MESA DAY CONTEST RULES 2019-2020

MESA THINK TANK

LEVEL: Grades 6-8

TYPE OF CONTEST: Team

COMPOSITION OF TEAM: 2-3 Students per team

NUMBER OF TEAMS: **Preliminary** – Determined by your MESA Center
Regional – 1 for 6th and 1 for 7th/8th

SPONSOR: Beatrice Prieto. Director, Fresno MESA Center

OVERVIEW: Have you ever wanted to pitch a MESA Competition to MESA staff/judges? Here is your chance! We are looking for a team that has an innovative STEM Competition that can be piloted in the next MESA Day Competition: **Participation logistics, limits, and competition facilities may vary by host site. Advisors and students are responsible for verifying this information with their center director.**

MATERIALS: The Host Center will provide the following:

- Projector
- Table
- Easel
- Laptop

The **student presenter will provide** the following:

- Physical competition prototype
- Visual Aid
- Written rules for their competition (3 hard copies, one for each judge)
- Hard copy of the itemized budget sheet with proper receipts and documentation.

GENERAL RULES:

Please Note Rules 1-6 MUST be met in order to present. Failure to meet will lead to no presentation time.

1) Competition must be safe for competitors and judges. If Competition or prototype is deemed unsafe by the judges, team may not proceed with presentation.
2) **Mus**t be a STEM related or a NAE Grand Challenge competition.
    a. NAE Challenges can be found at http://www.engineeringchallenges.org/
3) **Must** be original work of team. Commercial models/kits may not be used as a competition.
4) Competition Prototype **cannot** exceed 50cm x 50cm x 5ocm
5) Competition prototype **cannot** exceed $10.00.

6) **Must** have a physical competition prototype and Rules for competition **must** be written (Computer generated) and include: overview of competition, list of materials, general rules, and mathematics principles related to project and judging guideline. Hard copy of rules must be provided to judges (3 copies in total one for each judge)
7) Rules for competition should include 2 pure math concepts and 2 applied math problems
8) Teams should include a completed itemized budget sheet of their prototype with their rules. Teams should have proper documentation to support each and every price listed in-case of discrepancies; documentation can be a store receipt or print out of on-line retail prices.
    a. The budget should include a list of each and every part and/or material of the prototype and its corresponding unit dimensions, retail price, price per unit, quantity used, total cost and retail source.
    b. All parts received through barter, trade, donation, recycling, etc. should be included in the itemized budget. Retail prices for these items should be researched and documented.
    c. Receipts or documents should be submitted with Itemized budget sheet.
9) Teams should be ready to demonstrate how competition works at presentation.
10) Teams should have a visual aid showing how they incorporated the engineering design process.

PRESENTATION AND VISUAL AID:

1. Items to consider in presentation:
    a. Introduction
        i. Introduce your team and your competition
    b. State which STEM field or NAE Grand challenge was applied (only if it applies)
    c. Demonstrate how your competition will be run at a MESA Day competition.
        i. The demonstration can be done physically during the presentation or can be shown on video.
2. Items to consider for visual aid
    a. Could be a power-point, a handout or poster board, etc..
    b. Should be easy to follow and read
    c. Should include steps of the engineering design process to achieving your competition.
        i. Identify the problem
        ii. Explore
        iii. Design
        iv. Create
        v. Try it out
        vi. Make it Better

JUDGING:

1. Judges will assemble all competing teams of students in the assigned room, clarify any rules if needed, clarify inspection and scoring sheet if needed, and answer any related questions.
2. Judges will determine team order by random drawing and will post the team order prior to the start of competition.
3. All Team members **MUST** be present when called. If **ALL** team members are not present when called, team will not be allowed to present and will receive 0 points.
4. Team must give a maximum of two-minute pitch presentation. A 30 second follow-up of questions will be given by judges.
5. Students will be given one minutes to setup before presentation
6. Students should give each judge (Maximum of three judges) a copy of your written rules.
7. Students should give each judge (Maximum of three judges) a copy of their itemized Budge Sheet.
8. Only judges, appointed staff and competing teams will be allowed in the room.

9. Judges will provide time signals for students at these intervals: One (1) minute, Thirty (30) seconds, and Five (5) seconds.

AWARDS:

- Medals will be awarded per grade level: 6^{th} (1^{st}, 2^{nd}, 3^{rd}) and 7^{th}/8^{th} (1^{st}, 2^{nd}, 3^{rd})

ATTACHMENTS/APPENDIX:

Inspection and Scoring Sheet
Sample of Rule Layout
Itemized Budget Sheet (you may choose to use your own layout)

MESA Tank

Inspection and Scoring Sheet

Student Names:_____
School:_____
MESA Center: _____

Section below to be completed by Judges

Inspection List: Must pass inspection with all yes to be allowed to present.	**Yes**	**No**
Competition prototype is safe for judges and competitors		
Competition prototype is STEM or a NAE Grand Challenge		
Competition prototype is original work and NOT a commercial model or kit		
All parts of competition prototype does not exceed 50cm x 50cm x50cm area		
Competition prototype does NOT exceed the $10 pre-tax limit		
A physical Competition prototype and 3 sets of rules are provided		

Part I: Competition Rules

Rate the rules on each point (Please circle the points earned)

Overview of Competition is clearly stated	5	4	3	2	1	0
List of Materials is included	5	4	3	2	1	0
General Rules are clearly stated	5	4	3	2	1	0
Judging guidelines are clearly stated	5	4	3	2	1	0
2 Math Concepts are included	5	4	3	2	1	0
2 applied math problems are included	5	4	3	2	1	0
Rules are easy to understand and follow	5	4	3	2	1	0
Total Points						

TOTAL POINTS for Part I:_____

Part II: Itemized Budget Sheet

Rate sheet on each point (Please circle the points earned)

Calculations on Itemized budget sheet are **ALL** correct	10	0
ALL materials are included in budget sheet and have proper documentation	10	0
Total Points		

TOTAL POINTS for Part II: _____

Part III: Presentation

Rate the presentation on each point: (Please circle the points earned)

Introduction gained attention and interest			2	1	0
Prototype of project competition demonstrated	4	3	2	1	0
Clearly explained the process of how competition will be judged	4	3	2	1	0
Total Points					

TOTAL POINTS for Part III: _____

Part IV: Visual Aid

Rate the visual aid on each point: (Please circle the points earned)

Visual aid is easy to follow and read	5	4	3	2	1	0
Overall Engineering Design Process is clearly outlined:						
Goal is clearly stated	5	4	3	2	1	0
Brainstorm and research clearly stated	5	4	3	2	1	0
Diagrams, sketches of prototype included	5	4	3	2	1	0
Steps of how project completion was tested are clearly stated	5	4	3	2	1	0
Improvements and changes are included	5	4	3	2	1	0
Total Points:						

TOTAL POINTS for Part IV: _____

TOTAL POINTS FROM PARTS I-IV: _____

Label Penalty_____

Deduct 10 points if demo and rules are not clearly labeled with student names, grade, school and MESA Center

GRAND TOTAL_____

Maximum Points is 95

MESA Mathematics Engineering Science Achievement

MESA TANK

RULES FORMAT SAMPLE

Name of Competition

Student Names: _____Grade: _____ **SCHOOL:_____**

_____Grade: _____ **CENTER: _____**

_____Grade: _____

OVERVIEW:
This section is designed to give a *brief* overview of the contest. It's encouraged to use technical language, such as *design, construct, build, etc.* This should be no more than 2-3 sentences at most.

MATERIALS: List all legal/illegal materials here as necessary. This should be in bullet form and with as much specific details as possible.
i.e. Large, fresh, raw, white, chicken eggs
i.e. "Victor" brand standard-size mousetrap

GENERAL RULES:
Rule #1
Rule #2
Rule #3
As many rules as necessary
Note: The rules in this section should primarily pertain to the construction of the device, model, etc. as well as the rules for academic components such as **applied mathematics principle**.

JUDGING:
Rule #1
Rule #2
Rule #3
As many rules as necessary
Note: The rules in this section should primarily pertain to judging and event procedures, as well as explanation and samples of any scoring formulas that will be used.

AWARDS:
Define what places will be awarded

- If there are multiple categories (i.e. Distance, Creativity), define which category advances to regional competition.

ATTACHMENTS/APPENDIX:

- Name of Attachment #1
- Name of Attachment #2

This section is for additional documents or appendix items that aren't necessarily rules, but provide further details that may add clarity to the rules.

Examples are:

- Diagrams/pictures of what a legal joint is versus an illegal one
- Track/contest area specifications
- Scoring Rubric
- Specification Checklist Guide: **Note-** If you include this, please add a statement that defines this list as simply a guide for students, and not an official judging document.

If you do not have any additional Attachments, *simply omit this section altogether.*

MESA Tank Itemized Budget Sheet Sample

School: _____ **Center:** _____

Student Name: _____ **Grade:** _____

Student Name: _____ **Grade:** _____

Student Name: _____ **Grade:** _____

Part	Unit Dimension	Retail Price	Price per Unit	Quantity Used	Total Cost	Retail Source
				TOTAL COST		