



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) William R. Ito	Project Number S0512
Project Title Studying Clean: Determining the Effectiveness of Six HE Laundry Detergents upon Various Stains on White Cotton	
Abstract Objectives/Goals Determining what brand of HE liquid laundry detergent is most effective at removing a variety of stains. Creating a process to quantify the cleaning power of the detergents tested. Methods/Materials Six test stains (lipstick, BBQ sauce, mustard, shoe polish, grease, wine) were each applied to seven different shirts. An image of each stained shirt was recorded using a webcam and analyzed in Adobe Photoshop. Each shirt was assigned one of the six detergents tested (Cheer, Purex, Wisk, Gain, All, Tide) with the seventh saved as a control using water. Each shirt was washed with its respective detergent. An image of each washed shirt was recorded and analyzed. Results The Tide was on average most effective at removing the various stains, followed closely by All. In general, Tide was more effective at removing the organic stains while All was more effective at removing inorganic stains. Purex was worst at removing stains. Conclusions/Discussion Certain detergents are most effective on cleaning specific types of stains. Detergent manufacturers must decide whether to focus specific fabric or stain-types, or to create a more general purpose detergent that is less effective overall. For an accurate overall evaluation of the detergents, the tests will need to be repeated on different fabric types.	
Summary Statement Determining the effectiveness of six HE laundry detergents upon various stains on white cotton.	
Help Received Father helped construct lab setup and backboard	