CALIFORNIA STATE SCIENCE FAIR
2005 PROJECT SUMMARY

Name(s)
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Project Number
J0118

Project Title
Faster Is Not Always Better

Abstract

Objectives/Goals
To determine what shape parachute (circle, square, rectangle, triangle or ellipse) will slow your fall down the best. I hypothesize that the circle shaped parachute will fall the slowest because there are no sharp angles or straight edges in the shape.

Methods/Materials
Materials: 6 sq. yds. rip stop nylon, 18 yd. drapery cord, (6) 1/2 ounce fishing weights, velcro adhesive squares, ruler, pencil, tape measure, scissors, ladder, stopwatch, calculator.
Methods: 1. Construct the 5 different shaped parachutes all with the same surface area and attach a 1/2 ounce fishing weight to each using drapery cord and velcro. 2. Perform the experiment indoors to eliminate wind as a variable. 3. Drop each of the 5 different shape parachutes and a 1/2 ounce weight alone as the control from a height of 18 ft. and time their fall. Do this 25 times and average the times. 4. Calculate the rate of fall by dividing 18 ft. by the average drop time and compare the results.

Results
The calculation of 18 ft/ave. drop time results were as follows: Square shape parachute dropped at 4.63 ft/sec; Rectangle at 4.70 ft/sec; Triangle at 5.36 ft/sec; Circle at 5.70 ft/sec; Ellipse at 6.00 ft/sec; Control weight alone at 21.18 ft/sec. The results show that the Square shaped parachute decreased the rate of fall of the weight the best and the ellipse parachute the worst.

Conclusions/Discussion
My experiment proved that the square shaped parachute decreased the rate of fall the best. My hypothesis that the circle shape parachute would fall the slowest was wrong. I believe the square shape was slowest because it has sharp corners and straight edges. This is probably a less aerodynamic shape and so it did not travel through the air as quickly.

Summary Statement
My project is about comparing 5 different shaped parachutes of equal surface area and their affect on the rate of fall.

Help Received
Dad helped calculate parachute sizes, Mother helped with poster board, Sister & Brother helped with testing.