



CALIFORNIA STATE SCIENCE FAIR 2012 PROJECT SUMMARY

Name(s) Trevor Bianchi; Andrew Grogin	Project Number J1302
Project Title How Does the Temperature of a Golf Ball Affect the Distance It Travels When Struck?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Our objective was to determine whether the temperature of a golf ball affects its distance when struck. Our hypothesis was that a heated ball will travel further than will a colder ball, because a warmer ball becomes more elastic when heated, causing it to rebound further off an object when struck.</p> <p>Methods/Materials To determine how the temperature of a golf ball affects the distance when struck, we set up a backdrop with centimeter increments. We cooled one dozen golf balls to 5 degrees celsius (41 degrees fahrenheit), heated one dozen golf balls to 37.7 degrees celsius (100 degrees fahrenheit), and left a control group of one dozen golf balls at room temperature. We then dropped each set of golf balls from a height of 2.5 meters from a ladder onto a cement slab and recorded how high the golf balls bounced using a video camera. We then analyzed the data to determine how the temperature of a golf ball affects its distance when struck.</p> <p>Results Our graph showed that the warm golf balls bounced 216 centimeters on average when dropped from 2.5 meters, the room temperature golf balls bounced 200.25 centimeters on average, and the cold golf balls bounced 174.4 centimeters on average when dropped from 2.5 meters. We concluded from this experiment that a warmer golf ball will bounce higher, causing it to travel more distance when struck and a colder golf ball will bounce lower, causing it to travel less distance when struck. Our hypothesis seems to be correct, because we thought that the warmer golf balls would bounce higher.</p> <p>Conclusions/Discussion We believe we got the results we got because the colder an object becomes, the less elastic it is. The greater elasticity that an object may obtain when it gets hot causes the ball to compress more, causing it to bounce higher and rebound more. We discovered that the warmer a golf ball is, the further it will travel when struck. We think that this is very useful information to any golfer because weather varies and temperature can change, and if golfers know that when it is cold, the ball won't travel as far, they can make a decision to change clubs. This can benefit golfers to know this fact because they can improve their game by increasing their knowledge of their game, thus, improving their score. If a golfer has a certain distance to the hole, this information is crucial to create a smart and skillful shot.</p>	
Summary Statement How does the temperature of a golf ball affect the distance it travels when struck?	
Help Received None	