



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

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Project Title Flammability Burn Ignite	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My project was designed to find which of the materials (among wool, cotton, nylon, and polyester) was the most flammable. Also, I wanted to learn about the characteristics and elements of the fabrics to understand their flammability.</p> <p>Methods/Materials For my project I used 5" x 5" pieces of material. I secured each piece of fabric to an elongated metal hanger with a metal paper clamp. I then hung the hanger from a pole and lit the material with a match. I repeated this with each material sample. Each piece was timed from the moment of ignition to the time it self-extinguished. I then took the elapsed times and divided each by twenty-five to find the burn rate (the time it takes to burn one square inch of the material.)</p> <p>Results The cotton had the quickest burn rate where polyester had the second. The nylon and the unrefined wool, from Chile, did not burn; they smothered the flame.</p> <p>Conclusions/Discussion In conclusion, my data indicates that, the cotton and polyester were the fabrics to have the quickest burn rate. I noted that the wool and the nylon did not ignite, as I later learned of the lanolin in the wool and other compounds that cause the materials to not ignite. Though my project was successful, I learned of some possible errors due to factors beyond my capability of indulgence. Examples include such things as: chemicals on the wire hangers and paper clamp, matches not working, human error in timing and carcinogens in the air.</p>	
Summary Statement The flammability of a variety of fabrics were tested to ascertain which had the highest burn rate.	
Help Received Sisters helped take pictures; Mom helped with ideas and gave me her special wool to use; Brother helped with equipment.	