



**CALIFORNIA STATE SCIENCE FAIR
2008 PROJECT SUMMARY**

Name(s) Max S. Lester	Project Number S1612
Project Title Chill: Bounce Higher: The Effect of Temperature on Elasticity	
Abstract	
Objectives/Goals My goal was to prove that temperature has an affect on the elasticity of an object. I hypothesized that the colder a ball gets the more elastic it will become and, therefore, will bounce higher.	
Methods/Materials I purchased ping pong balls, small wiffle balls, and clear, rubber super-balls and dropped them to examine how high they bounced. All these balls are of approximately the same size. Since I wanted to examine the effect of temperature on elasticity in balls I decided to put them in different temperatures of water (boiling water, ice water, etc...) then, after a set period of time, I dropped them from my roof to my ping pong table and measured the height of their bounce.	
Results My results were that balls at colder temperatures bounced higher than those at warmer temperatures. Actually, those balls at 77 degrees Celsius bounced the lowest out of all the balls and those at 10 and 5 degrees Celsius bounced the highest. Therefore, this proved that my hypothesis, that colder balls would bounce higher, was correct.	
Conclusions/Discussion The purpose of this experiment was to test the effect of temperature on elasticity. When a ball collides with the floor, it becomes deformed. If the ball is elastic, it will quickly return to its original shape and will spring up from the floor. Therefore, the purpose of my science fair project was to test if the balls would be more elastic, spring back to their normal shape at a quicker rate, and therefore bounce higher as temperatures increased or decreased. My data supports my hypothesis that balls at colder temperatures would bounce higher than those at warmer temperatures. In the end, my hypothesis that #temperature and elasticity are inversely related: The colder the object gets, the more elastic it will become, until it is so cold the object cannot return to its former shape or state# was supported by my data.	
Summary Statement To test the effect of temperature on elasticity by observing the bounce height of balls at different temperatures.	
Help Received While I dropped the balls from my roof, my parents acted as lab assistants by measuring height of balls bounce and noting result.	