



# CALIFORNIA STATE SCIENCE FAIR 2006 PROJECT SUMMARY

<b>Name(s)</b> <b>Bryan Faber; Colin Mackenzie</b>	<b>Project Number</b> <b>J0110</b>
<b>Project Title</b> <b>Streamer Dimensions and Their Effect on a Rocket's Descent</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> Our question was: How do the different dimensions of rectangular streamers all with the same area affect how long it takes for the rocket to fall? We thought that if a streamer was longer, there would be a longer line of streamer to slap the air, therefore slowing the rocket down effectively.</p> <p><b>Methods/Materials</b> First, we made (out of regular garbage bag plastic) 5 different streamers (40cm x 40cm, 200cm x 8cm, 320cm x 5cm, 400cm x 4cm, 800cm x 2cm). All of the streamers had an area of 1600 square centimeters. Then we put the 40 x 40 streamer into the rocket and launched the rocket THREE times in a row. We recorded how long it took for the rocket to fall once the streamer had deployed. Then we repeated step 2 and 3 with the 200 x 8, 320 x 5, 400 x 4, and 800 x 2 streamers. We then analyzed the data to determine which streamer slowed the rocket down the most.</p> <p><b>Results</b> Here are the times (in seconds) with the streamer dimensions (in centimeters): 160x10 took 18.96, 18.75, 18.96 (average time = 18.89), 80x20 took 19.24, 19.43, 20.18 (average time = 19.62), 64x25 took 20.54, 24.36, 23.93 (average time = 22.94), 50x32 took 22.65, 22.35, 20.34 (average time = 21.78), and 40x40 took 19.06, 25.45, and 19.38 (average time = 21.3).</p> <p><b>Conclusions/Discussion</b> We found that as the streamers became shorter and wider, overall they slowed down the rocket more effectively, but they also became more unstable and unpredictable, and the range in falling times varied immensely. These results were the opposite of what we predicted in our hypothesis, in which we thought the long and skinny streamers would be the most effective in slowing down a rocket.</p>	
<b>Summary Statement</b> We investigated how the different dimensions of rectangular streamers, all with the same area, affected how long it took for a rocket to fall.	
<b>Help Received</b> Parent assisted by paying for materials, taking photographs, and supervising safety.	