



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Meg E. Haupt	Project Number J0816
Project Title Percolation Purification: Cleaning Our Wastewater	
Objectives/Goals My statement of the problem is, Which material (sand, charcoal, or gravel) will best filter waste from creek water? My hypothesis was that the charcoal would work best at filtering creek water because it is used in aquariums for filtration of water.	
Abstract Methods/Materials I used sand, charcoal, and gravel, and filtered local creek water through the materials. I then tested the water for the COD (chemical oxygen demand), turbidity (cloudiness), and suspended solids, at the local Dublin San Ramon Wastewater Treatment Plant, to see which one worked best.	
Results When running my procedure I ran a duplicate sample of each material thereby running the experiment twice. I then ranked each material for each test 1-6, with 1 being the best, and added up the total score for both samples on all three tests and compared the final scores. Gravel=16, Charcoal=18, and Sand=29.	
Conclusions/Discussion The results of my experiment did not support my hypothesis regarding charcoal. The material that worked best at filtering waste from creek water was gravel. The next was charcoal, and last was sand. I did notice visually that when filtering creek water through charcoal sample #1, there was a considerable amount of charcoal dust in the filtered water. I believe this is due to the fact that the sample for charcoal #1 was lower in the container of charcoal than charcoal sample #2, and so it was dustier. I rinsed both samples in equal amounts of pure water to get rid of the dust. If I had to do this experiment over again I would have mixed the charcoal in the container before taking the samples to better ensure not getting charcoal dust. If you compare the charcoal samples individually, you will see that the charcoal #2 out performed gravel. The results of my experiment show that gravel would be a practical, natural, and effective material to place along waterway banks to help reduce water pollution.	
Summary Statement I did my project to see which material (sand, charcoal, or gravel) would best filter waste from creek water.	
Help Received I used lab equipment and test materials at the Dublin San Ramon Wastewater Treatment Plant under the supervision of Flordeliza Misra, Environmental Services Administrator.	