



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) R. McKay Giller	Project Number J1510
Project Title Frugal Firefighting	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective is to find a soap that can be combined with water to create an inexpensive substance that can easily be applied to a home that retards the advance of a wildfire as effectively as other much more expensive products on the market.</p> <p>Methods/Materials One half of fifteen different six inch pieces of balsa wood were treated with three different types of soapy substances in the same manner. An open flame was applied to test the retarding capabilities of the various substances and how long it took to burn, if at all. Once that data was collected, it was determined that the car wash soap retarded the fire more effectively. Then the car wash soap was tested against other samples that were either untreated or treated only with water. Several different delivery systems were also tried. The materials used to conduct the experiment included balsa wood, water, Dawn# liquid soap, Zep Car Wash Soap#, Foaming Hand Soap#, an air compressor, Flo Master Sprayer#, Miracle Gro Garden Feeder#, candle, metal rods, alligator clips, metal brackets and a lighter.</p> <p>Results Zep Car Wash Soap# mixed with water was the most effective fire retardant of the three soaps tested. The car wash soap was effective for longer than six hours. The Dawn# liquid soap and Foaming Whipped Hand Soap# did not retard the fire longer than two hours. The car wash soap completely stopped the advancement of fire for longer than six hours which is the same as the more expensive commercial products. At twenty hours, it still slowed down and eventually extinguished the fire. The Miracle Gro Garden Feeder# proved to be an easy, inexpensive, and effective application method that anyone could use.</p> <p>Conclusions/Discussion My conclusion is that Zep Car Wash Soap# mixed with water through the use of the Miracle Gro Garden Feeder# is an inexpensive and effective method of retarding the advancement of an approaching wildfire and easy to apply to a house.</p>	
Summary Statement My project was to develop a low cost easy to use effective fire retardant .	
Help Received My mom, step dad and brother helped supervise when I was using the open flame to test the effectiveness of the various substances. They also provided financial support and transportaiton to home improvement stores.	