



**CALIFORNIA STATE SCIENCE FAIR  
2009 PROJECT SUMMARY**

<b>Name(s)</b> <b>Andres M. Pineda</b>	<b>Project Number</b> <b>S0219</b>
<b>Project Title</b> <b>Stirling Engine, Uses</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> How far does a Stirling engine travel/run using different fuel sources?</p> <p><b>Methods/Materials</b> My Procedure, 1. I first Built a Stirling engine. 2. Test the engine using different power sources. 3. Record data. 4. Make graphs/tables. 4. Build a car. 5. Make a mount for the Stirling engine. 6. Place Stirling engine on the car. 7. Find out how far the car can travel using different power sources. 8. Record data. 9. Try any other means of testing the energy of the Stirling engine. 10. Record data. My materials,Stirling engine kit, Screw Drivers, PVC pipe, PVC Cement, Copper wire, Steel, Aluminum, Candle, Infrared Thermometer, Timer, Hammer, Tape Measure, Scissors, Velcro, Windbelt , Wrench, Digital Multimeter, Super Glue, Microwave, Lighter, Ice, water, Lego's, Wood, Video tape, Screws, Bolts and Nuts, Drill, Drill bits, Contact cement, Saw, Washers, Propeller, Lithium grease, Silicon adhesive.</p> <p><b>Results</b> The Stirling engine successfully ran after construction without any problems. The engine ran the longest with the candle but the two min. micro waved water started the engine the fastest. I have yet to test if the Stirling engine can move a car and I have yet to get the Stirling engine to run the propeller to power the Windbelt.</p> <p><b>Conclusions/Discussion</b> Based on my experiments I was able to conclude that the Stirling engine can run as long as there is a significant difference in temperature. I could not figure out the exact temperature needed to start the Stirling engine but I found out the Stirling engine could not run on just my hand temperature because the room temperature was too hot. Due to the size of the Stirling engine, I have not been able to run a car. I have also been unable to run the propeller to produce electricity by blowing air into the Windbelt.</p>	
<b>Summary Statement</b> My project is about testing to see what a Stirling engine can do beyond running itself.	
<b>Help Received</b> Father cut wood with a saw; Father cut aluminimum; Step-Brother milled a wheel.	