



**CALIFORNIA STATE SCIENCE FAIR  
2011 PROJECT SUMMARY**

<b>Name(s)</b> Meghana Khurana	<b>Project Number</b> <b>J2117</b>
<b>Project Title</b> <b>War of the Detergents: Green vs. Synthetic: Which Is Better, Green or Synthetic Laundry Detergent?</b>	
<b>Objectives/Goals</b> Do synthetic laundry detergents clean better than green laundry detergents? Does green really clean? I believe synthetic detergents would clean better than the green ones. Synthetic soaps may have harsh chemicals but they are made to clean tough stains well. Green detergents are more eco-friendly, however they may not clean as well.	
<b>Abstract</b> <b>Methods/Materials</b> 9 inch square fabric swatches; Laundry Detergents - Tide, Gain, Sun Harvest , Seventh Generation; Stains - Hot sauce, Mustard, Yoplait Peach Yogurt, Grass, Coffee, Red Wine; Top loading washing machine I tested 4 detergents Tide and Gain in the synthetic category and Sun Harvest and Seventh Generation in the green category. I tested them with 6 stains in the following capacities: cleaning ability, bubble foaming and fragrance. I performed 3 trials per detergent with 3 washes per trial. So there are 9 washes for each detergent. For 4 detergents there are a total of 12 trials. After applying the stains and starting each wash, I would open the machine lid and rate for bubble foaming. After each wash I rated for Cleaning. At the end of each trial I recorded fragrance readings for the swatches right after the wash and 2 hours after the wash. 3 trials * 6 stained swatches * 3 trials = 54 clean ratings per detergent. 3 trials * 3 washes = 9 Bubble foaming readings per detergent. There will be a total of 6 readings for fragrance for 3 trials.	
<b>Results</b> I had total of 276 readings. Cleaning Ability: Seventh Generation and Tide came 1st, Gain 2nd and Sun Harvest 3rd. Fragrance: Seventh Generation had least scent, then Tide, next Sun Harvest, last was Gain with a very strong scent Bubble Foaming: Sun Harvest had most bubbles, next was Seventh Generation, Tide and Gain came 3rd	
<b>Conclusions/Discussion</b> My hypothesis was proved wrong. Seventh Generation, one of my green laundry detergents, did as well if not beat the other laundry detergents. Taking all things into consideration, cleaning capacity being similar, the fact that Seventh generation was more honest about their ingredients, no harsh dyes or perfumes and had no materials listed as hazardous as well as it was safe for gray water systems, led me to the conclusion that Seventh Generation appeared to be the better detergent. The outcome actually surprised me, because some green detergents are good for the earth and your laundry. Some are just good for the earth, but not for your laundry!	
<b>Summary Statement</b> Do synthetic laundry detergents clean better than green laundry detergents?	
<b>Help Received</b> Mr. Mark Hobbs, my Science Teacher guided me through the Project Schedule and reviewed Project report and procedure. My Mother helped me stay on task and acquire materials.	