



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Emily B. Schisler	Project Number J0121
Project Title How the Shape of a Parachute Affects the Average Descent Rate	
Abstract Objectives/Goals The purpose of this experiment was to determine which of four different parachute shapes of equal area demonstrated the slowest average descent rate. The hypothesis stated that if a circle, rectangle, square, and parallelogram parachute of equal area (400 square centimeters) are dropped from a height of 360 centimeters, the circle parachute would demonstrate the slowest average descent rate. The circle parachute should demonstrate the slowest average descent rate because its natural symmetrical shape would be the most efficient design to maximize wind resistance and create drag. Methods/Materials On December 10, 2006, four lightweight plastic parachutes were dropped in an inside area with no wind. Each parachute had four equally spaced 30 centimeter strings connected to a paperclip holding a three-gram washer as a weight. For each of the twenty trial drops, the average rate of descent was calculated using the Pythagorean Theorem and the distance/rate formula. Results The circle parachute had the slowest overall average descent rate of 134.88 centimeters per second, followed by the parallelogram parachute with an overall average descent rate of 141.72 centimeters per second. The square parachute had an overall average descent rate of 142.78 centimeters per second, and the rectangle parachute had the fastest overall average descent rate of 157.80 centimeters per second. Conclusions/Discussion It was concluded that the circle parachute demonstrated the slowest overall average descent rate, proving the hypothesis correct. Even though all four parachutes had the same surface area, the angles, corners, and dimensions caused the air molecules to create varying degrees of air resistance.	
Summary Statement This project is an investigation into which parachute shape (square, rectangle, parallelogram or circle) demonstrates the slowest average descent rate given that each parachute has equal surface area.	
Help Received My mother, Rosemary Schisler, helped with proof-reading and formatting of my report. Family friend, Paul Lechner, helped as volunteer assistant in the actual testing procedure and data collection.	