



**CALIFORNIA STATE SCIENCE FAIR
2013 PROJECT SUMMARY**

Name(s) Shannon K. Louie	Project Number S1113
Project Title Water World: How Does Water Quality Affect Living Organisms in the Arroyo Seco Drainage Basin?	
Abstract Objectives/Goals This project was researched to unravel the secret of how water quality affects living organisms. The objective of this research project was to emphasize how water quality is a good indicator of the health of organisms in an environment. Methods/Materials In this investigation, nitrate, dissolved oxygen (DO), biochemical oxygen demand (BOD), pH, and coliform levels were tested and recorded at three different streams near La Canada and Pasadena. Water samples from the Hahamonga Watershed National Park (the stream near the top of the hill), Devils Gate Dam, and Lower Arroyo Park (the stream near the bottom of the hill) were collected and nitrate, DO, BOD, pH, and coliform tablets were added to the samples. Then, the results from the color changes were analyzed and compared to a chart provided by the LaMotte Water Monitoring Kit. Results The nitrate level was at an average of 0 ppm for all three sites. Similarly, the DO and BOD levels also had averages of 0 ppm for all three sites. At all three water testing sites, the coliform test resulted in positive readings. This meant that there was fecal contamination in the water. At the first and highest elevated site (Hahamonga Watershed National Park) the pH was at an average of 7. The middle site (Devils Gate Dam) had a pH average of 7.67 while the third site (Lower Arroyo Park) at the bottom of the hill had a pH average of 7.75. Conclusions/Discussion After countless hours of research and numerous experiments, a conclusion was reached and it proved that life near the top of the hill was indeed more profound than life near the foot of the hill. Some of the actual results differed from the hypothesis because of the possibility that the tablets from the kit might have been old.	
Summary Statement This project is about how the quality of water affects living organisms and whether or not a stream can support life at certain elevations.	
Help Received Father drove me to the test sites; Father's co-worker also drove me to the sites and helped to take pictures.	