



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Clarissa Gonzalez	Project Number J0613
Project Title The Chemical Reactions of a Lava Lamp	
<p style="text-align: center;">Abstract</p> <p>Objectives The objective of this study is to learn about the different chemical reactions that take place within a homemade Lava Lamp. More specifically: I wanted to understand, why water and oil do not mix with each other even though they are both liquids. I also wanted to understand what chemical reaction creates the bubbles in a Lava Lamp and what causes the bubbles to move up and down. And lastly, I wanted to understand which type of oil would create the best reaction.</p> <p>Methods Generic effervescent-antacid(or Alka-Seltzer), 3 types of oils, water, 3 clear containers, food coloring, stopwatch. I made 3 different homemade Lava Lamps using vegetable, grapeseed, and baby oil. Added the antacid tablets and observed and measured the reaction times.</p> <p>Results Antacid tablets were added to the three homemade lava lamps that contained the vegetable, grapeseed, and baby oil. The chemical reactions were observed and documented. The reaction times were also recorded. Repeated trials were run to determine which oil would create the best reaction. I found that the vegetable oil worked the best, the grapeseed oil worked second best, and the baby oil took the longest time to produce bubbles.</p> <p>Conclusions I discovered that oil and water don't mix for two reasons. Oil and water have different densities. And because of the polarity and nonpolarity of the water and oil molecules. The reaction of the acid and base chemicals that make up an antacid is what creates the bubbles in the Lava Lamp. And vegetable oil created the best Lava Lamp results.</p>	
Summary Statement My research and experiments taught me about the different chemical reactions that take place within a homemade Lava Lamp. And about, of the three oils that I used in my experiment, the vegetable oil created the best Lava Lamp reaction.	
Help Received I received guidance from my Science teacher, Mrs. Yap, during our Science Club Meetings at Los Primeros School of Sciences and Art. She taught us the different steps that need to be taken when creating a science project. I chose the topic of my project and built and performed the experiments myself.	