## Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 a.m.</td>
<td>Breakfast &amp; Networking</td>
</tr>
<tr>
<td>9:00 a.m.</td>
<td>Welcome &amp; Housekeeping Introductions</td>
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<tr>
<td>9:30 a.m.</td>
<td>Workshop Overview&lt;br&gt;Project - goals, objectives, funding</td>
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<tr>
<td>9:45 a.m.</td>
<td>Activity Stations:&lt;br&gt;Take Apart Circuit Boards&lt;br&gt;Design Challenge</td>
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<td>11:45 a.m.</td>
<td>Group Discussions on Activity Stations</td>
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<tr>
<td>12:00 p.m.</td>
<td>Lunch – Videos, Networking</td>
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<tr>
<td>1:00 p.m.</td>
<td>Maker 101</td>
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<td>1:45 p.m.</td>
<td>Design Thinking &amp; how does it tie into Making?</td>
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<tr>
<td>2:15 p.m.</td>
<td>Outreach</td>
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<tr>
<td>2:45 p.m.</td>
<td>Break</td>
</tr>
<tr>
<td>3:00 p.m.</td>
<td>Documenting Your Project&lt;br&gt;Social Media&lt;br&gt;Available Resources</td>
</tr>
<tr>
<td>3:45 p.m.</td>
<td>Partnerships and Collaboration</td>
</tr>
<tr>
<td>4:45 p.m.</td>
<td>Review of Day&lt;br&gt;Plus/Delta</td>
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</tbody>
</table>

## Training Purpose:
Provide participants with the knowledge, resources, & skills to implement & evaluate formal & informal teen maker programming.

## Desired Outcomes:
By the end of the training, participants will:

1. Be knowledgeable about the maker movement, making, and design thinking.
2. Demonstrate the ability to create formal and stealth programs with the provided materials and curriculum.
3. Be knowledgeable of tools to create basic electronics and Arduino projects.
4. Demonstrate the ability to facilitate and guide informal learning within the Makerspace.

Facilitators:

- Erica Compton<br>erica.compton@libraries.idaho.gov
- Sue Walker<br>sue.walker@libraries.idaho.gov
- Nick Grove<br>nick@mld.org

This project is funded through the Library Services & Technology Act, administered by the Institute of Museum and Library Services.
Make It at the Library 2015

Agenda

8:00 a.m. Full Breakfast and Networking

8:30 a.m.
- Review basic electronics document
- Review breadboarding document
- Review introduction to Arduino documents

8:45 a.m.
- Electronic components and Breadboarding
  - Voltage and current
  - Resistors, capacitors, inductors, diodes, LEDs, switches, transistors
  - Layout of a breadboard (nomenclature and function)
  - Different types and size of breadboards
  - Project 1 – LED and a switch (push button vs toggle switch)
  - Project 2 – 555 timer w/ touch paint switches (monostable mode)
  - Project 3 – 555 frequency generator (astable mode, with motors and buzzer)

9:00 a.m.
- Activity

12:00 p.m. Lunch

12:25 p.m. Discussion

1:00 p.m.
- Arduino
  - Introduction to Arduino (nomenclature and function)
  - Programming environment (IDE 1.6.0)
  - Project 0: Hook up Arduino to breadboard (blink LED–powered by Arduino)
  - Uploading pre-programmed code (Fade.h sketch)
  - Arduino code layout and general architecture of Sketches
  - Project 4: Writing your own code (detect input from push button, turn on LED)
  - Project 5: Control color of RGB LED within code
  - Project 6: Read force sensor (analog inputs and the Serial Monitor)
  - Project 7: Control brightness/color of LED w/potentiometer (input + output)

1:45 p.m.
- Activity

4:45 p.m. Questions, Plus/Delta

5:00 p.m. End of Day
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Agenda

8:00 a.m. Full Breakfast and Networking

8:30 a.m. Review of Day Two
Terms, Concepts, Competency

<table>
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<tbody>
<tr>
<td>Intermediate Arduino Projects (all code to be provided, will not write code)</td>
</tr>
<tr>
<td>Introduction - using other people’s code for your projects</td>
</tr>
<tr>
<td>Introduction - understanding Arduino library files</td>
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9:00 a.m. Project 8: Resistive touch sensors (similar to Makey Makey board)
Project 9: Capacitive touch sensor (similar to Bareconductive board)
Project 10: Control position of one servo motor (relay & power electronics)
Project 11: Control position of two servo motors with potentiometer

12:00 p.m. Lunch

12:30 p.m. Review of content—Move forward or review? Discussion

<table>
<thead>
<tr>
<th>Activity</th>
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<tbody>
<tr>
<td>Wearables and e-textiles (remaining time)</td>
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<tr>
<td>Conductive thread and paint – how it can be used in projects</td>
</tr>
<tr>
<td>Gemma microcontroller – (nomenclature and functions)</td>
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1:00 p.m. Project 12: Conductive thread and LEDs (how to program Flora)
Project 13: Paint conductive wires onto fabric and hook up to Flora
Project 14: Flora + tilt sensor to turn on/off LED (build of previous project)

3:00 p.m. Q and A
Evaluations completed

3:45 p.m. Load Cars