



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Michael D. Bucher	Project Number J0205
Project Title Ramp It Up!	
Abstract Objectives/Goals The goal of this experiment was to determine which angle (20,25,30,35,40,45,50, degrees) of an inclined ramp would provide the maximum height and distance that an RC (remote controlled) monster truck, driven at a constant speed, could achieve. The hypothesis was that the inclined ramp positioned at a 45 degree angle would provide the maximum height and distance that the RC monster truck could travel. Methods/Materials <ol style="list-style-type: none">1. Placed 2 x 4 blocks of plywood underneath the Flybox inclined ramp to obtain the various angles, and then measured each angle with a large protractor for accuracy.2. Drove the nitro powered RC monster truck off the ramp five times.3. Increased the ramp angle by five degrees and performed five more trials.4. Repeated procedure at each angle until the maximum angle of 50 degrees had been reached. Results <p>The combined results of this experiment showed that the 30 degree launch angle was the most successful in achieving maximum height and distance. When launched at the 45 and 50 degree angles, the RC truck traveled the shortest distances.</p> Conclusions/Discussion <p>My hypothesis, based on research indicating that projectiles launched from a 45 degree angle will achieve maximum height and distance, was wrong. In theory, the launch velocity is independent of the launch angle, however that was not the case in this experiment. The RC truck generated its projectile velocity through a combination of the horizontal velocity, which began at the take-off 10' from the ramp, and the vertical velocity that was generated at the launch angle of the ramp.</p>	
Summary Statement Determine the optimal angle for launching an RC monster truck from an inclined ramp to achieve maximum height and distance.	
Help Received Mother helped take pictures of the experiment and helped edit report. Dad helped measure speed of the monster truck. Cousin helped videotape the jumps and record data.	