



CALIFORNIA STATE SCIENCE FAIR 2009 PROJECT SUMMARY

Name(s) Julia R. Solazzo	Project Number J1526
Project Title Should Your Basketball Be Green?	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals My objective was to learn if extreme climatic temperature changes would affect the bounce height and pressure of basketballs and if a recycled ball would perform as well as a synthetic or rubber basketball.</p> <p>Methods/Materials Materials and Equipment: Butcher Paper, Pump, Digital Pressure Gauge, Yard Stick, Sony camera-handycam, Tripod-magnum XL, Cooler, Thermometer, Turkey Bags, Ice, Hot Water, Rubber Basketball, Recycled Basketball, Synthetic Basketball Methods: All balls were placed in an area at room temp. for 2 hours. The room temp. was measured using a thermometer. The balls were all dropped from 10 feet individually and the height was measured by using a video camera. The balls were dropped 10 times, and in between each drop the pressure was measured. Then the balls were sealed in bags and put in a cooler filled with ice for two hours, and the process used above was repeated for dropping the ball. The same process was repeated when the balls were placed into hot water.</p> <p>Results Measurements: The raw data included 90 data points recorded for bounce height (cm) and 90 data points recorded for pressure (kgf/cm²). The raw data will be available for review at the science display. The "mean" results for bounce height and pressure across low (0C), ambient (22C), and high (48C) temps were: - Synthetic: low (181cm,0.509kg), ambient (214cm,0.597kg), high (224cm,0.657kg) - Rubber: low (201cm,0.534kg), ambient (225cm,0.599kg), high (240cm,0.676kg) - Recycled: low (195cm,0.502kg), ambient (225cm,0.599kg), high (238cm,0.646kg)</p> <p>Conclusions/Discussion With an extreme temperature change, the bounce height and pressure increased at the high temperature and decreased at the low temperature. However there was not a lot of variation across the balls. These results were consistent with the Ideal Gas Law ($PV=nRT$). Rubber balls were the least affected by the change of temperature, and the synthetic balls were the most affected. The affect on the recycled ball was less than synthetic and less than but similar to rubber. Since the recycled ball is better for the environment, and since its performance is better than or equal to other leading outdoor basketball types(synthetic and rubber), then...YOUR BASKETBALL SHOULD BE GREEN!</p>	
Summary Statement The project determines if recycled basketballs (better for the environment) perform as well as other balls.	
Help Received Father reviewed work as a mentor and videotaped; Mother assisted with board layout.	