



**CALIFORNIA SCIENCE & ENGINEERING FAIR  
2018 PROJECT SUMMARY**

<b>Name(s)</b> <b>Cornelius E. Harmon</b>	<b>Project Number</b>  38033
<b>Project Title</b> <b>Fact or Friction</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this study is to measure the efficacy of various motor oils to reduce heat cause by friction.</p> <p><b>Methods/Materials</b> Wooden test stand (2#x 2#x 8# post), copper caps,electric motor (drill), Wire drillbit brush, egg timer, eye dropper, thermocouples (type K), and multimeter. Measured the ability of various motor oils to reduce friction through measuring temperature increase.</p> <p><b>Results</b> A controlled volume of various brands of motor oils were placed in cooper caps. The temperature increase of the cooper caps, when exposed to heat, was recorded. Repeated trials were run to calculate an average temperature increase. The difference between the temperatures was statistical significant.</p> <p><b>Conclusions/Discussion</b> To within the accuracy of the measurements, the presence of motor oil significantly reduced friction. However, the difference between the brands of motor oils was no statistically significant. This study reveals that brand marketing has a substantial effect on consumer perception of scientific quality.</p>	
<b>Summary Statement</b> As measured by the ability to control heat, I found that there is no significant different between generic and name brand motor oil.	
<b>Help Received</b> I designed and performed the experiments myself. I got help in constructing the test stand understanding the statistical comparison of data from my father.	