



## 1 Week Summer Camp - Level 1 Overview

(Updated 3/30/2016)

### **Level 1 Overview**

1. Basic Hand Tools
2. Autodesk Fusion 360 (sketching, modeling, sculpting)
3. Laser Etcher
4. Basic Electronics and Soldering
5. Silk Screening
6. Sewing
7. Vacuum Forming
8. Silicone Molding
9. Wood Shop Skills and Practice
10. Woodshop Marshmallow Crossbow

### **Week 1: Basic Hand Tool Use**

**Activity:** Disassemble and reassemble BMX bicycles.

**Tools required:** Assorted hand tools including: box wrenches, allen wrenches, screw drivers, adjustable wrench, various types of pliers (Use 1 UW premade tool box per 2 kids)

**Materials required:** 1 BMX bike per 2 kids

**Kids prep / supplies:** None

### **Week 2: Autodesk Fusion 360 Software Intermediate**

**Activity:** Work in classroom with overhead projector to show them how to make a design. This will include walking thru a tutorial and doing part model development. Kids to design their desk top name badge as homework then email file to Urban Workshop for printing. Part will be given to kids before end of camp.

**Tools required:** Free downloaded software from Autodesk, a laptop and overhead projector

**Materials required:** None

**Kids prep / supplies:** Bring their own PC based laptops. Kids / parents to preinstall software.

### **Week 3: Laser Etcher Overview**

**Activity:** Laser etch wood components on laser. Kids will then take time to assemble the wood project and fine tune it to make sure they work as designed. Projects may vary.

**Tools required:** 3D printers, laser etcher

**Materials required:** 5mm plywood for laser etching

**Kids prep / supplies:** None

### **Week 4: Basic electronics and soldering skills**

**Activity:** Class room explanation of circuits, electrical concepts and wiring. Build a "Operation" style buzzer game to learn circuits and soldering. Practice wire stripping, terminating and soldering. Show how to measure voltage and continuity using multi-meter.

**Tools required:** Assorted electronics hand tools including: wire strippers, crimpers, scissors, heat gun, soldering iron, multi-meter (Use 1 UW premade tool box per 2 kids)

**Materials required:** Assorted wire, Lillypad battery pack, battery, foam game board base, electronic buzzer, shrink wrap, butt connectors

**Kids prep / supplies:** None



### **Week 5: T-shirt Silk screening**

**Activity:** Show kids how to setup silk screen press and silk screen logo t-shirts using 2 colors.

**Tools required:** Silk screen press, screens, squeegees, and clean up materials

**Materials required:** white t-shirts, screen ink, Urban Workshop logo silk screens

**Kids prep / supplies:** Kid's shirt sizes ahead of time so we can purchase shirts.

### **Week 6: Basic Sewing**

**Activity:** Layout and measure fabric, prepare needle and thread, review types of stitches and hems, sew together materials to make a bean bag.

**Tools required:** Needles, thread, scissors, rulers, layout table area

**Materials required:** Large fabric swatches, thread, templates, beans,

**Kids prep / supplies:** None

### **Week 7: Vacuum Forming**

**Activity:** Learn to use vacuum former to make superhero and storm trooper masks. Kids will then paint and decorate the masks for use.

**Tools required:** Vacuum former

**Materials required:** 1/32" plastic sheet, acrylic paint & supplies, scissors, rubber bands, stapler, glue

**Kids prep / supplies:** None

### **Week 8: Silicone Molding**

**Activity:** Kids will mold two parts. One using an open face mold the other a silicone mold.

**Tools required:** Silicone molding kits, mold release, plastic cups to use as mold containers, scissors, gram scale, mixing cups, stirrers, rags

**Materials required:** Silicone molding kits, mold release, part samples to use as master parts.

**Kids prep / supplies:** Kids have option to bring in a small toy or piece to mold.

### **Week 9: General Wood Skills and Tools**

**Activity:** Use basic wood shop hand tools to learn basic skills.

**Tools required:** Handsaw, hand drill, drill bits, files, sand paper, hammer, screw driver

**Materials required:** 2x4 board, nails, screws, plywood

**Kids prep / supplies:** None

### **Week 10: Wood shop – Build Marshmallow crossbow**

**Activity:** Use basic hand tools to make a marshmallow crossbow.

**Tools required:** Scroll saw, hand drill & bits, file, sand paper, scissors, hammer, screw driver

**Materials required:** 3/4" thick board, nails, screws, bungee cords, zip ties, 1/4" wood dowel

**Kids prep / supplies:** None

### **Please note:**

These class topics, activities, and descriptions are all subject to change at any time without notice.