



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> Casey J. Berg	<b>Project Number</b> <b>J1602</b>
<b>Project Title</b> <b>Fast Fuel: Vegetable Oils as Fuel</b>	
<b>Abstract</b> <b>Objectives/Goals</b> My objective with my fast fuel science project was to determine if the available amount of energy in vegetable oil varies when it is cooked. My hypothesis was that used vegetable oil would have a lower caloric value than new vegetable oil. <b>Methods/Materials</b> I collected samples of new and used vegetable oil from several restaurants. I built a simple calorimeter that used burning oil samples to heat a known quantity of water. Each sample was weighed and then burned in an oil lamp to heat the water from 10 degrees C below room temperature to 10 degrees C above room temperature. Using the weight of oil lost, and the temperature increase, I calculated the caloric output of each sample. I averaged multiple test runs for each sample. I compared the results for used and unused samples from each source. <b>Results</b> I found that the oil samples that had been used in deep friers had a higher caloric value than the unused samples. <b>Conclusions/Discussion</b> My results show that heating vegetable oil makes it a better potential fuel source. It appears that heating the oil caused some type of change in the oil and that the oil that had already been heated had more calories because that change had already taken place.	
<b>Summary Statement</b> My project focused on comparing the caloric values of unused versus used cooking oils as a fuel source.	
<b>Help Received</b> My father helped with sample & data collection; mom and dad helped with research.	