



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> Monica B. Le	<b>Project Number</b> <b>J2312</b>
<b>Project Title</b> <b>Examining Toxicity Rate of Household Cleaners through the Use of Gryllus assimilis</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this project was to determine the toxicity rate of household liquid cleaning projects by timing the time of death of gryllus assimilis (field crickets). I substituted human test subjects with the gryllus assimilis because of the gryllus assimilis sensitive respiratory system, and the liquid cleaners that I used were Clorox, Pine-Sol, Windex, and water (control)</p> <p><b>Methods/Materials</b> I tested by first taking a correctly cut piece of O-Cel-O sponge, and placing it into a (red) Solo party cup. Second, I poured four (4) mililiters (mL) of the correct chemical into the ten (10) mililiters (mL) graduated cylinder, and poured the chemical liquid within the graduated cylinder onto the sponge. Third, I took two (2) adult field crickets and inserted them into the cup. Fourth, I quickly take the correctly cut piece of Kirkland Signature food wrap, and put it over the cup. Fifth, I immediately started my stopwatch, and examined the crickets within the cup. Last, when the field crickets died, I immediately stopped my stopwatch, and recorded the time under the correct trial number and liquid.</p> <p><b>Results</b> The results of my testing showed that Clorox had an average death rate time of 271.86 seconds, a high of 26 seconds, and a low of 720 seconds. Pine-Sol had an average death rate time of 319.33 seconds, a high rate of 47 seconds, and a low rate of 965 seconds. Windex had an average death rate time of 650 seconds, a high of 103 seconds, and a low of 1,439 seconds. Water had an average death rate of 3,065.33 seconds, a high rate of 217 seconds, and a low rate of 12,403 seconds.</p> <p><b>Conclusions/Discussion</b> My results concluded that Clorox is the most toxic out of my tested house hold cleaners and that one should take care when using this product. A person needs to consider how toxic their cleaners might be when using it in a confined area, and when using it around people who have breathing issues.</p>	
<b>Summary Statement</b> I replaced humans with gryllus assimils (field crickets), and proved that Clorox was the most toxic cleaning liquid and that water was the least toxic liquid within this project.	
<b>Help Received</b> Miss Given - teacher; Mom - board set up; Dad - transportation and binder materials; Katy Tomlinson	