



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Mackenzie K. Ruehl	Project Number J1130
Project Title Getting Away with Murder: A Study of Forensic Blood Evidence	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of this project was to determine which blood substitute would best match the spatter patterns and drop stain patterns of real blood, so that a blood substitute may be used in an active investigation. My first hypothesis was that the saline would match blood the closest, especially for the single drop tests. My second hypothesis was that paint would best match the blood in more life-like comparisons, such as the three drop test.</p> <p>Methods/Materials The four substances used were water, saline, model paint, and EDTA-preserved (dead) blood, the control variable. No live tissue was used in this project. Each substance was dropped four times from four different heights in one drop, two drop, and three drop successions.</p> <p>Results In comparison to blood main drop average diameters, paint diameters were smaller, while those of water and saline were larger than blood. The average spatter diameters of paint were smaller than blood, but the average diameters of water and saline spatters varied from smaller than to larger than average blood spatter diameters. In most cases for drop and spatter diameters, saline averages matched blood averages best.</p> <p>Conclusions/Discussion The results upheld my first hypothesis and disproved the second. Overall, saline would be the best blood substitute, although all had problems.</p>	
Summary Statement The objective of this project was to determine which blood substitute would best match the spatter patterns and drop stain patterns of real blood, so that a blood substitute may be used in an active investigation.	
Help Received Dr. Terri Haddix, forensic expertise; Mr. Dolyniuk, supplies and common sense; Dad, insight.	