



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

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| Name(s) Scott M. Elder | Project Number J0908 |
| Project Title Hickory Creek Watershed Toxic Risk | |
| Abstract Objectives/Goals How can I detect, analyze and locate toxic pollution levels in the Hickory Creek watershed? I will determine which type of Bioassay is the best for detecting pollution. Then I will survey Hickory Creek and conduct Bioassays at various points throughout Hickory Creek watershed to determine relative toxic pollution levels. Once the toxic characteristics are charted for the watershed, analysis will be performed on the results to determine locations and sources of toxic pollution. Methods/Materials This project incorporated four separate procedures to complete. I first experimented with Bioassay techniques to determine if this technique would work for my experiment and which seed would be the best to use. I then conducted Bioassay at 16 different locations along Hickory Creek watershed to measure, analyze and detect toxic risk levels. I found the locations by surveying the watershed and identified the points using GPS positioning technology. A laboratory was set up in my room to conduct the Bioassay's. Results Between 6/01/2003 and 2/16/2004, I conducted a total of 26 Bioassay's consisting of 260 individual measurements. Calibration data showed that the Grand Rapids lettuce seed was the best indicator of toxic pollution. The creek was then divided into four sections with 29 points of interest identified using GPS waypoints. Four Bioassay's were conducted for each section. Conclusions/Discussion Through analysis of the Bioassay data, six unique areas of toxic pollution were identified. From the survey data, the origin of the pollution for each area was located. In one case, I was able to clean up the source of pollution, however, time did not allow for further analysis of the result of this clean up activity. | |
| Summary Statement I conducted Bioassay's to detect, analyze and measure toxic pollution levels throughout the Hickory Creek watershed and then determined the sources of the toxic pollution. | |
| Help Received Dad helped with transportation and construction of the display board. | |