Maker programs in the library are more about the process and development of 21st Century Skills than about the final project. Engaging and Sustainable programs will follow the interests of the participants, allow room for trial and error and collaboration. Maker programs help achieve the following:

- Participants see themselves as creators—they will gain confidence in creating their own projects and bringing their ideas to life rather than just copying a sample project. They will come to see themselves as makers.
- Acquire maker skills or tool & materials literacy—participants will gain experience using a variety of tools, technologies, materials etc. They will learn to select the correct tools and materials for the projects they wish to create.
- Become aware of STEAM and real-world connections—participants will be exposed and become aware of the ways in which science, technology, engineering, art and math intersect and will grow their curiosity. Making connections to the real world through videos, guests, volunteers, etc. will show them how making is connected to the real world and expose them to a variety of careers.
- Collaboration, Teamwork, Creativity & Problem Solving—maker programs will help participants learn these valuable skills and grow confident in their ability to work with others, be part of a team, be creative and learn how to problem solve through trial and error.

Your job is to act as the facilitator of the program rather than as the “teacher”. To be a good facilitator you will:

- Discover Together—Try to be one step ahead of the makers because you have tried the project at least once before the program. Don’t be afraid to say you don’t know the answer to a question.
- Be flexible—your makers may encounter problems with the project you never anticipated, they may become interested a different aspect of the project taking the program in a different direction than you wanted, technical may pop-up and you may have to improvise!
- Guide and ask questions rather than showing makers how to solve and issue they are having with their project. Ask questions that will help them come up with ideas to solve the problem rather than providing the answer, for example “Why do you think the LED didn’t light up?”
• Set up the space to encourage discovery and interaction with others. Provide some supplies at the tables but place others in common areas around the room, provide different supplies to each table, encourage movement and talking!
• Don't be afraid of tools!—Soldering, power tools such as hand drills, hammers, Dremels, etc. can make for great additions to programs and provide skill building opportunities. So many children never get a chance to use tools and are excited to use them. Make sure to provide safety information and oversight but use tools and have fun.
• Journal and document—After a program it's always a good idea to sit down and evaluate the session. What went wrong, what issues did the makers experience, ideas for improvements or future projects that grow the skills learned.

Resources:

*The Art of Tinkering: Meet 150+ Makers Working at the Intersection of Art, Science & Technology* by Karen Wilkenson & Mike Petrich (2014)


*Start Making!: A Guide to Engaging Young People in Maker Activities* by Danielle Martin, Alisha Panjwani & Natalie Rusk (2016)

Websites:

MAKE:  [https://makezine.com/](https://makezine.com/)
Maker Camp  [https://makercamp.com](https://makercamp.com)
Maker Education Initiative  [https://makered.org/](https://makered.org/)
Instructables  [https://www.instructables.com/](https://www.instructables.com/)
Adafruit  [https://www.adafruit.com/](https://www.adafruit.com/)
SparkFun  [https://learn.sparkfun.com/](https://learn.sparkfun.com/)
techgirlz Tech Shop in a Box  [https://www.techgirlz.org/techshopz-in-a-box/](https://www.techgirlz.org/techshopz-in-a-box/)
Makerspace.com  [https://www.makerspaces.com/](https://www.makerspaces.com/)
Future Engineers  [https://www.futureengineers.org/](https://www.futureengineers.org/)
littleBits  [https://littlebits.com/](https://littlebits.com/)
Colleen Graves Blog  [https://colleengraves.org/](https://colleengraves.org/)
DIY  [http://diy.org](http://diy.org)