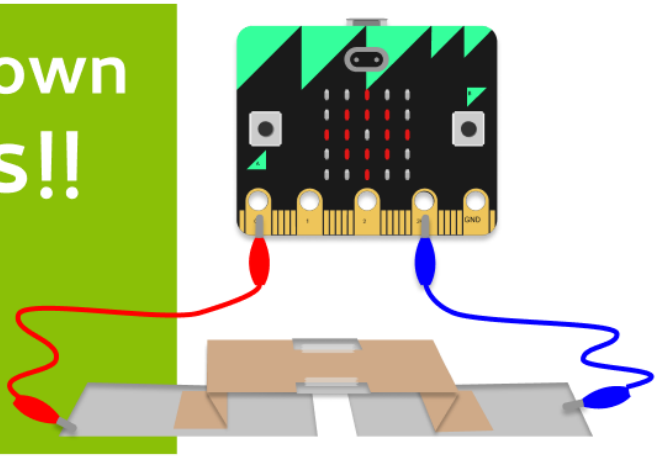
Extension

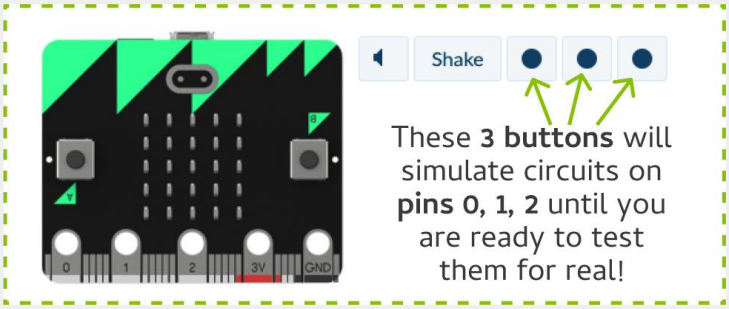
Make your own buttons!!

By using the pins on the microbit we can attach up to 3 of our own button creations!



Task 7.0: Getting ready for pins

1. Copy and paste your existing game code to the one of the **Make Your Own Buttons Playgrounds** in Grok. *(or any of the later playgrounds with pins enabled)*



Task 7.1: Get the pins ready

We need to start by resetting the pins so they are ready to read

1. Go to your code and add a new line after the import section.

2. Add this line of code to prepare pin 0 by resetting it.
   `pin0.read_digital()`

3. Repeat for pin1 (and pin2 if you want an extra button!)

Task 7.2: Goodbye microbit buttons, hello my buttons!

We'll edit our code to use handmade buttons instead of microbit buttons.
You can copy add to this later to use both the microbit and handmade buttons.

1. Go to the line where you check if Button A is pressed.
2. We want to check if there is current in the circuit on pin0 (instead of checking if the button is pressed). **Replace** `button_a.is_pressed()` with `pin0.read_digital()`
3. Repeat by replacing **Replace** `button_b.is_pressed()` with `pin1.read_digital()`
4. Run your code in Grok and test it out using the first pin button!

Task 7.3: Build a button!

1. Pick up a **Build a Button** cheat sheet!
2. Learn how to make a basic button and connect it to your Micro:Bit to use your code in real life!
3. Come up with your own ideas for make circuits! We've got a lot of different things to craft fun buttons like rubber bands, popsicle sticks and more!

★ Bonus 7.4: Want more actions?! ★

★ Use third pin! ★

Create another action and a button on pin2

★ Use the Micro:Bit buttons again! ★

With 2 buttons and 3 pins, you could have up to 5 actions!
So *add back in your original Micro:Bit button code, but make some changes.*
Make sure you have different action names and pictures for each button/pin.

☑ CHECKPOINT ☑

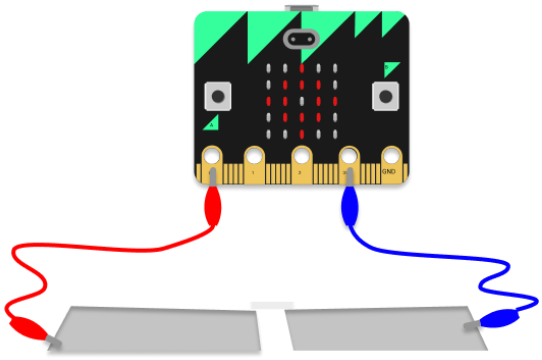
If you can tick all of these off you have finished this Extension:

☐ You made buttons/contraptions that complete circuits for you game

☐ Your game completes actions based on buttons connected to pins

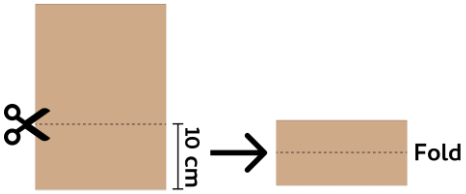
Build a Button

Build the broken circuit

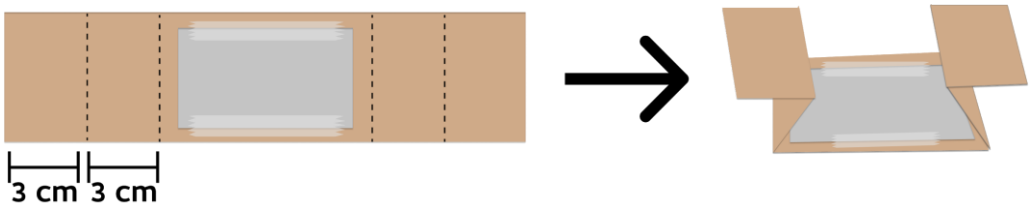


1. Get 2 alligator clips, connect one to **Pin 0** and the **3V Pin**.
2. **Connect** the other ends of the alligator clips to 2 pieces of aluminum foil.
3. **Stick** those to the table so there is a gap in the middle.

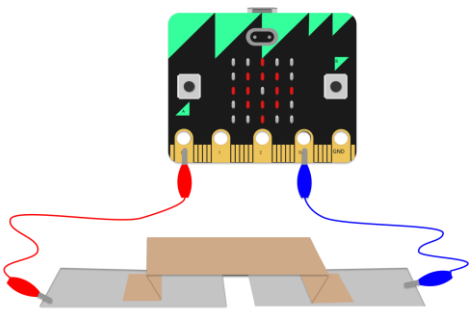
Build the button



4. **Get** an A4 piece of paper.
   Cut a 10cm wide strip.
   Fold it in half long ways, for added strength.
5. **Take** the folded trip.
   Stick aluminium foil to the center.
   Crease the paper to make the button shape.



Add the button



6. **Place** the button on the broken circuit.
   Align it so that when you squish the button the aluminum patch closes the circuit.
   Stick down the button
7. **You're ready to try your code on the Micro:Bit!**

What next?

Now that you've made one button think about other cool circuits you can make!
Can you make a twist, pull, flick or spin like the original Bop It game you could buy?
What other ideas can you create?