CALIFORNIA SCIENCE & ENGINEERING FAIR
2018 PROJECT SUMMARY

Name(s)
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Project Number
J1601

Project Title
Filtration Station

Abstract

Objectives/Goals
The objective of this project is to determine a cheap, efficient, effective, and easily accessible way to filter out water for those in developing countries.

Methods/Materials
Rainwater, Coffee Filters, Charcoal, Plastic Bottles, a roll of tape, Petri Dishes, Beef bouillon powder, Incubator, Measuring Cup, 4 Tupperware Containers, Regular Concentrated Bleach, Scissors, fine sand, Coarse sand, Pebbles, Sugar, and Unflavored gelatin. We created 5 different types of cheap, efficient, effective, and easily accessible filters and ran water through them. We then swabbed the water and put it into Petri dishes. We measured and examined the bacterial growth for each of the filters.

Results
Our objective was to find the best cheap, efficient, effective, and easily accessible method of filtration for those in developing countries. We created 5 methods of filtration. Environmental Filter with pebbles and sand, Charcoal filter, Solar Filter, Bleach Filter, and Coffee Filter. We swabbed the water that was run through each filter and put them in Petri dishes. We examined the bacterial growth and we found out that the Environmental filter proved to work the best because it had the least amount of bacterial growth on average.

Conclusions/Discussion
This project can expand the knowledge about the subject because we give a deeper understanding of the efforts on how to make cheap filters. It can aid those in developing countries because it gives them a better way to filter their water and prevent diseases and bacteria from spreading through the water they drink. We now know which cheap method of filtration works the best which is the Environmental Filter which the pebbles and sand because it had the least amount of bacteria growth.

Summary Statement
After filtering water through various filters and studying the bacterial growth of the water of each filter, we can prove and conclude that Environmental filter, which consist of pebbles and sand, works the best.

Help Received
My partner and I developed and did most of the project alone although we would like to give a special thanks to our mother, who supplied us with materials and rides, as well as our science teacher, Mrs. Conrad, who helped us throughout the project.