



**CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT SUMMARY**

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Project Title Natural Filtrations Tested by a Homemade Turbidity Meter	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Our objective of the experiment was to determine which of the three filters we constructed would be best in removing particles in contaminated water. Also to build a simple electronic device to measure light scattering in the water after it has been filtered.</p> <p>Methods/Materials We designed 3 types of filtration methods for this experiment. Our focus when creating the filters was to keep it as natural as possible, make it easily accessible, and build it at a low cost. The biosand filter is made from sand, gravel, and PVC that is all contained within a plastic bucket. The algae filter is constructed by putting a leg stocking over a plastic canvas. Green algae is then placed on the stocking and held within a cylinder. The third filtration method is the tree branch filter. We cut small round pieces of wood and plugged them into clear vinyl tubes. Waterproof tape was added to stop small leaks along with a pump to quicken the process. The turbidity meter was constructed with the help of procedures and diagrams guiding us.</p> <p>Results The turbidity meter tested the water after it had been filtered. The average results shown from the filters were: 22.6 mv (biosand filter), 46.8 mv (algae filter), 24.6 mv (wood filter). From our results the biosand filter was the most effective. However, the wood filter's average results were almost as well as the biosand filter. The algae filter did not perform as well as the other filters.</p> <p>Conclusions/Discussion In conclusion, our filters were not able to get rid of all impurities in the water because many of them are microorganisms.</p>	
Summary Statement The purpose of our project was to discover a cheap method to filter and test filthy water.	
Help Received Uncle helped wire some parts of breadboard; neighbor and uncle helped cut pvc and wood; teachers supplied beakers	