



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> <b>Eli W. Erlick</b>	<b>Project Number</b> <b>J1510</b>
<b>Project Title</b> <b>Red Bull Energy Drink: "Special Ingredients" or a Caffeine and Sugar Effect?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> Red Bull has been marketed for twenty years yet there is still no definitive proof Red Bull increases energy beyond the effect of caffeine and sugar. My objective is to determine if Red Bull Energy Drink has ingredients other than caffeine and sugar that will increase the heart rate in Daphnia Magna. My hypothesis is that Red Bull will have no effect on heart rate of Daphnia beyond a solution which is equivalent for caffeine and sugar. <b>Methods/Materials</b> A solution that has the equivalent concentrations of sugar and caffeine to a Red Bull solution was made. A Daphnia magna was placed on a slide and its heart rate was measured for 15 seconds. Then a drop of Red Bull solution was placed on the slide and the heart rate was again measured. Using a different Daphnia this was repeated 10 times each for a Red Bull solution and the caffeine and sugar solution in three different trials. <b>Results</b> The Red Bull solution increased the heart rate of Daphnia by 5.97%, while the caffeine and sugar solution only increased it by 3.11%. The difference persisted throughout all three trials. This resulted in a percentage increase in heart rate of Red Bull compared to sugar and caffeine of 2.86%. <b>Conclusions/Discussion</b> My hypothesis was incorrect, the Red Bull did increase the heart rate more than the solution with caffeine and sugar. It is possible that the increase in heart rate in Daphnia may be an indicator of a cardiac stimulant effect in humans that is in addition to the effects of caffeine and sugar in the Red Bull Energy Drink.	
<b>Summary Statement</b> A solution of Red Bull Energy Drink is compared to an equivalent caffeine and sugar solution on its effects on the heart rate of Daphnia magna to evaluate the claim that Red Bull has a stimulant effect.	
<b>Help Received</b> My mother helped me with pouring the solutions into petri dishes, to blind the experiment.	