



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jonathan D. Bregman</b>	<b>Project Number</b> <b>J0203</b>
<b>Project Title</b> <b>As Good As It Gets</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> To discover what makes an air cannon accurate and what affects the accuracy.</p> <p><b>Methods/Materials</b> I designed and constructed an air cannon using PVC pipe. I had 3 interchangeable barrel, 9, 18, and 36 inches in length. I fired the cannon several times with the same projectile and with different barrel lengths and pressures, and recorded where the projectile hit a target placed 36 feet away. At the same time, using a speed measuring device that I built, I calculated the speed.</p> <p><b>Results</b> The 18 inch barrel consistently proved to show the fastest speed and to be the most accurate. The 9 inch barrel was the second fastest and the second most accurate followed by the 36 inch barrel.</p> <p><b>Conclusions/Discussion</b> The measured speeds were much less than calculated speeds due to air leakage past the projectile. Frictional losses and air leakage within the cannon were measured and had minimal effects. There was a larger spread in the y direction than the x direction for the position of the projectile on the target due to variations in the speed of the projectiles.</p>	
<b>Summary Statement</b> What affects the accuracy of an air cannon.	
<b>Help Received</b> Father supervised firing of air cannon, mother helped with display layout.	