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Celebrating invention, inspiring youth

Showcasing Invention
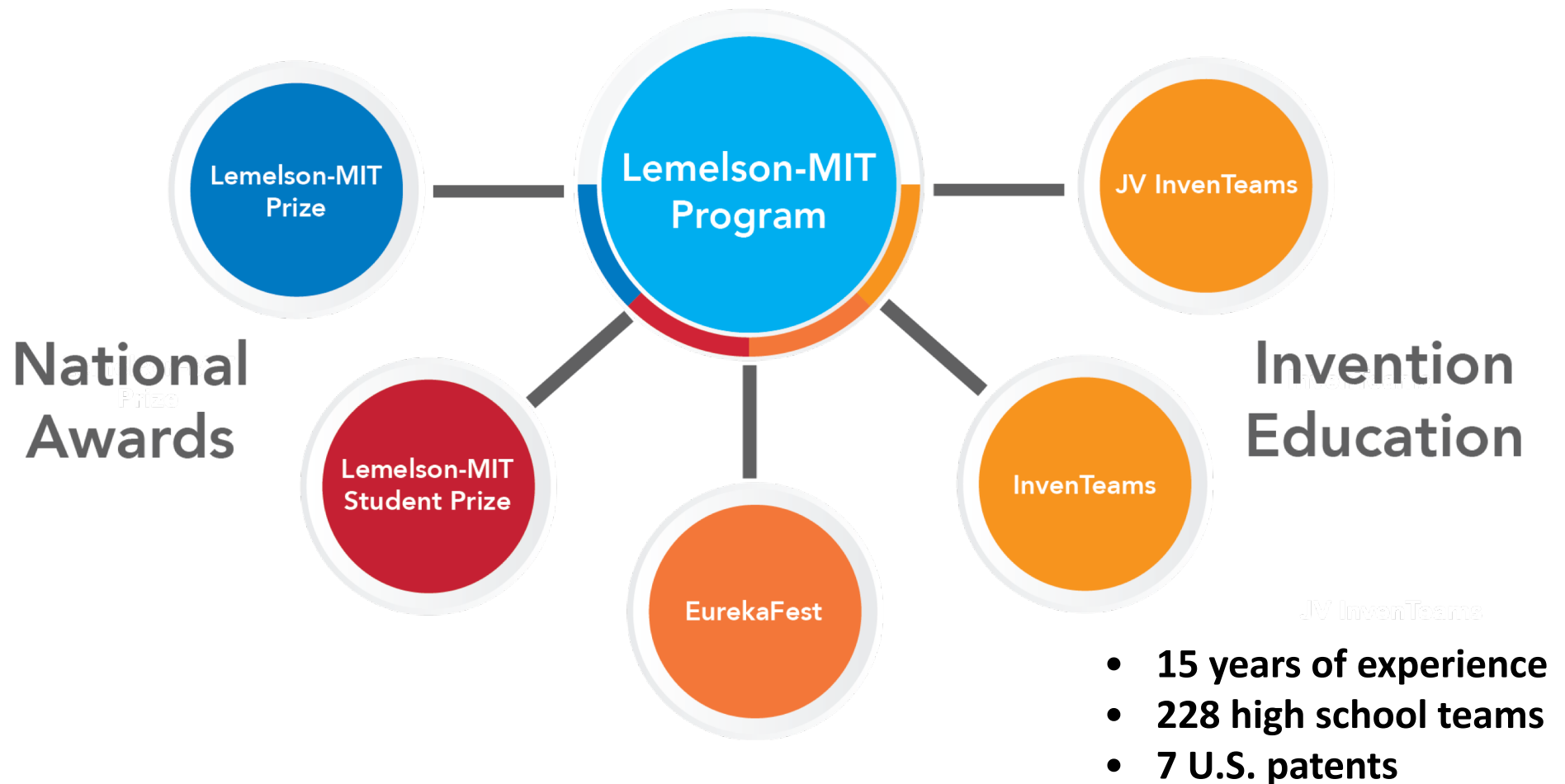
Invention Education
Webinar Series

Thursday, April 5, 2018
6:30 – 7:00 p.m. ET

Lemelson-MIT Program Overview

National Awards
- Lemelson-MIT Prize
- Lemelson-MIT Student Prize

Lemelson-MIT Program

EurekaFest

Invention Education
- JV InvenTeams
- InvenTeams

- **15 years of experience**
- **228 high school teams**
- **7 U.S. patents**

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Presenter Ed Hernandez

- Engineering teacher at Tustin High School, CA

- Director of the T-Tech Academy of Technology and Engineering

- California Career and Technical Education Teacher of the Year (2015)

Invention Education Experience

[Tustin High School InvenTeam (2017)](#)

- Device to remove gum from school sidewalks

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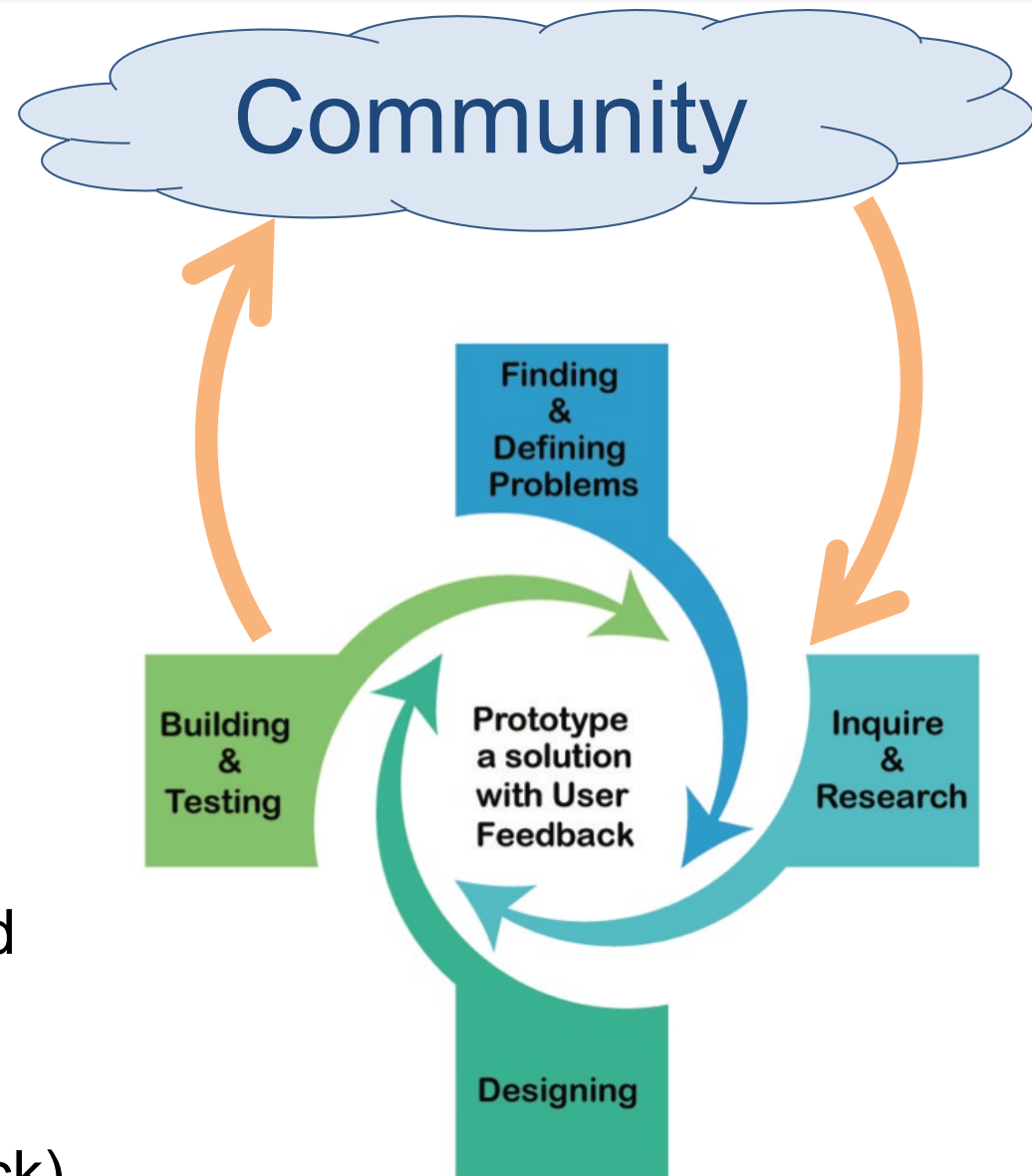*Celebrating invention, inspiring youth*

Community Involvement

Technical inventions are

- Useful

- Unique

- Reduced to practice

Showcasing Invention:

• Inform the community of your work

• Accelerate invention work (designing, building & testing)

• Motivate students' passion and enthusiasm

• Ensure that the invention is useful and unique (user feedback)

Where to Showcase in the Community

- Science fair (local, state, national)
- Parents' Night
- Community Day
- Local Library/College Outreach Programs
- Invention/Innovation Convention
- (Mini) Maker Faire
- Discipline/Technology specific meetings
- Organize one!

Where do you showcase your students' work in the community?

How to Showcase and Present Inventions

- Who is the invention for? (the intended beneficiary)
- What is the beneficiary's story/problem?
- How is the problem currently solved?
- What is the proposed solution?
  - Show a prototype design or a sketch
  - Have a hands-on display of early prototypes
- Why is the invention better than current solutions?
- How is sustainable design being addressed?
- How can community members stay involved with the project after the event?
- What is the specific ask?

Traditional Presentation Trifold Boards

The board must contain:
- Pictures and text outlining the theory behind the project
- Pictures of original notebook sketches & ideas
- Pictures of the design and build process including beginning, middle and end.

Vary the boards based on the audience:

Traditional trifolds are OK for the midterm technical review of LMIT InvenTeam, but the final presentation boards must be high definition, professionally printed boards and not the "science fair style."
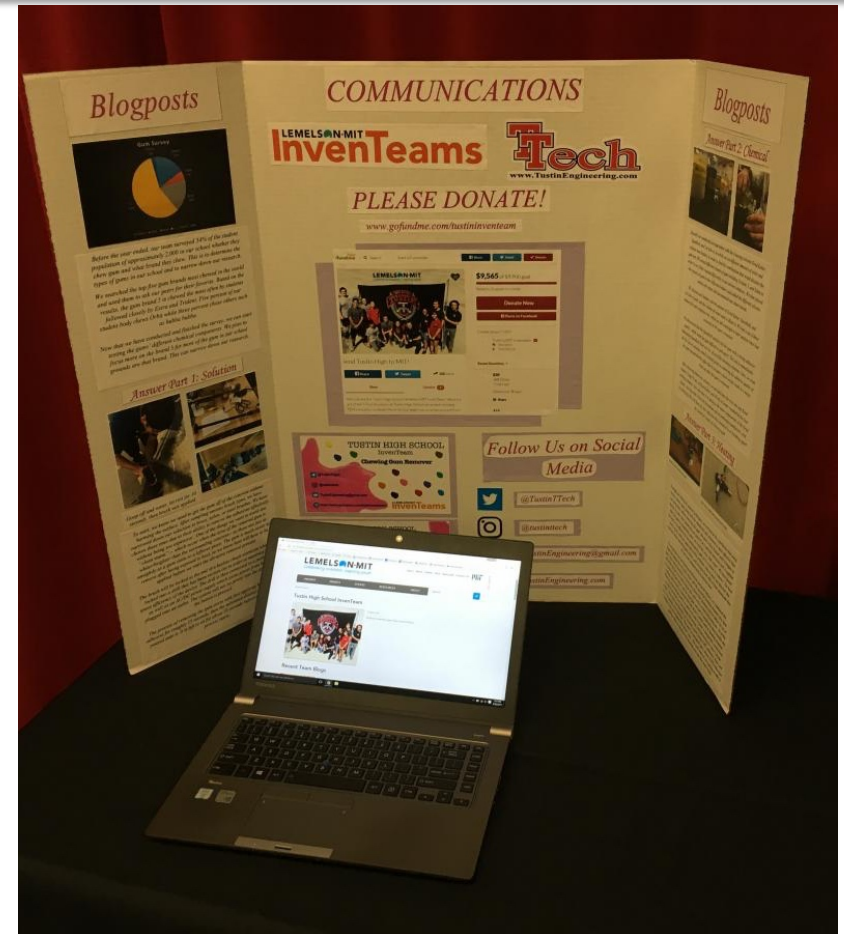
Enhance with a two-minute Video

Easily accessible, manageable, shareable, *and* powerful!!

Breakdown of the video:
  10 seconds - Team Introduction
  30 seconds - Description of need or problem to be addressed
  40 seconds - Description of project/solution and build history
  40 seconds - Final product demo

- Students should work from a script and storyboard to ensure high quality of the video
- 3-4 drafts before the final version
- Address issues such as continuity, audio quality, and screen issues ahead of time.
- Repurpose for social media!

Example: https://www.youtube.com/watch?v=1FSWf8vG0kl

One-minute Oral Presentation

- Eloquently and passionately present the highlights of the project in a 1-minute oral presentation.
- Students should be well scripted (with multiple iterations to highlight the most important aspects and for multiple audiences).
- **Practice** in front of an audience. Call in the community!
  - If you're an LMIT InvenTeam, don't go to MIT without practicing multiple times in front of an audience.
- Be prepared for (tough) questions that may follow a presentation.

Practice, Practice, Practice…

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Short Slideshow (6-8 Slides)

- Use same content as the presentation board in a digital format
- Use for times when a presentation board is not practical
- Accessible to the audience after the showcase – can be posted to social media
- Six – eight slides
- Include answers to questions that have been previously asked

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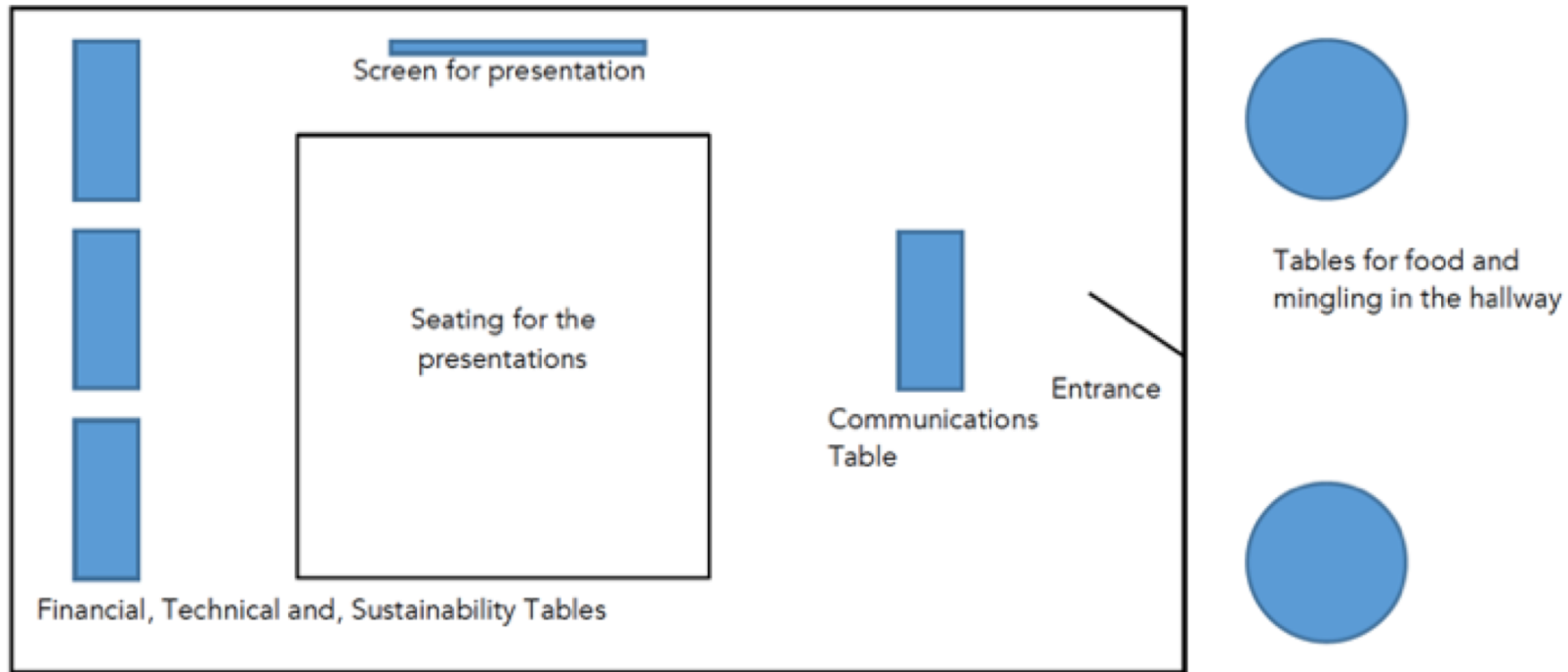
InvenTeam Mid-Grant Technical Review

Purpose:

- Receive feedback from beneficiaries and stakeholders in the community
- Set an intermediate deadline for the invention project

Planning checklist:

- Reserve space for event for at least one hour (best if two hours)
- Identify and invite mentors, beneficiaries, community members, and supporters at least two weeks in advance
- Invite media contacts
- Create a "run of show" for the event
- Identify students to help direct the guests during the event
- Design and print a program for attendees
- Create a feedback form for attendees
- Purchase light refreshments for the event
- Create and **PRACTICE** your presentation

Set up the Event

The diagram shows an event room layout with:
- Screen for presentation
- Seating for the presentations
- Financial, Technical and, Sustainability Tables
- Communications Table
- Entrance
- Tables for food and mingling in the hallway

- Have a student scribe collect suggestions, record questions & answers, and general feedback after the short 15-minute presentation
- Encourage attendees to visit each of the show stations
- Allow time for in-depth discussions with attendees at show stations

Tustin InvenTeam Mid-Grant Technical Review

Setting up the Event

The Audience

Receiving an award by the Tustin City Council, What a Great Surprise!!

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Tustin InvenTeam Mid-Term Tech Review
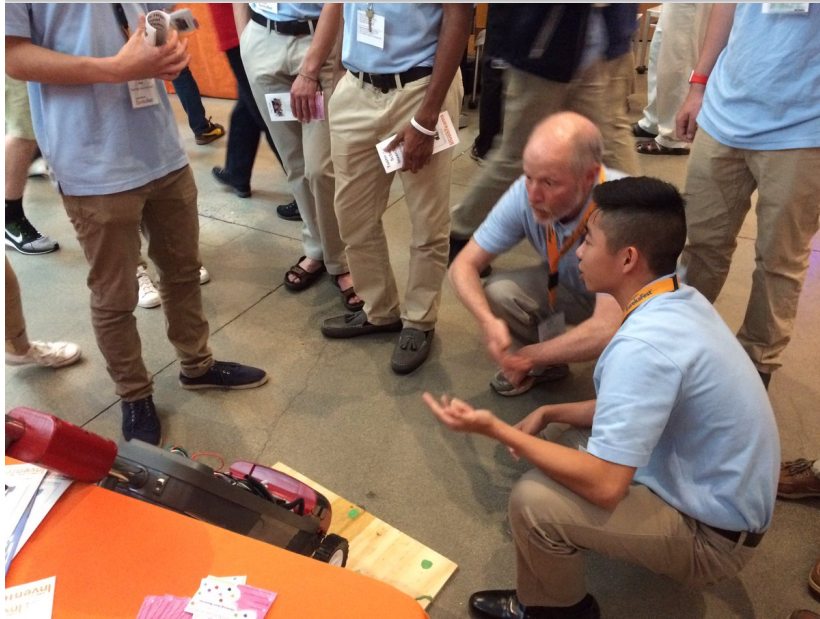

Short Presentation

Show Stations

Tustin InvenTeam EurekaFest

Make Engagement an On-going Practice

- Encourage students to say, "Thanks for the feedback."
- Follow-up with thank you e-mails to attendees and visitors
- Provide updates on the work including how comments and feedback are addressed
- Distribute team or program newsletters throughout the year
- Social media posts updated often
- Always have an "ask" ready!

Tustin High School Inventeam was honored to meet with California's 45th congressional district U.S. representative Mimi Walters

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Lemelson-MIT Resources

- Lemelson-MIT Program
http://lemelson.mit.edu/

- InvenTeams National Grants Initiative
http://lemelson.mit.edu/inventeams

- JV InvenTeams Curriculum Materials
http://lemelson.mit.edu/jv-inventeams

- Inventor Archive
http://lemelson.mit.edu/search-inventors

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Other Resources

Tustin High School Academy of Technology and Engineering
http://www.tustinengineering.com/Homepage.html

Invention Review Form and Final Presentation Guidelines from MIT Course 2.009 (Product Engineering Process)
http://web.mit.edu/2.009/www/assignments/FinalPresentation.html

http://web.mit.edu/2.009/www/assignments/FinalPresentationImages/finalReviewForm.pdf

Q & A

Would the audience provide feedback on the projects presented, or on the students' presentation/skills themselves?

Both! Invention is not just a design project happening in schools. One of the most critical factors to ensure the success of invention projects is to get the community involved and keep them informed of the exciting work. It is therefore important to develop student inventors' presentation and communication skills. When students showcase their invention projects, please ask the guests to provide feedback on the technical as well as communication/presentation aspects of the projects!

Which website provides a template of the feedback form for guests at the showcase?

We offer the Lemelson-MIT InvenTeam grant recipients a template of the feedback form (see the template on the next slide). The MIT Course 2.009 also offers a template on the feedback form at http://web.mit.edu/2.009/www/assignments/FinalPresentationImages/finalReviewForm.pdf.

Neither of these forms is fixed. Please customize them for the needs of your students and the invention projects!

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Q & A

Technical Feedback

1) The invention's technical aspects are well understood.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

2) The prototype could become a real product.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

3) The team is interacting with their beneficiary/intended user.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

4) The prototype integrates all subsystems.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

5) Comments:

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Financial Feedback

1) The team is wisely spending their grant money.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

2) The team has appropriately tracked purchases and donations.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

3) The team is prepared to raise funds to travel to MIT in June.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

Sustainability Feedback

1) The team has adequately addressed sustainability in their design.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

2) The team has considered sustainability in the sourcing of materials for prototyping.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

3) The team has considered the full life cycle of their product in all aspects of their design.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

4) Comments:

_____

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Communications Feedback

1) The team adequately described what makes their invention useful and unique.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

2) The team communicates their work well to their community, beneficiaries, and other stakeholders.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

3) The team uses its online presence (blog and social media) to communicate its progress and engage stakeholders in their work.

   ① Strongly Agree ② Agree ③ Neither ④ Disagree ⑤ Strongly Disagree

4) Comments:

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THANK YOU!

**Contact Us at
PD-lemelson@mit.edu**

Invention Education
Webinar Series

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