CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY

Name(s)
Kyra L. Estrada

Project Number
J1706

Project Title
Used for Tools and Death for Fools

Abstract

Objectives/Goals
The objective was to determine whether crickets exposed to lead contaminated water would develop more aggressive behavior and exhale a lower level of carbon dioxide. My hypothesis was that the crickets exposed to the lead contaminated water will develop aggressive behavior and lower levels of carbon dioxide than the crickets with tap water because of the biochemical reaction that occurs within living creatures. Lead will act as other minerals that the body needs such as calcium and zinc resulting in illness.

Methods/Materials
Place Christmas lights, known for containing lead, in a pitcher with water and soak for 48 hours. Put 5 crickets into 6 different containers. Cut 6 egg cartons into small pieces to fit in cage. Place 1 piece of egg carton into each of the containers to provide more surface area for the crickets. Puree carrots to a very fine consistency. After, add ½ a cup of tap water to half of the carrots and ½ a cup of water diluted with lead to the other half of carrots. Place 2 table spoons of the carrots into each of the food containers and place into the cages with crickets. Put the remaining food into storage containers and refill food as necessary. Make observations for the next four days. Finally measure the carbon dioxide each cricket exhales by using the carbon dioxide meter.

Results
With the data collected, I noticed the crickets that had lead contaminated water had lower exhaled carbon dioxide levels then the crickets that did not have lead contaminated water. On average the crickets with lead exhaled carbon dioxide levels of 350.5 ppm, 173.75 ppm, and 459.8 ppm. The crickets without lead contaminated water exhaled on average carbon dioxide levels of 520.25 ppm, 622.6 ppm, and 650 ppm.

Conclusions/Discussion
My hypothesis that the crickets exposed to the lead contaminated water will develop more aggressive behavior and produce lower levels of carbon dioxide than the crickets without lead contaminated water was supported. My hypothesis is correct because the crickets that had lead got into more fights and were much more active. The crickets without lead were not as active and very passive. There are millions of children all over the world that have lead poisoning. Everyone is at risk of getting lead poisoning since we all come in contact with lead almost every day. If we all become more educated on lead poisoning and learn how to prevent it many people#s lives can be improved and saved.

Summary Statement
In my project Used for Tools and Death for Fools I tested how a gryllus assimilis behavior changes and how much carbon dioxide a gryllus assimilis would exhale when exposed to lead.

Help Received
Mrs. Diaz helped with my Research Report and Annotated Bibliography; Ms. Fisher let me borrow her carbon dioxide meter and let me conduct part of my experiment in her classroom; Mrs. Mills let me borrow her magic bullet; my grandfather let me use his old Christmas lights; my sister took pictures