CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY

Name(s)
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Project Number
J0329

Project Title
Will Hot or Cold Temperatures Affect How High Tennis Balls Will Bounce?

Abstract

Objectives/Goals
My objective was to find out if hot or cold temperatures would affect how high tennis balls would bounce.

Methods/Materials
Materials included tennis balls, oven, freezer, camera, infrared thermometer and a robotic arm. I used 18 tennis balls, I froze 6 to -2 degrees, heated 6 to 200 degrees, and left 6 at room temperature (72 degrees) to use as a control. Using a robotic arm to release the balls at an exact time, I dropped them all from a height of 36 inches, one at a time, while documenting it on video. Using the infrared thermometer, I recorded the exact temperatures as they were dropped.

Results
The control balls bounced on average 26 inches. The cold balls bounced on average 13 inches and the hot balls bounced on average 28 inches. Hot and cold temperatures definitely affects how high the tennis balls would bounce. The hot balls bounced on average 5 inches higher than the control, and 15 inches higher than the cold balls.

Conclusions/Discussion
My hypothesis was right. The hot balls did bounce higher than the cold balls. The hot balls bounced a little higher than the control balls, but much higher than the cold balls. The cold temperature really affected how high the tennis balls bounced.

Summary Statement
The hot balls bounced higher than the control balls and the control balls bounced higher than the cold balls.

Help Received
Siblings and parents helped set up equipment and hold materials; Mom proofread my report.