



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Laura J. Schisler	Project Number J1139
Project Title Which Fabric Type Bonds Best with Fiber Reactive Dyes?	
Abstract Objectives/Goals The purpose of this experiment was to determine which type of fabric responds best to fiber reactive dyes. Methods/Materials The hypothesis stated when each piece of fabric was dyed under the same conditions a 100% cotton fabric would produce the brightest color compared to 100% polyester or 35% cotton / 65% polyester blend. In the experiment, ten 12-centimeter squares of each fabric type were used. On January 10, 2004, ten of each fabric sample were laundered and tied with small rubber bands. After twenty minutes in soda ash, a fixer, the samples were dipped in Rainbow Rock Turquoise Fabric Dye, a fiber reactive dye. After which, the fabric samples were lain to set for eighteen hours. On January 11, 2004, the fabric samples were triple rinsed in clean tap water, unbound, and dried in a gas dryer on a permanent press setting. Results The 100% cotton fabric was the most vibrant while the 100% synthetic fabric samples resulted in a less vivid hue. The synthetic blend fabric has a color tone in between the other two fabric types. Conclusions/Discussion In conclusion, 100% cotton fabric bonded best with a fiber reactive dye, indicating that the hypothesis was correct. Cotton fabric retained the color most vibrantly and would probably hold the coloration over time better than synthetic or synthetic blend fabrics. This project demonstrates that the differences in fabric structure and composition and can greatly affect the chemical bond that takes place during the dyeing process.	
Summary Statement This project explores how fiber reactive dyes bond with different types of fabric.	
Help Received Mother helped with photography and documentation, Mother, father, and family friend provided support and encouragement	