CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY

Name(s)
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Project Number
J0107

Project Title
How Rocket Nozzles Affect Thrust

Abstract

Objectives/Goals
To determine if the angle of a rocket nozzle affects the amount of thrust.

Methods/Materials
* Rocket Nozzles
* Testing Apparatus
* A8 Estes Rocket Motors
* Potentiometer
* Digital Multimeter
* Estes Igniters

1. Construct the nozzles
2. Assemble the ballistic pendulum
3. Remove the nozzle from an Estes rocket motor
4. Place the nozzle in the pendulum
5. Get an at-rest reading from the multimeter
6. Ignite the motor and get a maximum reading from the multimeter
7. Repeat the steps 10 times for each rocket nozzle
8. Analyze the data

Results
The results showed that the 90 degree nozzle produced the most thrust. However, several problems were observed with the procedure that caused the results to vary considerably.

Conclusions/Discussion
The 90 degree nozzle produced the most thrust.

Summary Statement
This project measures the effect of the angle of a rocket nozzle on the amount of thrust produced.

Help Received
Andros Engineering provided the shop resources to machine the rocket nozzles. My mother provided encouragement and inspiration. My father helped me with building my apparatus and testing.