Catalyst Volunteer Role and Profile

Please note: The volunteer role and responsibilities may be modified based on the discretion of classroom teacher.

PLTW COMPUTER SCIENCE FOR INNOVATORS AND MAKERS (CSIM)

SUMMARY: In this project, students become innovators and makers. Teams apply their physical computing knowledge and skills as they design and create one of three problem options:

- A wearable safety device someone might use when completing a physical activity outside at night
- An engaging art installation to help improve a community space
- A useful mechanical dispenser for a person or animal who needs assistance to retrieve an object

Volunteers will support students to work in groups to design and test their hardware and flowcharts using an iterative process. Ask students questions about their designs to help them think through how their hardware and program will function and how it can be improved.

VOLUNTEERS NEEDED:

- **Programmers** with experience in hardware or software design. Volunteers who have participated in hardware/software design projects will be able to help students determine how well their device or interactive product is meeting the needs of their intended user.
- **Skills focus**: Expertise in using sensors for device development (LEDS, Servos, Bluetooth etc)

VISIT 1 - Volunteers will:

- Introduce themselves and share their career pathway with a few examples that will be relevant to students, share programming languages examples from their work.
- Share examples /stories of the role of collaboration in projects they have worked on including why effective collaboration was essential to the team's achievements.
- Support students as they discuss their solutions with classmates after attempting to solve the problem independently; highlight similarities and creative/ divergent ideas and praising collaboration and best practice programming strategies students use.

VISIT 2 - Volunteers will:

- Support students to use a systematic debugging process.
- If groups are stuck or experiencing challenges, remind students to review their team norms. Help facilitate the resolution of any team issues by discussing potential solutions and team norms with the students.
- Share examples from their own work that emphasizes the value of group norms and effective collaboration strategies.
- Help students effectively document their process and provide verbal feedback for students on their use of effective programming strategies, collaboration, and ability to resolve any potential design issues.
- Provide real-life examples of how the debugging steps for fixing code and the design process is iterative.

VISIT 3 - Volunteers will:

- Support students to prepare to share out projects, help build confidence in their readiness to present their designs.
- Share their observations to assess each team's progress, their ability to debug any issues that arise, and practice their presentation skills so they can include this in their presentation.
- Help students review and reflect on their documentation and plan effective ways to communicate this to their audience.
- Support small group rehearsals. Provide feedback on students to improve their presentations in alignment with the provided criteria.