



**CALIFORNIA STATE SCIENCE FAIR
2004 PROJECT SUMMARY**

Name(s) Cori D. Holmes	Project Number S0104
Project Title Blunt vs. Tapered: Determining Which Creates the Most Drag	
Abstract Objectives/Goals The purpose of this experiment was to see which end of a rooftop cargo carrier, blunt or tapered, would most reduce drag when facing forward. The hypothesis is that when the cargo carrier is placed with the blunt end forward and the tapered end to the rear, it will reduce drag more than if the tapered end was facing forward. Methods/Materials A roof rack made of aluminum with roller blade wheels attached to reduce friction were used as a testing apparatus, with the cargo carrier placed on top were attached to the top of a jeep which was then driven down a long straight road. Measurements were made using a fish scale, which measured force in terms of pounds and ounces. The measurements were taken for a distance of one mile at 65 MPH. The pounds and ounces were later converted into Newtons. Results The average of all tests when the blunt end was facing forward was 72. 83115 Newtons. The lowest test was 65.73925 and the highest was 80.54177 Newtons. In the tests in which the tapered end was facing forward, the average force was 53. 87769 Newtons. The lowest test was 50.18459 Newtons of force and the highest was 57.72673 Newtons. Conclusions/Discussion Placing the cargo carrier with the tapered end forward would be better than if the blunt end was facing forward. The force in Newtons on the tests with the blunt end forward was almost 20 more Newtons than in the tapered end forward tests. My hypothesis was proven wrong in this experiment.	
Summary Statement To see which end of a rooftop cargo carrier, blunt or tapered, would most reduce drag when facing forward.	
Help Received Father helped with assembling testing apparatus and testing.	