



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Blake S. Mattern	Project Number J0218
Project Title Football Kicking Comparison	
Abstract Objectives/Goals My objective is to see which area of a football, when kicked with a pendulum, will cause the football to travel the furthest distance. I wanted to learn how the laws of physics played a part in my experiment. Methods/Materials My materials include: One Nike Junior size and weight football, one orange Official Youth size kicking tee, one standard tape measure, one Black marker, one roll of 50mm masking tape, one home made Pendulum, one #2 pencil, three lined paper (for recording data), and one calculator(for converting to Metric units) Results After kicking the football ten times in the top, middle, and bottom areas, the data showed the middle area was the best place to kick to get the furthest flight distance. The Middle kick showed a 20% further distance then the bottom kick and 58% further distance then the top kick. Conclusions/Discussion After sorting through the results, I found that my hypothesis for the flight distance was incorrect. I believed the bottom area would be the #sweet spot# of the football but it was not. It was the Middle area that showed the greatest distance. Newton's laws of physics helped me understand and explain why I got the results that I did. I would like to further my research in this area by changing variables like metal instead of wood pendulum ($F=ma$), putting helium in the ball, compare height with length of distance, and by using different types of balls(soccer,baseballs,etc.)	
Summary Statement My project was about understanding why a football reacts when kicked in different areas and measuring the distance it traveled when kicked in these areas.	
Help Received Dad helped correct typing errors; Dad helped build pendulum; Brother helped measure kicks; Teacher advised on board arrangement.	