Level 1 Overview

Hand Tools: BMX Bikes
Students will learn to use assorted hand tools including box wrenches, screw drivers, adjustable wrench, and a variety of pliers by disassembling and reassembling BMX bicycles.

Silk Screening: 2-Color T-Shirt
Students will learn the basics of silk screening by setting up and using a screen press to create their own two-color designs. They'll align and print each color layer onto a T-shirt, learning about registration, ink application, and the screen-printing process. Each student will finish the class with a custom Urban Workshop two-color shirt they printed themselves.

2D Design: 2-Color Shirt
Students will learn the fundamentals of digital design with Affinity, starting with the basics of vector graphics. They design their own custom graphics to use in the vinyl cutting and apparel projects. If possible, students should bring their own PC/Mac laptop with Affinity installed.

Vinyl Cutting & Heat Press Application: 2-Color Shirt
Students will operate the vinyl cutter to cut the custom graphics they designed in Affinity. They will then learn to safely operate a heat press and transfer their vinyl designs onto a T-shirt. The class covers digital fabrication and material transfer, and each student finishes with a custom shirt.

Hand Sewing: Goggles Case
Students will learn the basics of hand stitching including laying out and measuring fabric and felt, preparing needles and thread, reviewing types of stitches and hems, and sewing together materials to make a customized safety glass case.

Sheet Metal Fabrication: Marquee Star
Students will learn the fundamentals of sheet metal work while creating their own light-up marquee star. They'll use precision tools to shape and assemble metal components, then operate a spot welder to permanently join the frame. The class covers fabrication techniques, tool safety, and the basics of working with metal, and students finish with a star they can take home and display.

Raspberry Pi Pico and Electronic Circuits: Marquee Star
Students will wire up 5 LED's, a switch, and batteries to complete a DC electronic circuit and make the metal star light up. Install electronics in the metal star using wire strippers, crimpers, scissors, heat gun, soldering iron, and multi-meter. They will learn to program a Raspberry Pi Pico, a small, programmable microcontroller board. This lets them build interactive projects that use sensors, buttons, lights, and motors. If possible, students should bring their own PC/Mac laptop with Thonny and MicroPython installed.

Woodshop: Hand Tool Skills & Practice: Tool Box
Students will use woodshop hand tools including hand saws, hand drills, files, and sandpaper to learn fundamental woodworking skills. They will also learn laser engraving, using the design skills they learned in 2D Design to prepare the files and build their own personal toolbox.

Assembly: Race Car Derby
Students will assemble their own aluminum-framed race cars using a variety of hand tools. They then use wood and the other skills they've learned that semester to customize their car. They will test their cars and observe how different weights, builds, and materials affect speed and performance, covering the basics of physics, engineering, and problem-solving.

* Urban Workshop reserves the right to change class topics and the order the classes are taught without notice.