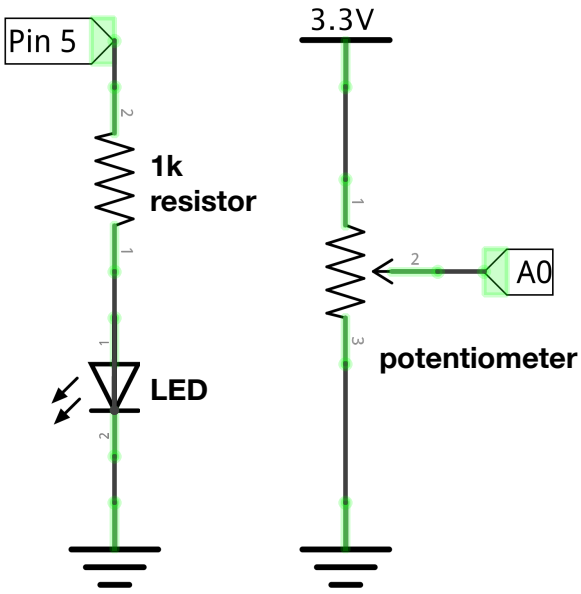
FROM SCHEMATIC TO BREADBOARD

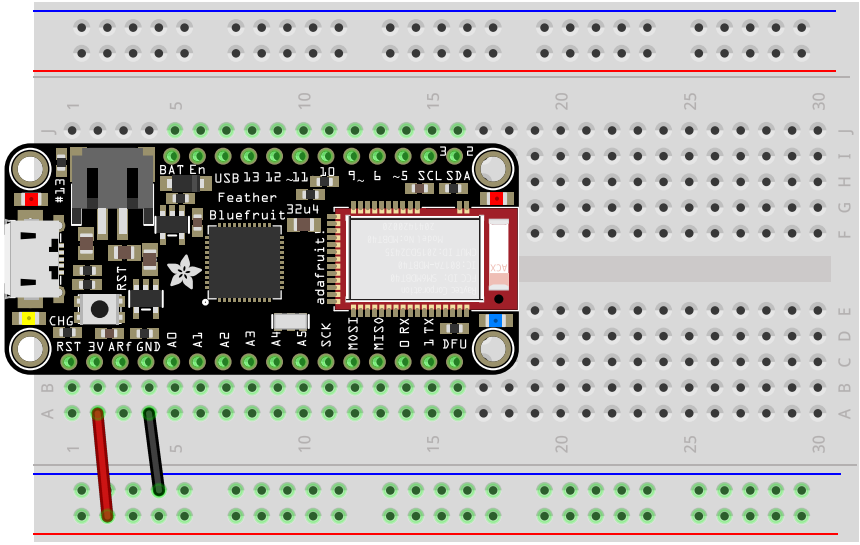
Building a circuit on a breadboard based on a schematic doesn't have to be frightening or challenging.

Just follow these 4 easy steps!



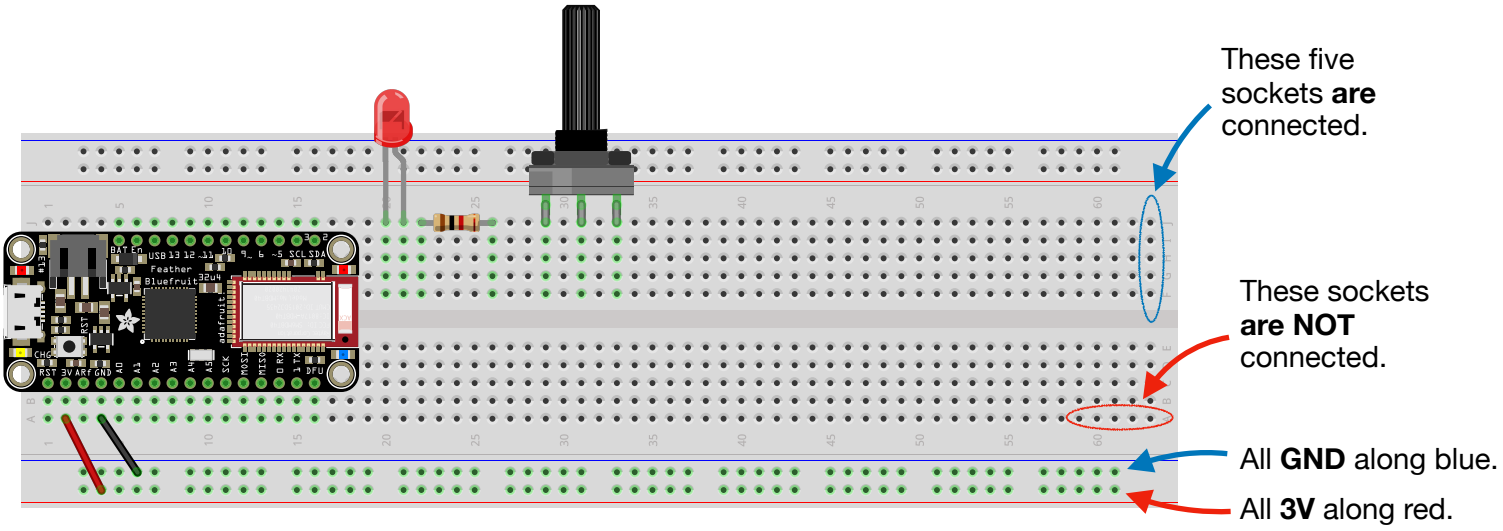
1. Identify your components and gather them.

   For example, the schematic at right has an **LED**, a **resistor**, a **3.3V supply**, a **ground**, a **potentiometer**, a **Feather pin A0**, and a **Feather pin 5**.



2. Connect the **red** and **blue** rails on the breadboard to your Feather's **3v (3.3V)** and **GND** (**ground**) pins, respectively, using a red wire and a black wire.

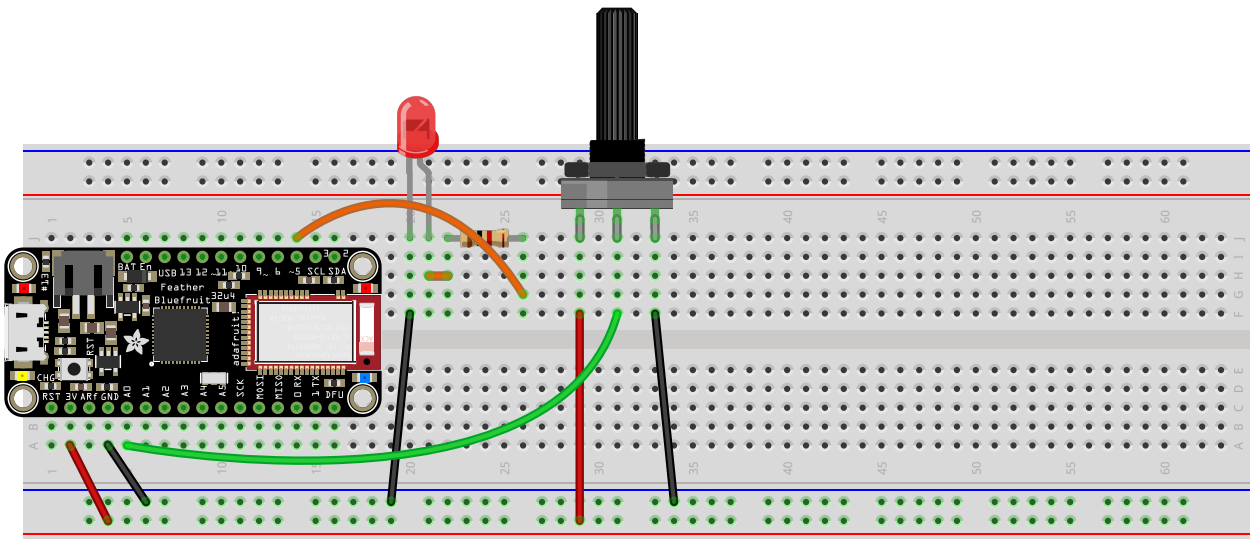
3. Insert your components so that each component lead is in its own group-of-five. Note that the two LED leads, the two resistor leads, and the three potentiometer leads are **each** in **their own** group-of-five.



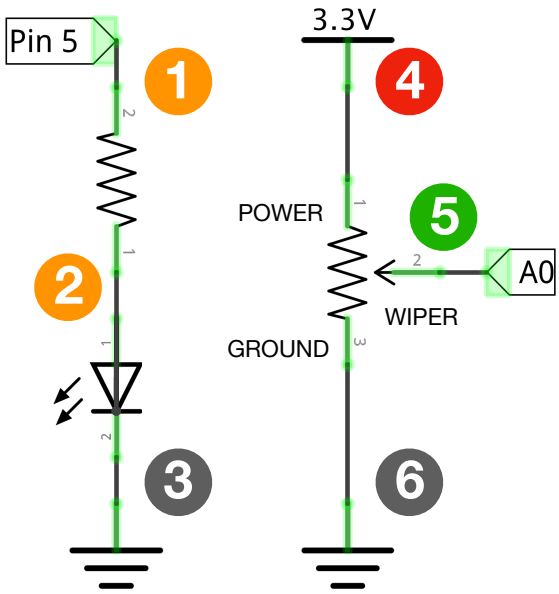
Orientation matters! Remember that the groups-of-five in the middle section of the breadboard connect within each group of five sockets in the diagram above, they connect vertically.

The long rows of sockets across the full breadboard **do not** connect, **except** for the two long lines on sides of the breadboard marked with the red and blue lines — these connect only across the entire line!

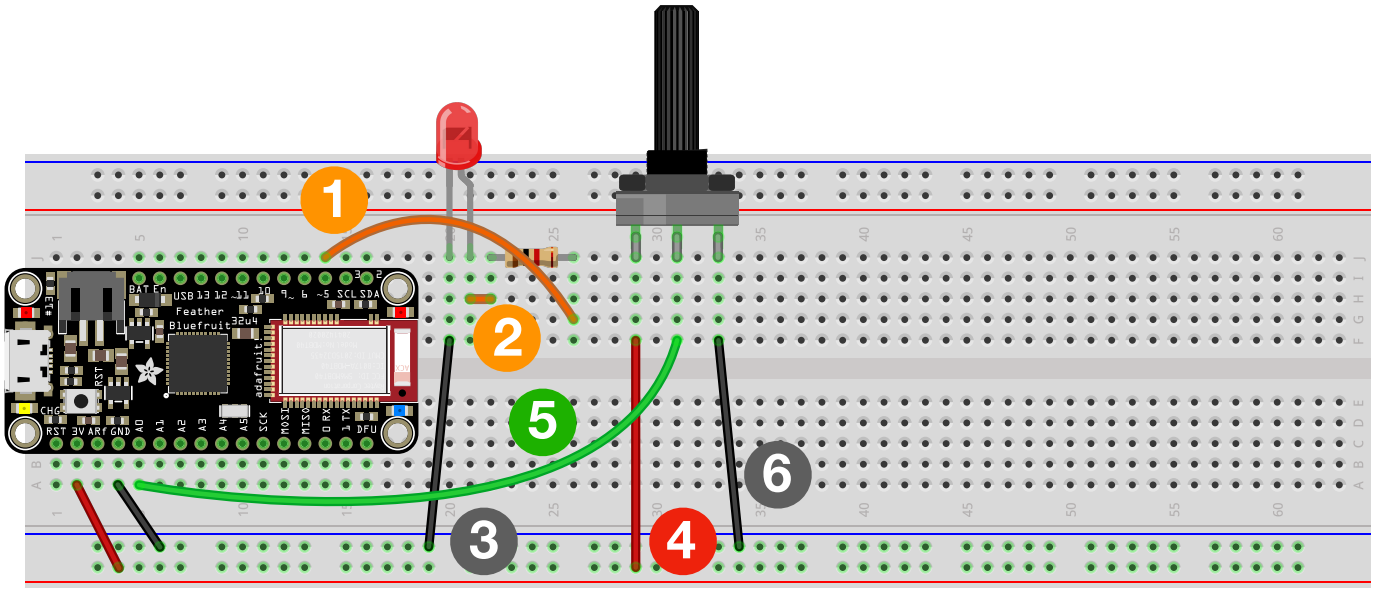
4. Use wires to connect the appropriate leads for each component to each component. Remember that any socket in a row of 5 is connected to every other socket in the same row of 5!



Two things make this difficult: (a) figuring out which physical lead corresponds to which schematic component lead; and (b) figuring out what is connected to what.



To the right, the potentiometer has three leads, labeled POWER, GROUND, and WIPER. The schematic shows which potentiometer lead is connected to which other component lead. The LED has a long leg and a short leg; the long leg corresponds to the triangle side of the schematic symbol.



Each physical wire corresponds to an electrical connection in the schematic. Above, the corresponding wires and connections are labeled with numbers.

When you're done wiring up, trace the flow from each component to each other connected component. In this example, you should see Pin 5 on the Feather connect through the resistor to the LED.

Remember that the breadboard carries electricity too!