M3-6 CRYSTALIZATION IN FUDGE

CHEMISTRY

Question

- How does temperature affect the crystallization process inside fudge?

Abstract

- I’ve always loved baking, especially desserts and up until just recently I have found out that fudge (my favorite candy) is one out of a very few types of candies that has crystals inside of it. After I found out about this I became more interested much more, and then I thought what would be a cooler way than to do my science fair off of this? So I decided to create a question that falls into this department, and what better way to find out more about it then test it?

Hypothesis

- If I use the highest temperature on the fudge this will then affect the crystal molecules inside the fudge because its creating a different environment then what these molecules are use to.

Materials

- USB microscope
- Computer
- Sugar
- Measuring tools
- Corn syrup
- Salt
- Butter
- Vanilla extract
- 8-inch square pan
- Waxed paper
- Utensils
- Cady thermometer
- Pastry brush
- Cutting board

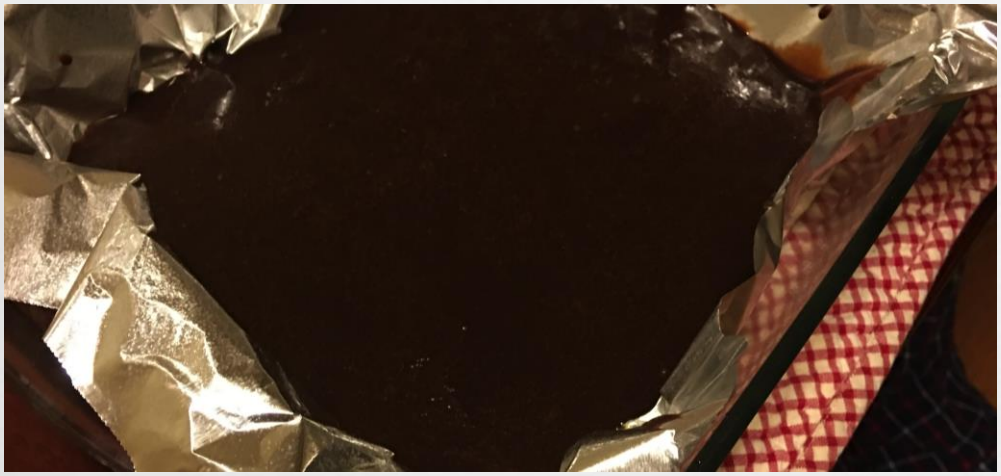
Procedure

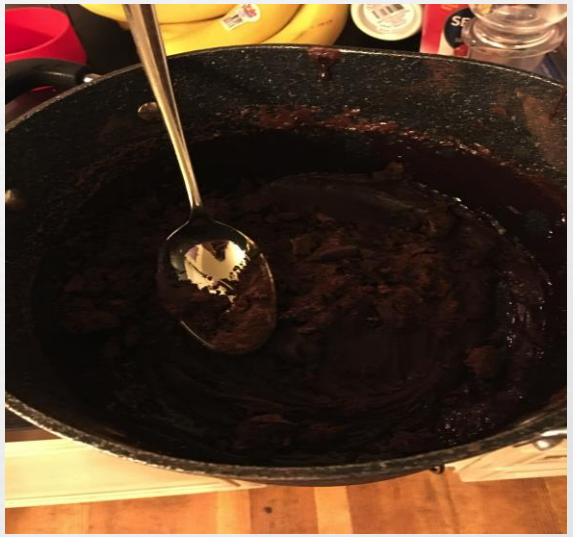
- 1. Create fudge with original temperature 20 times
- 2. Observe roughly every half hour how fast it hardens what it does in natural temperature and how it reacts
- 3. Repeat this process with 4 other times with 4 other temperatures
- 4. After finished write down all data collected
- 5. Then create conclusions and graph all data

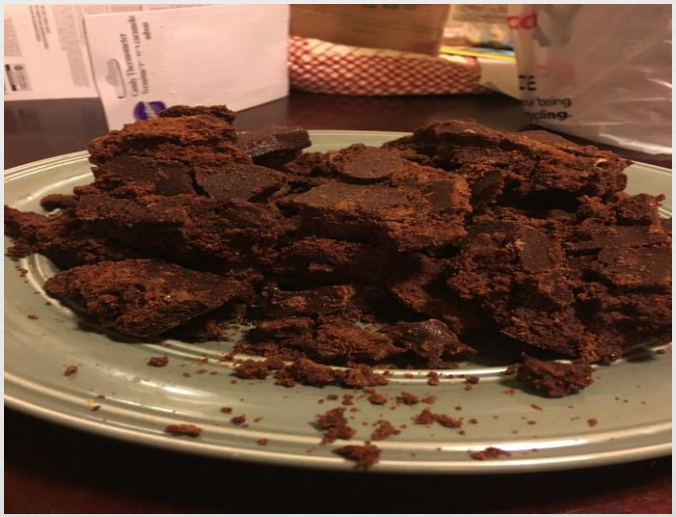
Variables

- Independent variable: Temperature
- Dependent variable: The process/ crystals in the fudge
- Constant variable: The original temperature used when baking fudge

Pictures







Conclusion

- Throughout the entire experiment, I have learned many things about fudge and the crystallization process that takes place in it. The higher the temperature it is, the faster the fudge crystallizes. So in conclusion, my hypothesis was correct, the highest temperature affects the crystals' process the most inside the fudge.