HYBRID LEARNING - 1:1 HUMMINGBIRD

Gwynedd Mercy Academy High School Hosts STEAM Camp for 5th-8th Grade Girls

Gwynedd Mercy Academy High School hosted a virtual camp for middle school girls. The theme was Pecha-Kucha ("chit-chat" in Japanese), inviting the girls to casually engage with each other during their creative exploration of robotics. Most students were familiar with block-based coding, but all were new to the Hummingbird Robotics Kit, and were successful in the virtual format.

ADAPTATIONS

• 10 Students : 1 Teacher + 1 Assistant

• Shipped kits to the teacher's home and she distributed to students at the school

• Planned flexible end time for virtual sessions; build time was not rushed and students continued conversations

RECOMMENDATIONS FOR DISTANCE LEARNING

1. Use Micro:bit Classroom to introduce students to Make-Code. You can share code with your students, explore the blocks together, and foster confidence with coding prior to building.

2. Send a pre-assessment survey to students not only to gauge experience level, but also to prepare for the various operating systems/devices students will use.

3. Prevent distractions by introducing expectations for virtual behavior early. Lay ground rules such as "raise your hand before speaking," "ask permission before sharing a screen," and "mute if there's background noise."

CHALLENGES

• Initially students attended the virtual session with their camera off and sound muted, which made it quite difficult to establish a relationship

• Students used various devices for programming which required on-the-fly adjustments

• The kits' battery packs were giving students trouble, and they designed a clever fix
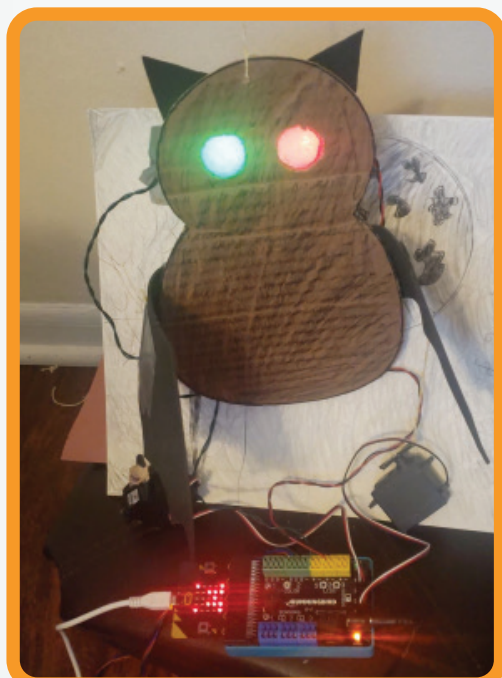
SUCCESSES

• Students caught on quickly with the transition from MakeCode's simulator to building 3D robots with the Hummingbird Kit

• Despite differences in age and academic background, students were supportive, patient, and applauded one another's successes

• One student used tutorials on the BirdBrain website to learn independently and add new features to her robot

TEACHING SEQUENCE

The teachers were familiar with the Hummingbird Kit prior to leading the camp. If you are new to the Hummingbird Kit, check out these free PD courses for teachers.

1. Students were introduced to MakeCode and coding via the free Micro:bit Classroom platform. The teacher shared her code with students and prompted them to modify it to trigger changes in the simulation. Students shared screens to showcase their unique modifications to the teacher's code.

2. The class transitioned from working with a simulation to a real robot in the teacher's home. The teacher shared code for her Froggy Bot, students modified the code in interesting ways, and the class was able to see the effects of their new code in real-time. See resources for setting up your own remote robot.

"There's a wide range of possibilities available when the Hummingbird Kit and Snap! are combined"

3. Next, the class discussed the robot design process, including kit components, building materials, and mechanisms. To begin, students connected 2 outputs - a servo motor and LED - and created simple code to activate movement and light. See resources for student introduction. This first time using Hummingbird was slow, and involved troubleshooting common user errors. See printable troubleshooting cards.

4. The class began building and coding robots of their own design. Students were allotted time to build independently while connected virtually as a class, leading to teachable moments

5. The virtual camp ran for five 1.5 hour sessions across 1 week. On Day 4, the teacher introduced examples of more complex robots to offer inspiration (examples sourced from teachers on social media @birdbraintech).

6. The final session wrapped up with questions and time for each student to share their robot with the class.

BIRDBRAIN TECHNOLOGIES