



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Yuriy D. Manuylov	Project Number S0313
Project Title The Effect of Ignition Timing on Emission Gasses	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective was to alter the ignition timing angle to see how it affects the amount of emission gasses. The purpose of this is to see how it affects the environment.</p> <p>Methods/Materials I used a hand held Snap-On gas analyzer. I inserted it into the exhaust pipe. I heated up the engine to 190 degrees Fahrenheit. I physically moved the distributor clockwise or counterclockwise in order to advance or retard the spark. I did measurements of carbon dioxide, nitrogen oxides, and hydrocarbons. The angle varied between 40 degrees before top dead center and 20 degrees after top dead center.</p> <p>Results The least amount of pollution's found at between 10 degrees before top dead and 5 degrees after top dead center. Beyond 5 degrees of top dead center the engine would not run.</p> <p>Conclusions/Discussion Ignition timing has a direct effect on emission gasses. There is an optimum time at which pollution is least. A tune-up would reduce the emission from a standard engine out of adjustment. Therefore, this project result should recommend to the average driver that they should get a tune up before an emission (smog test).</p>	
Summary Statement I altered the ignition angle on an engine to see its effect on pollution and found it does make a difference.	
Help Received Mr. Phillip Torres, Mr. Jeffery Adkins; experiment was done at the school auto shop.	