Name(s)	Project Number
Jack A. Vecchio	**J1321**

Project Title

Science: Kindling for the Mind

Abstract

Objectives/Goals
The objective of this experiment is to see if the structures of different wood samples cause them to burn differently. And mainly to see which wood produces or gives off the most heat when burning.

Methods/Materials
The method of this project was to test the wood samples in a Perkin Elmer TG/DTA. A simple but effective Pyris program was used to run the tests. This experiment is designed to test the rate in which the sample burns and how much heat the sample gives off. The materials needed are wood samples such as Adler, Balsa, Birch, Cherry, Eucalyptus, Oak, Pine, Poplar, Red Oak, Redwood, Spruce, and Walnut.

Results
The Eucalyptus sample started to burn at the lowest temperature, but the Redwood sample burned for the longest and produced the most heat. The sample that burned the fastest was Pine. The results were very clear and helped to discover which wood sample produced the most heat. It was also a clear difference between how the softwoods burned and how the hardwoods burned.

Conclusions/Discussion
Some clear conclusions are that the original hypothesis that Hardwoods will produce the most heat is false. Redwoods are softwoods that produced the most heat. The second hypothesis that softwoods will burn at the fastest rate was true. This is because Softwoods have very low densities so there is less wood to burn.
The reason Redwoods and Eucalyptuses were tested in more depth is because when they were tested they produced to exothermic peaks, in other words they had two burn stages. It was discovered that this occurs when testing the non-knot region of the wood. It is unknown why this occurs when testing the non-knot region. The knot region is where there is different material to make branches.

Summary Statement
The project examined a variety of woods to see if the structure of wood affects how it burns.

Help Received
Used TG/DTA at UCSD under the supervision of Dr. Kenneth Vecchio