Bouncing Pressure

Jessica M. Little

Practical Applications of Advanced Mathematics

Amy Goodrum

Summer Ventures in Science and Mathematics

The University of North Carolina at Charlotte

Abstract

Air pressure is the weight of the Earth's atmosphere pressing down on everything at the surface. Gravity is the attractive force between objects. Although these are two different things, air pressure and gravity are related to one another. The air molecules in an object react to the force of gravity to make something bounce. For instance, if you had a sports ball, how does that ball get to bounce up off the ground? This is what I have answered during my research and experiment. To take on this challenge, I used the following: volleyball, basketball, soccer ball, meter stick, tape, an air pump with an air gauge, and tape measure. I chose three different air pressures levels, which is also called psi that mean pound per square inch, to see how the air pressure affected the ball's bounce height. They were 15 psi, 10 psi, 5 psi, and 0 psi. Each ball with the set psi level was dropped twice from a four feet height above the ground. I recorded these results and listed them in the attached chart. The results showed that the lower the psi level of a ball, the lower the ball will bounce. Also, each sport ball varies in the ranges that they bounce within each psi level.