CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY

Name(s)
Lucas Miller; Brendan Peddie

Project Number
J0116

Project Title
Does a Rocket That Spins As It Climbs in Altitude Go Higher than a Rocket That Doesn't Spin?

Abstract

Objectives/Goals
The purpose of our project is to compare a rocket that spins to a rocket that doesn't spin and see which one will reach higher altitude. Our hypothesis is " A rocket's spinning motion will have an effect on how high the rocket climbs into the atmosphere. A rocket that spins will go higher than a rocket that does not spin. When the rocket spins it will go straighter up in the air reaching higher altitude than when it doesn't spin. Our results showed that rockets that spun too much reached the lowest altitude, and rockets that spun a small amount reached a higher altitude than rockets that did not spin at all. We concluded that there is just a right amount of spin that will make the rocket reach its highest altitude for a certain amount of thrust.

Methods/Materials
Materials: 1. Launching Pad; 2. Four 2-liter soda bottles; 3. 4 pieces of balsa wood; 4. Four jugs of water; 5. Air pump; 6. Kite string; 7. Measuring tape; 8. Scissors and Duct tape; 10. Safety goggles.
Methods: 1. First we took four 2-litre soda bottles and cut the top off. Then we taped the top of a 2-litre soda bottle to the bottom of another soda bottle. 3. Then we cut 12 fins out of 4 pieces of balsa wood and taped them to 3 different rockets at 90 degree, 80 degree and 70 degree angles. 6. We then took the rockets to an open field. We tied the end of the kite string to the rocket. We filled the rocket about halfway with water. 10. We put the rocket onto the launching pad and pumped the pressure up to 40 psi. 11. We launched the rocket and when it came it down, we measured how far the kite string went. 12. We repeated this process 10 times for each rocket with a different fin angle and we recorded our resultes.

Results
Launch Height (ft)

Fin Angle										
90º	64	65	61	68	59	62	61	65	62	64
80º	74	71	76	72	75	76	71	69	79	74
70º	48	51	45	49	51	47	50	46	38	49

Conclusions/Discussion
We have concluded that rocket with too much spin does not go very high, but a rocket with some spin goes the highest. A rocket with some spin goes higher than a rocket with no spin. Our hypothesis was correct.

Summary Statement
Showing how some spin can make a rocket go higher.

Help Received
Mother helped putting board together. Father helped build and launch rockets.