

An aerial photograph of a winding river in a dry, brown landscape. The river is a dark blue line that meanders across the terrain, which is characterized by numerous small, interconnected channels and a complex, dendritic pattern. The overall color palette is dominated by shades of brown, tan, and blue.

How does the amount of heat affect the time that it takes for water to boil?

By Beatrice Clarke

Why I chose this area of science

I choose this as my experiment because when I am baking or cooking I like to either have my water boil fast, so I can use it quickly, or slow so I could do something else while it is boiling. Knowing this could help me, my family, and anyone else who needs this knowledge.

An aerial photograph of a river system, showing a main river channel with several smaller tributaries branching off. The landscape is a mix of green and brown, suggesting a natural, possibly rural or undeveloped area. The river flows from the top left towards the bottom right, with a prominent meander in the upper left section.

The problem or challenge

The problem I investigated is what temperature boils water the fastest on and how long it takes. I choose this because my family cooks a lot and I think knowing the fastest and slowest temperature could help us use our time more efficiently in the future.

Hypothesis

My hypothesis is that when the water is on the highest setting it will boil the fastest I know this because whenever I cook the higher the temperature the faster the water boils. When the water was on sim or low it will take a very long time to boil this is my hypothesis.

Research

My goals for this project were to find out what setting made one cup of water boil the fastest and also the slowest because knowing both these things could help me, my family, and possibly other people who could use this knowledge. I haven't done very much research though because I used my common knowledge and past experiences from when I was boiling water.



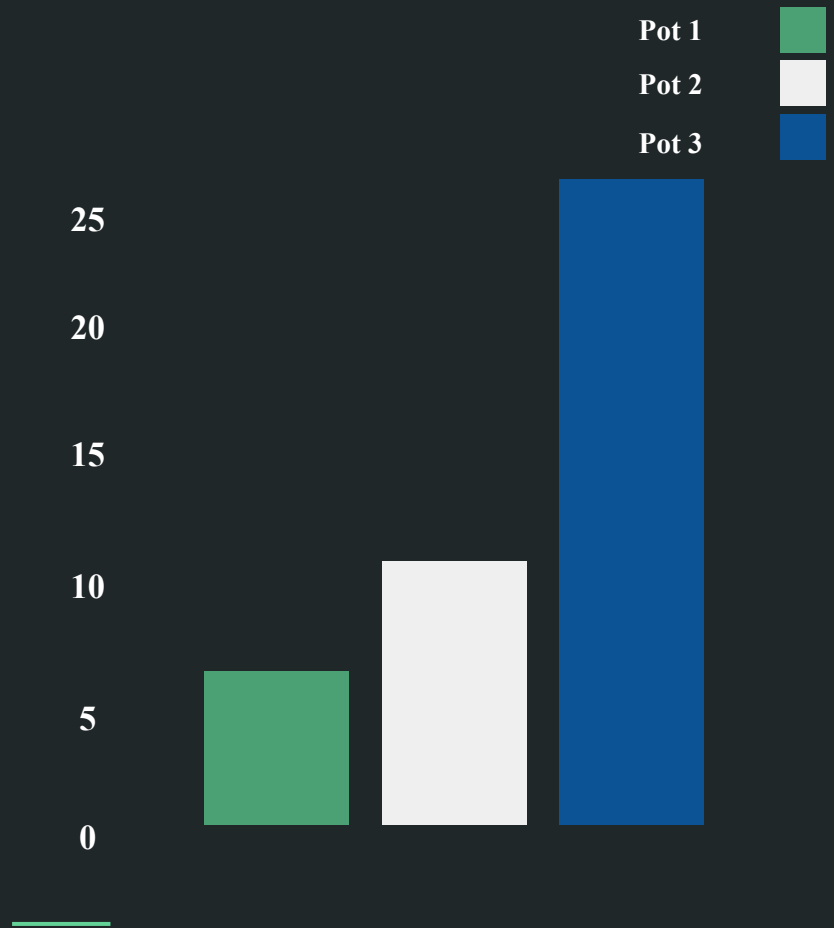
My testing method

The methods I used in my experiment are

1. Get measuring cup fill it up with one cup of water
2. Pour one cup of water in each pot
3. Place pot 1, pot 2, and pot 3 on the stove with the lids on top
4. Turn on the burner underneath Pot 1 on high Pot 2 on medium and Pot 3 on low
5. Time the amount of time that it takes for each pot of water to boil
6. As soon as one of the pots boil turn of the stove and put the baking thermometer
7. Record how fast it took for that pot to boil and how hot the water was after it boiled

Experiment data

Pot 1 took two minutes and five seconds to boil, pot 2 took five minutes and thirty five seconds, pot 3 took 25 minutes and thirty two seconds

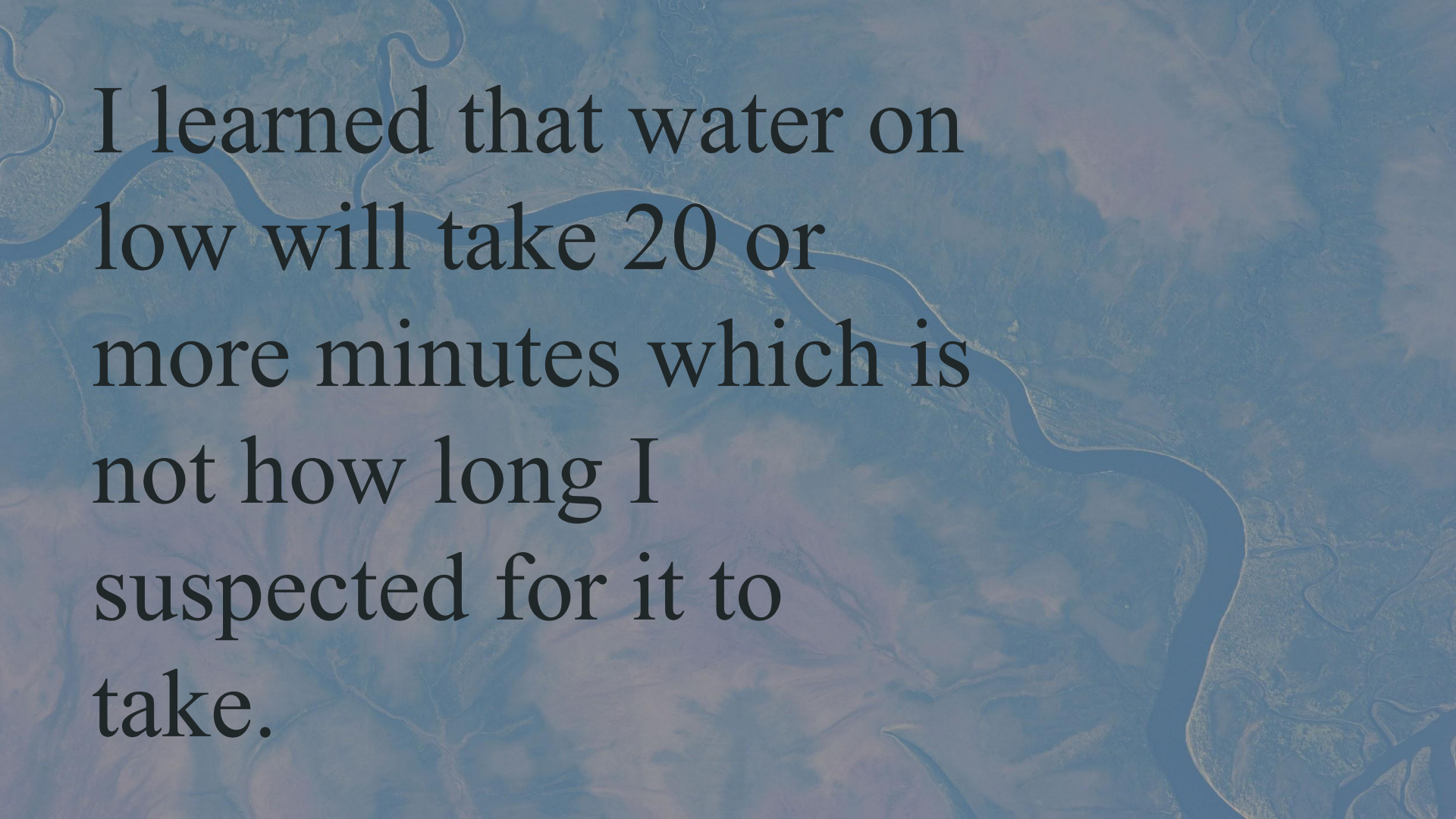


My discoveries

What I learned after testing

1. I learned that with a small amount of water and when a pot is under high heat it takes a very short time to boil
2. That when water is under a small amount of heat it will take a long time to boil even if there is very little water
3. I also learned that if you want to boil a small pot of water fast but not extremely fast then the best heat setting to put it on is medium



An aerial photograph of a wide, winding river flowing through a valley. The river is a deep blue color, contrasting with the brownish-green terrain of the valley. The river meanders across the landscape, creating a series of curves and bends. The surrounding land appears to be a mix of agricultural fields and natural vegetation. The overall scene is captured from a high angle, providing a clear view of the river's path and the surrounding environment.

I learned that water on low will take 20 or more minutes which is not how long I suspected for it to take.

Conclusion

My conclusion to my experiment is that my results supported my hypothesis showing that pot 1 which is on the highest heat boiled the fastest and pot 3 which was on the lowest heat boiled the slowest. Knowing this now means that the best heat for it to boil fast is on high and if you want for it to boil very slowly you should put it on low.

An aerial photograph of a river delta, showing a main river branching into many smaller channels. The image is overlaid with a semi-transparent blue filter. The text is positioned in the upper left quadrant.

What will I do next?

If I was going to do this again I might have added more water and done it in pots that were all the same size because that was a variable I didn't control and I should have and also what I might do differently if I were to do it again is to get the right size lids for each pot because since I needed clear lids I didn't have the right size for all the pot. So if I were to do it again maybe I could have used the same lid and pot for it but then I may need to take into account other variables that may need to be considered and controlled.