



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Logan C. Hubbard	Project Number S1514
Project Title The Effects of Beta and Gamma Radiation on Chitinous Organisms	
Abstract Objectives/Goals This project is going to test what, if anything shields a cockroach and gives it its relative immunity to radiation. This will be measured by the Geiger- Muller Tube, on a stand at 4 cm with a lead plate as a reference shield. Various parts of the cockroaches will be placed between the shield and the radioactive source and the results will be measured by the counter. The readings will then be compared to the initial reading of the lead and see if there is a decrease in the radiation. This data was then compiled graphically, and from this conclusions will be drawn as to the reason why cockroaches are more impervious to radiation than humans. Methods/Materials Geiger-Muller Counter Geiger Probe Various Radioactive Samples Spectroscope Radiation Shields of varying density Laptop USB cables for laptop Software for computer interface Meter Stand Radiation sample holding box 3 Hissing Cockroaches Results The radiation was decreased when the different parts of the cockroach were added in unison with the lead plate. Conclusions/Discussion From the data presented throughout the experiment one can clearly see that as the intact cockroaches, and the shells of the cockroaches are added in conjunct with the lead shield, the counts per minute decrease. The first graph shows the decreasing counts per minute of the different sources comprehensively, while the consequent three show the show the decrease of the different parts of the cockroach with respect to the lead plate on an individual basis. These results effectively show that in the event of a nuclear explosion, cockroaches would be best equipped to survive the consequent fallout.	
Summary Statement How radiation effects different parts of cockraoches and other chitinous organisms.	
Help Received Used the Ribet Academy Biology Lab	