

Micro:bit & Scratch 3.0: Physical Computing for All Learners

July 26, 2018 • Scratch@MIT

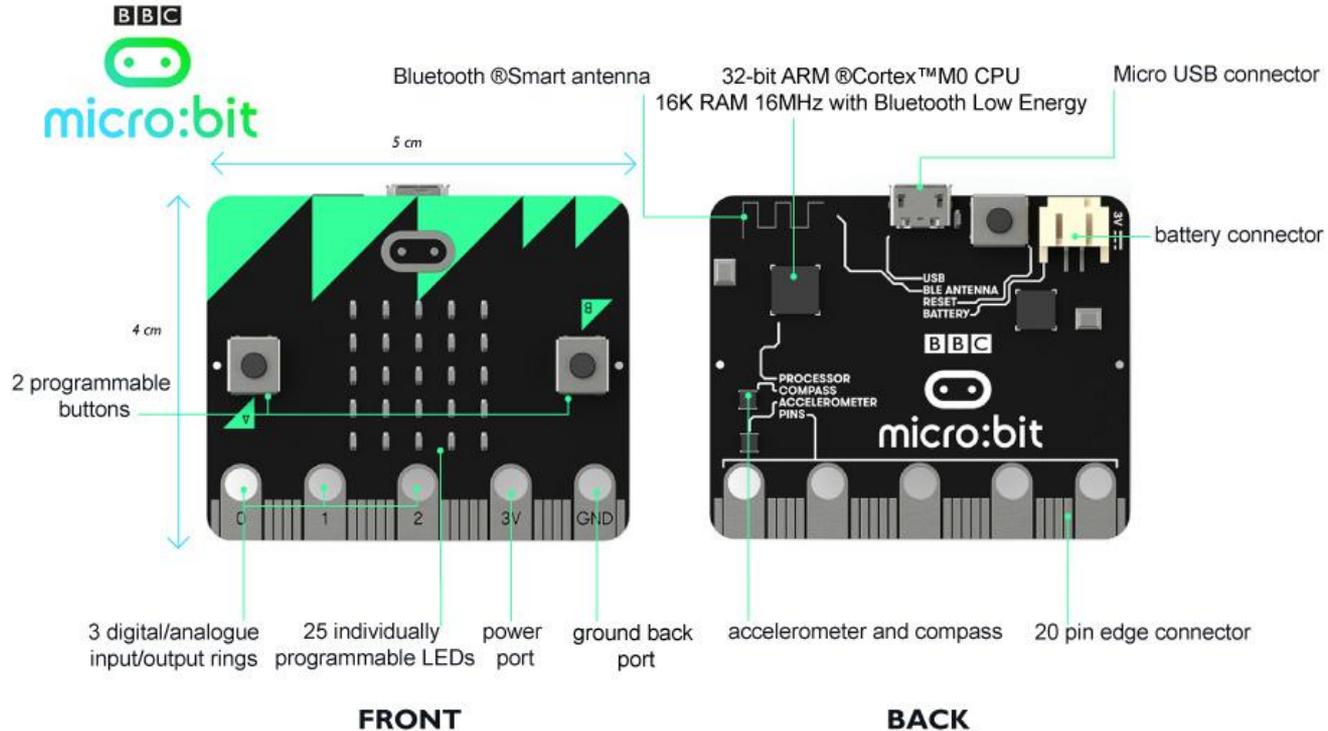
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STEAM Learning Lab, Lesley University

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STEAM & Computer Science, BPS Tech,
Boston Public Schools



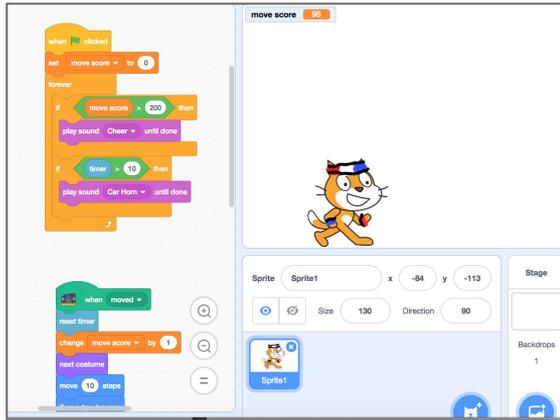
The Micro:bit



Project Ideas:

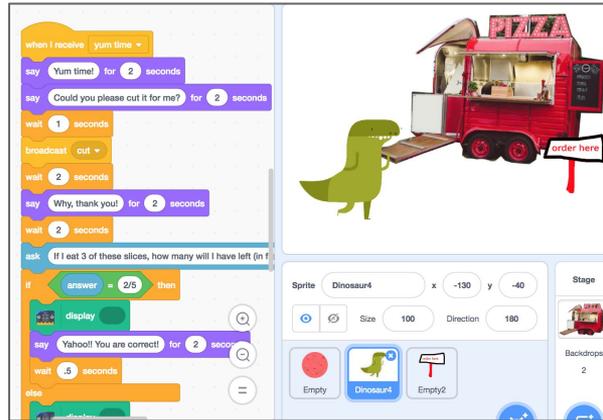
In our time together, can you create 1-2 of these projects in pairs?

Activity Tracker:



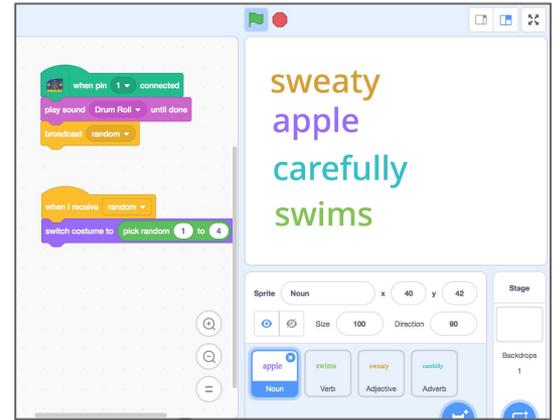
The image shows a Scratch script for an activity tracker. It starts with a 'when clicked' event, followed by 'set move score to 0'. A 'forever' loop contains: 'move score > 200 then play sound Cheer until done', 'move score x 200 then', and 'if timer > 10 then play sound Car Horn until done'. Below the loop, there is a 'when moved' event, 'reset timer', 'change move score by 1', 'next costume', and 'move 10 steps'. The stage shows a cat sprite and a 'move score 00' label.

Math Story Problem:



The image shows a Scratch script for a math story problem. It starts with 'when I receive yum time', followed by 'say Yum time! for 2 seconds', 'say Could you please cut it for me? for 2 seconds', 'wait 1 seconds', 'broadcast cut', 'wait 2 seconds', 'say Why, thank you! for 2 seconds', 'wait 2 seconds', and 'ask If I eat 3 of these slices, how many will I have left (in 1)'. An 'if answer = 2/5 then' block contains 'display', 'say Yahoo! You are correct! for 2 seconds', and 'wait .5 seconds'. The stage shows a green dinosaur and a red food truck with a sign that says 'order here'.

Touch Sensors:



The image shows a Scratch script for touch sensors. It starts with 'when pin 1 connected', followed by 'play sound Drum Roll until done' and 'broadcast random'. Below, there is a 'when I receive random' event, 'switch costume to pick random 1 to 4'. The stage shows the text 'sweaty apple carefully swims' and a 'Noun' sprite.

Interactive Lego Challenge

Can you design a space that is special to you using Legos: home, a park, museum, school, etc? Incorporate the Micro:bit in way that allows users to use the push buttons, touch sensors, or view the display in interesting ways.



<https://make.techwillsaveus.com/bbc-microbit/activities/lego-exploration>

Engineer a Housing for the Micro:bit

Can you design a housing for the Micro:bit that lets you attach it to your body in a creative way? How about attaching it to one of the playful objects or recyclables?



Helen Leigh @helenleigh Jul 11

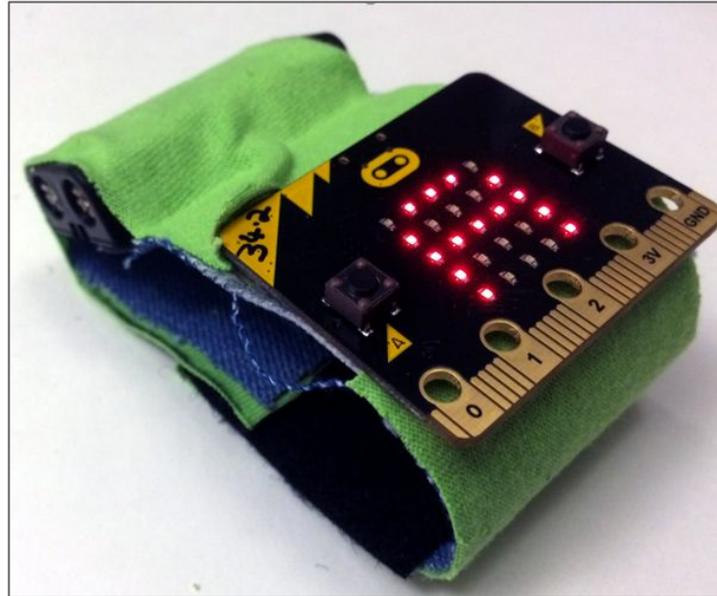


Photo via microbit.co.uk

Lesley STEAM guidelines:



Let's Play:
Learning as "Hard Fun"¹

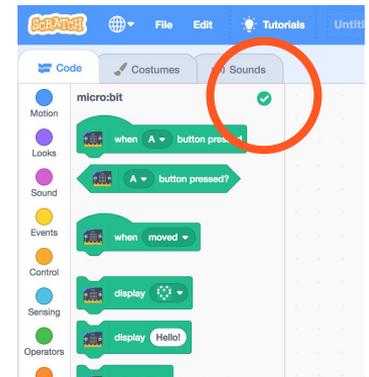
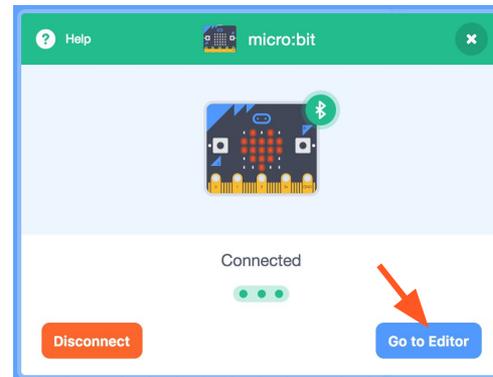
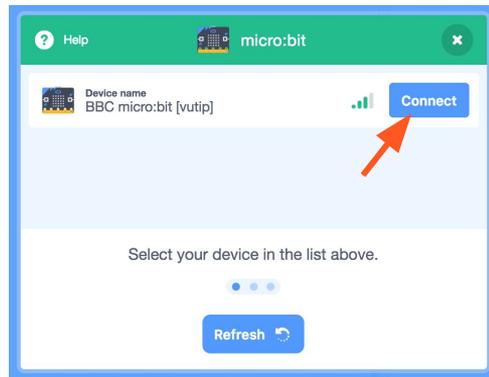
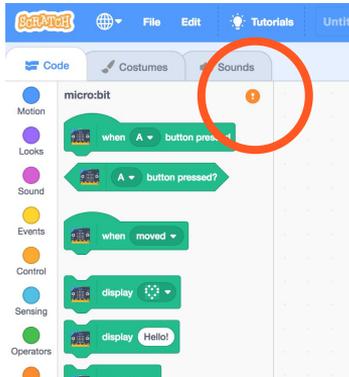
Let's Think Out Loud:
Learning as Social

Let's Ask the Room: Learning
as a Network of Thinkers

Let's download Scratch Link

Note: Scratch Link only supports Mac OS X 10.13+ and Windows 10+

1. Download and install “Scratch Link”: <https://scratch.mit.edu/microbit>
2. Find the application Scratch Link on your computer, click on it to make it run. Make sure you see the icon for it in your toolbar.
3. Then in Scratch 3.0 (<https://beta.scratch.mit.edu>):

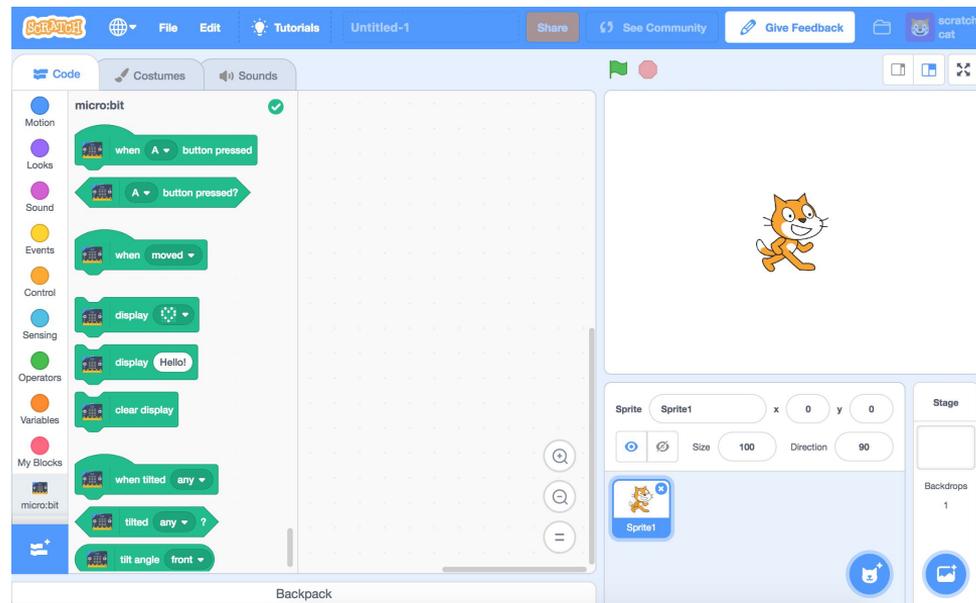


Let's Play (in pairs)!

<https://beta.scratch.mit.edu/>

[If you're coming in late:]

- Download and install:
<https://scratch.mit.edu/microbit>
- Find Scratch Link on your computer, click on it to make it run. Make sure you see the icon for it in your toolbar.



Let's Share!

Share one thing with the room that surprised or delighted you.

