



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) John B. Faughnan	Project Number S0906
Project Title A Comparison of Different Methods of Water Purification in Disinfecting Coliform Bacteria	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The objective of my project was to determine which common method for purifying water was most effective in removing coliform bacteria from contaminated creek water.</p> <p>Methods/Materials I obtained a water sample from Bushidell Creek, in Piedmont, California. I used portions of that sample to test several forms of water purification: solar, chlorination, iodination, and boiling, making sure there was no cross contamination. I tested the samples for the presence of coliform bacteria using commercially available test kits, testing both 100% concentration, as well as samples diluted with distilled water to 90%. The materials that I used were: contaminated water from Bushidell Creek, coliform test kits, iodine tablets, Clorox bleach, rubbing alcohol, a stove, an incubator, distilled water, and containers of various sizes.</p> <p>Results In my tests, boiling proved the most effective method of purification, removing the most coliform bacteria from the water at 100% concentration, making the water safe to drink. Iodine tablets and chlorination also made the water safe to drink at 100% concentration, but were not as effective as boiling. The water treated with solar purification was not safe to drink at 100% concentration, but it was safe to drink when diluted to 90% with distilled water.</p> <p>Conclusions/Discussion The results of my project indicate that boiling was the best purifier of the methods tested; however, because of the expense of energy, the most practical and cost effective method on a large scale would be using bleach, which would eliminate the release of greenhouse gasses into the atmosphere and the use of fuels. The results of this project hold great promise in humanitarian efforts aimed at brining clean, safe water to developing countries, saving countless lives.</p>	
Summary Statement My project compares different traditional methods of purifying contaminated creek water to determine which methods best remove coliform bacteria from the water.	
Help Received Ms. Christopherson, my science teacher, provided advice on how to make my project a success; my mom, Claire Faughnan, provided the transportation to and from the water source to gather my sample and the funding for my test kits; Dr. Matthew Gerhardt advised me on my science project.	