



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Nicole A. Lopez	Project Number J0217
Project Title The Physics of Cheating in Baseball	
Objectives/Goals My objective was to determine whether cork, sawdust, or sponge, when illegally used as fillers in hollowed-out wooden baseball bats, will cause a baseball to travel farther upon impact compared to a heavier, solid wooden bat.	
Abstract Methods/Materials With adult supervision I drilled through the tips of three different bats and hollowed out a chamber. The three different bats were filled with different fillers ranging from sawdust, a household sponge, and rolled cork. The fourth bat was kept solid. A batting device was built to test the four different bats. One at a time each bat would be attached to the batting device and the distance it hit the ball off of the batting tee would be recorded.	
Results The experiment showed that the saw-dust-filled bat which averaged a longer distance than anticipated, 97.92 inches in distance, allows a baseball to travel farther than the other substance filled bats and the heavier, solid wooden bat. The solid wooden bat launched the batted-ball an averaged of 95.28 inches. I found that the cork-filled bat only averaged to 89.88 inches. Using a sponge-filler bat only decreased the average compared to the solid bat, to 89.36 inches.	
Conclusions/Discussion Using sawdust as filler in a wooden baseball bat will enable a baseball to travel farther upon impact, compared to a heavier, solid wooden baseball bat. By building a batting device I was able to test the baseball bats and conclude that my prediction was incorrect. I hypothesized that a cork-filled bat would hit a baseball farther than a heavier, solid wooden bat. Changes in the batting device could possibly be made to obtain more accurate results. The coiled spring could have possibly lost some of its tension after it was used repetitively and the use of human subjects in place of the batting device may be a way to attain more reasonable results.	
Summary Statement My project is about determining whether cork, sawdust, or sponge, when illegally used as fillers in hollowed-out wooden baseball bats, will cause a baseball to travel farther upon impact compared to a heavier, solid wooden bat.	
Help Received Father helped build batting device.	