



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Zachary L.T. Patterson	Project Number J0227
Project Title Bullets and Phonebooks	
Abstract Objectives/Goals The goal of my project was to find out what affects bullet penetration the most: velocity, mass or bullet construction. Methods/Materials I used 12 variations of the .243 caliber cartridge. Those cartridges were fired at wet phonebooks set up 50 feet away. Each round's velocity was measured by a chronograph. The velocity was determined by the composition of the cartridge. Results The result of my project was that mass affected bullet penetration the most. The speed helped to determine this. When a 75 grain bullet went too fast it came apart. But when a heavier bullet such as a 95 grain bullet went at high speeds it could withstand the forces of impact. The construction of the bullet did not have much of an effect. In fact there was only 2.54 cm difference between the two. Conclusions/Discussion In the conclusion of my project I have found that weight affects a bullets penetration the most. With more gunpowder I had a steady increase in speed but not a definite increase of penetration. Design did not have hardly any effect.	
Summary Statement I find out what cartridge combination is the most effective for bullet penetration.	
Help Received Father supervised all weapon control, Step helped give thoughts on board, Mom helped type report	