## DAY 1

## Overview of Content

* Learn about microcontrollers
  + CPX, arduino
* Learn to code microcontrollers
  + Makecide/ javascript, arduino
* Learn circuitry
* Make!

## Overview of workshop approach

* Introduction lessons on the topic
* Instructions and resources provided for your own reference
* Learning takes place while exploring on your own, example code, using resources
* Learning happens from mistakes and iterating on design and code.
  + Understanding why the mistake occurred will deepen your understanding of coding.
    - Determine whether the error was syntax or logic error.
    - Try coding it in a different way, or read the error message, try a new version, iterate on designs and code

## Getting Started -understanding computers and microcontrollers and how they work

**Discussion:** Ask students what do they know about how computers work?

How does a computer work?

**Watch**: [What makes a computer work?](https://youtu.be/mCq8-xTH7jA) 5 min

What was one thing that stood out to you?

What was one thing that you learned?

**Watch**: [The Journey Inside℠: Curriculum for Microprocessor](https://www.intel.com/content/www/us/en/education/k12/the-journey-inside/explore-the-curriculum/microprocessors.html)

Though this video is old, and “campy,” the information is really clear and fun to watch.

Electrical signals -

Binary numbers

Digital / analog

inputs & outputs

**Follow up discussion:**

What did you find interesting?

What is something that you learned?

What is something that became clearer to you

Other Video Resources (To put on an LMS):

[How Computers Work: Binary and Data](https://youtu.be/USCBCmwMCDA)

[How Computers Work: Circuits and Logic](https://youtu.be/ZoqMiFKspAA)

[How Computers Work: CPU, Memory, Inputs, Outputs](https://youtu.be/DKGZlaPlVLY)

[How Computers Word: Hardware and Software](https://youtu.be/xnyFYiK2rSY)

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