



MESA DAY RULES 2020-2021 (DRAFT)

MESA Think Tank: Sustainability Challenge - **Virtual**

- LEVEL:** High School
- DIVISION(S):** Grades 9/10 and Grades 11/12
- COMPOSITION OF TEAM:** 1-3 students per team
- NUMBER OF TEAMS:** Preliminary – Determined by your local MESA Center
Regional – one team per division per Center
- SPONSOR(S):** University of the Pacific MESA College Prep
University of California Davis MESA College Prep

OVERVIEW: Are you interested in environmental sustainability, environmental justice, or eco-environmental changes? Are you able to showcase the interconnectedness of the environment, local communities or global societies? Here is your chance! We are looking for a team that has an innovative pitch that incorporates **environmental sustainability** as a STEM Competition that includes a prototype, rules and digital presentation for MESA Day. **This competition is virtual for 2020-2021. Contact your local MESA Center for submission instructions.**

Potential project areas could include:

- Renewable energy sources, such as wind and solar.
- Biodiversity preservation, like protecting endangered plants and animals.
- Environmental justice examples include inadequate access to healthy food, inadequate transportation, air and water pollution, and unsafe homes
- Natural resource conservation, like fresh water and reducing soil erosion.
- Climate change mitigation and climate resilience
- Reducing air, ocean and plastic pollution
- Agricultural sustainability such as reducing reliance on chemicals and improving ecosystem services such as healthy pollinators.

Check out the UN Sustainability Goals or NAE Grand Challenges for Engineering for more great project topics!

- <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>
- <http://www.engineeringchallenges.org/>

Participation logistics and limits may vary by host site. Advisors and students are responsible for verifying this information with their Center Director.

- MATERIALS:**
- Presentation (Conference call video file – Zoom, Big Marker, Microsoft Teams and WebEx are all acceptable)
 - Written rules for competition (to be turned digitally)
 - Project prototype (to be demonstrated during presentation)

GENERAL RULES:

- 1) **All projects should** be related to the topic of environmental sustainability.
- 2) Project competition should be safe for participants. If project competition or prototype is deemed unsafe by the judges, the team may not place at judges' discretion.
- 3) **Should** 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.
- 4) All projects should have the three following elements:
 - a. A set of competition rules,
 - b. A video presentation file, and
 - c. A project prototype that is safe and functioning.

Competition Rules

- 5) Rules for competition should be written (i.e., computer generated) and include the following sections (see *Attachment B – Rules Format* for details):
 - a. Title
 - b. Student Information
 - c. Overview
 - d. Materials
 - e. General Rules
 - f. Judging
 - g. Awards
 - h. Attachments/Appendix
- 6) A digital copy of the rules should be turned in prior to the competition.
- 7) Rules for competition **should** include TWO math concepts (e.g., lift, force, distance) and the application of the two concepts to the competition with an example each (i.e., one example for Concept 1 and one example for Concept 2).
- 8) Teams **should include the price of their prototype** with their rules document and include a brief description of materials used. Teams should use *Attachment C - Itemized Budget Sheet*.
 - a. While there is no specific limit, teams will be scored on cost feasibility of the prototype.
 - b. Project evaluation equipment (e.g., bridge tester, glider launcher) does not need to be included in the price list and the price of this equipment will not affect final score.

Presentation

- 9) Should be a video file generated with Zoom (or alternative conference call software). Zoom video files may be created by individual competition teams or with the help of the MESA advisor or local MESA center. Check with your MESA center about how Zoom video files will be collected. For help creating your film via Zoom, see *Attachment D: How to Film your MESA Tank Presentation on Zoom*.
- 10) Presentation video should be no longer than **5 minutes** (maximum). Videos that go over 5 minutes in length will receive a 10% penalty.
- 11) Presentation should use a digital slide sharing visual aid (such as PowerPoint or Google Slides) in their presentation
- 12) Should include introduction of the sustainability topic and state how the competition relates to environmental sustainability.

- 13) Should include the steps of the engineering design process (i.e., goal, brainstorm/research, diagrams/sketches, testing, and improvements/changes) to achieving your final competition pitch.
 - a. The steps should be included in the digital slide sharing visual aid.
- 14) The presentation should not be a reciting of the competition rules. It should be a pitch trying to sell the judges on why your team’s competition is important, relevant and unique. The pitch should be engaging and show how the team’s competition stands out.

Prototype

- 12) **Should** be used to demonstrate how project competition works during presentation.
- 13) Judging of the competition should be explained in relation to the prototype. Make sure to point out essential and/or illegal elements of a competition-ready project.

JUDGING:

Judging procedures and deadlines may vary by Center. Please make sure to review any addendums or additional guidelines issued by your local MESA Center.

- 1) Teams should turn in competition rules and presentation video to their MESA Center (**date to be determined by your local MESA Center**). For teams going on to regionals, submission instructions will be provided by your local MESA Center.
- 2) Rules and presentations will be judged by 3 judges. Judging scores will be averaged to determine final scores.
- 3) Rules and presentations will be judged according to the judging rubric (see *Attachment A – Specification and Score Sheet*). Presentation judging will include the judging of the video presentation, visual aid and prototype.
- 4) With the exception of the 10% penalty in General Rule 10, all other “No” answers on the Inspection List of Attachment A – Specification and Score Sheet will disqualify teams from placing in local and regional competitions. Please note that this includes that all team members are present and active in the video presentation of their project.
- 5) Local competitions will be judged based on their presentation video and rules.
- 6) Regional competitions reserve the right to schedule follow up calls with teams to clarify any questions relating to their projects; judges and the local MESA Center Director will make every effort to accommodate teams; however, failure to respond to inquiries may result in disqualification.

AWARDS:

- Awards will be given per division: Grades 9/10 and Grades 11/12.
- Medals will be awarded for 1st, 2nd, and 3rd place.
- Only 1st Place team in each division will advance to Regional/State MESA Day.

ATTACHMENTS/APPENDIX:

- A – Inspection and Scoring Sheet
- B – Rules Format
- C – Itemized Budget Sheet
- D – How to Film your MESA Think Tank Presentation on Zoom

**A – SPECIFICATION AND SCORE SHEET FOR
MESA THINK TANK: SUSTAINABILITY CHALLENGE
High School – Grades 9/10 and Grades 11/12**

MESA Center: _____ Student 1: _____ Grade: _____

School: _____ Student 2: _____ Grade: _____

Student 3: _____ Grade: _____

Section below to be completed by Judges

INSPECTION LIST:	YES	NO
Length of presentation recording is no longer than 5 minutes (10% deduction)	<input type="checkbox"/>	<input type="checkbox"/>
Project prototype is safe	<input type="checkbox"/>	<input type="checkbox"/>
Project topic is related to environmental sustainability	<input type="checkbox"/>	<input type="checkbox"/>
Project is original work and NOT a commercial kit or repeat from prior year	<input type="checkbox"/>	<input type="checkbox"/>
All members of team participated in the presentation video	<input type="checkbox"/>	<input type="checkbox"/>

Competition Rules (*Rate the rules on the below criteria.*)

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 and defined.				2	1	0
6	Two math concepts are relevant to competition and correctly applied.		4	3	2	1	0
7	Project is feasible as a MESA Day competition.	5	4	3	2	1	0
8	What is the price range of the prototype? (0 to 9 points)						
	a. \$0 to \$10.00						9
	b. \$10.01 to \$20.00						3
	c. \$20.01 and above						0
	TOTAL POINTS for Competition Rules (out of 40)						

Presentation (*Rate the presentation on the below criteria.*)

1	Introduction gained attention.				2	1	0
2	Introduces sustainability topic and its importance.	5	4	3	2	1	0
3	Explains how competition relates to sustainability topic.	5	4	3	2	1	0
4	Competition idea is unique and creative.	5	4	3	2	1	0
5	Presentation was interesting and creative.	5	4	3	2	1	0
6	Prototype of project competition demonstrated.		4	3	2	1	0
7	Prototype was achievable, functional, and well-constructed.		4	3	2	1	0
8	Judging process explained.	5	4	3	2	1	0
9	Presentation visual aid is easy to follow and read.	5	4	3	2	1	0
10	Visual aid clearly outlines the engineering design process as follows:						
	a. Goal of the competition is clearly stated.				2	1	0
	b. Brainstorm and research is clearly stated.				2	1	0
	c. Diagrams and sketches of prototype are 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
	TOTAL POINTS for Presentation (out of 50)						

Penalty: _____

Deduct 10% deduction if presentation goes over 5-minute length limit.**GRAND TOTAL:** _____**Maximum Points of 90**

B – RULES FORMAT
MESA THINK TANK: SUSTAINABILITY CHALLENGE

Below are the sections teams should include in their competition rules. Teams may use the “MESA Think Tank Rules Template.”

- 1) Title of Competition
- 2) Student Information
 - a. Student Names
 - b. Grades
 - c. School
 - d. MESA Center
- 3) Overview
 - a. This section is designed to give a brief overview of the competition with two to three sentences. Teams should use technical language, such as design, construct, build, etc.
- 4) Materials
 - a. List all legal and illegal materials. This should be in bullet form and with as much specific details as possible.
- 5) General Rules
 - a. Enumerate rules and include as many rules as necessary. The rules in this section should primarily pertain to the construction of the device, model, etc.
 - b. Include two math concepts that are applicable to your project (e.g., lift, force, distance). Define the concepts with their equation and then apply the two concepts to the competition with an example each.
- 6) Judging
 - a. Enumerate the judging process and include as many judging rules as necessary. The judging rules in this section should pertain to judging and event procedures, as well as explanation and samples of any scoring formulas that will be used.
- 7) Awards
 - a. Define what awards will be awarded. If there are multiple categories (e.g., Distance, Creativity), define what category advances to the regional competition.
- 8) Attachments/Appendix
 - a. This section is for additional documents or appendix items that are not necessarily rules, but provide further details that may add clarity to the rules and/or judging procedures. If your team does not have any additional Attachments, simply omit this section altogether. Examples include:
 - i. Diagrams/pictures of what a legal joint is versus an illegal one
 - ii. Track/context area specifications
 - iii. Scoring Rubric
 - iv. Specification Checklist Guide

C – ITEMIZED BUDGET SHEET
MESA THINK TANK: SUSTAINABILITY CHALLENGE

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

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.

D – HOW TO FILM YOUR MESA THINK TANK PRESENTATION ON ZOOM* **MESA THINK TANK: SUSTAINABILITY CHALLENGE**

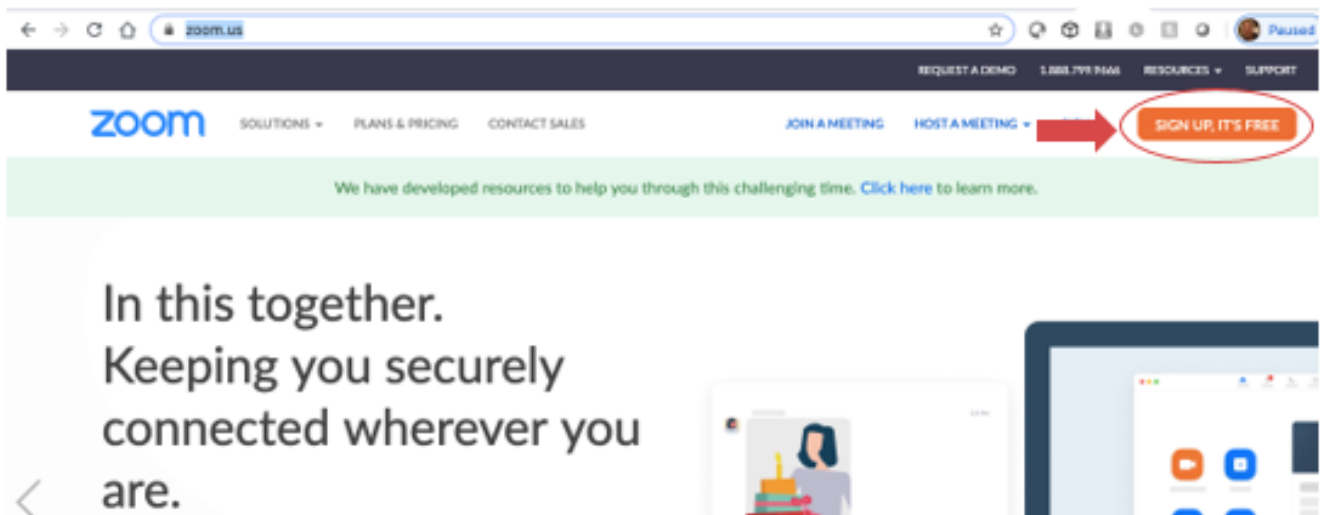
* Note that your team may use conference call video and audio such as Zoom, Big Marker, Microsoft Teams or WebEx to film/record your presentation. Instructions on using Zoom are provided here. Contact your MESA Advisor or local MESA center for help with other platforms.

To film your MESA tank presentation via zoom you can read through the following instructions or check out these videos:

How to create a free Zoom account: <https://www.youtube.com/watch?v=gsy2Ph6kSf8>

How to film your Zoom meeting: <https://www.youtube.com/watch?v=WmMSXOQVQs4>

1. **Create your free Zoom Account:** To do this first go to <https://zoom.us/>. Once there click in the upper right-hand corner on “SIGN UP, IT’S FREE”.



2. Next you will be asked your birthdate. You must either select a birthdate older than **August 1st, 2004** or create your account with a parent or older sibling.

Sign Up Free

Your work email address

elana.ip@gmail.com

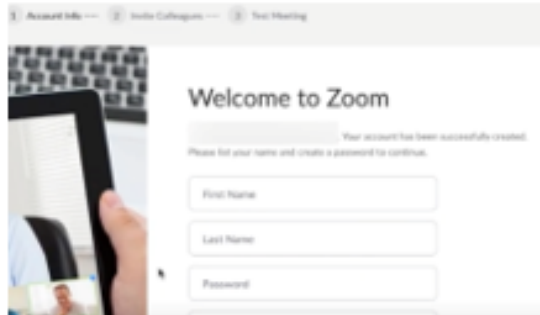
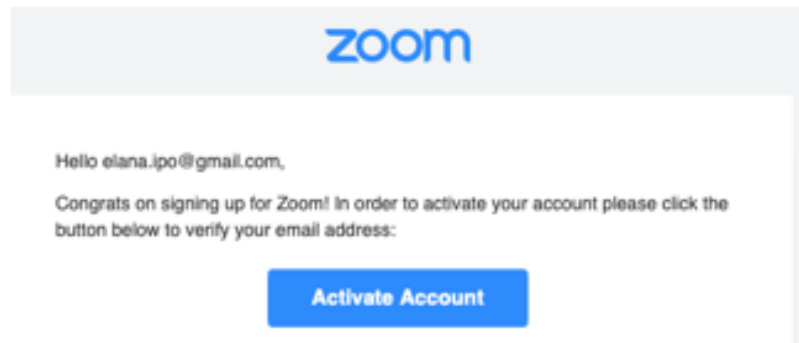
Zoom is protected by reCAPTCHA and the [Privacy Policy](#) and [Terms of Service](#) apply.

Sign Up

Already have an account? [Sign in.](#)

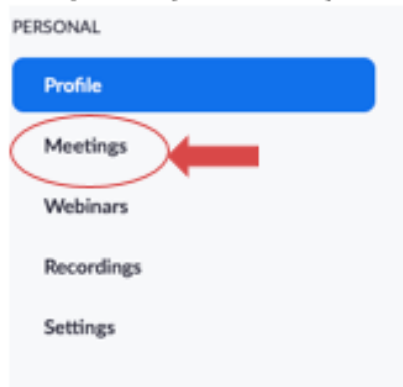
3. Enter your email address, this should be your personal email address-not your school district email because the zoom confirmation emails may likely be blocked.

4. You will then be sent a zoom confirmation email to your entered email address. Open your email and that message to activate account.

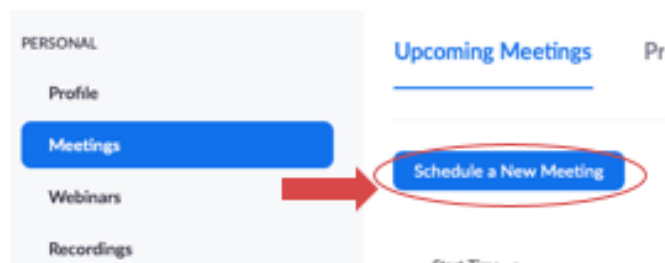


5. To finish creating your account enter your first name, last name, password and password confirmation. Once you press continue, your account should be set up.

6. **Scheduling your meeting:** First sign into your new zoom account. The page should open to your zoom profile. From there click on "meetings" to start a new meeting.




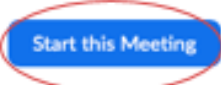





7. Once in meetings, select "schedule a new meeting"



8. Create your meeting at a time and date when your whole team can join you. To make things easier for your teammates, make sure to pick an easy password for your meeting like "MESA". Also, you can click "Enable join before host" so that your teammates can get onto the call without you letting them in one by one through the waiting room.

9. This new scheduled meeting will now show up in your meeting list as seen below. You can copy and share the meeting invitation with your teammates by selecting, “share invitation” and then pasting the invitation into an email to your teammates.

My Meetings > Manage "Elana's MESA Tank Meeting"

Topic	Elana's MESA Tank Meeting	 
Time	Jul 6, 2020 03:00 PM Pacific Time (US and Canada)	
Add to	  	
Meeting ID	747 3606 0781	
Meeting Password	***** Show	
Invite Link	https://us04web.zoom.us/j/74736060781?pwd=SGJOUWNldzNU5kpDQmIDTmdwU0VUZz09	 

10. When you are ready to start your meeting, go to your meetings menu when you log in and press “Start this Meeting” as underlined in the the above picture. If you’ve never held a meeting before you will need to take a few minutes to download zoom on your computer when you start your meeting. Follow all the prompts to successfully download.



11. Filming your meeting:

When you start your meeting your screen should look something like this. Make sure to locate the tool bar at the bottom of the screen. You may need to hover over it with your mouse for it to appear.



Zoom Meeting Participant ID: 252798

Meeting Topic:	Elana's MESA Tank Meeting
Host:	Elana Peach-Flint
Password:	MESA
Numeric Password:	422813
(Telephone/floor systems)	
Invite Link:	https://us04web.zoom.us/j/74736060781?pwd=SGJOUWNldzNU5kpDQmIDTmdwU0VUZz09
	 Copy Link
Participant ID:	252798

Join Audio Share Screen Invite Others

12. In the tool bar, select start video, join audio and share screen. Only you (the person with the zoom account) will be able to share your screen, but all the other members of your team can see your shared screen so they can present the presentation as well.

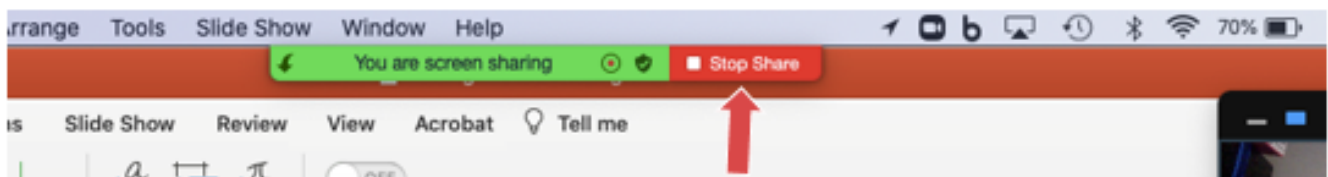


13. From the “Share Screen” menu make sure to select the screen that you would like to share, whether that is PowerPoint, your browser with Google slides or some other program.

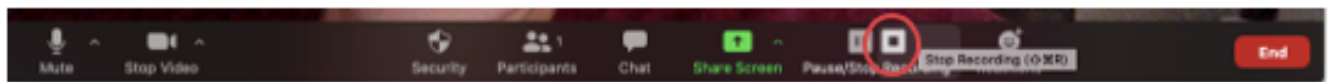
14. When you have your presentation up and all team members present on your call press “Record” to start your presentation recording.



15. When you finish presenting your slides and want to show your prototype, make sure to “Stop Share”, at the top of your zoom screen. Any member of your team can share your prototype.



15. When you finish everything, press “stop recording”.



16. Your recording file will be converted to an MP4 file when you finish your recording and will be saved to your computer. You can send this file to your MESA center or advisor for submission. Your recording should be no longer than **5 minutes maximum**.

Good luck!