



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Ryan N. Purdy	Project Number J1134
Project Title Get More Miles from Your Gas Tank	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals In my Science Fair Project, I attempted to discover which chemical additives could be added to gasoline to improve engine efficiency. I hypothesized that if a chemical additive raised the gasoline octane level, then it would improve engine running time.</p> <p>Methods/Materials To test my hypothesis I added 4mL of five different chemical additives (Outlaw Octane Booster, Methanol, 104+ Octane Boost, STP, and Techron) to 36mL of Thrifty gasoline and timed how long each mixture ran in a lawnmower engine. I performed five trials for each additive and compared their average to pure gasoline to determine if the additive improved engine efficiency.</p> <p>Results My results showed that the chemical additives Techron, Methanol, Outlaw Octane Booster, and 104+ Octane Boost improved engine running time. The only additive that did not significantly improve running time was STP Gasoline Treatment, which on average ran only two seconds longer than pure gasoline. Techron improved running time the most and ran an average of one minute and fifteen seconds longer than pure gasoline. Methanol, Outlaw Octane Booster, and 104+ Octane Boost ran one minute and one second, fifty-three seconds, and eighteen seconds longer than pure gasoline respectively.</p> <p>Conclusions/Discussion Based upon my experiment results, I concluded that Techron and Methanol are the best gasoline additives, while STP and 104+ Octane Boost did not improve engine performance enough to justify their expense.</p>	
Summary Statement My project is designed to find which chemical additives can be added to gasoline to improve engine efficiency.	
Help Received Mother and M. Halpern (teacher) helped me organize my report; Father helped with mixing of chemicals & gasoline	