



**CALIFORNIA STATE SCIENCE FAIR
2002 PROJECT SUMMARY**

Name(s) Tia J. Stone	Project Number 22104
Project Title Pants on Fire?	
Objectives/Goals My objective was to determine what is the safest fabric to wear if exposed to fire. Abstract Methods/Materials Looking at natural and synthetic fibers, one 8cm x 6cm piece of the following types of fabric; cotton, modacrylic, silk, nylon, polyester, rayon and wool, were collected. Using a pair of tongs, each piece was held over the flame of a candle and timed to compare the length of time it took to catch fire as well as total time of self extinguishment. Results Most synthetic fibers caught fire and melted rapidly with the exception of modacrylic which was slow to burn. Other than wool all of the natural fibers burned to some extent. Burning was not sustained, on the wool sample, when removed from the heat source. Conclusions/Discussion Modacrylic, which is used in children's sleepware is the safest synthetic fiber. It is slow to burn and does not melt. Wool is the safest fabric of all that I tested. It only charred when held over the flame and burning did not continue when removed from the flame source. This data suggests that in the event of clothing exposure to fire, wool would be the safest material to be wearing.	
Summary Statement Comparing flame spread of natural and synthetic fabric used in clothing.	
Help Received Older sister helped with writing down timed results as I did them.	