



2025 INSTRUCTOR AND STUDENT GUIDE

The MAKERS of Change Assistive Technology Challenge engages high school students to advance their STEM knowledge and learn important lessons about the practical application of assistive technology solutions to support young children with disabilities.

The Challenge is developed and managed by [Easterseals Southwest Human Development](#), Arizona's largest nonprofit dedicated to early childhood development. Easterseals Southwest Human Development partners with our [ADAPT Shop](#) to develop the challenge and we engage numerous community partners who support the Challenge financially as well as with valuable volunteer support. A volunteer Planning Committee guides the process and volunteer Mentors and Judges support team development and scoring the final Challenge presentations.

Louann Phillips is your main point of contact for this Challenge. She can be reached by email at lophillips@swhd.org or text at 602-361-3785.

HIGH SCHOOL TEAMS STEPS TO SUCCESS

- 1) Form a team of 3-5 students, complete and submit the 2025 MAKERS Team Application no later than **August 11 at 5pm.**
 - Please be sure to indicate the days/times available to meet with a Mentor September 2-5, 2025
- 2) Complete the **Student Release** and **Pre-Survey BEFORE** you begin on your project.

Both forms must be returned by August 20 at 5pm.

- a. Participation Release Form link: <https://forms.gle/42PqsDtMMB3rPaXV6>
- b. Pre-Survey link: <https://forms.gle/FDLDmcXHPvWMqdvo9>
- 3) All teams will watch the MAKERS Challenge release video that is emailed to them on August 18, as well as review this document (Challenge Instructor & Student Guide) as a guide to completing the Challenge.
- 4) Teams have five weeks to work on the Challenge solution (August 18-September 22)
- 5) Teams submit a video presentation and poster by September 22 at 5pm
(Upload link will be emailed to teams one week prior to submission due date)
- 6) If a team will be moving on to the Finalist Presentation, instructors will be notified by October 3
- 7) The Finalist Presentation and Awards Ceremony will take place on October 17 from 2pm-5pm at the Helios Education Foundation



CHALLENGE LEVELS AND RUBRIC

LEVEL 1 Concept & Analysis

Conduct problem definition, research and ideation, to define the specific criteria that the solution must meet. Develop sketches or computer drawings with descriptions sufficient to clearly define your concept to a reviewer. This is design phase only.

Final submissions include a poster and video that summarizes the work performed to produce your conceptual design and visually represents your proposed solution to the Challenge (Sketches or CAD modeling).

Level 1 is ideal for Grades 9 and 10 and first time MAKERS Challenge participants.

Rubric Objectives

- Research: Conducted research on the problem; various sources, including the patient, were taken into consideration in defining the solution
- Breadth: Explored multiple approaches; demonstrated an understanding of options and implications before deciding on a course of action
- Reasoning: Team provided explanation for chosen approach and demonstrated an understanding of relevant factors and implications.
- User Experience and Safety: Solution provides an easy to use, fun, effective, safe and practical approach to supporting family needs and adds to their quality of life
- Cost: The cost of a prototype design was estimated, with a goal of less than \$150
- Poster Quality: All objectives are included; graphics clearly and creatively enhance the overall visual impact; solution is clearly defined
- Video Quality: Clear visuals with appropriate lighting and audio quality. Creativity engages the audience throughout. The solution is clearly defined and explained. Presenters give a clear and engaging delivery.

LEVEL 2 Design & Prototype*

Conduct Level 1 concept and analysis. Then conduct Level 2 Design and Prototype which consists of finalizing the design, building and testing the prototype. Conduct additional analysis and design to provide sufficient detail to build the prototype. Using prototype, conduct testing to validate your concept. Based on testing results, make adjustments and improvements to the design and prototype.

Level 2 is ideal for Grades 11 and 12 and experienced student groups.

**We have Raspberry Pi components available for any team interested. The prototype may incorporate Arduino or Raspberry Pi technology as appropriate.*



Rubric Objectives

- **Design:** The design of Level 1 is assessed to determine the adequacy of the documentation for construction of a prototype. Additional research, analysis and design is performed to achieve this goal.
- **Practicality:** Team considered the feasibility of production and demonstrated understanding of potential challenges
- **Prototype:** A well-constructed prototype was made and used to demonstrate functionality without ambiguity or issues. Prototype embodies refinements of the initial design concept of Level 1.
- **Testing:** Team exhibited resourcefulness and creativity in defining testing to validate their concept. Testing was conducted to demonstrate the validity and effectiveness of their solution.
- **Data:** Team clearly defines materials used and test data generated to validate their design.
- **Reflection:** Team addresses successes and shortcomings with the prototype and provides analysis and lessons learned for future improvement.
- **Production:** Team examines and discusses how design could be refined for production

OPPORTUNITIES FOR SUPPORT

Stipend Request

Each team entering Challenge Level 2 is able to request a \$100 Amazon Materials Stipend. The Amazon Materials Stipend will be issued to your Instructor virtually. Stipends must be requested no later than August 29.

Link to request Stipend: <https://forms.gle/FxCd5zqgvPLSvyow6>

Expert Panel

August 21 at 5pm

After watching the launch video, students are invited to attend the **Challenge Q&A session** to ask any clarifying Challenge questions and get access to subject matter experts such as the child's PT/OT therapist, the child's parents and an engineering professor.

Register to attend: https://swhd-org.zoom.us/meeting/register/wMcVCPMNTquxLSANGQk_IA



Virtual Mentor Meeting

Mentor meetings will take place September 2, 3, 4 and 5

We have recruited a select group of engineers and business professionals who are available to discuss team projects and even critique a video submission prior to final submission. If an entire class is registered to participate, the Mentor will meet virtually with the class to answer general questions. If teams have more specific questions, please let us know and we will do our best to coordinate a meeting with only one team and a Mentor. All meetings with Mentors will be held virtually and instructors must be present.

If your teams would like to take advantage of this mentoring opportunity, **please contact [Louann Phillips](#) no later than August 25** and provide up to three (3) dates and times that will work for your teams to meet with the Mentor.

Louann will coordinate the meeting and schedule a virtual link for the Mentor and class meeting.

Therapy Considerations Webinar

September 10 at 4pm

Dr. Jessica Brandt will provide a Physical Therapy overview and how adaptive equipment is recommended and utilized by children with disabilities.

Register to attend: https://swhd-org.zoom.us/meeting/register/Xpcj1mxiTly7Gr_lcKzXfQ

Office Hours

September 17 from 3pm-5pm

Students can check into a Zoom breakout to meet with members of our Planning Committee for any final questions they may have about their project.

Register to attend: https://swhd-org.zoom.us/meeting/register/161r_W0HS8OiTLYPWZdeHw



VIDEO AND POSTER GUIDELINES

VIDEO AND POSTER SUBMISSIONS ARE DUE NO LATER THAN 5PM ON SEPTEMBER 22

Video Submissions

- Instructors will be emailed a unique upload link one week prior to submission deadline
- Each team will upload a 3–5-minute video in an MP4 format by 5pm on September 22
- Each team will name their video in the following format: 2025MAKERSVideo/schoolname/teamname

Poster Submissions

- Each team will upload a PDF of their poster to the same video upload link
- Each team will name their poster in the following format: 2025MAKERSPoster/schoolname/teamname
- See Poster Guidelines below

If your school has more than one team, each team should submit their two files to the same school link. Thus, if there are three (3) teams from your school, there should be a total of six (6) files added to your unique link (named after your school).

POSTER AND VIDEO REQUIREMENTS

Poster and video entries should at minimum include the following information. Please refer to the Judging Rubric slides for objectives that should also be addressed in narrative.

- Project Level of the entry (Level 1, Level 2)
- School Name and Team Name
- Each team member and their role in the project is identified
- Clear Project Summary that articulates proposed solution to Challenge
- Patient Brief (who is this solution being developed for and why)
- Images and/or graphics (design notebooks, diagrams, sketches, 3d or CAD models) that enhance understanding of the project are appropriately labeled
- Overview of the ideation and design process
- Cites external references
- Incorporates Bill of Materials tracking supplies and estimated cost
- Well-organized, informative, and professional. Few grammatical or spelling errors exist, if any.

JUDGING

- All entries will be judged by volunteer Judges
- Each entry will be reviewed by at least three different Judges
- Scores of three Judges will be tabulated and the average will be the final team score



INVITATION TO FINALIST PRESENTATION

- Five (5) teams with the highest score in each Level will be notified by October 3 if they are invited to present in person on October 17.
- We ask that all members of the invited teams attend the presentation.
- If less than two members of your team are unable to attend, the next highest scoring team will be invited to present.

Regardless of whether your team is invited to the Finalist Presentation, each team member will receive a commemorative T-shirt and a participation certificate. These items will be available for pick up on September 30 and October 1.

PRIZES

After being judged, teams with the highest scores will be invited to present before a live panel of judges and are eligible to be honored in one of the following categories:

1. Newcomer
2. Newcomer Runner Up
3. Presentation/Poster
4. Presentation/Poster Runner Up
5. Levi's Choice
6. Level 1 (Concept)
7. Level 1 Runner Up
8. Level 2 (Fabrication)
9. Level 2 Runner Up
10. Best in Show (overall winner selected from Level 1 or 2)

Each winning team will receive a monetary award to be used by the teacher for a team celebration or for classroom educational purposes.

Additionally, each of the Finalist teams will be invited to host an interactive booth at Southwest Human Development's Thrive to 5 Playfest scheduled for February 28, 2026 from 9am-2pm. Southwest Human Development will also provide an attendee "make-n-take" activity for the MAKERS display area.



KEY DATES

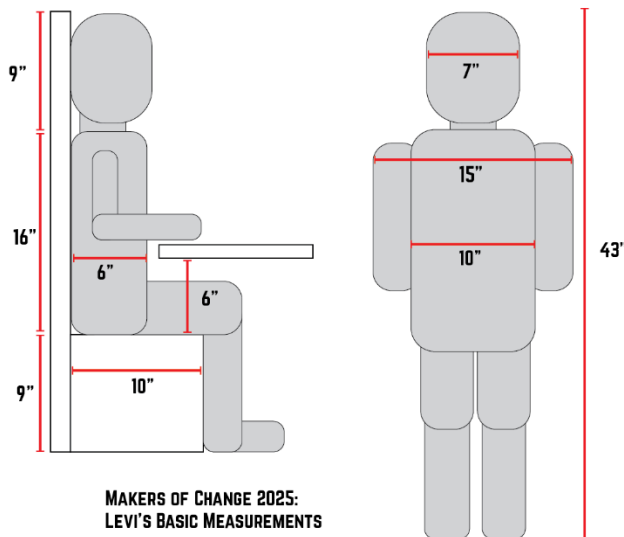
- August 12 – Pre-Surveys and Participation Waivers distribute to Instructors
- August 18 – Challenge Launch
- August 19 – Parent Welcome Webinar (5:30pm-6pm)
- August 20 – Pre-Surveys and Participation Waivers due from students
- August 21 - Student Q & A Webinar (5pm-6pm)
- First week of September – Mentoring meetings held virtually September 2-5
- September 10 – Therapeutic Considerations Webinar (4pm-5pm)
- September 17 – Last chance for guidance by asking questions during our Office Hours (3pm-5pm)
- September 22 by 4pm – Team Challenge Submissions Due (Video and Poster)
- September 23 – Post-Surveys distributed to students
- September 29 – Post-Surveys due from students
- September 30 & October 1 – Teams pick up shirts and certificates at ADAPT Shop
- October 3 – Finalist Teams notified
- October 17 – Finalist Presentation (Teams must be in person from 1:30pm-5pm)



RESOURCES AND SUPPLEMENTAL INFORMATION

Consider reviewing the resources below for Challenge knowledge and inspiration.

- 2025 MAKERS Instructor & Student Google Drive
 - [2025 Challenge Launch Video](#)
 - [2025 Challenge Launch Video Slide Deck](#)
 - [Levi Therapy Session Video Link](#)
 - 2025 Instructor & Student Guide
 - [2025 Bill of Materials](#)
- Reference reading and viewing on Assistive Technology:
 - [Understanding Technology: Simply Said](#)
 - [Assistive Technology in Action by the Pacer Center](#)
 - [Closing the Gap: What is Assistive Technology](#)
- Tips & Tricks with Kyle the Fabricator video link: <https://youtu.be/VVefTQ4EWOQ>
- We encourage you to review the [2024 MAKERS Challenge playlist](#), that includes submissions from the 2024 Finalists.
- The Engineering Design Process: <https://www.teachengineering.org/populartopics/designprocess>
- Levi's Chair and Body Measurements



Thank you for your participation and BEST OF LUCK!