



**CALIFORNIA STATE SCIENCE FAIR  
2013 PROJECT SUMMARY**

<b>Name(s)</b> <b>Daniel H. Kass</b>	<b>Project Number</b>  33430
<b>Project Title</b> <b>Rocket Components Affect Rocket Flight</b>	
<b>Objectives/Goals</b> The objective is to learn about the effect of rocket component on rocket flight and test these things. <b>Abstract</b> <b>Methods/Materials</b> Main Rocketry Components 1 model rocket kit, 15 Model rocket engines (B6-6 model), 4 Alternate type model rocket engines (B6-4 model) , Rocket launch pad, Pennies (for weighting),  Measuring and Assembly Tools Stopwatch, Meter stick, Scissors, Duct tape (For attaching weights and modifying fin size).  Assembly Phase In this phase, I built the rocket as in the standard instructions.  Launch and Measurement Phase In this phase, I launched and recorded things about the rocket's flight. I fired the rocket, using the stopwatch to measure the flights duration. When the rocket landed, I recorded distance from launchpad to landing point. I then recorded the statistics in my book. After that, I recovered the rocket, and inserted a new engine. I repeated the Launch and Measurement Phase 2 more times.  Modification Phase In this phase, I modified the rocket in several ways. The first modification involved taping weights on to the rocket. The second modification involved using duct tape to expand the fins. The third modification involved using a different engine. After each modification, I repeated the launch and measurement phase to record data about the effect of the modification.  Analysis Phase Finally, I created averages from the flight time and stability data, and then compared the averages to determine the effects of the modification. I determined which rocket flew the longest. I also decided which rocket landed farthest away from the launchpad. <b>Results</b> Results: Each modification had an effect on the flight: They all decreased the stability and the flight	
<b>Summary Statement</b> This project is about the effect that various changes to a rocket can have on its flight characteristics.	
<b>Help Received</b> got advice about writing this application from my dad, and my parents drove me to the park where we launched the rockets, and my parents bought the rockets for me.	