



**Math · Engineering · Science**  
**Achievement**

National Engineering Design  
Competition

OVERVIEW

# Summary

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Teams must include 2-4 team members

Four components to competition

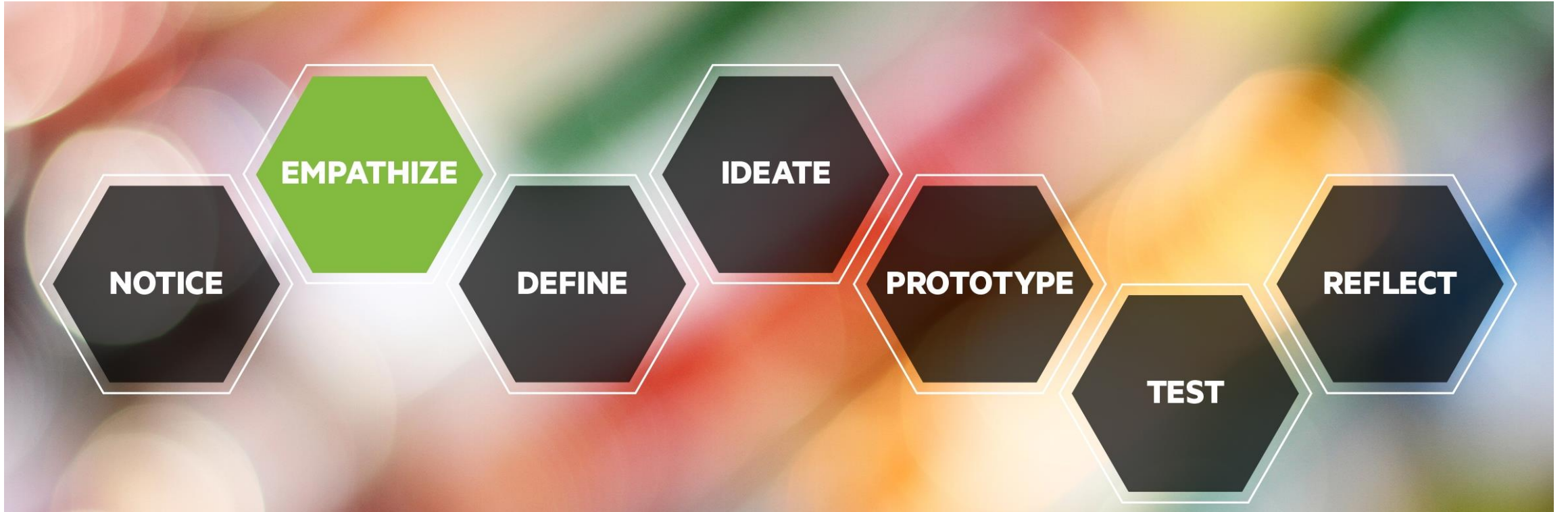
- Design Brief (50 points)
- Technical Presentation and Interview (100 points)
- Poster Symposium (75 points)
- Prototype Pitch (100 points)

Students can earn a total of 325 points

Competition will be in person for 2022-2023 academic year. Please check with center directors for Prelim and Regional dates.

State competition will be held May 20, 2023 in-person and will be hosted by MESA San Diego State University.

National Competition will be New Mexico the week of June 26-30, 2023



# Designing for Equity in YOUR Community

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# Competition Components

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DESIGN  
BRIEF

PROTOTYPE  
PITCH

TECHNICAL  
INTERVIEW

POSTER  
BOARD

## Design Brief Template

- Must be used by teams and provided in the rules
- When submitting template is **MUST** be saved as a PDF

## Requirements

- Identify the inequity being addressed
- Understand the target user challenges
- Project goal
- Provide a general idea of prototype and key features
- Current status of the project
- Expected impact on user
- Reflect on team's experience implementing Human Centered Design Process

## Design Brief

Provide a brief non-technical overview of entire project

# Project Pitch

Teams will have 3-5 minutes to present pitch

Should not be technical (technical information should be discussed in technical interview)

WE WANT STUDENTS TO FOCUS MORE ON

Showcasing “Design for Equity” elements and how the users needs are met

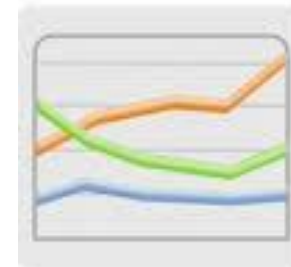
Here is an example: <https://youtu.be/5iKitGJeAZ4>

# Poster Board

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- ❖ Provide overview of the project
- ❖ Design process
- ❖ Testing and data collection
- ❖ Prototype
- ❖ Recommendations for further development

Poster boards will be submitted electronically at National competition and will be printed by host site. Please communicate with MESA directors for submission instructions for Prelims and regionals.



# Technical Presentation and Interview

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Teams will have 10 minutes to give technical presentation

Teams will have 10 minutes for question from judges

Teams demonstrate knowledge of project

Discuss the design process

- Research

Discussion of mechanical and software operations

ONLY POSTER BOARD AND DESIGN BRIEF ARE ALLOWED



# Coding Component

Teams may use a microcontroller of their choice

Teams can create an app

Teams can create a website

Teams must use some form of coding in their project. Example of codes include but not limited to: HTML, Java Script, python, C++. . .

# Examples of Previous projects

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<https://nedc.mesausa.org/>

Examples of 2022 and 2021 teams who competed can be found in MESA USA website. You will be able to view Pitch presentation, poster and Design Brief

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involve high  
mix, this creates a  
and create an enormous  
ospitalization and since  
e, the costs are very high  
ese workers by ensuring  
f heat-stroke.



TEAM MEMBERS: Bella Rose, Bethany Fumar, Natalia Cortez, Yaretzi Costilla-Gutierrez

TEAM ADVISOR(S): Susan Caguyong



PITCH VIDEO



POSTER



DESIGN BRIEF

smart-monitored fire alarm for low-  
al, NM). Our product's objective is  
y immediately alerting the  
homes burn 2.5 times faster than

mes to fires. Chaparral has a  
in our community is \$18,166 yearly.  
omes. Most mobile homes don't  
ent, Samantha Portillo, purchased  
other problem is a lot of people  
ng monitored fire alarm systems  
aparral only has a volunteer fire



TEAM MEMBERS: David Garcia, Jessica Lara, Alessandro Marentes, Josue Salais

TEAM ADVISOR(S): Rina Viramontes



PITCH VIDEO



POSTER



DESIGN BRIEF



# Where do I begin

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Begin by exploring community needs.

- Something that can help your family or a family in your neighborhood
- Food pantries in your local community
  - Maybe they have shortage in volunteers, and you can create an app to inform when they need volunteers
- A need in your school
- Have the team begin by writing down ideas. Any idea that comes to their mind. It might not be realistic but in doing so they might be able to find a project out of that idea.



# Interviewing Clients



When interview clients

- Go with a set of questions
- Have a recorder and note taker
  - Make sure to ask permission before recording
- Make sure to listen to their needs and wants.
- Do not just interview one person try to interview multiple people
- Do not go into interview with a formal feel. Try to be relaxed as can be to make client feel relaxed and be able to open up



# Engineering Design Process

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Valley PBS <https://ca.pbslearningmedia.org/>

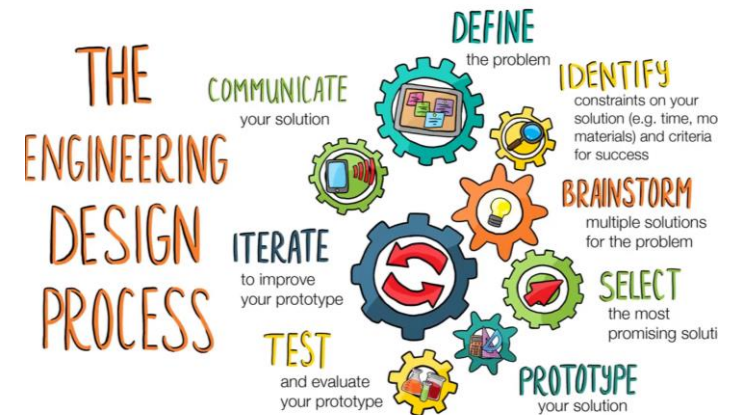
- Great resources on Engineering Design Process
- The Engineering Design Process: The Taco Party

<https://ca.pbslearningmedia.org/resource/tacoparty/tacoparty/>

Teach Engineering

<https://www.teachengineering.org/design/designprocess>

- STEM aligned Curriculum
- Project by grade levels
- Provides educator guide to the Engineering Design Process





**MESA**®

Thank you!

BEATRICE PRIETO

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