

To Do

- Grab a Laptop and CPX
- Login
- Go to <https://makecode.adafruit.com>

UW HCDE Physical Computing Workshop

Day 1



Alaa



Aylee



Ivan



Noelle



Srinithi

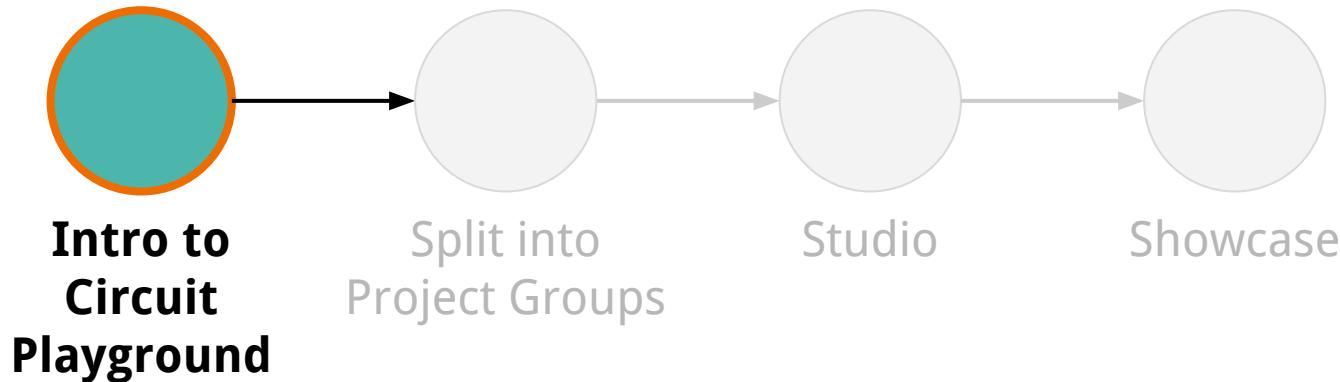


Sunny



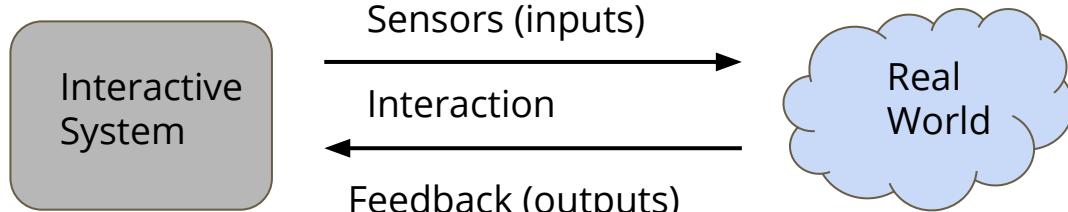
Wes

Our Week

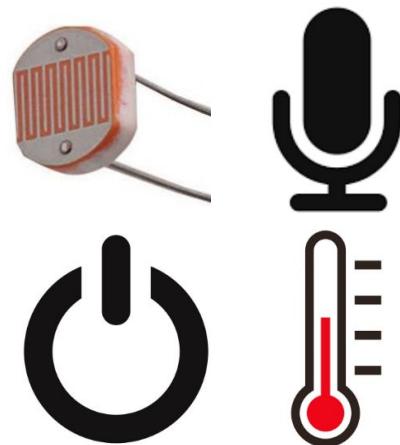


OVERVIEW

What is physical computing?

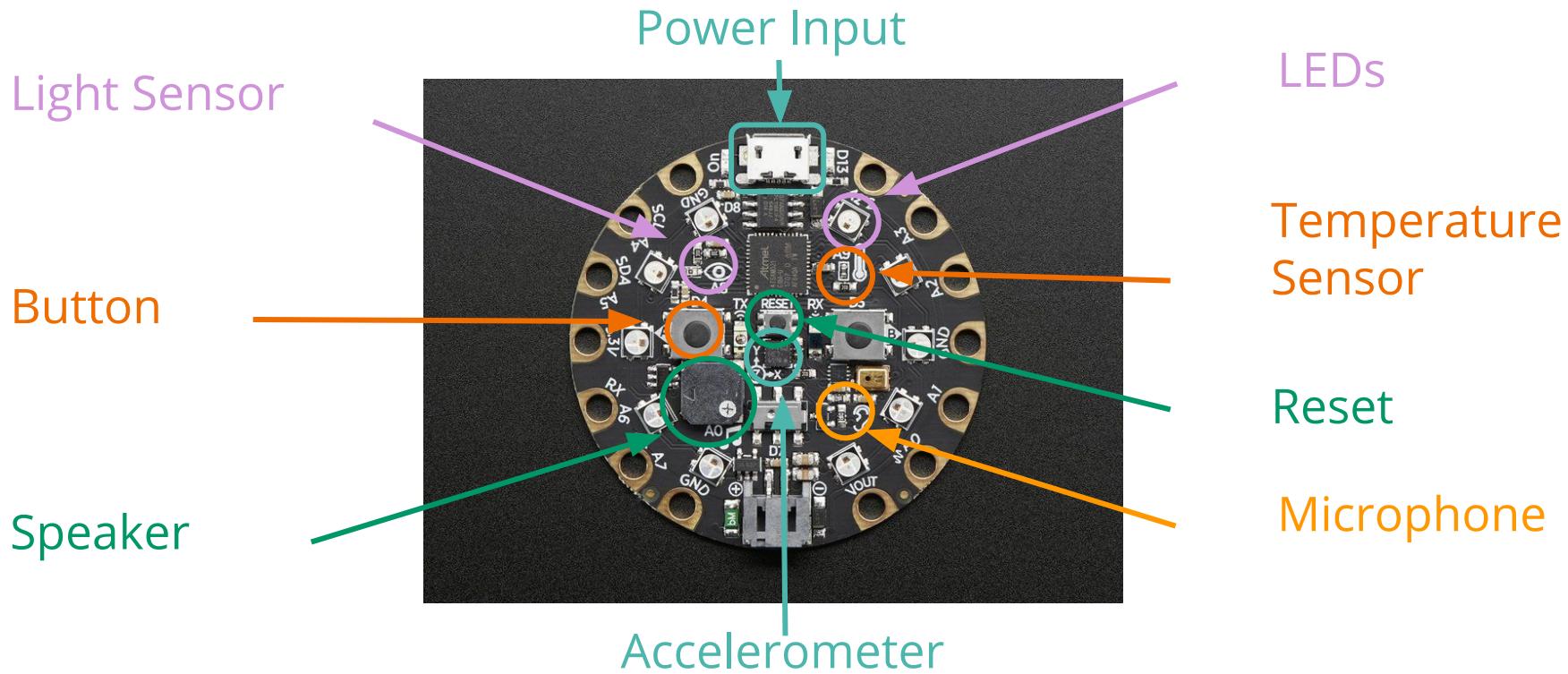


What are sensors?



Let's checkout the cool gadget we'll be using!

What is the Circuit Playground



Let's Roll!

- Count off into groups of 3
- Distribute dice CPX, paper, and pencil to each group

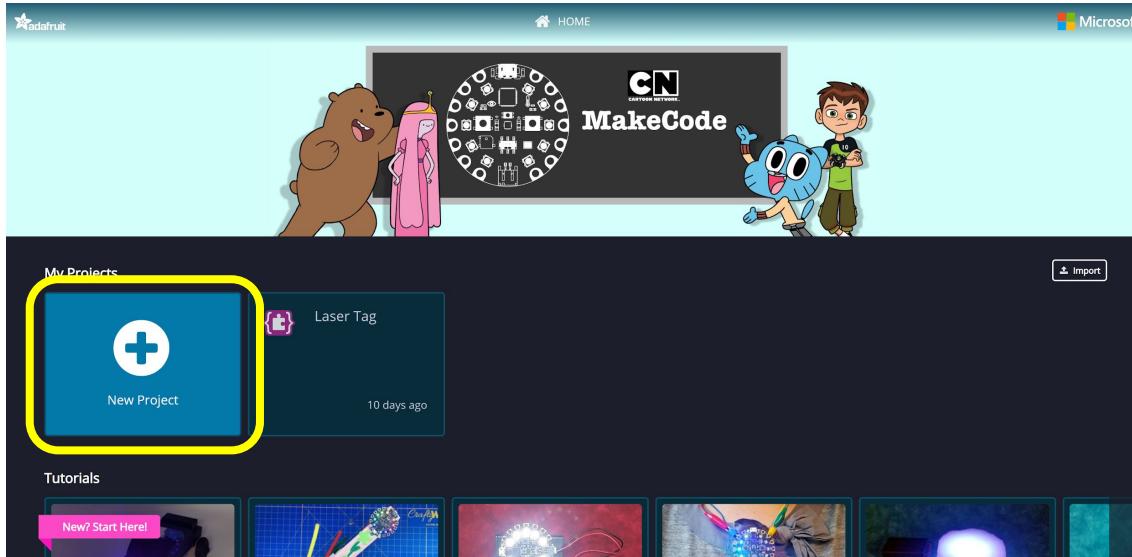


Going to PA

- Each person rolls 3 times
- Record the highest number
- Combine your 3 highest numbers
- Team with the highest number wins

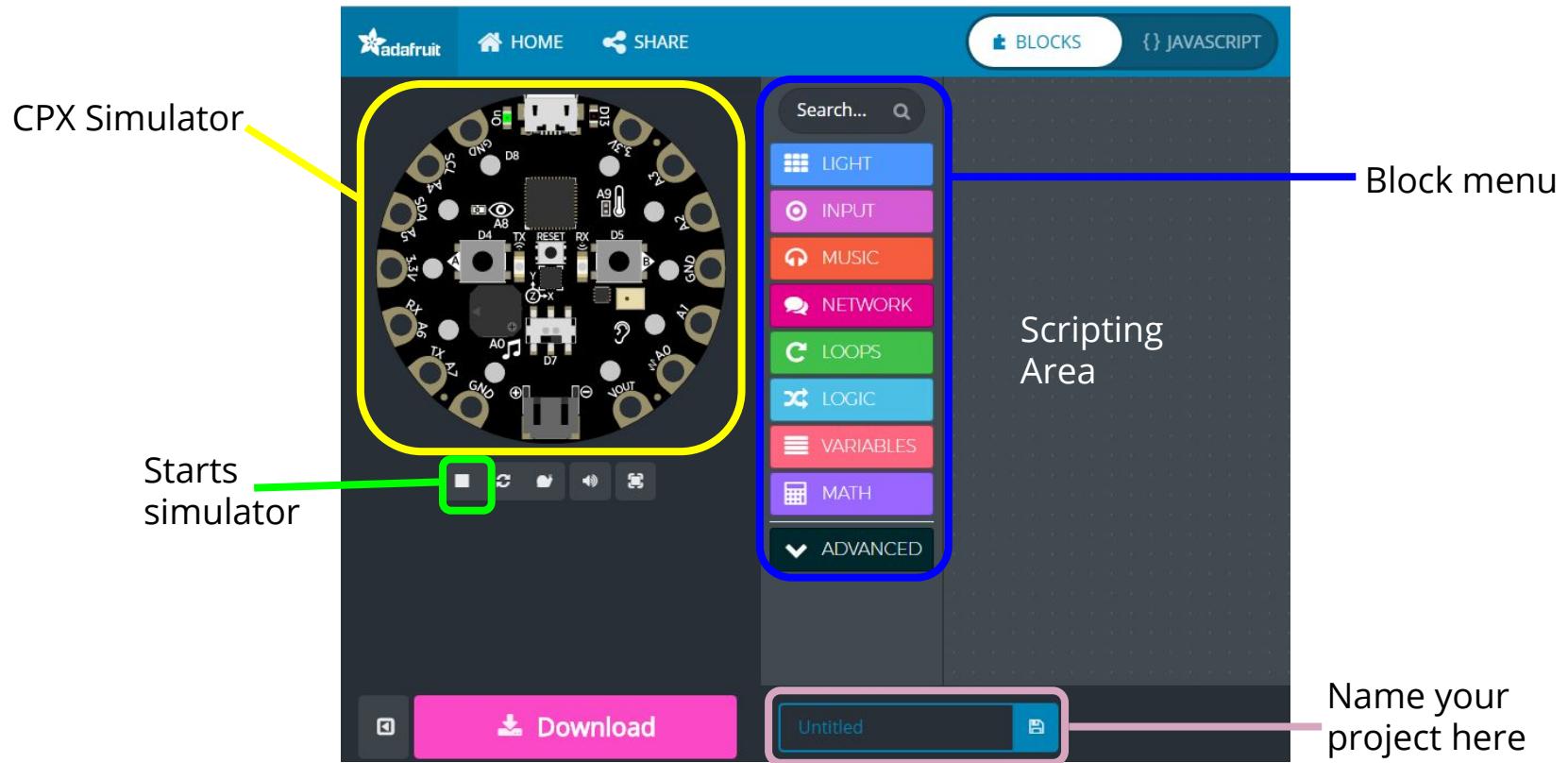


Let's Make Our Own!



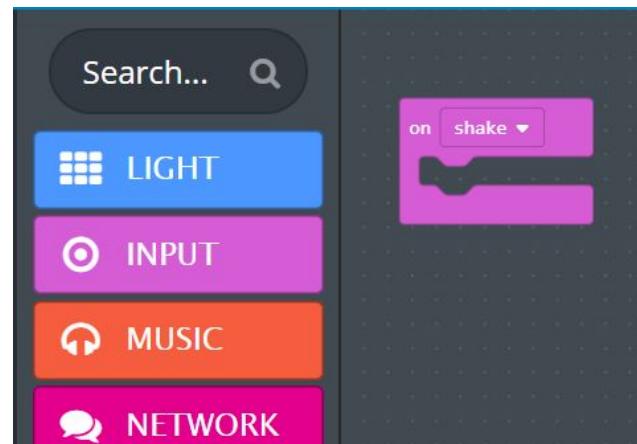
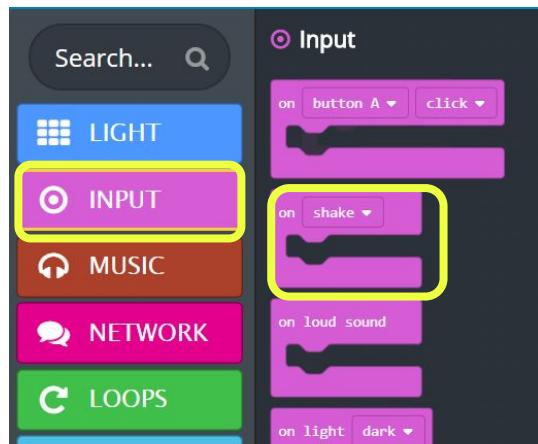
<https://makecode.adafruit.com/>

Make Code

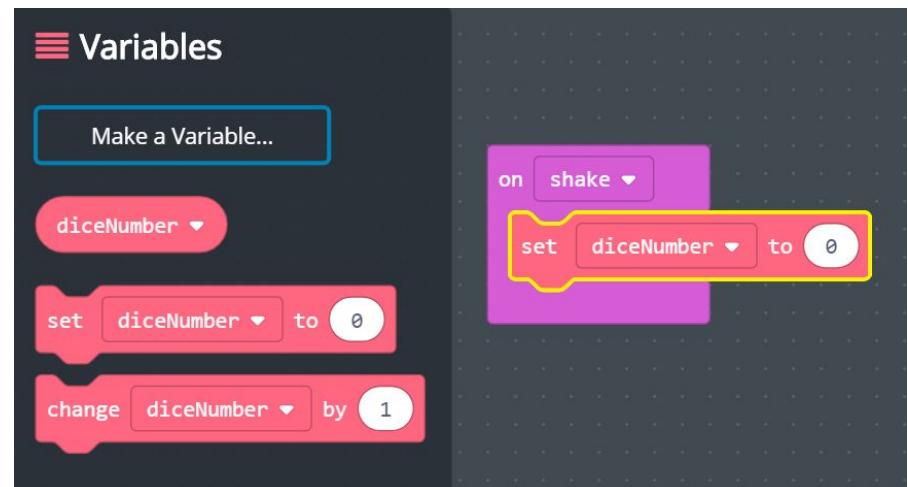
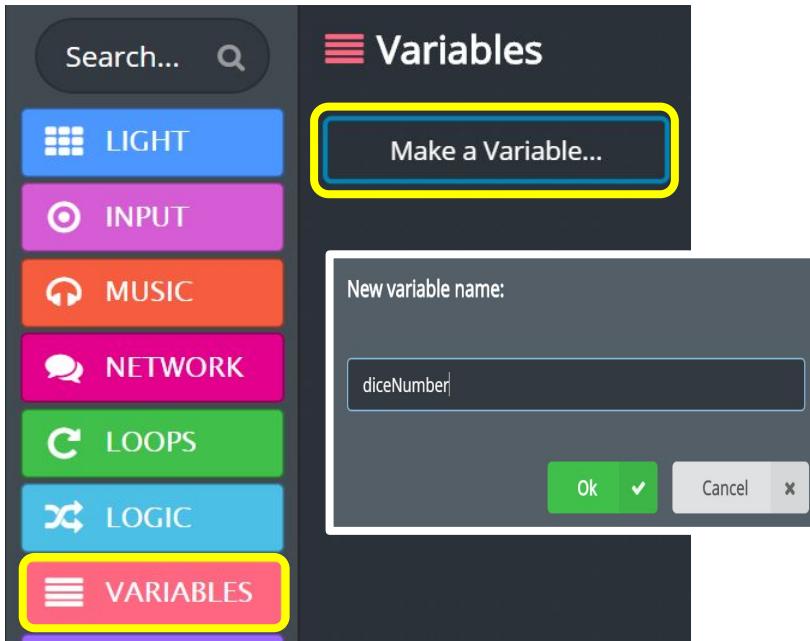


Dice: Step 1 - Initiate Input

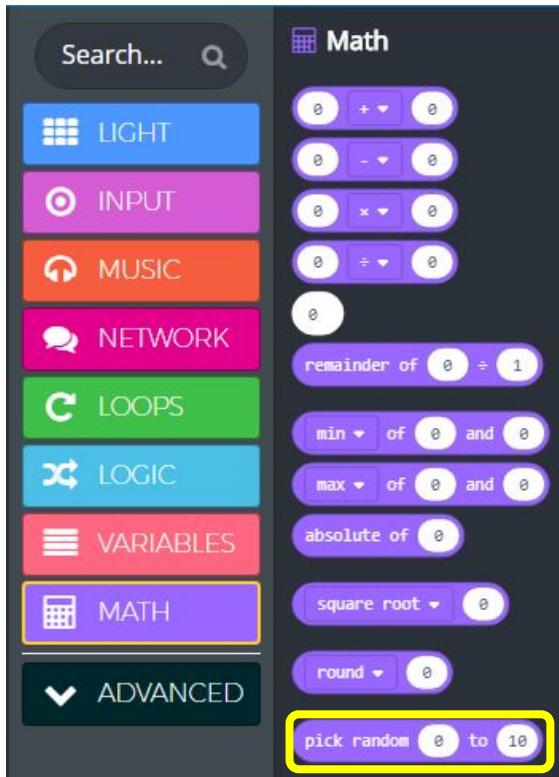
Place an
“on shake”
block in the
scripting area



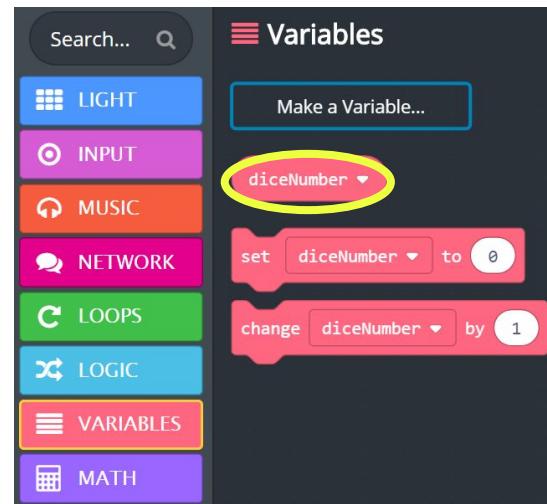
Step 2 - Make a Variable



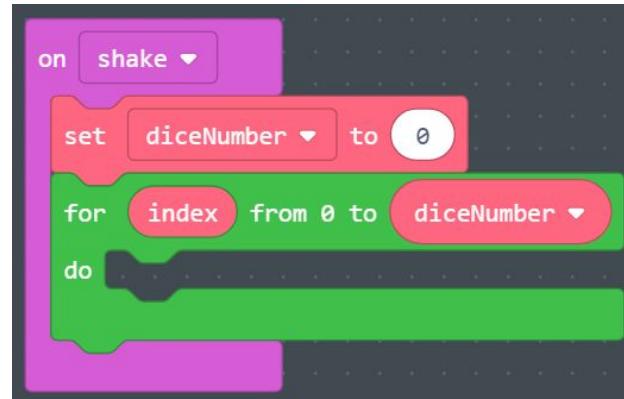
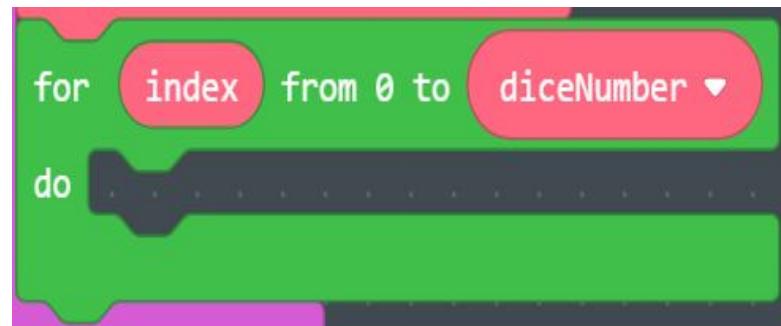
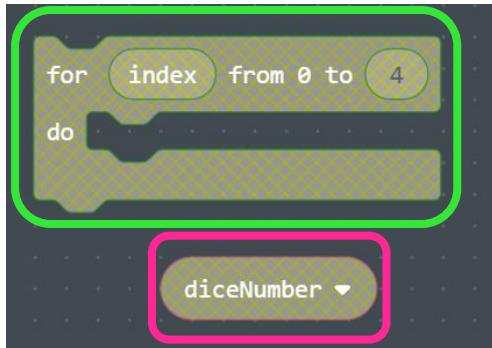
Step 2.4 - Make a Random Variable



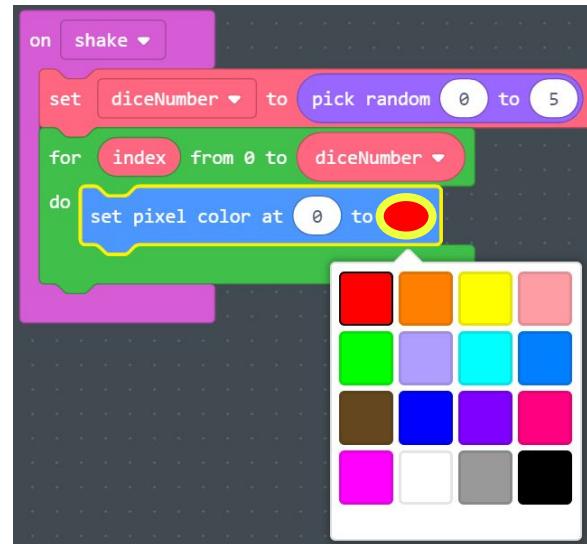
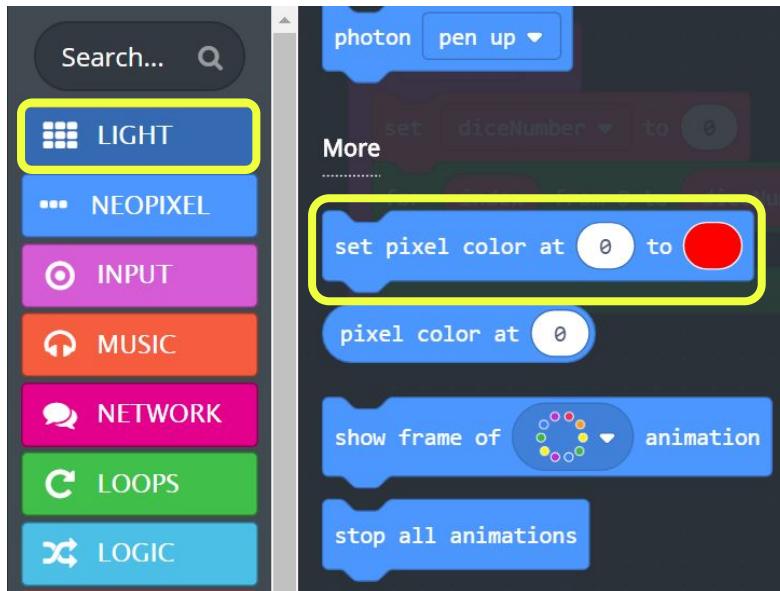
Step 3 - Set LEDs with a Loop



Step 3 - Set LEDs with a Loop

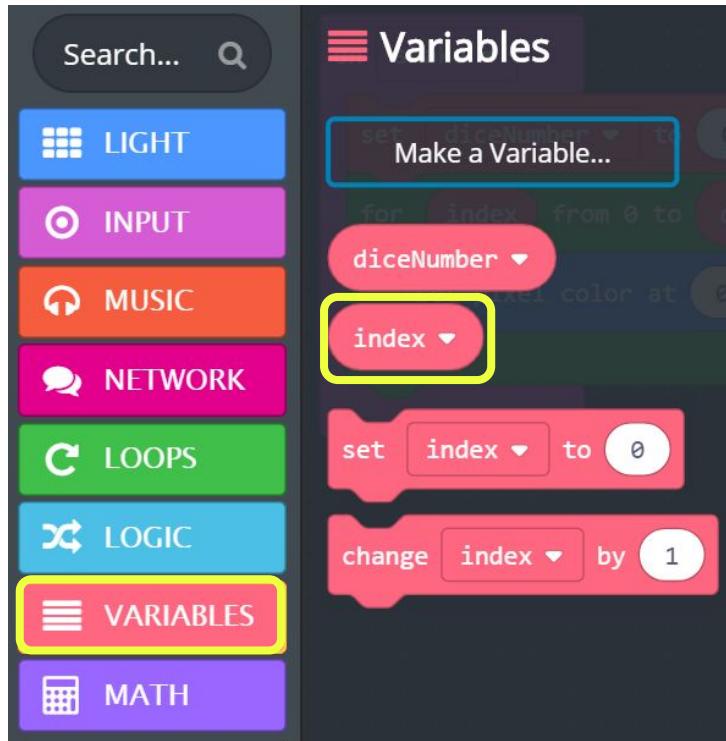


Step 4 - Light up the LEDs



Click on the colored oval to explore other color options.

Step 4 - Light up the LEDs

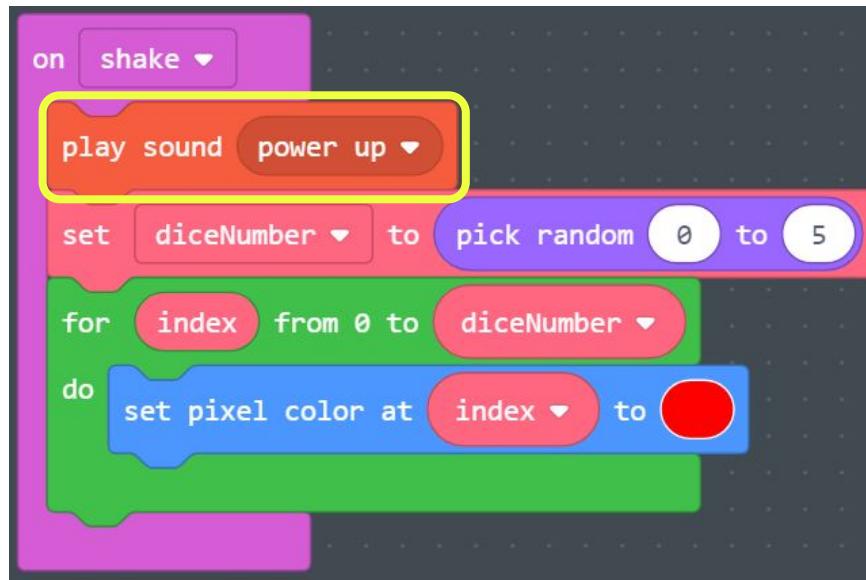


Step 5 - Add Sound

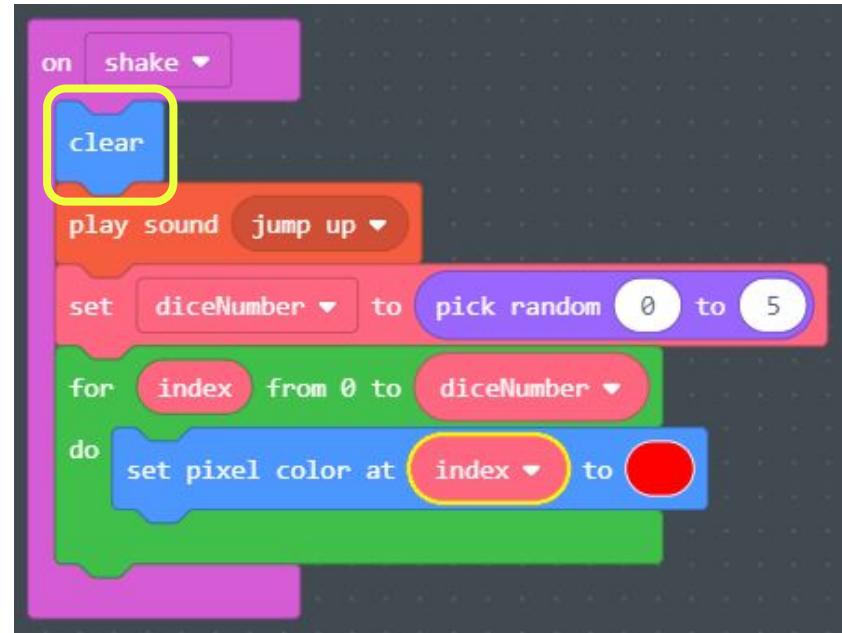
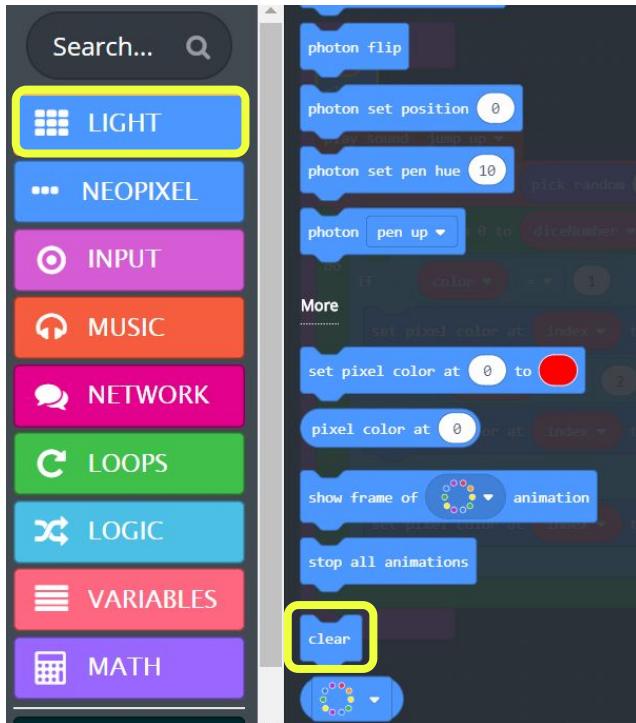


Click on the little arrow to explore other sounds

Step 5 - Add Sound

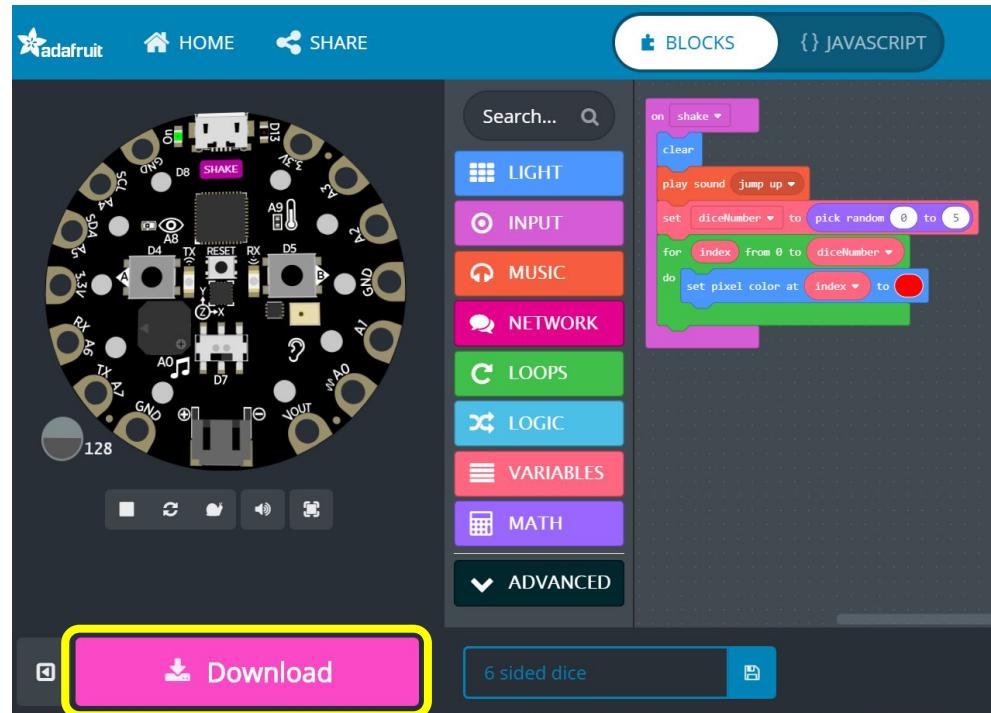


Step 6 - Reset Each Roll



Download the Program

Save program

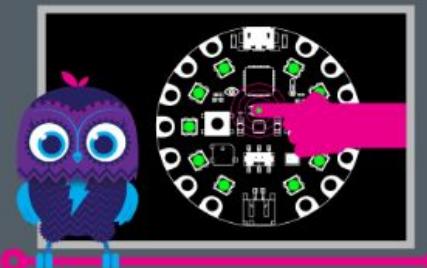


Connect CPX to Laptop

Download completed...

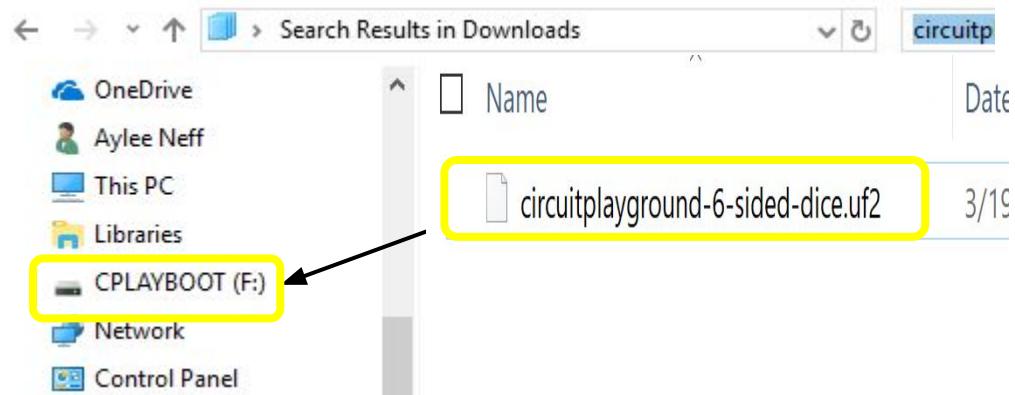
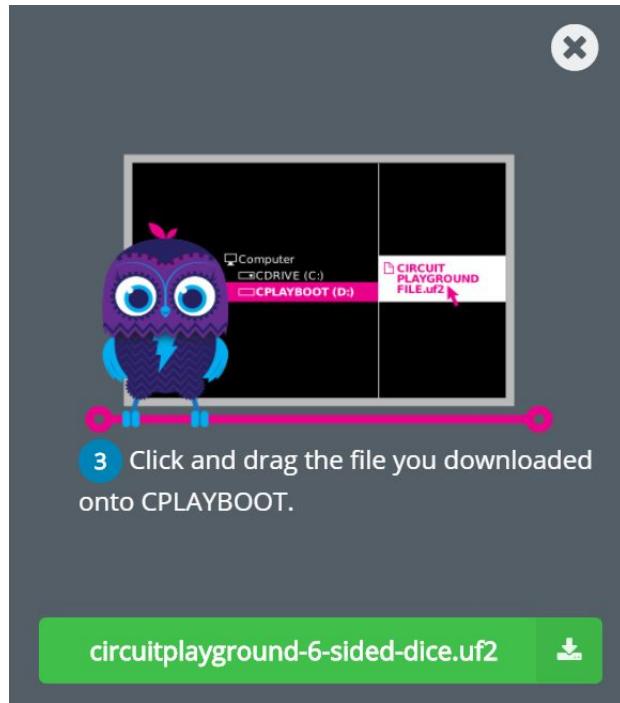


- 1 Take the USB cable you connected to your computer. Plug it into your Circuit Playground Express.



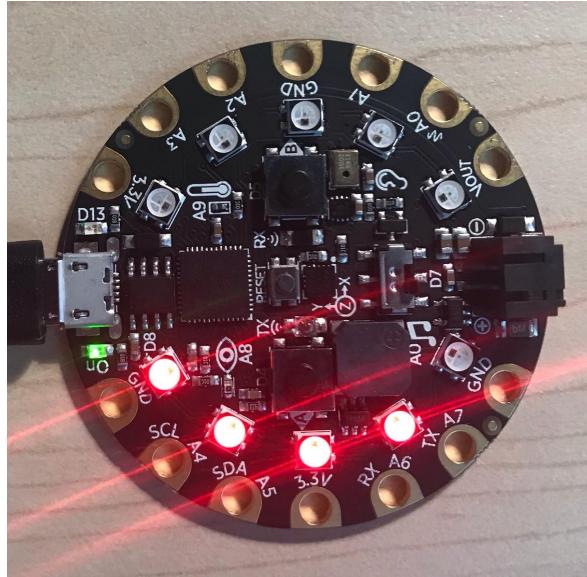
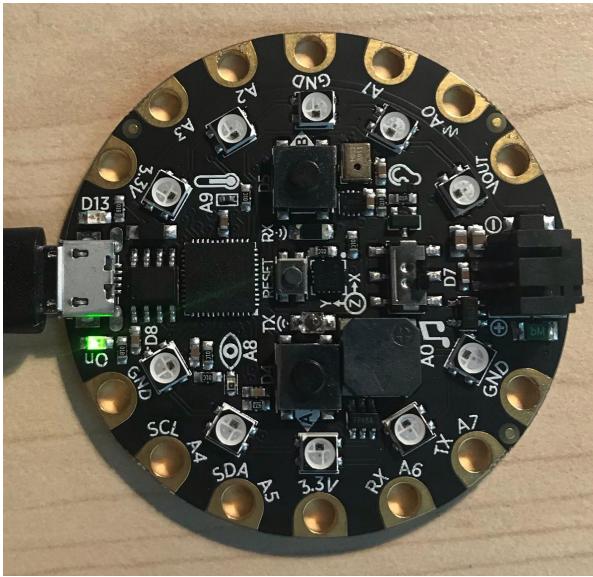
- 2 Press the RESET button to go into programming mode. When the lights turn green, you're ready to go.

Upload Program to CPX



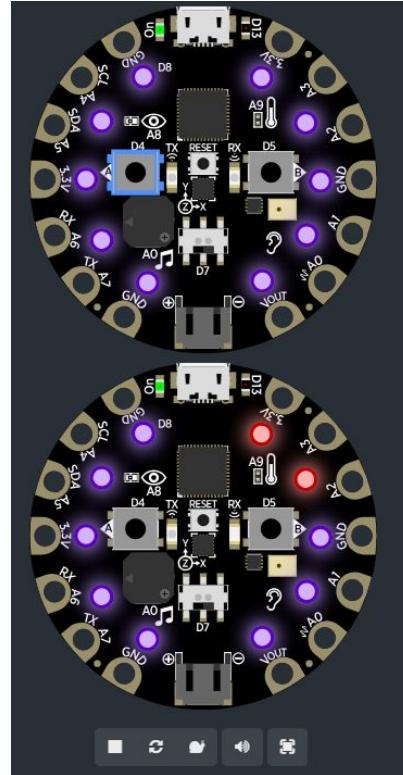
Scour your downloads for your program and drag and drop it in CPLAYBOOT(F:)

Watch the Magic Happen!



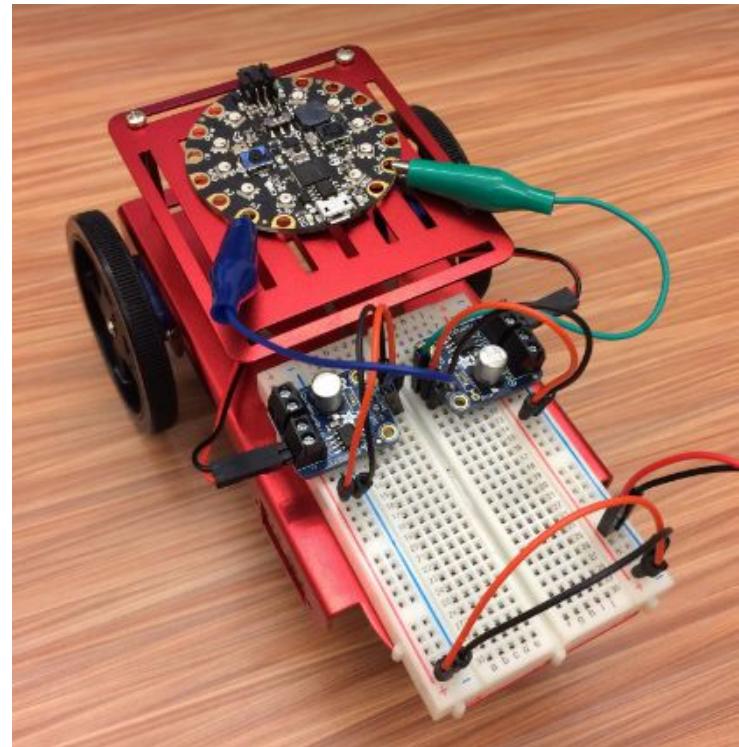
Laser Tag

- Use ultrasound sensors to “tag” opponents
- Lose a point (shown through LED display) when “tagged”



Remote Control Cars

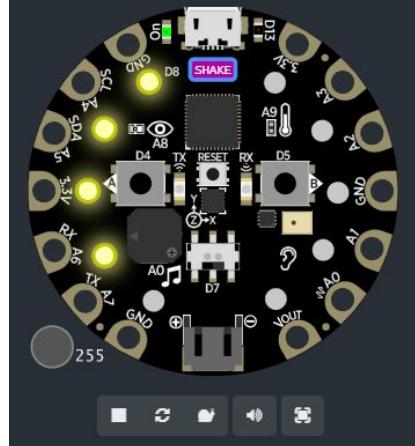
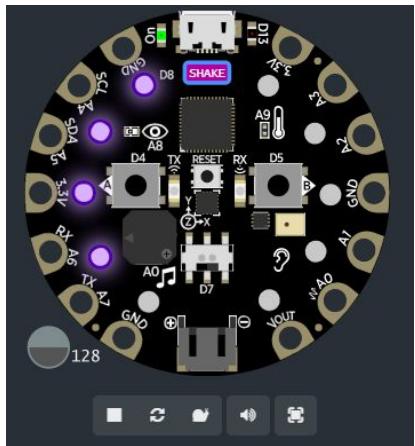
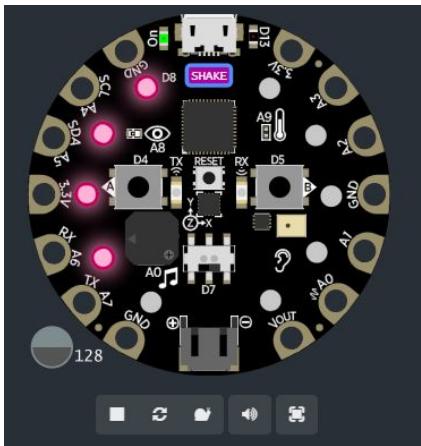
- Get an intro to robotics with this hot rod!
- Put your driving skills to the test with an obstacle course
- Make a smart car that responds to sound and light levels



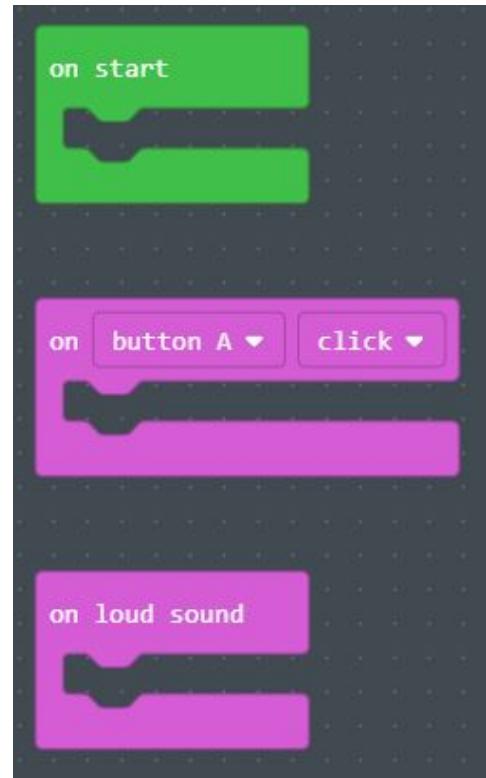
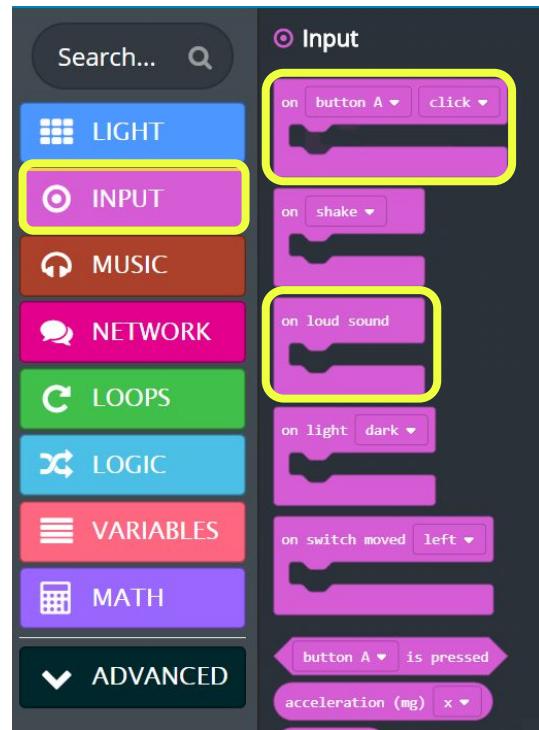
Wearables



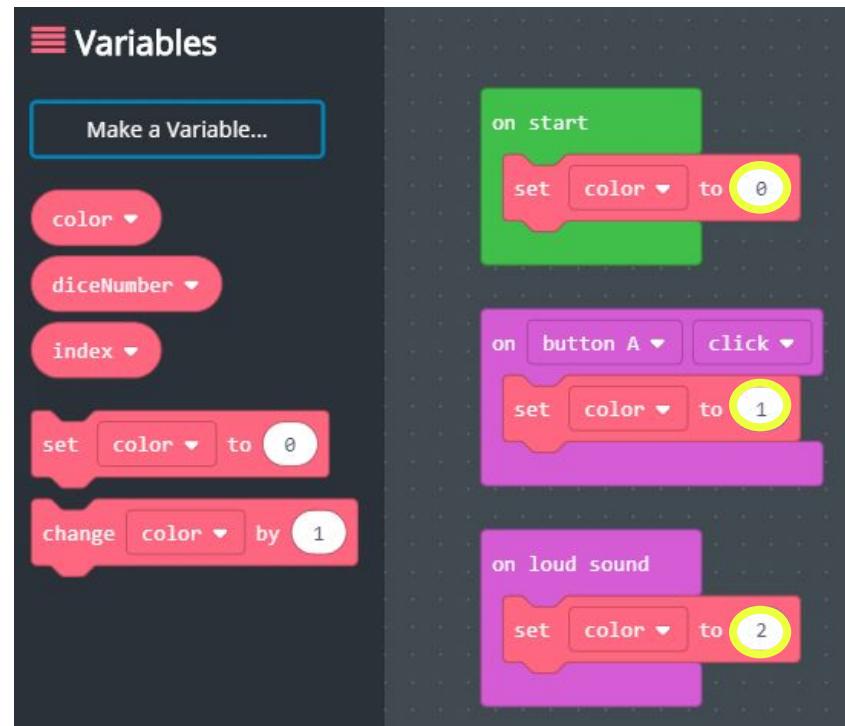
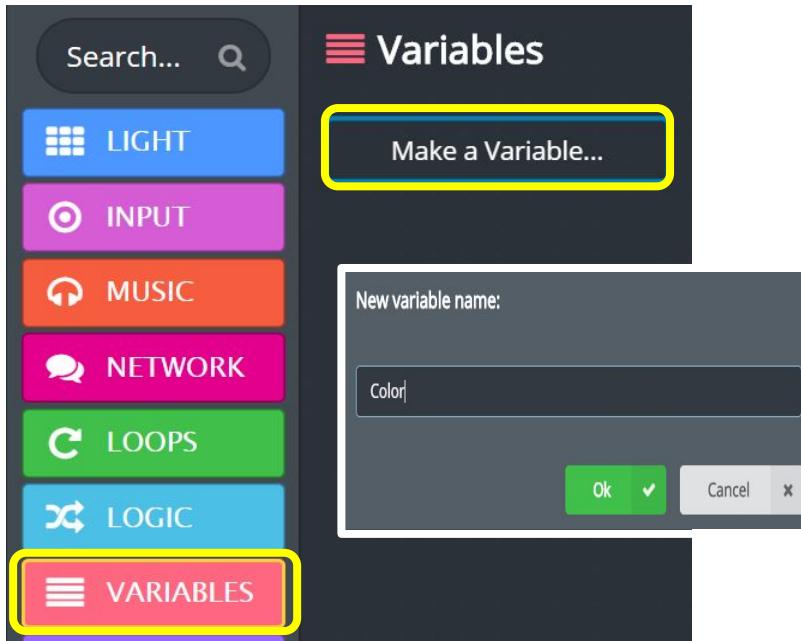
Let's expand on our dice!



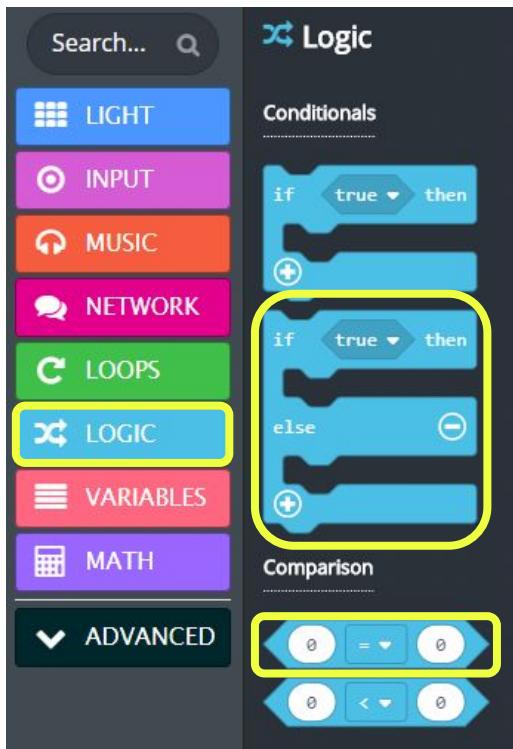
Step 1 - Initiate Input



Step 2 - Make a Color Variable



Step 3 - Get an If-Statement

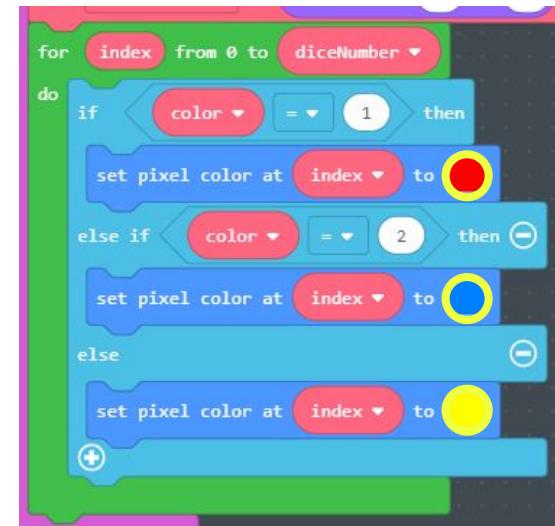
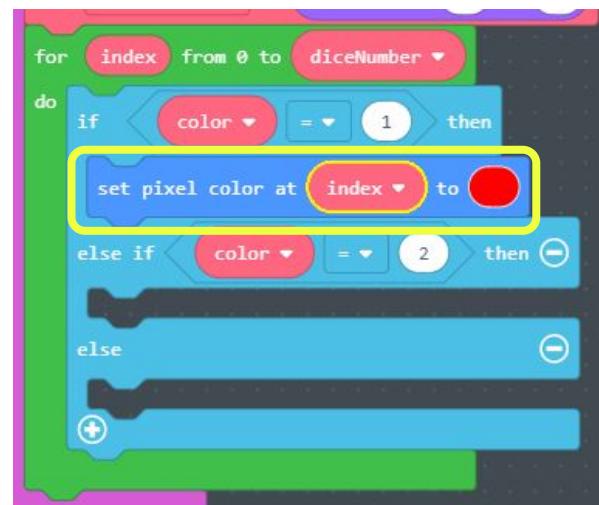
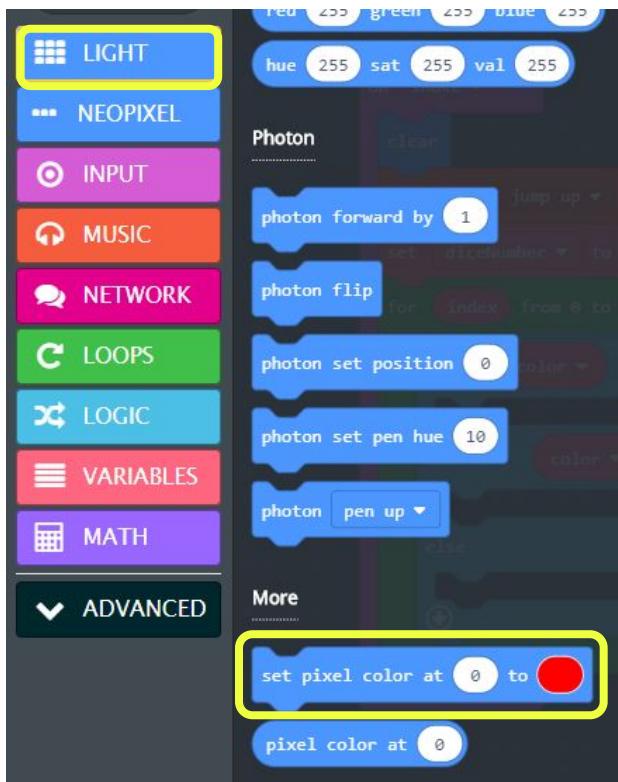


We need three conditions based on our three different inputs for changing the color of the lights, so click the "+" sign.

Step 4 - Make our Conditions



Step 5 - Light it Up



Reflection

<http://tiny.cc/hcde1>