



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

Name(s) John P. Drain	Project Number 34807
Project Title BPA: Safe or Not? The Long Term Effects of Exposure to Bisphenol A (BPA) from Canned Food on the Spatial Memory of Mice	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals I set out in this experiment to determine if exposure to bisphenol A (BPA) from canned food has long-term effects on the spatial memory of mice. I hypothesized that the mice that were exposed to BPA through canned green beans would retain their spatial memory the least.</p> <p>Methods/Materials All 28 mice were given unlimited access to regular mouse food for the entire experiment. There was one control group and the rest of the mice were given one gram per mouse of either Del Monte French Cut canned green beans, Libby's BPA Free French Cut canned green beans, or fresh green beans once daily. The mice were trained in the Morris Water Maze for six days. Testing began one day after training and continued with intervals increasing by one day between each test until there was one week in between each test for a total of 6 days of testing.</p> <p>Results I found that BPA from canned food does not affect the overall memory of mice. However, I did find that BPA affected how well the mice were able to learn the Morris Water Maze, because on day 6, the last day of training, the mice that were exposed to BPA took five to six seconds longer to find the platform on average than the other groups, but after the first two tests there was no consistent difference between the times.</p> <p>Conclusions/Discussion Most canned food in the U.S. contains the chemical BPA in their linings, and 95% of Americans have a detectable amount of BPA in their urine. The data from my experiment rejects my hypothesis but it does suggest that the mice's learning was impaired. The mice that were exposed to BPA took significantly greater times to find the platform only on day 6, the last day of training, but not consistently throughout the experiment. In addition, the mice exposed to BPA weighed less on average than the mice in any other group, which contradicts literature, and more studies should be done to investigate. Americans eat canned food on a daily basis and many cans contain the chemical BPA in the linings, which then leaches into the food. Current studies point toward the possible risks of BPA, but no published studies tested the effects from a human food source. My study shows possible effects of BPA from canned food on learning and weight.</p>	
Summary Statement This project investigated the long term effects of exposure to bisphenol A (BPA) from canned food on the spatial memory of mice.	
Help Received My parents bought the mice and necessary supplies for my project and tolerated the mice in their house for the duration of the experiment. Jeff Rawson helped identify the gender of the mice. Ms. Fisher supplied me with mice cages and general guidance.	