Drop Zone Challenge
Event Rules

Goal:
To construct a parachute (using only the materials listed below) that will have the longest "hangtime" in seconds and best accuracy (closest to target) when dropped from a predetermined height.

Materials:
For each student/team:
1 sheet newspaper, 1 standard, metal, non-coated paperclip (3 - 5 cm), washers, 150 cm sewing thread, and 25 cm of standard width masking tape.

Procedure:
Each student/team will be provided with the materials and allowed at least 30 minutes to build and test their devices. After the building period, all devices must be impounded to prevent alterations!

Each student/team will have three trials. For each trial, the paperclip (antenna) must be at the drop height (between 2 and 5 meters). The time between the moment of release until the paperclip hits the floor will be the hangtime (in seconds). The distance from the paperclip to the center of the target (in centimeters) will also be measured for accuracy.

Scoring:
The best score for each student/team will be the one counted for competition. The highest score wins! Use the following formula for calculations:

Score = Hangtime (seconds) + (200 - distance from center (cm))

NOTE: If the distance is more than 200 cm from the drop zone, no score will be recorded for that trial.

• TOP SECRET • TOP SECRET • TOP SECRET • TOP SECRET •

Exploration, Inc., working with the military, has asked your company to develop a parachute delivery system for deploying a highly classified, mini-radar antenna to the ground from a high altitude airplane. The antenna works by bouncing distant radar beams downward and then reflecting the return echo back to the remote radar station. This enables the radar to "see" over the horizon and give officials a clear "map" of the unexplored area. Cleverly, they have designed the antenna to look and weigh the same as a standard paperclip.

Your company's job is to manufacture a parachute for the antenna using run-of-the-mill materials that will not arose suspicion in anyone finding the antenna (paperclip) on the ground after its deployment - they will assume some kid made it! Accuracy is a must to ensure the data transmitted gives a detailed image of the unexplored area. The chute's purpose is the slow the descent of the antenna to allow the longest radar contact. Your company's parachute will be test-dropped from a standard height. Its hangtime (release to landing) and distance from the target will be measured. The company producing a chute with the longest hangtime under load that is closest to the target upon landing will win the contract (and other perks) to produce the needed parachutes, creating thousands of new jobs in the region.

Military Specifications (Mil Specs):

The parachute must be constructed out of materials provided by the company, which includes a 30 centimeter square of plastic, a paperclip with attached washers (for testing) and 150 cm of thread (parachute shroud lines), and 25 cm of tape.

Good luck!
Carty O. Grapher, president
Exploration, Inc.

Minds are like parachutes ... they have to be open to work!

Drop Zone Score Sheet

Name(s) _____

TRIAL #	Hangtime (seconds)	Distance from Target (cm)	Final Score
1			
2			
3			

Drop Zone Score Sheet

Name(s) _____

TRIAL #	Hangtime (seconds)	Distance from Target (cm)	Final Score
1			
2			
3			

Drop Zone Score Sheet

Name(s) _____

TRIAL #	Hangtime (seconds)	Distance from Target (cm)	Final Score
1			
2			
3			