



**CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY**

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Project Title Eco-Efficient?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of the project was to observe the efficiency of green detergents and to determine the most cost-effective detergent.</p> <p>Methods/Materials Materials: Forty-eight 12" by 12" towels, Kenmore 3.6 cubic feet Top Load Washer, Measuring Cup, Heinz Ketchup, Tropicana No Pulp Premium Orange Juice, Coffee, Mud, Tide Original, Gain Original, Seventh Generation Original, Green Works Original. Method: Twelve 12" by 12" towels were stained with three teaspoons of Heinz Ketchup to form a stain with a radius of 2.5". Three towels were washed using the directed amount of Tide, three using Gain, three using Green Works and the last three using Seventh Generation. The method was repeated with the Tropicana Orange Juice, coffee and mud.</p> <p>Results Eco-friendly detergents are as effective as if not better than synthetic detergents. All detergents were thorough in cleaning the towels stained with ketchup and orange juice. However, none of the detergents were able to remove the coffee stain. The towels cleaned by Tide, Gain and Seventh Generation eliminated the coffee stain. On the other hand, Green Works did not remove the mud stain.</p> <p>Conclusions/Discussion At only \$0.17 per load, Seventh Generation is a better alternative to Tide which costs \$0.23. Seventh Generation is the best option as it is both eco-friendly and cost-effective.</p>	
Summary Statement Are eco-friendly detergents as successful as or better than synthetic detergents?	
Help Received Mother helped with board; Father helped with experiment.	