



**CALIFORNIA STATE SCIENCE FAIR  
2014 PROJECT SUMMARY**

<b>Name(s)</b> <b>Bryce R. Alley</b>	<b>Project Number</b>  34373
<b>Project Title</b> <b>Knockout</b>	
<b>Objectives/Goals</b> The experiment's purpose was to test the scientist's hypothesis: "if one were to apply a kick and a punch separately to an object with the dominant side of the body, then more force will result from the kick vs. the punch using Shaolin Kenpo techniques." <b>Abstract</b> <b>Methods/Materials</b> With adult supervision, the scientist created a kicking/punching station between two basketball standards, by securing a wire strung around the standards placed 10 meters apart. After hanging a target bag from the kicking/punching station, the scientist measured the distance (in cm) of how far the bag traveled with each of the twenty kicks and twenty punches. Averages were taken after all the kicks and punches were completed. <b>Results</b> The average of the 20 kicks was 493.5 cm and the average of the 20 punches was 798 cm, clearly showing the punches' average was 304.5 cm farther than the kicks. <b>Conclusions/Discussion</b> The results of the experiment proved the scientist's hypothesis incorrect, because the scientist believed that the bag would travel farther after kicking the bag vs. punching the bag. After analyzing the results, the scientist realized that he was able to aim the punch to the correct spot on the bag allowing the bag to travel smoothly along the wire vs. the kick, which would sometimes be misplaced on the bag causing the bag to travel a shorter distance, and sometimes causing the bag to flip over the wire, and slowing the bag down. Secondly, the scientist realized when he was punching the bag; he used more of his body, allowing him to apply more force to the bag. While he was kicking the bag, he just used the strength in his legs.	
<b>Summary Statement</b> The scientist wanted to test whether a kick to a target bag was stronger than a punch to a target bag.	
<b>Help Received</b> The scientist would like to thank his science teacher for answering questions about his project. The scientist would also like to thank his parents for helping him build the kicking/punching station and for taking pictures while the scientist executed the experiment.	