

Greater San Diego Science and Engineering Fair

2015 PROJECT SUMMARY

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Grade: 8

School: Marshall Middle School

Teacher: E. Gillum

Project Title:

Does Hitting the Ball on the Sweet Spot actually make the ball travel farther

Abstract

Objectives/Goals

The objective was to find the sweet spot of the bat and prove whether or not hitting the ball within the sweet spot made the ball travel farther than the balls that were not hit within the sweet spot.

Hypothesis

In this experiment, the experimenter hypothesized that **when balls are hit in the sweet spot zone, 90% of the balls will travel farther than the ones that are not hit in the sweet spot.**

Methods/Materials

The hitting machine had to be built first. A baseboard was placed on the ground and then two pieces of wood were attached perpendicular to the baseboard. A bolt was screwed through the two pieces of wood and a spring was attached to the bolt. Then another piece of wood was placed on top of the two vertical pieces. A hole was drilled through the top piece of wood and another bolt was screwed into the wood. Then, the spring was attached to the top bolt. Next, a lazy susan base was attached to the top piece of wood. Afterward, another piece of wood was attached to the lazy susan base. Finally, the bat was attached to the top piece of wood using 2 brackets.

Results

The results showed that the composite bats tested in this experiment didn't have as much consistency as the aluminum bats. In the hit ball test, it was proven that the sweet spot of most of the bats tested was the 3-7 inch range from the barrel end of the bat. The vibration also proved this theory correct.

Conclusions/Discussion

The results proved the experimenter's hypothesis wrong. Not all 90% of the bats tested hit in the sweet spot went farther than those that weren't. It was also shown that in the vibration test, the ones struck inside the sweet spot didn't always have the least vibration.

Summary Statement

This project compared the amount of vibration on the bat and the distance the ball traveled to determine where the sweet spot was on the bat.

Help Received

My father took me to the softball fields and drove me to get the supplies. I would like to thank my mentor Dr. Thomas Benson for the advise on the velocity and trajectory of a softball. Lastly I would like to thank my teacher Mrs. Gillum for pushing me to do my best work on this project.