Coding and Maker Projects with the BBC micro:bit

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Welcome

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http://bit.ly/2MgYw0S
“If a kit is an end in and of itself, it becomes unsustainable.”
Introducing the Microbit

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Introducing the Microbit

- Battery or Micro USB
- Reset button
- Multiple sensors built in:
  - Compass
  - Bluetooth
  - Temperature and Accelerometer

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The Makecode Interface

- LEDs
- A & B buttons
- Multiple pins
- Control with alligator clips

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Connecting the micro:bit (USB)

1 - Connect the USB cable

2 - micro:bit appears as a drive. Download .hex file to the micro:bit

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Connecting the micro:bit *(Bluetooth iOS and Android)*

1 - Plug in micro:bit w/ battery pack. Run the app
2 - Connect the micro:bit

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The Makecode Interface

- Has a built-in emulator.
- Debug the code before you run it on the Microbit

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The Makecode Interface

- When working with sounds and music, tutorial shows how to use Alligator Clips

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Getting Started

How do you start? It’s so easy!

1. Connect it to your computer with USB (no need for the battery pack if connected to the computer)
2. Program it in Block/Javascript or Python (more options in resources)
   Block/Javascript Lessons / Python Tutorials
3. Download the HEX file to your computer and drag to micro:bit
   This is the step that students run into trouble with.

Where to go to start?
- makecode.org
- micro:bit Features
- micro:bit Quick Start
- Quick Start Guide for Teachers
- micro:bit Editors <--- Start coding here!

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Task Card #1: Create a happy face

1. Go to makecode.com and select the micro:bit
2. Add the code under ‘Basic’ that will allow you to create your first program in Makecode.com
3. Add the happy face under ‘show icon’ to Start
4. You should see the following in the emulator
5. Download and drag the code to the micro:bit and ‘run’ the program

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Task Card #2: Program emoticons or other pictures

In makecode.com for micro:bit, do the following:

1. Program emoticons or other pictures -
2. Go to Input and select on Button A pressed
3. Add an emoticon (like the smiley face) into the code.
4. Can you make a different image appear if button A is pressed?
5. Go further: What can you add for button B or both buttons or if you shake the micro:bit?

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Task Card #3: Play a sound

Working with the same concept of the A/B, A+B, and shake, have the micro:bit play sounds.
Hook up a speaker or headphones with the alligator clips and download the program.

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Task Card #4: Interact with the physical environment

Create a program that shows compass direction and scrolls the temperature.

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Task Card #5: Make your own creation

Interact with the physical environment.
Play music, move a dot, make a game, merge with Legos.
Whatever you do, share it out with the group when you have it working.
Upload to the micro:bit

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Resources

Other Ways to Program micro:bit:
- There are apps for that! iOS / Android
- ScratchX (only for Mac)
- Arduino IDE
- Online Python Simulator
- Grok Learning Courses

Other:
- Fun kits for micro:bit from SparkFun
- Tech Will Save Us - Kits

Ideas/Lessons/Curriculum:
- Teach (Click the different sections under Teaching Resources)
- micro:bit Lessons
- microPython Tutorials
- 14 Week CS Course (Great for makers!)
- Doctor Who & the micro:bit
- Tech Will Save Us
- Crowd sourced micro:bit Projects
- Microbit Space Invaders
- micro:bit Playground
- Elevating Computer Science with micro:bits (connecting with MIT App Inventor using BlocklyTalkyBLE)

Nods to Vicky Sedgevick @visionsbyvicky for these resources!

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