



# MESA DAY RULES 2019-2020 (FINAL)

## MESA Think Tank

- LEVEL:** Middle School
- DIVISION(S):** Grade 6<sup>th</sup> and Grades 7<sup>th</sup>/8<sup>th</sup>
- COMPOSITION OF TEAM:** 2-3 Students per team
- NUMBER OF TEAMS:** Preliminary – As determined by your local Center  
Regional – one team per division per Center
- SPONSOR:** University of the Pacific MESA College Prep
- 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 and HDMI, VGA and mini DisplayPort cables
  - Table
  - Easel
- The **student presenter will provide** the following:
- Prototype of project competition
  - Laptop and charger if needed
  - Visual Aid
  - Written rules for their competition (3 hard copies, one for each judge)
- GENERAL RULES:**
- 1) Teams **must** properly label their rules and prototype with names of all students on team, grade level, school, and MESA Center. A 10% penalty in the score will be assessed for failing to properly label.
  - 2) Project competition must be safe to participants, judges, and audience. If project competition or prototype is deemed unsafe by the judges, team may not proceed with presentation and will be scored up to that point.
  - 3) **Must** be a STEM related or a NAE Grand Challenge competition.
    - a. NAE Challenges can be found at <http://www.engineeringchallenges.org/>
  - 4) **Must** be original work of teams. Teams may not reuse project rules or supporting materials from past projects or other teams. Commercial models/kits may not be used as a competition.
  - 5) Prototype of project competition and visual aid (or digital presentation) should be completely built and ready. Visual aids and prototypes will not be retained and will be returned to students after judging if possible.

- 6) **Must** be ready to demonstrate how project competition works at presentation.
- 7) Project competition **prototype** cannot exceed 50cm x 50cm x 50cm. Judging equipment can be larger, but within reason.
- 8) Teams **MUST** include the price of their prototype in their visual aid with a brief description of materials used. It must be clear for judges to see.
  - a. While there is no specific limit, teams will be scored on cost feasibility of the prototype.
  - b. Project evaluation equipment (e.g., bridge breaker, glider launcher) does not need to be included in price list and price of this equipment will not affect final score.
- 9) 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).
- 10) Rules for competition **must** include two math concepts (e.g., lift, force, distance, etc.) and apply each of them to the competition with an example.

### **PRESENTATION GUIDELINES:**

- 1) Must include introduction of the problem.
- 2) State which STEM field or NAE Grand challenge was applied (only if it applies).
- 3) Must have actual prototype of the competition.
- 4) Must provide a visual aid (e.g., power-point, a handout, poster board, etc.).
  - a. Visual aid must include the steps of the engineering design process to achieving your competition.
- 5) Demonstrate how your competition will be judged.
- 6) The presentation should not be a reciting of the competition rules. It should be a pitch to sell the judges on why the team's competition is important and relevant. The pitch should be engaging and show how the team's competition stands out.

### **JUDGING:**

- 1) Judges will assemble all competing teams of students in the assigned room, read the rules, explain procedures, clarify judges' scoring criteria, and answer any related questions.
- 2) Judges will determine team order by random selection and will post the team order prior to the start of competition. If a team is not there in time to draw random order, they will not be allowed to compete.
- 3) If a team is called twice to present and is not there within 30 seconds, they will not be allowed to present.
- 4) Students will be given one minute to setup before presentation.
- 5) Team must give a maximum of two-minute pitch presentation. After the two-minute mark, teams will be stopped and will not be allowed to present over the two-minutes. A 30 second follow-up of questions will be given by judges.
- 6) Students must give each judge (maximum of three judges) a copy of your written rules.
- 7) Only judges, appointed staff, and competing teams will be allowed in the room.
- 8) Judges will provide time signals for students at these intervals: One (1) minute, Thirty (30) seconds, and Five (5) seconds.
- 9) There should be three judges present, with a minimum of two. Judging scores will be averaged to determine final scores.

### **AWARDS:**

- Medals will be awarded for 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> place per division: Grade 6<sup>th</sup> and Grades 7<sup>th</sup>/8<sup>th</sup>
- Only 1<sup>st</sup> Place in each division will advance to Regional/State MESA Day.

### **ATTACHMENTS:**

- Middle School Inspection & Scoring Sheet
- Itemized Budget Sheet Sample

MESA DAY CONTEST RULES 2019-2020 **(FINAL)**

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These rules are for the internal use of MESA staff and teachers only and should not be forwarded or used outside of MESA.

## Middle School Inspection and Scoring Sheet

Student Names: \_\_\_\_\_

Grade (circle one):            6                            7/8

School: \_\_\_\_\_

MESA Center: \_\_\_\_\_

Section below to be completed by Judges

<b>Inspection List:</b>	<b>Yes</b>	<b>No</b>
Rules and prototype properly labeled (10% deduction if not). .....	_____	_____
3 sets of rules are provided along with the project prototype .....	_____	_____
Project prototype is safe for judges and competitors .....	_____	_____
Project prototype is STEM or a NAE Grand Challenge .....	_____	_____
Project prototype is original work and NOT a commercial model or kit .....	_____	_____
All parts of project prototype fit in 50cm x 50cm x50cm area .....	_____	_____

**Part I: Competition Rules** *(Rate the rules on each point)*

1. Overview of Competition is clearly stated	5	4	3	2	1	0
2. List of Materials is included	5	4	3	2	1	0
3. General Rules are clearly stated and easy to follow	5	4	3	2	1	0
4. Judging guidelines are clearly stated	5	4	3	2	1	0
5. Two math concepts are included (2pts each)		4	3	2	1	0
6. Both math concepts are applied (2pts each)		4	3	2	1	0
7. Project is feasible as a MESA day competition	5	4	3	2	1	0

TOTAL POINTS \_\_\_\_\_

**Part II: Presentation** (*Rate the presentation on each point*)

1. Introduction gained attention				2	1	0
2. Prototype of project competition demonstrated	4	3	2	1	0	
3. Clearly explained the process of how competition will be judged	4	3	2	1	0	
4. Presentation was interesting and engaging	4	3	2	1	0	

TOTAL POINTS \_\_\_\_\_

**Part III: Visual Aid** (*Rate the visual aid on each point*)

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

**Part IV: Cost Feasibility** (*may be in visual aid or included with rules*)

1. What is the price range of the prototype?						
a. \$0 - \$10						10
b. \$10.01 – \$20						3
c. \$20.01 –UP						0

TOTAL POINTS: \_\_\_\_\_

Label Penalty: \_\_\_\_\_

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

**GRAND TOTAL** \_\_\_\_\_

## Itemized Budget Sheet Sample

Product	Retail Price	Price per Unit	Quantity Used	Total Cost	Retail Source (where you purchased the item)
<b>Total Cost:</b>					

*Note: For items that were part of a package or do not have an individual retail price (for example: a soda bottle cap), you can try to find an estimated price via Google or you can estimate the price based on what you think it may cost.*