CALIFORNIA STATE SCIENCE FAIR
2003 PROJECT SUMMARY

Name(s)
Tyler Amos; Andrew Hostetler

Project Number
J0203

Project Title
Does Temperature Affect the Way a Ball Bounces?

Abstract

Objectives/Goals
Our objective was to determine if super balls (large and small), ping-pong balls, and golf balls bounce higher when they are warmer or colder.

Methods/Materials
The experiment involved measuring the bounce effect of the four (4) balls (large and small super balls, ping-pong ball, and golf ball). This was done by first testing the balls at room temperature using a 24 inch ruler to measure the height of the bounce. Then we put the balls in a freezer at -2 degree F for half an hour and retested them. We also tested the balls after one hour and one and one half hours in the freezer. We found out that the four balls bounced higher at room temperature than when colder.

Next, we tested the balls after they had been heated. To do this we set the balls out at room temperature, for an hour, while preheating the oven to 170 degree F. After that hour, we put the balls in the oven (on foil) for ten minutes and tested. We repeated the process at 200 degree F.

Results
Temperature does affect the way a ball bounces. The super balls were most affected by the change in temperature.

Conclusions/Discussion
The experimental data both supported and did not support our hypothesis. It supported our hypothesis in that all but one type of ball bounced higher when warm. The ping-pong ball, however, bounced higher when cold. Based upon our research and experimental results, we believe the reason for this is because the material inside the ping-pong ball is air and air does not act like rubber at different temperatures. How much affect the temperature has on a ball depends on the materials the ball is made of.

Summary Statement
Our project was to determine if temperature affects the way a ball bounces.

Help Received
Mr. Scott (science teacher) for correcting our report. Mothers helped assemble the display board.