

BUILD Lab Back in Business

Seth Aschheim '24 innovates and uses his mind in pursuit of creativity

By Lane Jones '22

Tenth grader Seth Aschheim created a headband that reads brain activity to make objects respond to simple commands, based on his level of concentration.

In the beginning, his main goal was simply to read levels of concentration of kids in the classroom. Soon thereafter, Aschheim had greater aspirations for his creation. He wanted to use the power of concentration to move cars, trains and airplanes.

Aschheim couldn't have done it without the help of Upper School Instructional Technologist Carey Pohanka and her BUILD lab. The lab is a room in which students of all ages can express their curiosity and passion for creativity through the Boys Using Innovation to Learn and Design Program, or BUILD for short.

Ms. Pohanka said that the primary purpose of the lab is for students to fail. "If they work through a project and they don't fail at all, it means that they haven't really learned anything," Ms. Pohanka said. "They haven't pushed themselves past what they know they can already do, so what I want them to do is try things that they're pretty sure they don't know how to do and work through that process of failing forward."

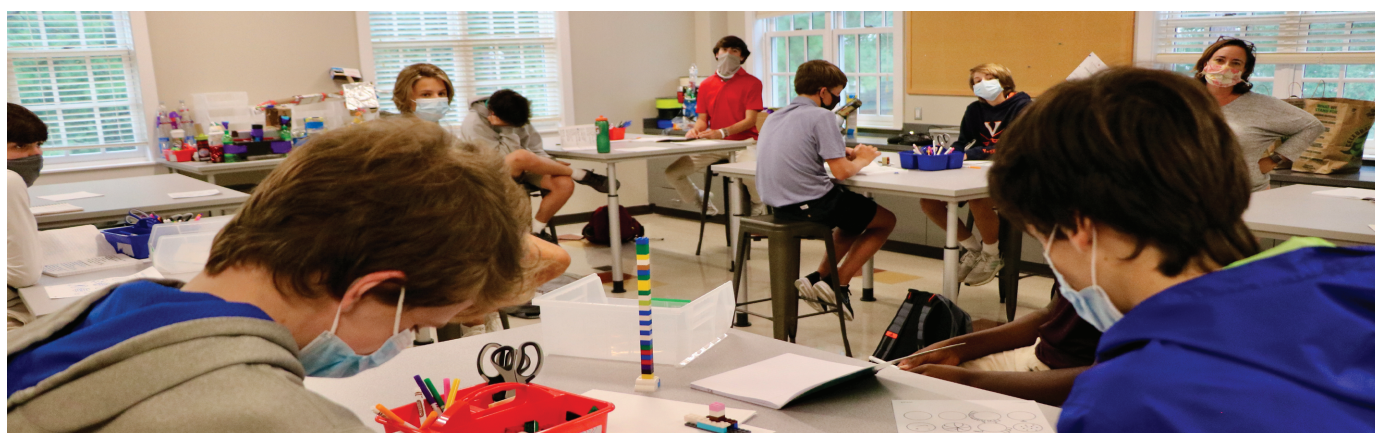
Aschheim, too, faced challenges all along the way. His device was very fragile. He had great difficulty keeping it together, especially after the first drop. It broke roughly six or seven times forcing him to have to rebuild and repair it each time. Even a small drop would misplace the wires or crack the plastic holding the structure together.

Aschheim also had trouble locating resources to figure out how to make the headband to begin with. "I found that there were not as many resources as I thought there'd be because usually Google has everything you need." So, Aschheim had to go out and find teachers to help with the technology and science portions of the project.

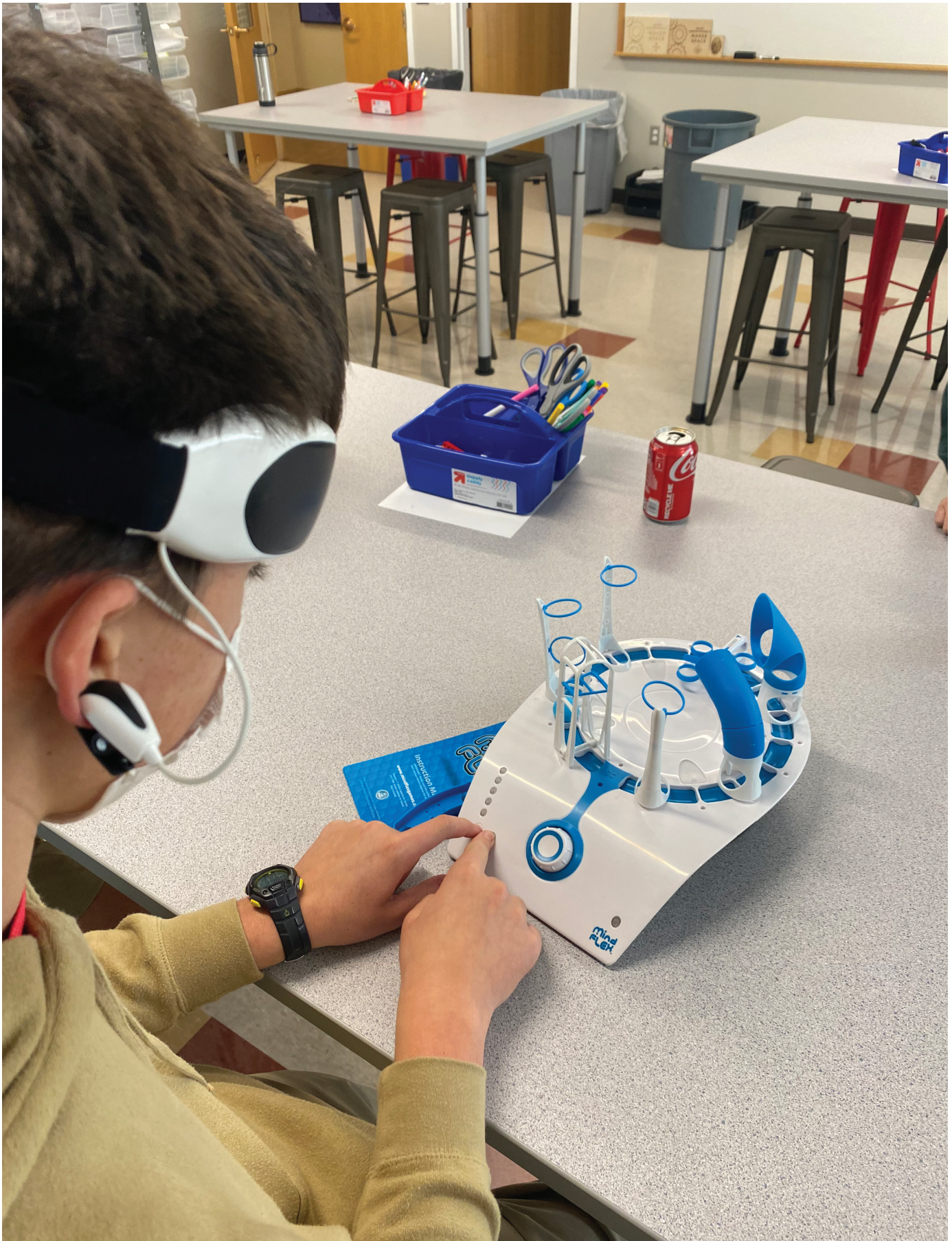
Ultimately though, Aschheim was able to create a headset to measure focus, and wrote a program that, when combined with other programs, tracks when the wearer is focused and when they aren't. The program uses Arduino, a single-board microcontroller that had interested him for years and that Middle School Science Teacher David Shin helped him research.

Aschheim is one example of how the BUILD lab gives students a creative outlet to use their hands and be engaged in a fun project. Another thing that it does well in teaching positive emotions. "It's a way to build empathy so that your designs are all based on empathizing for other people, not just what you think you should make and save the world," Ms. Pohanka said.

Aschheim is optimistic about the BUILD lab's potential. "More kids should just go to the BUILD lab," Aschheim said. "It's one of the most under-used resources in the school. Kids should be less afraid to just let ideas flow, less afraid to just start something and less afraid to just try something new."



Students express their creativity in the BUILD Lab.



Seth Aschheim '24 experiments with tech in the BUILD Lab..