



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Christopher J. Wang	Project Number J2232
Project Title Tennis Ball Bounciness Experiment: Does the Brand of Tennis Ball Affect How Bouncy It Is?	
Objectives/Goals I love playing tennis! In a tennis game, tennis balls are an important element. I want to find out which balls are bounciest. Of all of the balls I tested, I believe Wilson balls will be the bounciest. Based on my research, a tennis ball will bounce higher or lower depending on the amount of pressure it has. The Wilson balls have the most pressure when I squeeze them and are recommended for hard surfaces. They could be made of thicker material and air pressure in the ball would seep out slower and stay high for a longer period of time. In my experiment, I will shoot the ball against a wall many times. I don't believe that the balls will lose pressure that quickly. That is why I formed my hypothesis that Wilson balls would be the bounciest.	
Abstract Methods/Materials Using a home-made machine with rubber bands tied to the back of a chair, I launched tennis balls at a concrete wall. This wall will serve as my racket in my experiment. A layer of sand was placed in front of the wall. Every time the tennis ball landed on the sand and left a mark, I would measure the distance. In a tennis game, once the ball is hit by the opponent's racket, and it bounces twice, the ball is out of play. That is why the distance on the second bounce is measured. The variable in my experiment is the brand of tennis ball. Five brands of balls were tested and five trials of each ball were averaged and compared. As a total, I had 15 trials for each brand of tennis ball. Material list: homemade rubber-bands-tied-to-a-chair ball launcher, tennis balls, concrete wall, plastic trash bags, sand, duct tape, measuring tape, camera, paper.	
Results I tested three balls of each brand, and five times for each ball. All of the tested data was tabulated. The average distance traveled by each ball was calculated. Then, the three balls of each brand were averaged for all the trials and balls. The Head balls traveled an average of 408.7 centimeters and Wilson balls 362.4 centimeters.	
Conclusions/Discussion Before the experiment, I thought the Wilson brand would be the bounciest. However, I found out that the Head balls actually were the bounciest. They traveled an average of 408.7 centimeters. Wilson balls, the least bouncy, only traveled 362.4 centimeters. I believe that the Head balls traveled the farthest because they had less fuzz which generates less wind resistance. Also, having less fuzz made it less likely to catch onto the rubber bands of the launching machine.	
Summary Statement To test the bounciness of different brands of tennis balls, a homemade tennis ball launcher was used to shoot balls at a wall and the distance the ball traveled away from the wall on the second bounce was measured and compared.	
Help Received Father helped hold chair down to launch balls during experiment; Mother helped take some pictures; Brother fetched balls.	