CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY

Name(s)
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Project Number
J0107

Project Title
Do Different Fin Designs Affect a Rocket's Maximum Altitude?

Abstract

Objectives/Goals
The point of this project is to see if different fin designs affect a rocket's maximum altitude and the stability of the flight, and if so, which fin design makes the rocket go the highest. This was done was by designing five different fins and launching them each 3 times then comparing how high the rocket went and how stable the flight was.

Methods/Materials
4# by 3# sheet of Balsa wood
3 Polaris Estes Model Rocket Kits
1 Estes Altitude Tracker/theodelite
Estes Launch Equipment (Igniter, Launch pad)
5 packs of C-6-5 Engines.

1. Put together all 3 Estes model rocket kit
2. Spray paint the rockets red so you can see them in flight
3. Design and cut out 4 different fins
4. Go to your launch site, prepare rockets and launch equipment
5. Launch rockets and have someone record the altitude and flight stability.
6. Repeat three times for each design. Change fins as required to complete flights.

Results
The low drag clipped-delta fin design went the highest and was the most stable flight. This fin design was #2 and went 99 meters and was graded a 9.8 on a scale of 1-10, ten as the most stable. The lowest altitude was 24.5 meters made by the rocket with no fins.

Conclusions/Discussion
The hypothesis that a low drag clipped-delta fin would make the altitude the highest and would be the most stable flight was supported by the findings of the experiment. The fins that came with the rocket did not perform as well as the clipped delta fin design. Other people may be able to use the information in this report to design new and better fins for their model rockets.

Summary Statement
The point of this project was to launch rockets with five different fin designs and see how the designs affected the rocket's altitude and stability.

Help Received
My Dad recorded the flights and bought the rockets. My Mom launched the rockets. My sister retrieved the rockets. Bill Lyon, my Dad's business partner, developed an electronic launch system. Ms. Gunn, my advisor from Lewis, guided me thru the process.