



**CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY**

Name(s) Rachel J. Phalan	Project Number J0529
Project Title Nitrogen: The Gas of the Future	
Abstract Objectives/Goals This project was to see which gas could keep a balloon inflated the longest; Nitrogen, Helium or Compressed Air. This project was chosen to test Costco's advertisement that Nitrogen keeps tires inflated the longest. Costco also stated that Nitrogen increases the life of your tire, "it is safer and you get a smoother ride!" Methods/Materials Latex balloons were purchased in three different colors (purple, red and blue) to determine if color would not be a factor. 3 balloons of each color were filled with Nitrogen, Helium and Compressed Air. This produced three colors filled with Nitrogen gas, three filled with Helium and three filled with Compressed Air. Next, each set of balloons based on its gas was mounted on a white poster board. Visual observations and height measurements were taken of each balloon. The preliminary testing was used to determine the best measurement of testing. Helium was found to be a poor gas as it deflated quickly. Therefore, in subsequent testing, Helium was not included. The final testing took place over a four week period. Results Testing proved that Nitrogen was a better gas in keeping the balloons inflated at their fullest level as measured by the height measurements. Compressed Air was not bad but did deflate at a faster rate. Helium was found to be a very poor gas in these circumstances as a long lasting gas in balloons. Conclusions/Discussion Costco's advertisement claims proved to be true. Nitrogen gas was found to be the best gas for inflating balloons.	
Summary Statement This project was to determine which gas could keep a balloon inflated the longest; Nitrogen, Compressed Air or Helium.	
Help Received Dad drove me to Costco & Party City to fill balloons, helped in constructing the project & test methodology; Mom helped to proof-read my report; Ms Gross, my science teacher, provided proof-reading and direction; Costco Tire Center filled balloons with Nitrogen and Compressed Air.	