



**CALIFORNIA STATE SCIENCE FAIR  
2007 PROJECT SUMMARY**

<b>Name(s)</b> <b>Kristy Chang; Lana Ho</b>	<b>Project Number</b> <b>J0207</b>
<b>Project Title</b> <b>Bring on the Heat! A Project Concerning Stirling Engines</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The problem is: How does changing the temperature of the water in a Stirling Engine affect its rate of rotation and the amount of water left over from the reservoirs? It is hypothesized that the highest temperature of water would result in the RPM of the flywheel of the engine surpassing the RPM of an engine heated at a lower temperature, and that the most amount of water would be evaporated. The hypothesis was based on both Charles and Boyles Laws, which relate gas temperature to volume, and volume to pressure.</p> <p><b>Methods/Materials</b> To test the hypothesis, one would first build the engine according to the procedure. After doing so, one would fill the reservoirs with water and regulate the temperatures with candles. Each trial would be tested under the same conditions. All tests would be repeated five times.</p> <p><b>Results</b> After recording and analyzing data, one would find that the results support the hypothesis. With the temperature of the reservoirs at 100 C, the RPM of the flywheel was greater than the trials that involved the engine being heated at a lower temperature. The average RPM for the engine heated at 100 C was 24.6, which was larger than the others. As temperature increased, more water was evaporated. The average amount of water left over from five cups at 100 C was 4.2 cups.</p> <p><b>Conclusions/Discussion</b> The hypothesis was correct. As the temperature of the water in the engine increased, the RPM of the flywheels increased, and the amount of water evaporated from the reservoir increased. Using that information, one would be able to create a more efficient Stirling Engine.</p>	
<b>Summary Statement</b> The project tests how the temperature of the water in a Stirling Engine affects its RPM and the amount of water evaporated from the reservoir.	
<b>Help Received</b> Parents helped with obtaining supplies	