



California Science Center
CALIFORNIA STATE SCIENCE FAIR
2001 PROJECT SUMMARY

Your Name (List all student names if multiple authors.) Brian R. George	Science Fair Use Only
Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 9) The Effect of Baseball Seam Height on the Amount the Ball Curves in Flight	S0908
	Division <input type="checkbox"/> Junior (6-8) <input checked="" type="checkbox"/> Senior (9-12)
Preferred Category (See page 5 for descriptions.) 9 - Fluid Mechanics/ Aerodynamics/ Thermophysics	
Abstract (Include Objective, Methods, Results, Conclusion. See samples on page 14.) Use no attachments. Only text inside these boxes will be used for category assignment or given to your judges.	
Objective: The purpose of my experiment was to see if the seam height of a baseball had a significant effect on the amount the ball curved in flight.	
Materials and Methods: My experiment's key element was a commercial pitching machine that threw baseballs consistently at a grid-like target which I constructed. Using baseballs of three different seam heights (my independent variable), in addition to a control fastball, I conducted 15 trials with each type of ball. The dependent variable, or amount of curve, was measured by the distance between the location of the average fastball (control) and the location of the curveball. Qualitative data was also taken on each ball's flight quality.	
Results: There was a significant statistical positive correlation between seam height and the amount the ball curved (the higher the seam, the more the ball curved). The flight quality of the ball may have had a negative correlation to seam height, although the results were inconclusive.	
Conclusion: My hypothesis that baseballs with higher seams would curve more in flight was supported. Due to Bernoulli's Principle, I concluded that larger seams create a greater imbalance in pressure, causing the ball to curve more. From this experiment, it is apparent that this principle of aerodynamics could be applied further to the actions of other spinning objects in flight.	
Summary Statement (In one sentence, state what your project is about.) I tested whether baseballs with higher seams would curve more in flight than those with lower seams; my data demonstrated that balls with higher seams do indeed curve significantly more.	
Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4. I was assisted in this experiment by my coach who gave me permission to use the school pitching machine. My dad helped me conduct the experiment (assisted and fed balls into the machine). My mom helped me glue a few of the pictures on the display board. Other than this, I did all of the work myself.	