



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

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Project Title The Effect of Plastic Bottles on Reducing Copper from Contaminated Water	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The experiment was to determine and measure the effect of plastic bottle pieces on water containing copper. My hypothesis was that if plastic bottle pieces are used to reduce copper in the water then the copper will be decreased because of the substances, Cysteine in the plastic bottles will help to absorb copper from contaminated water. My objective was to see if plastic bottle pieces could be used as a purifier of water contaminated with copper.</p> <p>Methods/Materials The experimental set-up was made up of 3 groups of 19 Amber glass containers per group. Each container was filled with 300mL of distilled water and 1.0 ppm copper solution. Each group was mixed with different amounts of plastic bottle pieces; none for control, 1.0 grams, 2.0 grams, 3.0 grams. Allowed each measurement of plastic bottle pieces to sit in the copper contaminated water for a period of 24 hours, than again for a period of 48 hours and then one last time for a period of 72 hours. Plastic bottle pieces were filtered from the water samples with filter paper. Filtered water samples were tested for copper concentration with LaMotte Copper Test Kit(Model#3619/EC-70)</p> <p>Results The results were that 1 gram of plastic bottle pieces reduced 70.33% of the copper in 24 hours, 1 gram plastic bottle pieces reduced 80.83% in 48 hours and finally 1 gram reduced 97.83% in 72 hours. When 2 grams of plastic bottles were left in the water sampled they reduced 80.83% amount of copper in 24 hours, 88.33% in 48 hours and 98.33% in 72 hours. When 3 grams of plastic bottle pieces were left in the water samples they reduced 84.16% in 24 hours, 89.16% in 48 hours and 99.33% in 72 hours.</p> <p>Conclusions/Discussion I concluded that the more plastic pieces used and the longer the plastic stayed in the water resulted in greater cleanup of the copper from the water samples and that this filtering method can help many people in 3rd world countries and in houses and schools throughout America.</p>	
Summary Statement My project proved that plastic bottle pieces have an incredibly positive effect on the reducing copper from contaminated water.	
Help Received Parents helped experimental set-ups and take pictures.	