SUBSTANTIAL BOILING

M7-22 THERMAL SCIENCE

TESTABLE QUESTION & PURPOSE

Question: Does the substance in the water affect the speed of the water that reaches boiling?

Purpose: My purpose of this project is to see if the things people put in boiling water will affect the boiling speed.

ABSTRACT

Many people pots and water to boil water to decontaminate or to make soup. And also sometimes people put things in the boiling water. Does the substance you put in the water effect on how long the water boils? When I did the experiment to see the times of the boiling water and the sugar tests the pot got very steamy and got very hot. In conclusion the results didn’t have any show of difference because of no major time difference in minutes, only like 20 seconds of difference.

HYPOTHESIS

If Sugar are crystals, then they will absorb more heat because it has more mass than sugar and crystals absorb more than sugar.

MATERIALS

My materials for my project included:

- Morton Iodized Salt
- Domino Sugar
- Thermometer
- Stop Watch/timer
- Stove
- Metal Pot
- Water
- Measuring cups

PROCEDURES

- Get all of the materials above ready and In front of you.
- Rinse the pot with cold water.
- Turn on the stove to HI
- Put 500ml of water in the metal pot. If water tests, skip next 2 steps.
- Weigh the Sugar or Salt In cup to measure 30ml
- Put sugar or salt in the pot.
- Put thermometer in pot.
- As soon as you put the pot on the stove, start the timer.
- When the thermometer reaches 100C, stop the timer, and record that time.
- Rinse the pot with cold water, and repeat with water, sugar water, and salt water, each at least 20 times.

VARIABLES

Variables:

Constants -	Independent-	Dependent-
Amount of water	Type of substance	Time the water boils
Amount of salt/sugar		
Type of substance		
Temperature that the stove is set on		
Type of pot		

PICTURE

RESULTS (CHART)

In the pot	Average time till boiling
Water	5:57
Sugar	5:39
Salt	5:18

RESULTS

Water had the longest time, salt had the lowest times, and sugar in the middle. The times were not very big so no big deals.

CONCLUSION

Answering my question, yes it does affect the speed of boiling but not by much time. My hypothesis was wrong and this is showing none of the substances had a big time difference.

SITES NOTED

- "Intel ISEF | Student Science." Intel ISEF | Student Science. Web. 29 Sept. 2014. https://student.societyforscience.org/intel-isef
- Easy Bib. Imagine Easy Solutions, n.d. Web. 15 Sept. 2016.
- "Where Does Table Sugar Come From? - Sugar Nutrition UK." *Sugar Nutrition UK*. N.p., n.d. Web. 15 Sept. 2016.
- "Water Treatment Solutions." *History of Water Disinfection*. N.p., n.d. Web. 15 Sept. 2016.
- Salt - An Amazing History." *Salt - An Amazing History*. N.p., n.d. Web. 15 Sept. 2016.
-
- "Boiling Point of Water." *Did You Know RSS*. N.p., n.d. Web. 15 Sept. 2016.
-
-
- By The Salt Institute - July 13, 2013. "Iodized Salt - Salt Institute." *Salt Institute*. N.p., 20 Aug. 2013. Web. 14 Sept. 2016.
- Bellis, By Mary. "Who Invented the Thermometer - Fahrenheit Celsius and Kelvin Scales." Who Invented the Thermometer - Fahrenheit Celsius and Kelvin Scales. N.p., n.d. Web. 15 Sept. 2016.
-
- "What Is Salt?" *What Is Salt?* N.p., n.d. Web. 14 Sept. 2016.