WYRKSHOP MOBILE MAKERSPACE

RGB LED

ESTIMATED TIME: 30 MINUTES

LEARNING OBJECTIVES

- Learn how electricity flows through a circuit
- Discover color mixing
- Create RGB LED breadboard

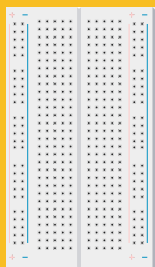### LIFE SKILLS LEARNED:

LEVEL: 1

LESSON PLAN VIDEO:

http://youtu.be/xHj7hze00fA
or scan this

MATERIALS NEEDED:

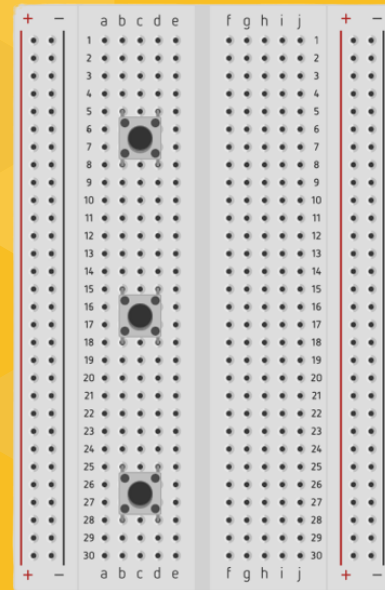| Mobile Makerspace | RGB LED | Breadboard | Battery Pack & 2 Batteries | M-M Jump Wires | 3 Tactile Buttons | 10 Ohm resistors |

ACTIVITY OUTLINE:

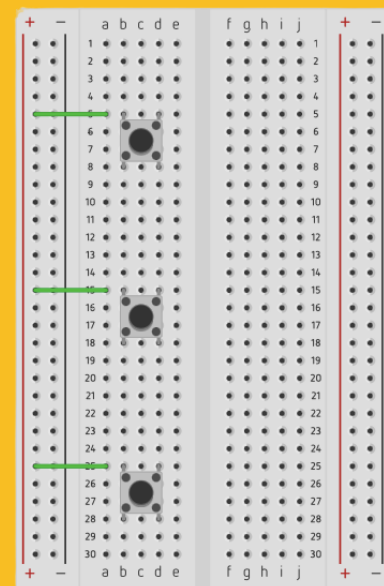## STEP 1:

Place the tactile buttons in the following places:
a. C5 (one set leg), C7 (two-legged) or C8 (4 legged)
b. C15, C17 or C18
C. C25, C27 or C28

STEP 2:

Place small jump wires from the positive bus
to the same row that the top leg of each button
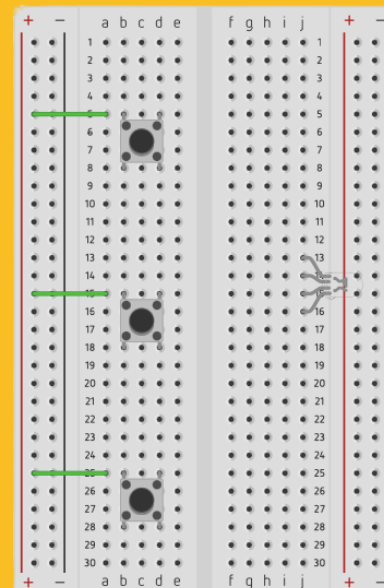is in, those rows are:
a. A5
b. A15
C. A25

STEP 3:

RGB stands for the colors that the LED will display,
those are Red, Green and Blue. The LED has 4 legs, one
of them is longer than the others, this is the negative leg.
Place this leg in J15. The other legs go in the following
holes:
a. J16
b. J13
c. J14

STEP 4:

The negative jump wire is very important, this is what grounds the supply of energy from the positive circuit to complete the loop of energy. This jump wire goes from the negative bus to the negative diode on the LED in I15.
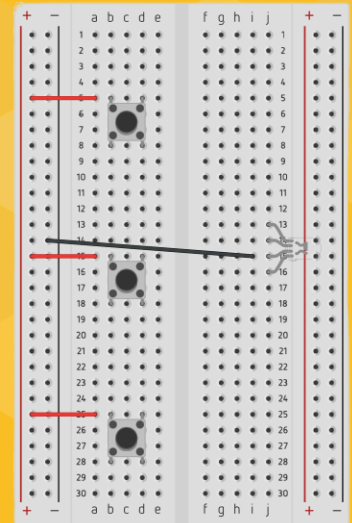
STEP 5:

The other jump wires need to go from the same columnof the positive leg into one of the rows with the button legs. These are:
a. I17 to E27 or E28 (if four legged)
b. I13 to E17 or E18 (if four legged)
c. I7 or to E11 or E12
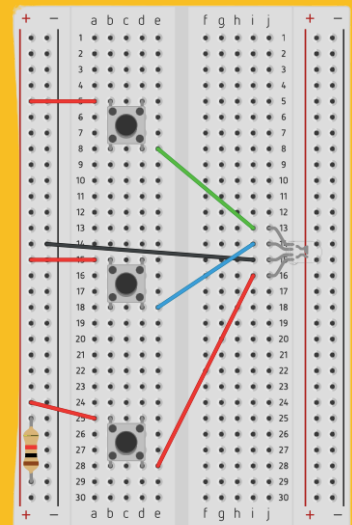
STEP 6:

Connecting the resistor is a simple process. This will slow down the current running from to the breadboard so that your RGB does not get too much electricity and burn out. Bend the resistor into a U shape and connect one end to the second to last hole on the positive bus that has the leads from step 3. Connect the other end to one of the holes before the first jump wire.
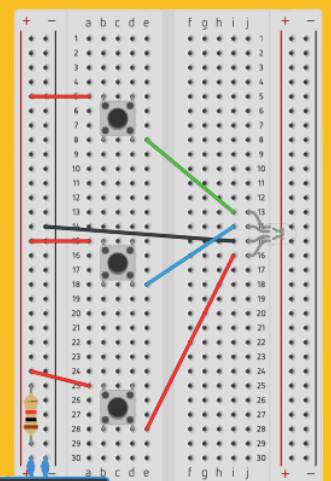
STEP 7:

The final step is to connect the battery pack to the breadboard. Put the batteries into the pack, make sure the pack is powered off. Now expose 1/4 inch of both the positive and negative leads. Twist the ends of the positive lead and connect it to the positive bus that has your positive small jump wires. Twist the negative leads and connect them to the negative bus that has your negative jump wire.