



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Matthew A. Fonda	Project Number J0511
Project Title Energy Content in a Candy Bar	
Objectives/Goals The objective is to use calorimetry to determine the gross energy content (calorie/ gram) of Snickers, Milky Way, and Reese#s candy bars.	
Abstract Methods/Materials An oxygen bomb adiabatic-type calorimeter was used to measure heat of combustion for three candy bars. Separate homogeneous samples were placed into an oxygen enriched chamber in a bomb calorimeter surrounded by water jackets. Samples were ignited and measurements were collected on the difference between initial and peak water jacket temperatures following combustion. Acid base titration was also used to determine chemical energy content of the nitric acid formed during combustion. The sum of chemical and heat of combustion energies were used to determine total candy bar caloric content.	
Results Snickers had the most gross energy with 5198 calories per gram. Reese#s had the next highest gross energy with 4914 calories per gram. The candy bar with the lowest gross energy was MilkyWay with 4055 calories per gram.	
Conclusions/Discussion Snickers and Reese#s candy bars had more gross energy because of their peanut content. Peanuts contain more fat than found in an equal quantity of sugar. In fact, fat has 2.25 times more energy than equal amounts of carbohydrates. Based on my experiment, I conclude the peanut content of Snickers is greater than that of Reese#s. However, both of these candy bars had more gross energy, because of their peanut content, than found in MilkyWay candy bars. Therefore, this explains the similar gross energy content between Snickers and Reese#s.	
Summary Statement Explaining the gross energy content differences found in Snickers, Milky Way, and Reese#s candy bars using a bomb calorimeter.	
Help Received Father supervised experiment that I completed at Cal Poly University's animal nutrition lab.	