



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Robert W. Nelson	Project Number J0212
Project Title Paintball Pandemonium	
Abstract Objectives/Goals The objective is to determine if temperature affects the accuracy of a paintball shot. I hypothesized that the room temperature paintballs will be the most accurate. Methods/Materials Seventy five paintballs were divided into three groups. One third was cooled, one-third was heated and one-third was kept at room temperature. After fifteen hours, twenty five paintballs were shot from each temperature environment using a VL Triton 2 paintball gun. The paintball gun was aimed at the target and clamped into position to eliminate aiming variations. The distance from the center of the target was measured and recorded for each shot to determine shot accuracy. Results Room temperature paintballs were the most accurate, with an average miss distance of 12.5 cm. Heated paintballs were the least accurate, with an average miss distance of 17.7 cm. Cooled paintballs were only slightly more accurate than heated ones, with average miss distances of 17.1 cm. Conclusions/Discussion I concluded that the paintballs kept at room temperature shoot more accurately than paintballs that are heated or cooled. I further determined that a possible explanation for the results was that the paintballs, when fired, expanded across the barrel. The cooled and heated paintballs expanded to where they would have contacted the barrel, while the room temperature paintballs would not contact the barrel. I believe this contact may be the cause of the inaccuracy.	
Summary Statement Does the temperature of a paintball affect it's accuracy when shot?	
Help Received My mother helped me design my display board. My father supervised me as I conducted the experiment.	