



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Matt R. Larabee	Project Number S0213
Project Title The Heat Extractor 2002	
Abstract Objectives/Goals By using thermal dynamics and a concentrated consolidated heat devise, I planned on increasing the efficiency of the common household fireplace. Methods/Materials By placing the heat extractor into a fireplace and adding certain alloys, I timed and recorded how long it takes to heat a room up and what temperature the extractor can heat the room up to. Copper tubing was inserted into certain positions and various alterations and deterimined the thermal dynamic output. Results Between the heat extractor, the heat extractor w/metal sheet, and the heat extractor w/consolidated appratus, the apparatus worked the best. Also this devise is very cost effective. Conclusions/Discussion I concluded that the more alterations added to the heat extractor, the more efficient the system was.	
Summary Statement Increasing the efficiency of the common fireplace.	
Help Received Grandfather helped design the extractor.	