



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

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| Name(s) Brandon Iwata; Catherine Nguyen | Project Number J1416 |
| Project Title Measuring Velocity of a Daphnia's Body | |
| <p style="text-align: center;">Abstract</p> <p>Objectives/Goals In order to decipher the effects of stimulants and depressants on daphnia velocity, my partner and I decided to infuse each daphnia with a certain percentage of one of the four drugs (Caffeine, Pseudoephedrine, Ethyl Alcohol, and Nicotine.) We used a total of 10 daphnia, 2 of which were our controlled variable; the additional 8 were supplied with 2 mL of Caffeine, Pseudoephedrine, Ethyl Alcohol, and Nicotine each. To supply the daphnia with the drugs, we ground up Caffeine, and Pseudoephedrine pills. To acquire the Nicotine, we soaked a cigarette in 150mL of water. Since the Ethyl Alcohol was already a liquid, all that was done was the addition of water to the drug. We diluted each solution into 50% and 40% liquids, by including the necessary amount of water to each concentrate. Once finished with the making of each mixture, we added 2mL of each formula to one daphnia. The measuring of the daphnia speed was conducted each day to see what effects might transpire. For ten days, we placed each daphnia in the glass aquarium and timed how long it would take for each daphnia to swim 2 cm. Daily comparisons were made towards the manipulated daphnia and the controlled daphnia. After ten days of experimentation, 6 of the 10 daphnia had died. The end results showed that the daphnia that consumed the stimulants (Caffeine and Pseudoephedrine) had a longer life span than the daphnia, which consumed the depressants. Though the control daphnia had a prolonged life span than all of the manipulated daphnia.</p> <p>Methods/Materials O 6 Cultures of Daphnia Pulex from Carolina Biological Center O 1 473mL of 70% Ethyl alcohol from Sav-On's O Pseudoephedrine/ a packet of Suphedrine from Sav-On's O Caffeine/ a packet of Stay Awake from Sav-On's O Nicotine/ Marlboro cigarette O 3 Small bags of yeast O 2 Small bags of sugar O 2 Deep well slides O 3 plastic medicine dropper from Carolina Biological Center O 20 Plastic containers with a diameter of 12 cm O 1 Piece of 30x40 inches piece of glass O 1 West-Germany glass cutter</p> | |
| Summary Statement The effects of stimulants and depressants on Daphnia speed | |
| Help Received Brandon's Father helped build material Catherine's Aunt helped provide drugs Teacher helped provide materials | |