



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Rebecca L. Markowitz	Project Number J2115
Project Title I Scream, You Scream, We All Scream for Ice Cream	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals This experiment intended that ingredients when mixed with vanilla ice cream, would prolong the frozen nature and retard the melting process.</p> <p>Methods/Materials In this experiment the control group was a formula for basic vanilla ice cream and six experimental ingredients were used in individual batches and tested against each other for both melting rate and taste. Heat and time tests, and taste tests were conducted. During the heat and time tests, measurements of melted liquids (ml) were taken at 5 minute intervals for 30 minutes, at 5 heat settings. During the taste test, 100 middle school students (6th through 8th graders) tasted seven different ice creams and rated them on a scale from one to four.</p> <p>Results This experiment showed us Guar Gum, Xanthan Gum, and Pectin mastered the heat and time test, with zero ml of melted liquids, but lost the taste test because of their textures with an average score of 1.1 to 1.4. Conversely, Agar-Agar, Potato Starch, and the Control Group, failed the heat and time tests but tasted delicious scoring an average of 3.3 to 3.9. Tapioca Starch proved best in this experiment, averaging 3.056 in the taste test, which means on the scale from one to four it tasted pretty good, and melting 62 milliliters at the most.</p> <p>Conclusions/Discussion The ingredient that did the overall best was tapioca starch, this may happen because Tapioca starch is a carbohydrate consisting of a large number of glucose (sugar molecules) units joined together by glycosidic bonding (joining a carbohydrate to another molecule), because of this Tapioca Starch thickens the substance just enough so it melts slowly and still taste yummy.</p>	
Summary Statement To find an ingredient that slows the melting process of ice cream while remaining tasty.	
Help Received Kaitlin Rosichan, Erin Schumacher, Yosi Yedid, Joy Wasserman, Nadja Lancelot, Fiona and Stephen Markowitz.	