cup kept the liquid coldest or hottest in each test



Background

I chose this project because because I wanted to figure out which cup my mom should use for her coffee and which cup I should use for my ice water.

I chose to use ceramic coffee cups, plastic kids cups, glass cups, and paper cups because those are what we have in the house most often.

This project is important to me because I don't think we will be happy when the cold liquid is not cold enough or when the hot liquid is not hot enough.



Variables and Conditions

- Independent Variable: The type of material the cup is made from
- Dependent Variable: The change in temperature in each cup over time
- Constant Conditions:
 - Same type of liquid
 - Same amount of liquid (1 cup)
 - Same starting temperature of liquid
 - Same amount of time
 - Same area of the house (kitchen table)



Cups

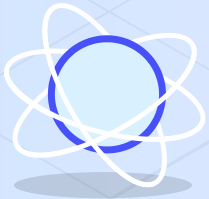


Thermometer



Cold Water Test

	ceramic	Glass	Papper	Plastic
Start	35.6	35.6	35.6	35.6
End	46.4	50	42.8	44.2
Reference	3rd	4th worst	1st best	2nd



Hot Water Test

	ceramic	Glass	Papper	Plastic
start	155 148.8	155 148.8	155 148.8	155 148.8
end	116.6	109	120.7	118.5
Difference	3rd	4th	1st	2nd



Conclusions

- The answer is that the paper cup was the best for both hot and cold liquids
 - The paper cup had the lowest temperature on the cold liquid test and the highest temperature on the hot liquid test.
- The glass cup was the worst for each liquid
 - The glass cup had the highest temperature on the cold liquid test and the lowest temperature on the hot liquid test.
- I was surprised because I thought the ceramic coffee cup would be best because that's what people always use for coffee
- If I did this project again, I would use a different amount of time to see if that changes the answer
- I would also try a different liquid, like apple juice or orange juice, to see if that changed the results

