Use your Maker tools effectively, design Maker projects for any subject, and bring the excitement of Making into your classroom!

Learn with the team of experienced K-12 Maker educators at the MIT Edgerton Center this summer and go back to school inspired!

**Beginners are welcome!** The workshops are appropriate for teachers with tools and materials ranging from portable carts to full-blown makerspaces. No experience required.

One-day workshops for educators to:
- develop technical skills with Maker tools
- learn effective ways to use Maker tools with students in grades K-12
- design creative projects that integrate Maker tools and STEM awareness with any academic subject

These workshops are being offered **in-person and online simultaneously**. Materials are provided (shipped in advance to remote participants). Those on site will use the MIT makerspace tools, while a tool list will be provided to remote.

Tuition cost: **$325** per workshop seat, in-person and remote

**SUMMER 2022 workshops**

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Course descriptions on back of flyer.


*For FREE Maker resources, visit [k12maker.mit.edu](http://k12maker.mit.edu)*
## Workshop Descriptions

### Laser Cutter, Vinyl Cutter and 2-D Modeling

Learn how laser and vinyl cutters can be useful tools in your Makerspace. Practice laser etching and cutting on several materials. Try out a simpler technology: vinyl/craft cutters. Explore 2-D modeling techniques that allow you to use a variety of image sources. Take home project samples.

"The sample box project using Gravit was great and sparked a few potential ideas for the classroom. We also plan on purchasing at least one vinyl cutter after seeing it in use."

### Electronics for Makers

Learn and practice principles of electricity by building circuits with a variety of switches, LEDs, buzzers, and motors. Use soldering irons and multi-meters correctly. Figure out what electrical components and tools are most appropriate for your students and your budget. Build a take-home project and make a component display board for your classroom.

"...really helped me make connections in my head and fill in the holes that were keeping me from understanding more than the most basic electronics."

### 3-D Modeling and Printing

Learn to create 3D models with Tinkercad, prep (slice) models for print, change filament, and remove parts. Get ready to use a 3-D printer with a classroom of students. Leave with an original print of your own.

"Diane de-mystified 3D printers for me...it was great being able to ask all our uninformed questions, and have them taken seriously."

### Physical Computing with Micro:bit and Arduino

Coding is meaningful to students when they can read in touches or light levels and control electrical devices like motors, LEDs, and speakers. Micro:bit and Arduino are both free coding environments that are well-supported, easy to source, and have a wide array of devices designed to interface with them. Follow our tutorial projects to learn and practice coding basics and troubleshooting strategies. Leave with classroom ideas, your own project and an extensive kit of starter materials. Micro:bit is appropriate for students 4th grade and up. Arduino is best for high school or students that can use breadboards.

### Making with Music

**Sound Studio:** Find sounds, and turn them into music on Soundtrap - a free browser-based collaborative audio editing platform. Create and present expressive, "sonic art" that is rich in meaning.

**DIY Acoustic instruments + music theory.** Build melodic instruments from wood and explore the physics of music-making.

### Maker Project Design and Craft Tools

After you and your students learn how to use the tools and tech, what happens next? Join us and learn how to design custom projects that integrate Maker technologies with your academic curriculum. Learn simple hands-on activities that introduce and build enthusiasm for Making. Explore sample Maker projects and our online IdeaGallery. Get instruction and practice with craft tools and materials and be able to make parts of a project that go along with digital fab parts. We recommend that participants have some familiarity Maker technologies.

"Learned what entry level tools would be appropriate for a middle school makerspace. On the way home I stopped to look at purchasing some new tools!"