Raspberry Pi Foundation
Digital making for everyone!

Ben Nuttall
Raspberry Pi Foundation
UK Charity 1129409
Raspberry Pi
Raspberry Pi in Schools
Raspberry Pi at home
Raspberry Pi in industry
Raspberry Pi Foundation

- Educational charity founded in 2009
- Aims to democratis computing
- Owns trading subsidiary Raspberry Pi Trading Ltd
- Trading profits fund educational programmes
Our mission

“Putting the power of digital making into the hands of people all over the world”
We do this by providing...

- Low-cost, high-performance computers
- Outreach and education programmes
- Free resources and teacher training
13 million Raspberry Pis sold
Current models

- Raspberry Pi 3
  - 64-bit quad-core ARMv8 @ 1.2GHz
  - 1GB RAM
  - $35

- Raspberry Pi Zero
  - 32-bit single-core ARMv6 @ 900MHz
  - 512MB RAM
  - $5 / $10
Raspbian Jessie with PIXEL
GPIO Pins – General Purpose Input/Output
Physical computing

- Flashy lights
- Motors & robots
- Photo & video
- Sensors
- Internet of Things
- Engaging and empowering
Free learning resources

- Free resources to teach, learn and make with Raspberry Pi
- Freely licensed, CC BY-SA
- Source available on GitHub
- raspberrypi.org/resources

Now try moving it from 3V3 to GPIO pin 17:

The LED should now turn off, but now it’s on a GPIO pin, and can therefore be controlled by code.

SWITCHING AN LED ON AND OFF

GPIO Zero is a new Python library which provides a simple interface to everyday GPIO components. It comes installed by default in Raspbian.
<table>
<thead>
<tr>
<th><strong>Design</strong></th>
<th><strong>Programming</strong></th>
<th><strong>Physical Computing</strong></th>
<th><strong>Manufacture</strong></th>
<th><strong>Community and Sharing</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Creator</strong></td>
<td><strong>Creator</strong></td>
<td><strong>Creator</strong></td>
<td><strong>Creator</strong></td>
<td><strong>Creator</strong></td>
</tr>
<tr>
<td>Design basic 2D and 3D assets</td>
<td>Use basic programming constructs to create simple programs</td>
<td>Use basic digital, analogue, and electromechanical components</td>
<td>Use basic materials and tools to create project prototypes</td>
<td>Engage and share with the digital making community</td>
</tr>
<tr>
<td><strong>Builder</strong></td>
<td><strong>Builder</strong></td>
<td><strong>Builder</strong></td>
<td><strong>Builder</strong></td>
<td><strong>Builder</strong></td>
</tr>
<tr>
<td>Combine 2D and 3D assets in the assembly of a project</td>
<td>Combine programming constructs to solve a problem</td>
<td>Combine inputs and/or outputs to create projects or solve a problem</td>
<td>Use manufacturing techniques and tools to create prototype projects</td>
<td>Collaborate on digital making projects with other community members</td>
</tr>
<tr>
<td><strong>Developer</strong></td>
<td><strong>Developer</strong></td>
<td><strong>Developer</strong></td>
<td><strong>Developer</strong></td>
<td><strong>Developer</strong></td>
</tr>
<tr>
<td>Use multiple designed assets in completed products and models</td>
<td>Apply abstraction and decomposition to solve more complex problems</td>
<td>Process input data to monitor or react to the environment</td>
<td>Use manufacturing techniques and tools to create a completed product</td>
<td>Support others in the design and build of their digital making projects</td>
</tr>
<tr>
<td><strong>Maker</strong></td>
<td><strong>Maker</strong></td>
<td><strong>Maker</strong></td>
<td><strong>Maker</strong></td>
<td><strong>Maker</strong></td>
</tr>
<tr>
<td>Design multiple and integrating assets for use in complex finished projects and models</td>
<td>Apply higher-order programming techniques to solve real-world problems</td>
<td>Create automated systems to solve complex real-world problems</td>
<td>Independently use fabrication systems to produce complex finished projects</td>
<td>Educate others in the skills and ethos of digital making</td>
</tr>
</tbody>
</table>
Picademy

- Free teacher training & professional development
- Network of certified educators
- Cross-curricular
- Courses run regularly in UK & US
- raspberrypi.org/picademy
Raspberry Jam

- Independently organised community events
- Family-friendly
- Mix of meetup / conference / workshop styles
- raspberrypi.org/jam
Code Club

- Free volunteer-led after school clubs for children aged 9-13
- Projects provided using Scratch, HTML and Python
- Training and support provided for volunteers
- codeclub.org.uk
Astro Pi

- Raspberry Pi space programme
- 2 x Pis on the ISS
- Direct involvement with astronauts Tim Peake & Thomas Pesquet
- Competitions for kids to have code run in space
- European-wide competition
- astro-pi.org
The MagPi

- Monthly 100-page magazine
- Available to buy in shops or online
- Also available free online
- CC BY-NC-SA
- Nov 2015 - free Pi Zero
- May 2017 - free AIY projects kit