



**CALIFORNIA STATE SCIENCE FAIR  
2016 PROJECT SUMMARY**

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<b>Project Title</b> Worldwide Water: One Pot at a Time	
<b>Abstract</b> <p><b>Objectives/Goals</b> The objective of the project is to see if the scientist can create an inexpensive, homemade water filter using all natural materials that is equally or more effective than commercially available water filtration devices on the market.</p> <p><b>Methods/Materials</b> Four homemade water filters were constructed using terracotta clay mixed with either coffee grounds or sawdust. All filters were fired to a high temperature, cooled, and painted with colloidal silver. The filters were compared to LifeStraw Family 1.0, SteriPEN Traveler, and Brita Water Filter. They were tested for multiple water purity and quality indicators, including the presence of Coliform bacteria.</p> <p><b>Results</b> The data indicated that the homemade water filters rid the polluted water of coliform bacteria, nitrates, and nitrites more efficiently than the Brita and SteriPEN filters. The data showed that the Coliform bacteria did not appear in the homemade water filters at all, but instead showed in the SteriPEN and Brita Water Purifiers after 48 and 72 hours. LifeStraw Family 1.0 did best in all of the tests when comparing each filter individually, but the homemade water filters performed better than 2 of the 3 commercially available water filters.</p> <p><b>Conclusions/Discussion</b> The performance of the homemade water filters were shown to be more effective than the majority of the commercially available filters. The data suggests that it is possible to create an inexpensive water filter using all natural materials that can successfully provide potable water.</p>	
<b>Summary Statement</b> I created an inexpensive, homemade water filter using all natural materials that effectively filtered water safe to consume.	
<b>Help Received</b> None. I designed, built, and performed the experiments myself.	