

What is a Maker?

Supporting Documentation:

- [Edutopia: Designing a School Maker Space](#) by Jennifer Cooper
 - [Making: From Clubs to Curriculum](#) by Gary Donahue
 - [MakerSpace Playbook](#)
 - Professional Development and Applications: [Lockheed Martin STEM Education](#)
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[Makerspaces](#) and STEAM clubs are being developed in schools and libraries across the world.

Makerspaces or clubs provide hands-on, creative ways to encourage students to design, experiment, build and invent as they deeply engage in science, engineering and tinkering.

The primary mindset of the Maker Movement, set up as Makerspaces & Clubs and folded into school curriculum, are to set up safe learning environments where students are encouraged to create, deconstruct, imagine, connect to the process of learning on real and personally meaningful projects, informed by helpful mentors that guide rather than lecture, using new technologies and traditional tools.

A Maker Club would designate a space or mobile lab that is not solely a science lab, woodshop, computer lab or art room, but it may contain elements found in all of these familiar spaces. It should accommodate a wide range of activities, tools and materials. Diversity and cross-pollination of activities are critical to the design, making and exploration process, and they are what set makerspaces and STEAM labs apart from single-use spaces. A possible range of activities might include:

- Cardboard construction
- Prototyping
- Woodworking
- Electronics
- Robotics
- Digital fabrication
- Building bicycles and kinetic machines
- Textiles and sewing

A Maker Club would promote small groups or individuals to engage in experimental play. Makers are enthusiasts who play with technology to learn about it. Makers learn by jumping right in with minimal instruction and explore what they can do from their own vision and imagination. The learning occurs as they explore. Makers organically ask themselves (or prompted by a mentor) the critical questions that lead to discovery, when they fail and through the process of finding a way to succeed, ingrain new knowledge and out of this process emerges new ideas, which may lead to real world applications. Making is a source of innovation.

Making provides ample opportunities to deeply understand difficult concepts in a fun and compelling manner. Makers seek out STEM content to improve their projects, and they cross disciplines to achieve their goals, rather than staying within one specialty. Makers take risks and iterate from “failures” to achieve success. Makers have a growth mindset that leads them to expend the energy to learn. Making fosters character- building traits collectively known as grit, including creativity, curiosity, open-mindedness, persistence, social responsibility, and teamwork, among others. Makers collaborate and give advice and guidance to their peers.

Objectives of a Maker Club would be to:

- Create the context that develops the Maker mindset, a growth mindset that encourages us to believe that we can learn to do anything.
- Identify, develop and share a broad framework of projects and kits based on a wide range of tools and materials that connect to student interests in and out of school.
- Design and host online social platforms for collaboration among students, teachers, and the community.
- Develop programs especially for students in grades 3 -12 that allow them to take a leading role in creating more Makers.
- Creating the community context for an exhibition and curation of student work in relationship with all makers. Making sure that new opportunities are created for more people to participate.
- Allow individuals and groups to build a record of participation in the Maker community, which can be useful for academic and career advancement as well as advance a student’s sense of personal development.
- Develop educational contexts that link the practice of making to formal concepts and theory, to support discovery and exploration while introducing new tools for advanced design and new ways of thinking about making.
- Fostering in each student the full capacity, creativity and confidence to become agents of change in their personal lives and in their community.

It isn’t enough to train current students for the world of today — we have to train them for tomorrow, a tomorrow that will require them to master technologies that don’t yet exist. Think about it: a child in middle school today will be entering the prime of their careers in 2040. We have no idea what the world will be like then. Therefore it is crucial to develop timeless skills such as curiosity, creativity, and the ability to learn on one’s own. These are precisely the skills that are honed by efforts in Maker Clubs.