



**CALIFORNIA STATE SCIENCE FAIR  
2017 PROJECT SUMMARY**

<b>Name(s)</b> <b>Malia G. Tarazon</b>	<b>Project Number</b> <b>J2220</b>
<b>Project Title</b> <b>How Does Nicotine Affect the Heart Rate of Daphnia magna?</b>	
<b>Abstract</b> <b>Objectives/Goals</b> The objective of this experiment was to find out how different amounts of nicotine would either increase or decrease the heart rate of Daphnia magna by exposing them to a 1%, 10% and 25% nicotine solution. <b>Methods/Materials</b> Stopwatch, compound microscope, Daphnia magna, nicotine, purified water, 10 milliliter cylinders. Measured the heart rate of Daphnia magna in 30 second increments for up to four (4) minutes, after exposing them to a 1%, 10% and 25% nicotine solution. Multiple trials were conducted for each solution. <b>Results</b> In all levels of the nicotine solution, it was found that nicotine decreased the heart rate of Daphnia magna over the time period tested. The lower the nicotine solution the slower the rate at which the heart rate decreases. The 1% solution and 10% solution had relatively steady declines in heart rate. The 25% nicotine solution caused the heart rate to decrease at a steady pace for one minute and then drastically decrease. <b>Conclusions/Discussion</b> Multiple trials found that nicotine causes a decrease in heart rate for Daphnia magna, with higher concentrations of nicotine having a stronger effect. My project is important because it provides information about how nicotine affects the heart specifically. In addition, because nicotine is a stimulant, which should initially cause an increase in heart rate, this project may be used to get an understanding of the point in which nicotine actually causes a decrease in heart rate.	
<b>Summary Statement</b> My project showed that nicotine causes a decrease in Daphnia magna's heart rate when added to the water they live in.	
<b>Help Received</b> I received assistance during the actual testing of my project from my science teacher who supervised my testing and assisted in making the nicotine solutions.	