



CALIFORNIA STATE SCIENCE FAIR 2010 PROJECT SUMMARY

Name(s) Abby E. Bart	Project Number J2303
Project Title Flipped Out Fish	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals In my science project, Flipped Out Fish, I gave goldfish different substances to see how the goldfish reacted. I used caffeine, nicotine, sugar, and alcohol. I tested the goldfish breathing and watched their behavior.</p> <p>Methods/Materials For each substance I used, I tested the fish with five concentration levels. For each concentration level, I tested two fish. I tested the fish by putting two fish in a clear plastic cup filled with water along with the right amount of the substance I was testing, and then waited five minutes. I then counted the respirations of each fish in sixty seconds by watching their gills. I tested each fish three times and averaged the numbers. In addition, I watched and took notes about the fish behavior. I also tested two fish in normal water for my control fish.</p> <p>Results In the end, nicotine affected the fish the most. When the fish had nicotine in their water, their behavior was slower - they didn't move much, and it slowly decreased the respirations of the fish as the concentration levels increased. Caffeine affected the fish second most. While it did not affect their behavior or breathing, it was slowly weakening the fish. Sugar affected the fish third most. It did not affect their breathing, but visually, it made them very hyper. Alcohol affected the fish the least. It did not affect their behavior at all, though there was a slight increase in their breathing as the concentration levels increased.</p> <p>Conclusions/Discussion After running the experiment, I discovered that my original hypothesis, that alcohol would affect the fish the most, was wrong, probably because alcohol is a depressant, while all the other substances are stimulants. I also discovered that counting respirations is not the best way to measure the affects of substances on goldfish. The respirations do not have very clear, visible patterns, and the only substances that affected the fish breathing were alcohol, which had a very slight affect, and nicotine. If I could re-do my project, I would find a better way to measure the affects. One more thing I wondered, after running the experiment, was what would happen if the fish were given more alcohol? I didn't give them a lot, and I wonder how more would affect them.</p>	
Summary Statement My science project I gave goldfish nicotine, caffeine, sugar, and alcohol and measured the affects by watching their behavior and counting their breathing.	
Help Received My mom helped run the timer while I counted breathes.	