**Project ECSITE Unit:** Software Tutorials for Public Libraries

Working with the programs leadership of Boulder Public Library the Fellow was able to help explore formatting and content for proposed additions to publicly accessible technology tools. The output from this work were sketches of both a technology website for library users and specific tutorials designed with the hierarchical structure of computer programs themselves. The goal was to identify content structure that created a pattern of learning and thus thinking in computational frameworks.

**Content Areas:** computer science, data analysis & probability, measurement, numbers & operations, reasoning & proof, science & technology, and social sciences

**Grade Level:** All ages. User tests were conducted with participants ages 21 - 70.

**Computational Thinking Connection:**
Framing Computational Thinking as translation into familiar, non-jargon, non-esoteric language to describe computer technology, content was developed and tested to introduce learners to computational logic and hierarchy rather than coding. For example, a 3D modeling tutorial led users through very basic workflows from 2 dimensional line and block (raster) graphics. These graphics had to be properly formatted prior to output to a laser cutting/engraving machine. This generally follows the computational workflow of setting the parameters, designing a logical workflow, and executing a program.

**Pre-Requisite Knowledge:**
This content was designed explicitly for students with no more than basic understanding of the operation of a computer.

**Time Required:** 60 minutes for the Computer Aided Design (CAD) and laser cutting basic use and operation.

**Related Lessons/Activities:**
- Introduction to CAD program for laser cutting.
- Knowing the difference between vector and raster graphics.
- Understanding physical scale translation between graphics and physical measurements.
- How programs can be designed to lock and unlock features as needed.

**Links:**

**Contributors:**
Principal Investigator: Debra S Goldberg, Colorado University Boulder
NSF GK-12 Fellow: Zack Jacobson-Weaver, Colorado University Boulder
Amy Schumm: eServices Manager, Boulder Public Library
Adam Watts: Technology Specialist, Boulder Public Library
Supporting Programs:
National Science Foundation
eCSite Program for Computational Thinking