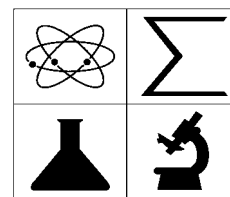


MESA DAY CONTEST RULES 2003-2004



Packaged Egg Drop

LEVEL:	High School
TYPE OF CONTEST:	Individual / Team
COMPOSITION OF TEAM:	1 – 2 students per team
NUMBER OF TEAMS:	5 teams per Center
SPONSOR:	Armando Rivera, Director, CSU Bakersfield MSP Center

OVERVIEW: Students will **design and construct** a container of restricted size, which will keep as many eggs as possible from breaking after a fall from a height to be determined by the Host Center.

MATERIALS:

LEGAL:

- **Large**, fresh, raw, white chicken eggs
- **Only paper-type tape or masking tape (non-reinforced of any width) can be used**
- **Parachutes or aerodynamic devices may be used permitting the parachute or aerodynamic devices passes freely in a 14-inch hoop at all angles before it is deployed**

ILLEGAL:

- "Treated" or hard-boiled eggs; rotten eggs
- Duct tape, "Scotch-type" tape
- Staples

The container may not contain any substance that will splatter including peanut butter, jell-o, liquids, fruits or vegetables (popcorn is okay), powdered soap, flammable substances of any kind or glass. Parachutes or aerodynamic devices are optional. You may construct a container without these devices.

RULES:

- 1) Students must design and construct a container. **Commercially constructed containers are not legal.**
- 2) Eggs may not be **"treated"** in any manner (e.g. hard-boiled as stated above, or by applying tape directly to the shell of the egg).
- 3) No more than one entry per team/person is permitted.

- 4) No linear dimension of a container shall measure more than 14 inches including diagonally. **The container and / or parachute or aerodynamic device (with eggs) must pass easily through a 14-inch diameter circular hoop when the hoop is turned at all angles, including diagonally. "Easily" is defined as not to change the circular shape of the hoop. The parachutes or aerodynamic devices may be used as long as it fits in a 14-inch hoop at all angles before it is deployed. One piece of legal tape may be applied to container while it is measured in the 14-inch hoop to prevent deployment. Judge will remove tape prior to dropping container. No one will be liable for the pre-deployment of container.**
- 5) All entries must be clearly and correctly labeled with entrant's name, school, MESA Center, and **number of eggs** within container. Any special instructions regarding, for example, how to drop the container must be clearly marked. Incorrectly labeled containers will be disqualified. Disqualified entries may be dropped at the discretion of the Host Center, time permitting.
- 6) Each entry should include a **legible** lab report which contains the following:
 - a) A list of three resources you used to help in the design of your container– this may include information about distance, time, velocity (average, initial and final) acceleration, potential energy, kinetic energy and work.
 - b) A list of materials you used to build your container.
 - c) A detailed diagram of your container.
 - d) Surface area and volume of the container using appropriate formulas with accompanying computations.
 - e) Procedures used in building your container.
 - f) Data collected during testing of your container.
 - g) Discussion of test results and reasons for design changes (if any).
 - h) Conclusion (why you chose this particular design).
 - i) Lab report scoring sheet.

JUDGING:

- 1) Specification Check:
 - a) Immediately upon submission for competition, the container receives a specification check to determine conformity to dimensions, materials, and construction rules. Any container that fails the specification check will be disqualified (container may not be modified for competition during or after specification check).
 - b) Judges **may disqualify** any entry if, in their opinion, the dropping of the container might create a safety hazard for spectators or property.
- 2) The container is weighed and its weight recorded.
- 3) Following the Specification Check, judges will review the Lab Report of each container that has passed the Specification Check.
- 4) A total of 4 points may be awarded for the Lab Report (0.5 point for each item listed in Rule # 7).
- 5) Containers will be dropped from a recommended height of 6 stories. An impartial party will release the container.

- 6) Containers will be opened after the drop and inspected to determine the number of survivors. Each region or (in the case of preliminaries) Center will determine who (competitors or judges) will open the containers.
- 7) Any egg broken, chipped, or cracked during extraction is considered a non-survivor.
- 8) Surviving eggs will be broken to ensure they are fresh and **not** hard-boiled or treated in any way.
- 9) When the number of surviving eggs has been determined, **a 0.25 deduction will be given for each egg in the container, the deduction will be taken from the number of surviving eggs and a score will be determined.** (e.g. 10 eggs in container: 2.5 deduction, 5 eggs surviving in container minus 2.5 deduction = score of 2.5; 8 eggs in container: 2.0 deduction, 3 eggs surviving in container minus 2.0 = score of 1).
- 10) Points received for the lab report will be added to the score computed in #9 above to determine a **final score.**
- 11) **The highest final score** will be the first criterion. If there is a tie among containers having the highest final score, the entry with the smallest number of eggs in the container wins. If a tie still exists after using the first tie-breaking criterion, the lightest container shall win.

AWARDS: Awards will be given for 1st, 2nd and 3rd place.

**OFFICIAL SCORING SHEET
PACKAGED EGGDROP 2003-2004
SENIOR HIGH SCHOOL**

STUDENT NAME(S) _____

SCHOOL _____ **CENTER** _____

For Judges Use Only

- | | | |
|---------------------------------------|-----------------|------------------------------|
| 1) Weight: | _____ | |
| 2) Is container legal? | Yes No | |
| 3) Are container contents legal? | Yes No | |
| 4) Was a lab report submitted? | Yes No | |
| 5) Number of survivors: | _____ | |
| 6) Deduction: | _____ | (# eggs in container x 0.25) |
| 7) Drop Score: | _____* | (# survivors – deduction) |
| 8) Lab Report Score:
(see reverse) | _____* | |
| 9) FINAL SCORE: | _____ | (lab report + drop scores) |

**OFFICIAL LAB REPORT SCORING FORM
PACKAGE EGGDROP 2003-2004
SENIOR HIGH SCHOOL**

Name _____

School _____

Center _____

LAB REPORT SCORING:

Each packaged egg drop entry should include a **legible** lab report that contains the following:

*** Each item is worth 0.5 points for a maximum total of 4 points.**

Item	Score
a) A list of 3 resources that were used to help in the design of the container – this may include information about distance, time, velocity (average, initial and final), acceleration, potential energy, kinetic energy and work.	
b) A list of materials used to build the entry	
c) A detailed diagram of the container	
d) Surface area and volume of the container using appropriate formulas with accompanying computations	
e) Procedures used in building the container	
f) Data collected during testing of the container	
g) Discussion of test results and reasons for design changes, if any	
h) Conclusion (Why this particular design was chosen.)	
Total Lab Report Score: (maximum of 4 points)	

PACKAGED EGGDROP SPECIFICATION CHECKLIST
HIGH SCHOOL 2003-2004

- 2003-2004 rules were followed
- Only paper-type tape or masking tape (non-reinforced) was used
- Entry passes freely through a 14-inch diameter hoop at all angles
- Container was designed and built by student(s)
- Entry contains no harmful substances
- Entry is clearly labeled with number of eggs and entrant's name, school and center
- A lab report is included with entry
- Lab report contains the 9 items listed in Rule #6
- I understand my entry may **not** be modified during or after the specification check
- The eggs in the container have not been treated in any way