

Do Not Print this Page

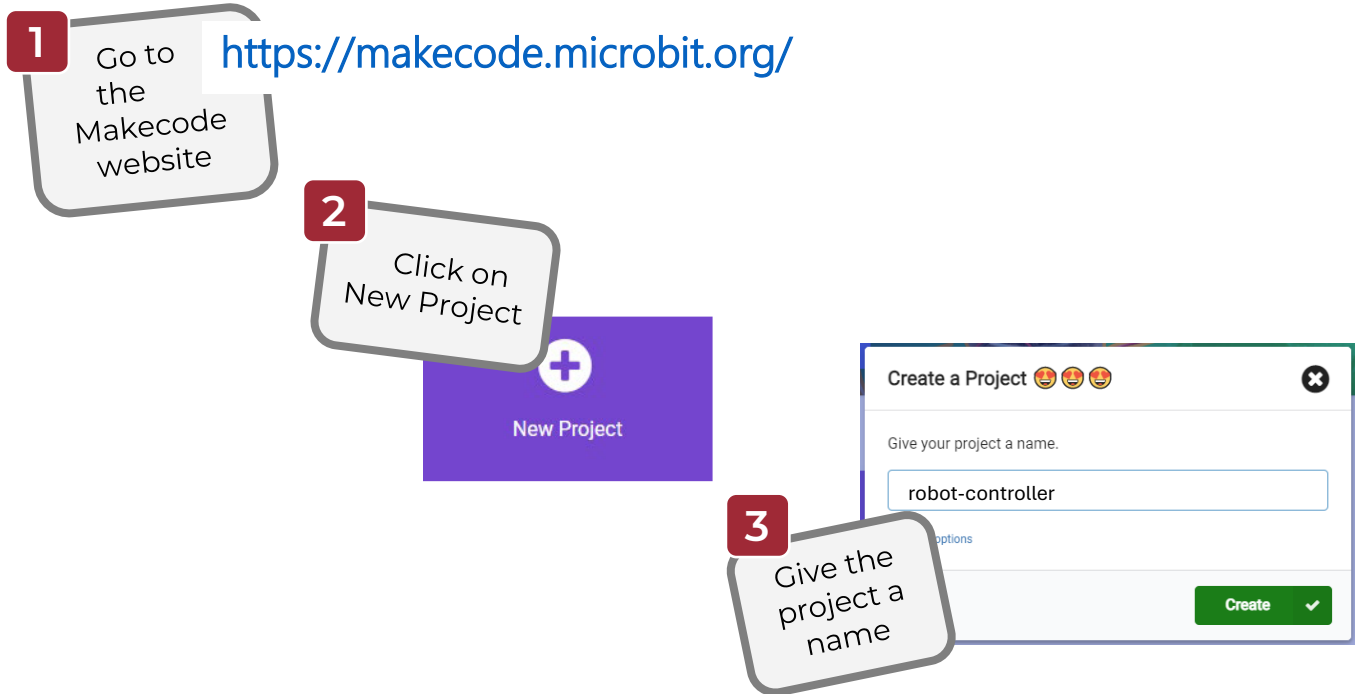
This is inserted so that the 2-page view shows a single double-sided sheet.

When saving to PDF, choose print options and pages 2 to last page

Build a Remote Control Robot: Code the Controller

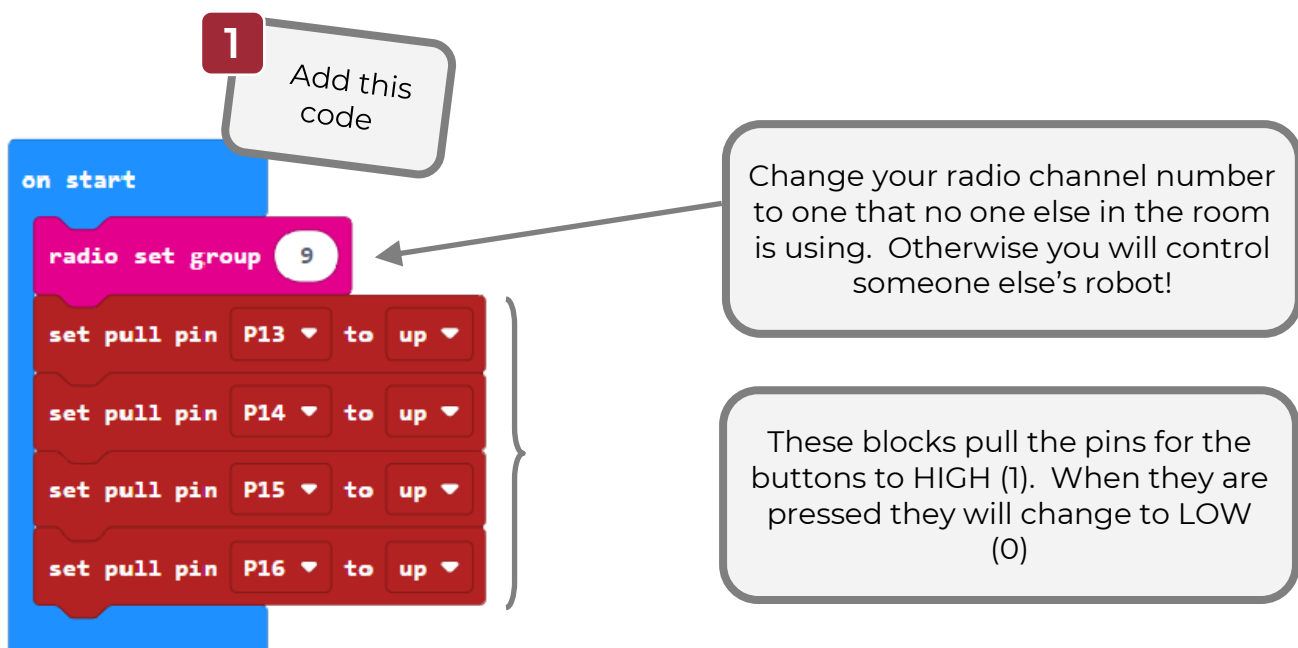
Tutors: Don't use this sheet if ready-coded controller microbits used

Create a Project for the Controller



Set up the Radio Channel and Buttons

First set up the radio channel and the buttons on your controller. The Microbit's radio will be used so your controller can send messages to your robot.



Respond to the F Button

Now get your controller to send a message "F" when the forward button is pressed.

1 Add this code

This block checks if the button connected to pin 13 has been pressed

This block will send the message "F" to your robot

This block will display a dot showing that you pressed the forward button

If no button was pressed send an "S" to your robot to ask it to stop moving

Wait a little bit so that your robot doesn't get sent too many messages!

2 Download the code to the controller Microbit

Download

Your challenge!

The code you have on your controller allows you to only control the forward movement of the robot. That's not very useful!

Can you get other commands working: left, right and backwards?

Hint: You will need to change the code on both the controller and robot. The controller must send different messages, such as "L", "R" and "B" for left, right and backwards. The robot must then respond with the correct movement.

Build a Remote Control Robot: Solution

Controller

Make sure the controller channel number matches the robot channel number

```
on start
  radio set group 9
  set pull pin P13 to up
  set pull pin P14 to up
  set pull pin P15 to up
  set pull pin P16 to up
```

You need to respond to each button and send a message to the robot

```
forever
  clear screen
  if digital read pin P13 = 0 then
    radio send string "F"
    show leds
  else if digital read pin P14 = 0 then
    radio send string "L"
    show leds
  else if digital read pin P15 = 0 then
    radio send string "R"
    show leds
  else if digital read pin P16 = 0 then
    radio send string "B"
    show leds
  else
    radio send string "S"
  pause (ms) 100
```

Forward button pressed so send an F to the robot

Left button pressed so send an L to the robot

Right button pressed so send an R to the robot

Backward button pressed so send a B to the robot

Nothing pressed so send an S for Stop to the robot

Pause a little bit so we don't send too many messages to the robot