

**Greater San Diego Science and Engineering Fair  
2015 PROJECT SUMMARY**

**Name:** Sahil Wadhwa

**Grade:** 8      **School:** Marshall Middle School      **Teacher:** E. Gillum

**Project Title:** Sweet Spot of a Cricket Bat

**Abstract**

**Objectives/Goals:** The objective or goal of this project was to help players in choosing the right bat that would help them achieve optimum play results. There were many different types of bat, and they vary between how tall and wide they are,

**Hypothesis:** The region of the bat where maximum ball exit velocity is achieved is located about 15 cm from the bottom of the bat. The region of the bat where the, ACOR, which is: ball speed after impact – bat speed before impact/ bat speed before impact shall be highest is located about 20-25 cm from the bottom of the bat. Ball exit speed and ACOR shall be highest within 1 cm of the center of the bat as compared to away from the center.

**Methods/Materials:** A swinging bat machine had to be made by putting PVC pipe and wooden columns. Then another PVC pipe was attached to the horizontal PVC pipe, and a ball was attached to a ball on a fishing line. Bats were then screwed into the vertical PVC pipe. Then six trials were measured for each of the bats, using a radar gun. Each of the bats were then measured six trials each.

**Results:** The results showed that the middle of the bat was the best place to hit the ball to achieve the most power. For most bats, in the middle of the bat the speeds ranged from 27 kmph to 30 kmph. The end of the bats resulted in the least speed or least power. More than one trial was taken for more accurate results, so it is necessary to take multiple trials.

**Conclusions/Discussion:** The results proved the experimenter's hypothesis right, due to the fact that the best spot to hit the ball is in the 15 cm-20 cm range of the bat. However, the bat speeds varied once the ball hit the sides of the bat. Based on the data, the right choice would still be to hit the middle of the bat. In order to get the best power and speed the ball must hit the bat in the 15 cm-20 cm range.

**Summary Statement:** With the new era of technology, it is now possible to measure different aspects at the time of impact of bat and ball like speed of the bat and ball before and after impact and sound waves produced as a result of the impact. Finding the sweet spot of a bat is fundamental to the sport of cricket.

**Help Received:** Mrs. Gillum and Samuel In provided insight that no other person could've given. They helped answer questions about the project. Last, but not least, thanks to my parents for spending their time with me.