



12 Week Level 1 Program Overview

(Updated 3/30/2016)

Level 1 Overview

1. Basic Hand Tools
2. Autodesk Fusion 360 (sketching, modeling)
3. Autodesk Fusion 360 (sculpting, rendering)
4. Laser Etcher
5. Basic Electronics and Soldering
6. Vacuum Forming
7. Silk screening
8. Sewing
9. Silicone molding
10. Wood shop skills and practice
11. Woodshop Tic-Tac-Toe game board
12. 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 Introduction

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.

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: 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 as next class.

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 4: 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 5: 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 6: Vacuum Former

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 7: 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 8: 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 9: 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 10: 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 11: Build Tic-tac-toe game

Activity: Use basic wood shop hand tools to make a tic-tac-toe board game with hidden internal game piece holder.

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

Materials required: 2x4 board, nails, screws, and marbles as game pieces

Kids prep / supplies: None

Week 12: 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: $\frac{3}{4}$ " thick board, nails, screws, bungee cords, zip ties, $\frac{1}{4}$ " wood dowel

Kids prep / supplies: None

Please note:

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