



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Brent M. Yamada	Project Number J0537
Project Title Fuels and Their Efficiency to Produce Energy	
Abstract Objectives/Goals My project was to evaluate and test four different fuels - paraffin wax, ethanol, propane, and white gas (similar to gasoline) - to determine which is most efficient in producing heat and energy. Methods/Materials Four different fuels were used to heat water in a flask. By measuring the temperature change, and the amount of fuel burned, I calculated the amount of energy produced in kilojoules/gram. Using mathematical sequences, I calculated the heat of combustion and their efficiency in producing energy for all four fuels. Results Paraffin wax had the highest heat of combustion and efficiency, followed by ethanol, then propane, and white gas finished last. Conclusions/Discussion I conclude from my results that paraffin wax was the most efficient of all four fuels. Because of its efficiency, its clean burning properties, and its safety in storage, it could have more widespread applications in the future.	
Summary Statement Four common fuels (paraffin wax, ethanol, propane, & white gas) were burned to determine their efficiency in producing energy and paraffin wax was the most efficient.	
Help Received My parents purchased all necessary lab equipment, office supplies, and took me to the library.	