



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Emily L. Denton	Project Number J1511
Project Title Liquid Viscosity and Temperature	
Abstract Objectives/Goals Viscosity is a property of a liquid and is defined as the resistance of a liquid to flow. The purpose of this experiment was to determine if the temperature of a liquid affects the viscosity of the liquid. A homemade viscometer was made to measure the flow of five different liquids including water, canola oil, dishwashing liquid, corn syrup, and molasses. Methods/Materials The five liquids were tested at three different temperatures (65, 40 and 95 degrees F). The elapsed time for the liquid to flow out of the homemade viscometer was measured three times for each liquid at each temperature. Because viscosity is related to how a liquid flows, the volume of liquid that flowed through the viscometer in each test was divided by the average time in minutes to get a flow rate in liters per minute. The flow rates of each liquid at the three different temperatures were compared. Relative viscosity of other liquids to water was also calculated. Results The viscosity of each liquid tested was found to be dependent on the temperature of the liquid. As the temperature of the liquid rises, my experiment showed that the viscosity of the liquid goes down. As the temperature of the liquid goes down, the viscosity of the liquid goes up. My calculations of relative viscosity of liquids to water also showed significant changes with temperature. Conclusions/Discussion Accurate measurements of viscosity are essential in engineering calculations and design of equipment that move liquids, such as pumps, pipes and valves. My experiment shows that effect of temperature on a liquid's viscosity must be taken into account in the design calculations.	
Summary Statement My experiment was designed to determine if the temperature of a liquid affects the viscosity of the liquid.	
Help Received My mom helped me with some research, and helped me with the experiment. My mom and dad helped me edit my report. My dad also helped me by showing me how to make graphs on the computer and showing me a log scale and how to use one.	