



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Preston D. Neal	Project Number J0213
Project Title Which Lubricants Have the Least Friction?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals To determine which lubricant has the least friction.</p> <p>Methods/Materials First, I bought a long strip of sheet metal then cut it into a rectangle. Another metal sheet was cut into five discs, so for each test a new disc was placed on a sanding disc. Then they were screwed onto the sanding disc and that was mounted to a drill press. Four different oils were placed on the sheet metal one at a time, first the motor oil, vegetable oil, baby oil, the synthetic oil, and then no oil. Then I put 0.3cc of oil on the sheet of metal, and then spun it at 3,200 rpm. Once it was spinning I applied about two pounds of pressure. Then once the oil smoked and the drill press stopped that is when I knew it was a stopping time.</p> <p>Results The results of my project are that the motor oil got 2 minutes and 1 second, the baby oil got 1 minute and 48 seconds, The synthetic oil got 1 minute an 46 seconds, the vegetable oil got 30 seconds, and the non-oil got 4 seconds.</p> <p>Conclusions/Discussion Out of the motor oil, baby oil, synthetic oil, vegetable oil, and no oil, the motor oil was the best. The baby oil was second, the synthetic oil came third, and vegetable got forth and then the non-oil came last. The project worked as planned, but the synthetic oil worked poorer than expected and the baby oil worked better than expected. This could be because the discs were cut with jagged edges so it increased the friction. Or because the end was used and the heat only had one way to go, so the heat had to stay in that spot and while it was heated there, it heated the oil too.</p>	
Summary Statement My project was to compare different oils in a high friction enviornment, to test if synthetic is better.	
Help Received Mother helped type report; father helped set up test; science teacher advised.	