Microbit Lesson 7: Bluetooth communication

Today's lesson:

- Using the microbit bluetooth radio

Video

- Microbit lesson 7 video

Key points

- Setup

You have to import the radio library, pick a channel number and ensure the radio is turned on. All microbits you want yours to communicate with must be on the same channel (between 0 and 100).

```
import radio
radio.config(channel=10)
radio.on()
```

- To receive a message

```
# If there is a message, it will be put into the variable received.
#  - Will be set to `None` if there isn't a message.
received = radio.receive()
display.scroll(received)
```

To add a check that there is an actual message first could look like

```
received = radio.receive()
if received is not None:
    display.scroll(received)
```

- To send a message

```
radio.send("some message")
```

Sample program

```
from microbit import *
import radio

radio.config(channel=10)
radio.on()
while True:
    display.clear()
    if button_a.was_pressed():
        radio.send("iheart")
    if button_b.was_pressed():
        radio.send("upset")
    incoming = radio.receive()
    if incoming == "iheart":
        display.show(Image.HEART)
        sleep(2000)
    elif incoming == "upset":
        display.show(Image.SAD)
        sleep(2000)
    else:
        display.set_pixel(2,2,9)
        sleep(100)
        display.set_pixel(2,2,0)
        sleep(100)
```

Activity

1. Pair up with another student to create a communicator, inventing your own version of morse code, where the receiving microbit plays short and long beeps as required.
2. Pair up with another student to create a small two player game.
3. Pair up with another student, using your Microbit to control the neopixels or music playing on a second Microbit.
4. Pair up with another student, using the accelerometer to tell if the two Microbits are tilting the same way. See if you can match angle without seeing the other microbit.