



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> Allison Q. Nguyen	<b>Project Number</b> <b>S2411</b>
<b>Project Title</b> Sugars' Effects on Ants	
<b>Objectives/Goals</b> This experiment tests the effects of different sugars on the energy and hyperactivity level of the <i>Pogonomyrmex californicus</i> , or the harvester ant. The concept of a sugar high and sugar low are tested. The effects of artificial sugars are monitored as well.	
<b>Abstract</b> To investigate the problem, I fed the different solutions to different ants and observed their movements and speed. For each group of ants, I altered the ingredients in the solution that I fed to them. The sample size in which these ants could provide is infinite. They can move at any speed in which they can. In order to acquire the proper data, I had to complete two-hundred trials meaning the testing of two-hundred ants in total. I tested in groups of ten: ten ants per group, 4 tests for each. When I measured the speeds of the ants, I wrote them down in seconds down to the millisecond, but when it was necessary, I included the minutes.	
<b>Methods/Materials</b> To investigate the problem, I fed the different solutions to different ants and observed their movements and speed. For each group of ants, I altered the ingredients in the solution that I fed to them. The sample size in which these ants could provide is infinite. They can move at any speed in which they can. In order to acquire the proper data, I had to complete two-hundred trials meaning the testing of two-hundred ants in total. I tested in groups of ten: ten ants per group, 4 tests for each. When I measured the speeds of the ants, I wrote them down in seconds down to the millisecond, but when it was necessary, I included the minutes.	
<b>Results</b> The control's standard deviation was 1.054, the cane sugar group's was 2.736090687, the Equal group's was 4.241, the honey group's was 6.80, and the Splenda group's was 7.043. According to the data, the Splenda group was most affected by the sugars, and the cane sugar group was the least affected.	
<b>Conclusions/Discussion</b> The Splenda group had the largest spread of data because of its mix of different sugars, such as maltodextrin and sucrose. The cane sugar group had the least spread of data because it is the most pure of the sugars, its only ingredient being sucrose. Honey was the second least affected because it mostly contained fructose and glucose. Equal was the second to most affected due to its main ingredient of aspartame which affects the brain directly as a side effect.	
<b>Summary Statement</b> This project is about testing the concepts of hyperactivity linked with different sugars, artificial and natural.	
<b>Help Received</b> No one helped me.	