



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

|   |                                       |
|---|---------------------------------------|
| <b>Name(s)</b><br>Kyle Moua   | <b>Project Number</b><br><b>J1217</b> |
| <b>Project Title</b><br><b>Investigating What Common Household Liquids Will Extinguish a Fire the Quickest</b>  |                                       |
| <b>Objectives/Goals</b><br>The objective is to investigate and determine what common household liquids would extinguish a fire the quickest.  |                                       |
| <b>Abstract</b>   |                                       |
| <b>Methods/Materials</b><br>I started with cutting a Dura Flame log into 14 slices and putting them into individual medium sized aluminum trays. I then lit the logs and let them burn into a full flame.<br>I made an extinguisher by putting common household liquids into a sprayer. 4 cups of each variable.<br>Variables were: Soapy water, coca cola, vinegar, apple juice, grape juice, lemon juice.<br>Water was the control.<br>I pumped sprayer 25 times then sprayed liquid onto the fire. Counted amount of sprays, and amount of time it took to extinguish fire completely. I also measured amount of liquid used.<br>2 trials for each variable. |                                       |
| <b>Results</b><br>Liquids that were sweet or sugary had little effect on extinguishing a fire.<br>Liquids that were acidic such as soapy water or vinegar had a big effect on extinguishing a fire.<br>Vinegar had the strongest effect. The lowest amount of sprays was 60 sprays. It is also the shortest amount of time and least amount of liquid used.<br>Vinegar worked even better than the control. (water)   |                                       |
| <b>Conclusions/Discussion</b><br>Based on these results, If you were to have kitchen fire, or small house fire where water wasn't readily available. You could grab a bottle of vinegar, and extinguish the fire that way, before it got out of control.<br><br>Vinegar suffocated the fire quickly. Vinegar is carbonated and acidic, which when heated, turns into a gas or vapor that is more dense than oxygen so the gas pushed out the oxygen and suffocated the fire.  |                                       |
| <b>Summary Statement</b><br>This project demonstrates how common household liquids can be used to extinguish a small fire in an emergency.  |                                       |
| <b>Help Received</b><br>Mother helped putting board together, teacher helped with scientific process, computer graphing. Father helped with guidance and safety.  |                                       |