

micro:bit radio workshop

Girls Do Tech, October 2018

<http://bit.ly/gdtech-radio-workshop>



What? Why?

Send signals ***easily*** from one microbit to others.

- Remote control
- Make your creation can appear to work "by magic"!
- Control a microbit that's hard to get to (e.g. hidden away)
- Make something social - different creations can interact!

Getting Started

Go to "makecode" to program the micro:bit:

<https://makecode.microbit.org/>

WIFI:

Network: ?

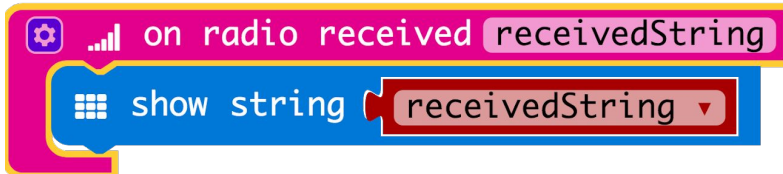
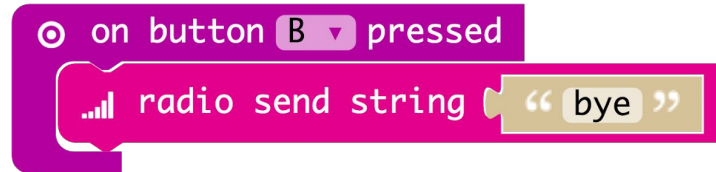
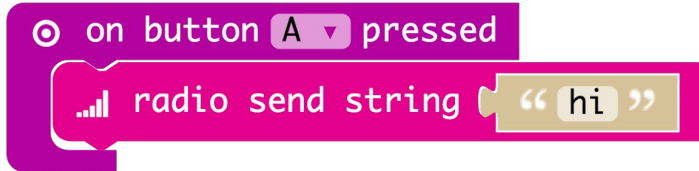
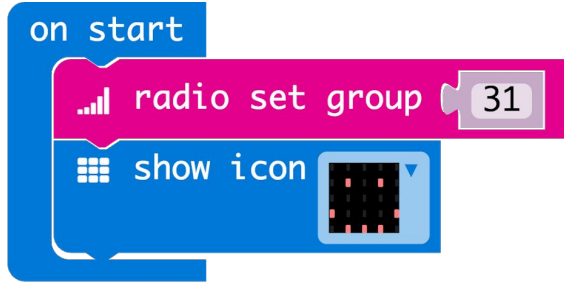
Password: ?

Online links to examples

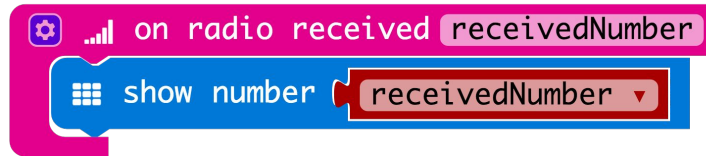
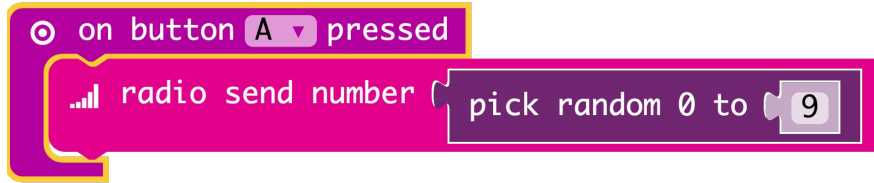
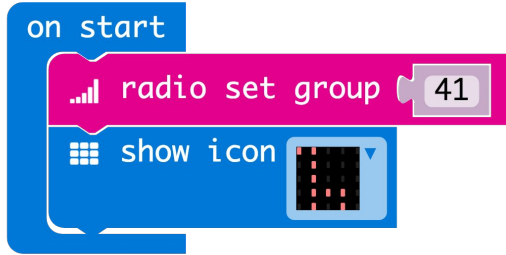
If you're reading these slides online, here are clickable examples:

- [Send words on radio](#)
- [Send numbers on radio](#)

Guess what this does



Another one to guess



Challenges

- Send any message to your coding partner. Test the range.
- Send words to group **11** - **Neill's** microbit
- Send words to group **12** - **Nishka's** microbit
- Send random numbers (0-255) to group **13** - the **servo**
- Send a number (0-255) to group **14** - the **giant barchart**
- Send musical note names like "c", "d", "e", etc, to group **15** - **musicbox**
- Send a number from 1-9 to group **16** - the **zip halo**
- Advanced: repeatedly send the light level (0-255) to...
 - to group **14** - the **giant barchart**
 - to group **13** - the **servo**

Troubleshooting

- The radio **group** must match, on the sender and receiver. Set this on start.
- Are they in range?
- What have you told the receiver to do? Anything?
- Don't send messages faster than the receiving microbit can deal with them.
- Don't mix sending strings (text) and numbers. Use either `OnRadioReceivedString` or `OnRadioReceivedNumber`, depending.
- Are they on? Low Batteries?

some micro:bit **inputs**

- buttons (A, B, A+B)
- light level
- rotation
- gestures (shake, etc)
- compass heading
- temperature
- "resistive touch" (pins 0, 1, 2)
- analog pins 0, 1, 2 (e.g. external microphone, sliders, dials)
- radio messages
- bluetooth messages
- serial and i2c (e.g. external colour sensors)
- timings, durations, rhythms, combinations, etc, of the above

