EGG DROP

DESCRIPTION:

Real Life Scenario:

The newspaper often carries and article about the need to rescue persons adrift at sea. Sometimes these persons are escaping persecution from a hostile government. Sometimes they have left a sinking vessel. At times such as this the ability to drop fragile vials of medicine or other supplies so that they fall gently into a life raft may be vital to the survival of the occupants.

Think of the egg as a fragile vial of medicine.

NUMBER OF PARTICIPANTS : 2 APPROXIMATE TIME: 60 Minutes

HOW TO COMPETE:

The device will be checked in to the drop site immediately upon the arrival at the competition. No additional alterations will be allowed after check in.

DESCRIPTION:

1. Design and build a device that will create enough drag to allow an unprotected egg to float gently downward to a target floating in the water.
2. Answer questions based on topics and vocabulary relating to the problem, such as:

drag
resistance
gravity
descent
preservation
parachute
gliding
lighter-than-air
precision

Suggested reading : Flying High by Nancy Mack;
Flying Machine : an Eyewitness Book
The Science Book of Air

SPECIFICATION:

1. The egg will be placed, UNPROTECTED, in a standard **3 ounce paper dixie cup** (if not met, participants will be disqualified from event)
2. The raft will be a standard flat styrofoam lunch tray.
3. No open flames may be used.
4. No alterations may be made to the Dixie Cup except that holes may be punched around the rim.
5. Parachute must be designed and made, if a student uses a plastic bag it must be altered in some way (same thing if a kerchief is used).

Reflection journal is required to be kept:

1. Students will be required to keep a reflection journal of at least 3 trials, record observations (time/hit target), and improvement needed.
2. Two trials can take place at home, 1 must be at school.

As part of building level competition only

A reflection journal can look like this:

Trial #	Observation (time/target)	Improvement Needed

NOT ALLOWED:
1. Balloons
2. Anything in the cup besides the egg
3. Any additions to the cup besides the holes around the rim
4. Anything extending below the cup before the device is dropped
5. Can not use an unaltered bag or kerchief (or any other product that is not altered)
6. There may be no strings, tape, straws, etc... on, inside, or across the top of the cup.

AT THE COMPETITION:

The team will hand the device to the "dropper" and tell them where to hold it for dropping.

NO PARENTS MAY TALK TO THE DROPPER (if parents give instructions the team will be disqualified) Make sure your kids know this, because it is always a problem at the district competition.

SCORING:

The winner will be determined by the team that has the highest number of total points. Points are broken up in the following manner:

Precision
- Hit the target (15 points)
- Miss the target but hit the pool (10 points)
- Miss the pool but hit within 3 foot radius of the pool edge (5 points)

Preserving the egg (10 points)
Time of descent (# of seconds multiplied by 2)
Score on the test (8 points)

The total is then taken by the sum of all four areas outlined above.

TIE BREAKER:
1. If there is still a tie, the device that has the longest time of descent will break the tie.