CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY

Name(s)
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Project Number
J0216

Project Title
Will It Fly the Farthest?

Abstract

Objectives/Goals
The science experiment was done to determine what ramp angle would launch a radio controlled car the farthest. The hypothesis was that the vehicle would be launched the farthest at a ramp angle of 45 degrees. This was based on previous studies with projectiles and theoretical trajectory equations which indicate that 45 degrees produces the farthest flight of the projectile.

Methods/Materials
The experiment followed these procedures:
1. Build the experimental ramp and large protractor to measure the angle of the ramp.
2. Set up ramp at given angle and mark distances from ramp and 8 feet in front of the ramp for the starting point on the pavement.
3. Drive the gas powered all terrain vehicle off the ramp five times.
4. Increase the ramp angle by five degrees and perform five more trials.
5. Repeat at each angle until the maximum angle of 55 degrees has been reached.

Results
The results found show that the most successful angle of launch was 30 degrees which launched the vehicle an average of 69 inches which is only 2 inches farther that the second most successful angle of 40 degrees. It also showed that the higher ramp angled had much shorter distances than any of the other angles.

Conclusions/Discussion
The experiment shows that the optimum ramp angle is 30 degrees. This is probably different from the theoretical answers because they were conducted with projectiles that accelerated at the angle of launch. In this experiment, the vehicle was accelerated horizontally and then presented with the ramp, giving it more forward momentum.

Summary Statement
At what angle would a ramp launch a radio-controlled car the farthest.

Help Received
Dad helped record results. Mother helped edit report.