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.

2D Design & Vinyl Cutting
Students explore the fundamentals of digital design and vinyl cutting. Using Onshape, they create their own Urban Workshop logo as well as a personalized name design. From there, they learn how to operate the vinyl cutter and apply their custom graphics to a T-shirt—bringing their digital work to life in wearable form. This hands-on project introduces students to vector design, digital fabrication, and material transfer techniques in a fun and tangible way. If possible, students should bring their own PC/Mac laptop with Arduino IDE installed.

Heat Press Application
Students will learn how to safely operate a heat press to complete their custom apparel project. Using the vinyl designs they created in the 2D Design class, they'll transfer their work onto a T-shirt, gaining hands-on experience with heat-based material application. This process introduces them to professional production tools and the final step in turning digital designs into wearable pieces.

Hand Sewing (on-site only)
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 – Metal 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. This hands-on experience introduces students to fabrication techniques, tool safety, and the basics of working with metal—while ending with a finished project they can proudly display.

Arduino and Electronic Circuits – Metal 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 Arduino, an open-source electronics platform based on a small, programmable circuit board (called a *microcontroller*). This allows them to create interactive projects that respond to the world around them—using sensors, buttons, lights, motors, and more.

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. Using vinyl-cut stencils, 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 designed and printed themselves.

Woodshop: Hand Tool Skills & Practice
Students will use woodshop hand tools including hand saws, hand drills, drill bits, files, sand paper, hammers, and chisels to learn fundamental woodworking skills. They will learn laser engraving using their learned design skills, using hands on experience to prepare files and execute their very own personal tool box.

Race Car Derby
Students will design and build their own wooden race cars using a variety of hand tools. They'll explore how washers, connectors, and simple joinery work together to create a functional object—gaining a deeper understanding of how parts fit and move. They will test their creations and observe how different weights, builds, and materials affect speed, strength, and performance—introducing basic principles of physics, engineering, and problem-solving in an exciting, interactive way.

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