



**CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY**

Name(s) Sahana N. Kumar	Project Number J1519
Project Title Oily Pipes: The Impact of Viscosity on Clogging of Drainage Pipes	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals The purpose of my project was to examine if the viscosity of liquids affects the level of clogging in drainage pipes. It is my hypothesis that liquids that have high viscosity will clog drainage pipes more than liquids that have low viscosity.</p> <p>Methods/Materials I assembled three pipes, labeled them as A, B, and C and then clamped them to a wooden board. I placed a 500ml beaker under each pipe to collect the liquids that I poured through the pipes. In each trial, I poured 50ml of water in Pipe A, 50ml of Canola Oil in Pipe B, and 50ml of Corn Oil in Pipe C. To provide some solid particles, in each trial I also poured 20ml of orange juice with pulp, in each pipe. I performed 24 trials and after every 8 trials, recorded the amount of liquids collected in each beaker. At the end of 24 trials, calculated the total amount of liquids poured through each pipe and the total amount of liquids collected in each beaker. The difference between the amount poured and the amount collected was calculated and that indicated the level of clogging.</p> <p>Results The beaker in which Corn Oil was collected (Pipe C) had the least amount of liquid while the beaker in which Water was collected (Pipe A) had the highest amount of liquid.</p> <p>Conclusions/Discussion Corn oil has the highest viscosity (100 centipoise) among the three liquids and that clogged the most. Water, which was the least viscous (1.5 centipoise) among the three liquids, clogged the least. My conclusion is that the higher the viscosity, the slower the particles travel and therefore increase the level of clogging. Hence, pouring cooking oils, down the drain can over a period of time cause clogging and become harmful to health.</p>	
Summary Statement My project evaluates the impact of the viscosity of liquids such as cooking oils on the level of clogging in drainage pipes.	
Help Received Dad helped me obtain the pipe materials. Mom helped me select the cooking oils and held the pipes when I clamped them to the board.	