



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) David K. Fleming	Project Number J0112
Project Title Stoked about Stokes	
Abstract Objectives/Goals The objective of my project is to determine which liquid, corn syrup or glycerin, is the most viscous. I also want to see how temperature affects the viscosity of these liquids. Lastly, I want to see, using my experimental method and data, if Stokes Law can be computed to determine the viscosity of glycerin. Methods/Materials My experimental method was to drop 10 steel marbles, of 2 different diameters and weights, into two 61-cm high tubes containing 1100ml. of each of the 2 liquids: corn syrup and glycerin. Testing at 3 different temperatures, 14, 19, and 30 degrees Celcius, I timed the descent of the marbles as they dropped 40 cm through the liquids. Results My results clearly show that corn syrup was more viscous than glycerin because both sizes of steel marbles had a lower velocity in corn syrup than in glycerin. As the temperature became cooler, each of the liquids became more viscous. The velocity of the marbles increased in the higher temperature and decreased in the lower temperature. Lastle, I was able to compute the viscosity of glycerin, using my experimental method and data, and a modified version of Stokes Law. Conclusions/Discussion My results show that corn syrup is more viscous than glycerin because the steel marbles had a lower velocity in corn syrup than in glycerin at all 3 temperatures tested. Also, modifying the temperature did affect viscosity as the velocity of the marbles decreased as the temperature became cooler, showing an increase in viscosity. Lastly, using my experimental method and data, I saw that Stokes Law could be computed to determine the viscosity of glycerin. My result differed slightly from the known viscosity of glycerin at 20 degrees Celcius, possibly due to the fact that I used my data which was tested at 19 degrees Celcius.	
Summary Statement This project is a comparison of the viscosity of corn syrup and glycerin, evaluating the variation in velocity, using 3 different temperatures, of 2 different sizes of steel marbles as they are dropped through the liquids in a cylinder.	
Help Received Dad helped me with Stokes Law, Mom helped me to edit my writing, and my brothers and sister helped with graphs and glueing.	