



## Course Description:

Throughout the lesson sequence, students acquire knowledge and skills of laser cutting and engraving. Students will be learning about lasers, basic laser cutting/engraving machine operation, and how to use Adobe Express. Students will begin with 2-Dimensional projects and build up to more advanced 3-Dimensional projects with real-world applications.

## Equipment, Curriculum, and Training Available:

- 15 Lesson Hours
- Curriculum and supporting materials
- Ongoing product and curriculum support
- Professional development
- Facilitation by a trained STEM instructor (optional)

Lesson	Learning Target Examples
1: How do Lasers Work?	Learn about safety around laser machines.
2: Introduction to the K40	Learn about the K40 Laser cutter includes component identification, safety reminder, and preparing for the first machine job.
3: Pre-Made Designs and Familiarizing with the Machine Software	Load a pre-made file into the application software and safely create first, finished project.
4: Raster Vs Vector, Cutting vs Engraving	Learn the difference between raster and vector and when each is used.
5: Introduction to Adobe Express	Use Adobe Express to combine text, elements, and vector art to create a custom image.
6: Material Selection	Experiment with speed, power, and number of cuts to tune the laser cutter/engraver to different materials.
7: Your First Project: Wooden Keychain	Create an original design with Adobe Express which will be a cut and engraved keychain from fiberboard or wood.
8: Laser Engraved Business Cards	Create a custom business card to be engraved on an aluminum blank.
9: Laser-cut Vinyl Sticker	Design a custom sticker in Adobe Express, print it, and use the laser cutter to precisely cut out the design.
10: Snowflake or Paperchain	Design a snowflake or paperchain by laser cutting a folded piece of paper.
11: Stand Up Signage	Design and create a custom, free standing sign using fiberboard or wood.
12: Coaster Set with Storage Box	Design and create a coaster set with an accompanying open-topped storage box.
13: Kerf-Bend Box	Learn and utilize the kerf-bend technique to make flexible structures from wood.
14: Bridge Building	Research truss design and create a bridge using laser cut techniques.
15: Box Ukulele	Learn the fundamentals of a ukulele including resonance and then design, laser cut, and assemble the major components of a ukulele.