Through My Window

BIRCHLAND PARK MIDDLE SCHOOL

EAST LONGMEADOW, MA

Using stories, activities, and ideas to engage students in engineering.

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HOW DID EAST LONGMEADOW USE THROUGH MY WINDOW?

East Longmeadow implemented Through My Window in two seventh grade classrooms, each teaching different subjects—creative reading and STEAM. Students used the print and audio versions of *Talk to Me*, and read or listened to the book independently and together, in class and at home. They also participated in both online and offline activities that, along with the book, helped them **engage with ideas** and **propose solutions** related to engineering challenges.

JOHN'S EXPERIENCE WITH THROUGH MY WINDOW:

John liked that the *Talk to Me* storyline integrated elements "of a STEAM class, a technology class, a programming class" and related to the technology that he already uses. John found the videos particularly interesting and was inspired by the idea that scientists could mutate goat's milk to produce the same proteins found in spider silk.

> "Artificial intelligence is much more difficult to program than one might think because there's always the human brain to come up against. It's very difficult to replicate the human brain because it's very unique and can process much more than a machine can with today's technology."
>
> —John

The Through My Window curriculum **expanded John's understanding** of what sorts of problems are encountered in science, engineering, and design. He was enthralled by the idea that design adaptations in nature could be used as the basis for human technological and mechanical design applications, such as a frog's webbed feet and the way a fish tail moves.

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WHAT DO KIDS GET OUT OF THROUGH MY WINDOW?

Through My Window activities and discussions helped students understand that the actual work of engineers and designers involves a wide range of hard skills, like technical and programming prowess, and also soft skills, like perseverance, creativity, problem-solving, and being able to work in teams. Students talked about how engineering, design, and technology can **solve problems** or **create new tools**.

HOW DOES THROUGH MY WINDOW ADD VALUE TO THE CLASS/PROGRAM?

The two teachers implementing Through My Window appreciated having a **prepared sequence of lesson plans and activities** for students to guide their teaching. Both teachers also mentioned the value of the videos. One teacher said that the situations depicted in the book were real and contemporary to the lives of her students, which helped them **relate to the characters**.

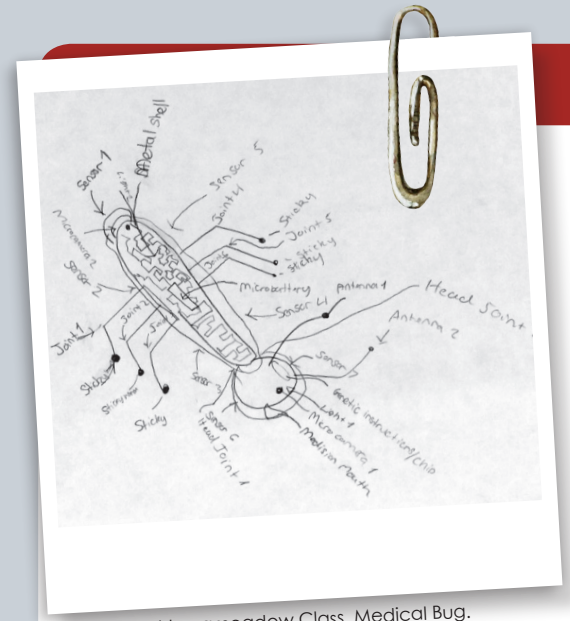
Students working as a team in East Longmeadow.

> "It's never just a one-shot thing where it always works out the first time. It takes multiple times."
>
> —East Longmeadow student

HOW DOES THROUGH MY WINDOW PROMOTE IMAGINATIVE EDUCATION?

Students reported that Through My Window encouraged them to **come up "with their own ideas"**. They understood and talked about the difference between problem-solving and imagining.

> "I feel like in this generation we're told to do things in a certain way, so there's like less and less creativity. If we were taught to do things in a different way, I feel like we would have better problem solving skills."
>
> —East Longmeadow student



Collins East Longmeadow Class, Medical Bug.

HANDS-ON WORK

After learning about design adaptations in nature, students designed their own miniature robots that use the features of animals to **solve complex problems**. Their ideas included:

- An antbot that was propelled by mechanical legs, had a vacuum nose, and camera and light in the location of its antennae.
- "Aki", which converts pollution into oxygen. Its wings power flight, are solar panels, and are also wind turbines.
- A diagnostic medical bug (at right) that can enter the human body. The bug is equipped with a metal shell and various antennae and micro-cameras, a computer chip for processing genetic samples, micro-batteries, and five sensors.