



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> Chase R. Hughes	<b>Project Number</b> <b>J2115</b>
<b>Project Title</b> Come On Baby, Light My Fire!	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The goal of my project is to discover the best ignition source to light a #Strike a Fire# fire starter in three different extreme conditions.</p> <p><b>Methods/Materials</b> I used three different ignition sources: a strike on box match (match), a waterproof match, and a disposable butane lighter (lighter). These ignitions source were tested under Cold, Wet and Windy weather conditions for reliability to ignite and the time required to transfer their flame to the #Strike a Fire# fire starter. I test in the cold condition by placing my ignition sources and the #Strike a Fire# starters into a -15 degree Celsius industrial walk-in freezer for 30 minutes. Then I moved my materials to a 1 Celsius degree cooler and tested all three ignition sources. To test under wet conditions, I placed all my materials in a zip lock baggie filled with water for 2 minutes. After removing the materials from the baggie, I waited 30 minutes before testing the ignition sources. I tested the windy condition by positioning a fan four meters from the testing area, setting the fan speed on lowest setting and tested each ignition source again.</p> <p><b>Results</b> The results showed that the butane lighter had the best average lighting time in Control and the Cold conditions. In the control group the average flame transfers time was 2.48 seconds. For the Cold condition, the average was 5.82 seconds. My results also demonstrated that the water proof match had the best flame transfer speed in both the wet and Windy scenarios. For the wet scenario the average time was 5.59 seconds. For the Windy conditions, the average was 4.67 seconds.</p> <p><b>Conclusions/Discussion</b> I learned that the best ignition source to light a fire under these adverse conditions was the water proof match because it was the only ignition source that worked under all three conditions. The butane lighter was the second best ignition source.</p>	
<b>Summary Statement</b> I wanted to see what the best fire lighter was in bad weather conditions Cold Wet Windy.	
<b>Help Received</b>	