



**CALIFORNIA STATE SCIENCE FAIR  
2003 PROJECT SUMMARY**

<b>Name(s)</b> Carrie M. Garibotti	<b>Project Number</b> <b>S0206</b>
<b>Project Title</b> Value Engineering Your Motor Oil	
<b>Abstract</b> <b>Objectives/Goals</b> To determine if there is a significant difference in the lubricity and longevity of single viscosity motor oils from different manufacturers, and if there is, is improved performance related to increased price. <b>Methods/Materials</b> A steel shaft was spun at a constant rpm with a steel friction bar applying a constant pressure. A new shaft and friction bar were used for each test. For each motor oil, a drop of that oil was used to lubricate the shaft, and for each test, the elapsed time until failure was recorded. <b>Results</b> There were significant differences in performance ranging from 8 minutes to 23 minutes. The more expensive oils provided longer run times before failure. The longest run time was with "Valvoline Racing" while the shortest was with "Parts Plus". Pennzoil, Valvoline, and Quaker State performed twice as well as "Parts Plus". <b>Conclusions/Discussion</b> There is a definite relationship between the cost of an oil and the protection that it will provide your engine. The cheapest oil should be avoided while the most expensive oils are probably not cost effective. The best return on investment is probably received by using moderately priced national brand oils. Definitely avoid proprietary oils.	
<b>Summary Statement</b> Does an increase in cost provide an increase in protection?	
<b>Help Received</b> A. David Garibotti (dad)-helped construct the test apparatus.	