# 1. Wireless microbit: the teleporting duck

You will need at least 2 microbits for this activity, and battery packs would be nice but not essential. Use the Mu editor or this web site: **https://python.microbit.org/** to put these Python programs on your microbits.

Press button A to teleport a duck to another microbit:

```python
from microbit import display, button_a, Image
import radio
radio.on()
while True:
    message = radio.receive()
    if message:
        display.show(Image.DUCK)
    if button_a.was_pressed():
        display.clear()
        radio.send("duck")
```

-> Can you send different pictures? Try HEART, RABBIT, COW, PACMAN

-> What happens if you have more than 2 microbits running this code?

-> Could you send a different picture by pressing button B?

```python
from microbit import display, button_a, button_b, Image
import radio
radio.on()
while True:
    message = radio.receive()
    if message == "duck":
        display.show(Image.DUCK)
    if message == "cow":
        display.show(Image.COW)
    if button_a.was_pressed():
        display.clear()
        radio.send("duck")
    if button_b.was_pressed():
        display.clear()
        radio.send("cow")
```

# 2. Add channels

We can make sure the duck is sent to the right address using radio channel numbers. Agree on a channel number between 0 and 50 with your partner and make sure no other group has the same number. Add this line after `import radio` and **before** `radio.on():`

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

Flash the new Python program to both your microbits and see what happens.

# 3. Chuck a duck

This version of the program allows you to send a duck by shaking your microbit. Make sure you flash the same code on to your partner's microbit and that you have matching channel numbers that don't clash with another group's.

```
from microbit import display, Image, accelerometer
import radio
radio.config(channel=10)  # choose channel number
radio.on()
while True:
    message = radio.receive()
    if message == "duck":
        display.show(Image.DUCK)
    if accelerometer.was_gesture("shake"):
        display.clear()
        radio.send("duck")
```

-> What is the range of the microbit radio transmission?

-> Could you use the radio features of the microbit to do other things?

*(Compiled by Giles Booth, based on work by Nicholas Tollervey @ntoll.)*
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