



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> <b>Will J. Hettel</b>	<b>Project Number</b> <b>J1513</b>
<b>Project Title</b> <b>Playing with Fire: Fabrics in Flames</b>	
<b>Objectives/Goals</b> I did this project to see which fabrics are safe or unsafe and why by measuring how fast they burned in relation to their physical properties.	
<b>Abstract</b>	
<b>Methods/Materials</b> Materials: 1. Different types of fabrics; 2. Burner; 3. Thermometer; 4. Micrometer; 5. Balance scale; 6. Stopwatch; 7. Graduated cylinder; 8. Goggles; 9. Gloves; 10. Kiln shelf. Procedure: 1. Take all flammables out of the burning area; 2. Check temperature (55°F-60°F); 3. Fill the burner with fluid until it is full; 4. Test burner; 5. Place the fabric sample on the burning stand; 6. Set the burner so it releases the right amount of gas to make a controlled flame; 7. Ignite the fire and start the timer; 8. Once the fabric catches on fire, stop the timer and throw the fabric into a bucket of water; 9. Record data; 10. Repeat steps 5-9 eleven more times; 11. Take average of 12 data points (or less if something goes wrong with some measurements # 10 is typical); 12. Repeat steps 3-10 burning each type of fabric.	
<b>Results</b> Bleached Harem Cloth burned the fastest, silk didn't burn. Thickness, volume, and mass determined the ignition times. Weave density and fiber density didn't determine ignition time.	
<b>Conclusions/Discussion</b> My hypothesis was correct. If I were to do this again, I would use more samples and pay more attention to the possibility of fire retardants.	
<b>Summary Statement</b> I did this project to see which fabrics are safe or unsafe and why.	
<b>Help Received</b> My dad helped me graph the data; My mom helped me measure ignition times and buy equipment; My science teacher let me use his balance scale	