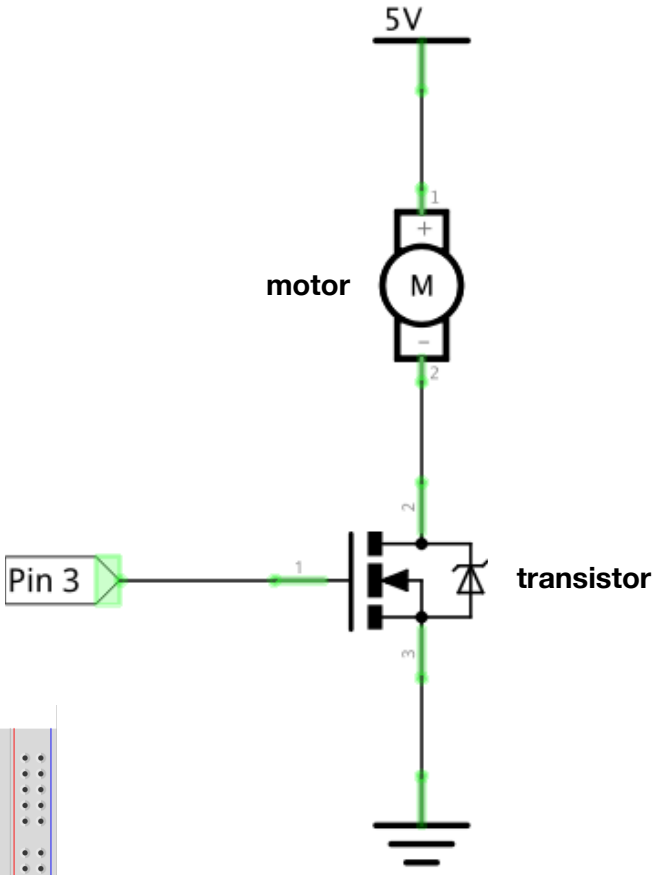
FROM SCHEMATIC TO BREADBOARD

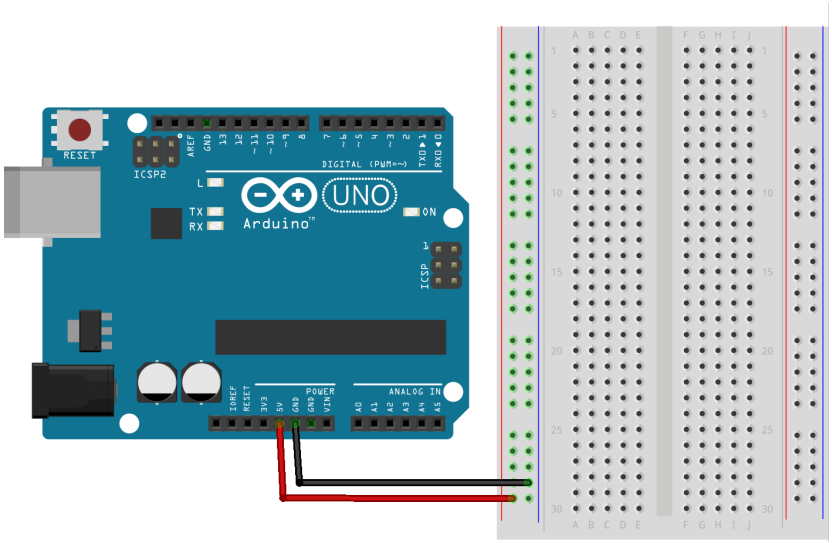
Building a circuit on a breadboard based on a schematic doesn't have to be frightening of challenging.

Just follow these 4 easy steps!

1. Identify your components and gather them.

   For example, the schematic at right has a **motor**, a **transistor**, a **5V supply**, a **ground**, and an **Arduino pin 3**.



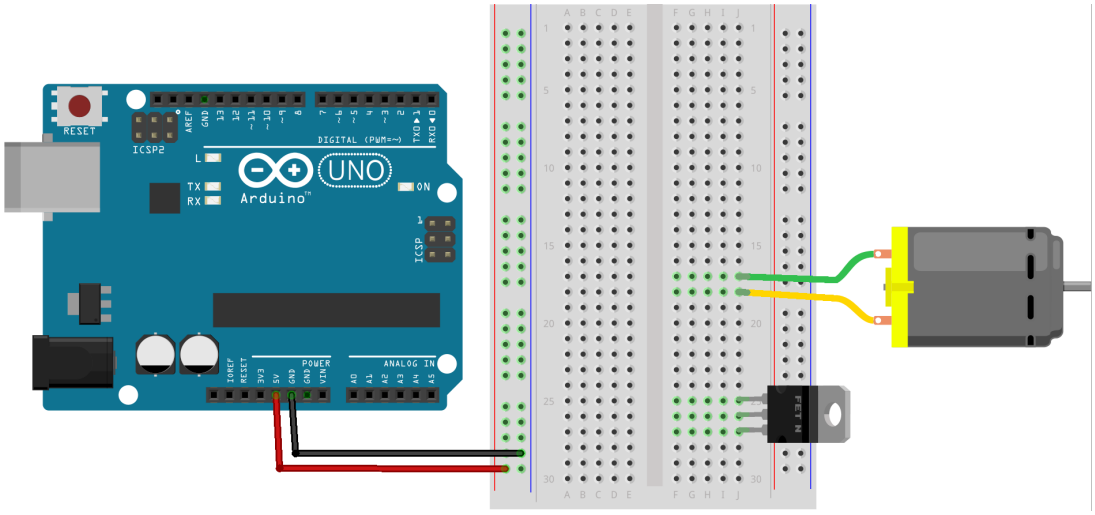


2. Connect the 5V and ground rails on the breadboard to your Arduino

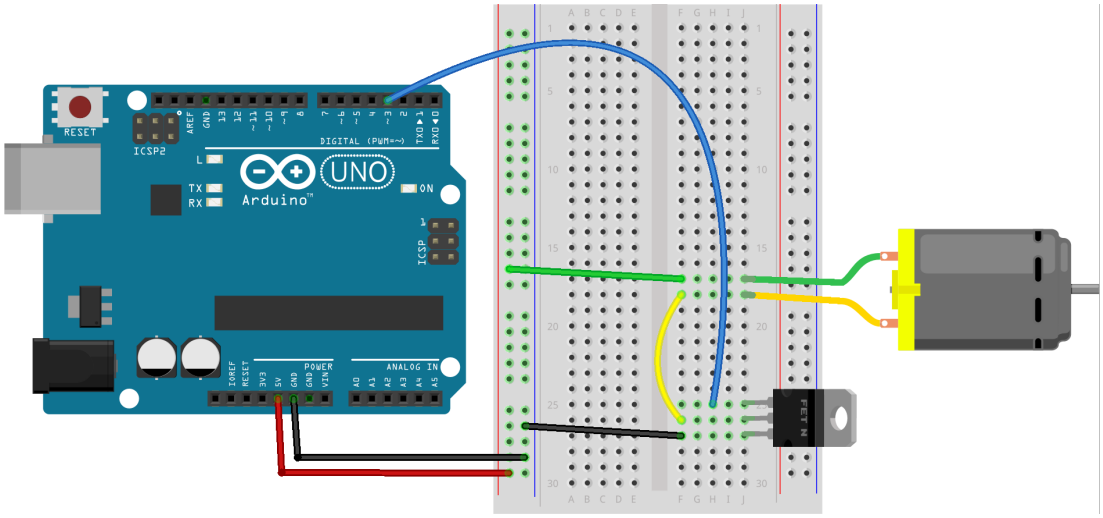
3. Insert your components so that each component lead is in its own row. Note that the two motor leads and the three transistor leads are each in their own row.

   Orientation matters! The rows of the breadboard connect horizontally across each group of five sockets, *not* vertically across the full breadboard.

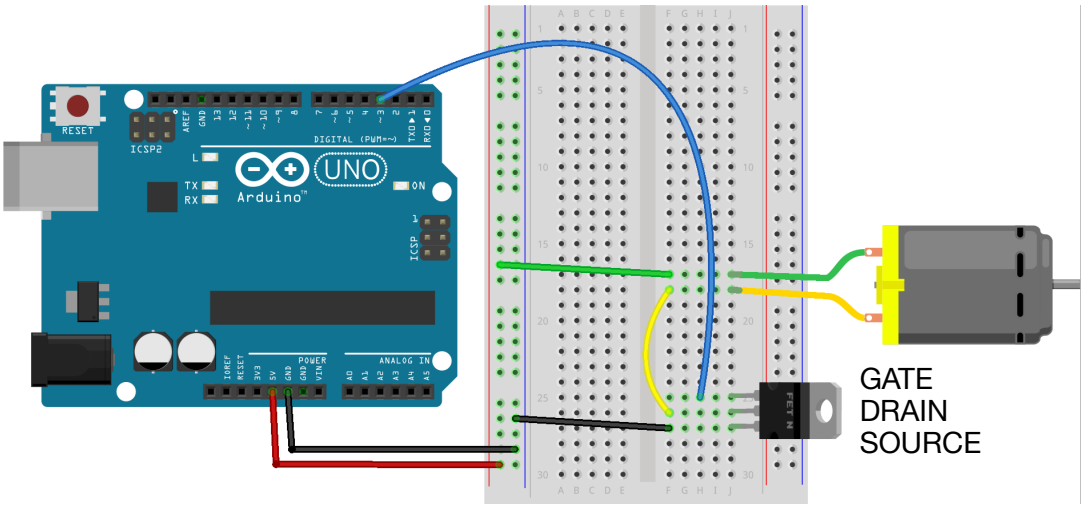
   Except for the two columns on either side of the breadboard marked with the red and blue lines — these connect only vertically, *not* horizontally!

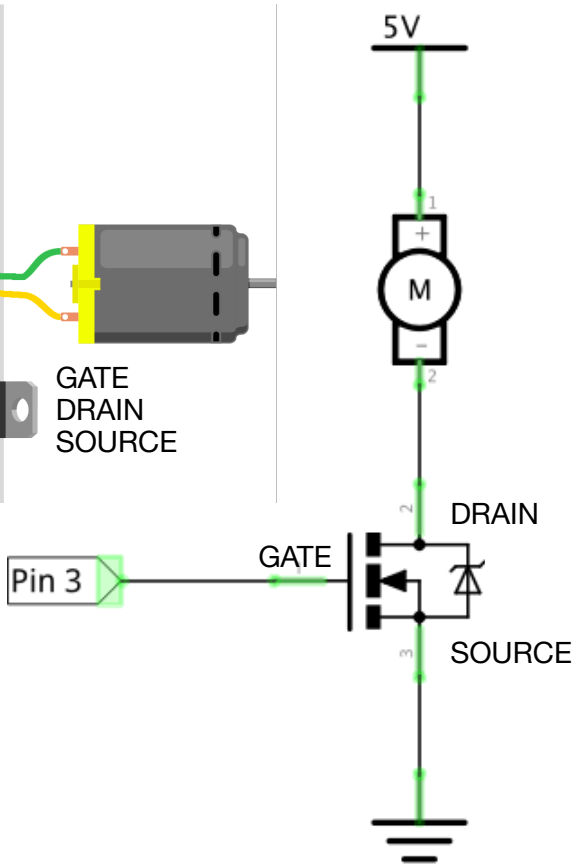


4. Use wires to connect the appropriate leads for each component to each component. Remember that any socket in a row of 5 is connected to every other socket in the same row of 5!



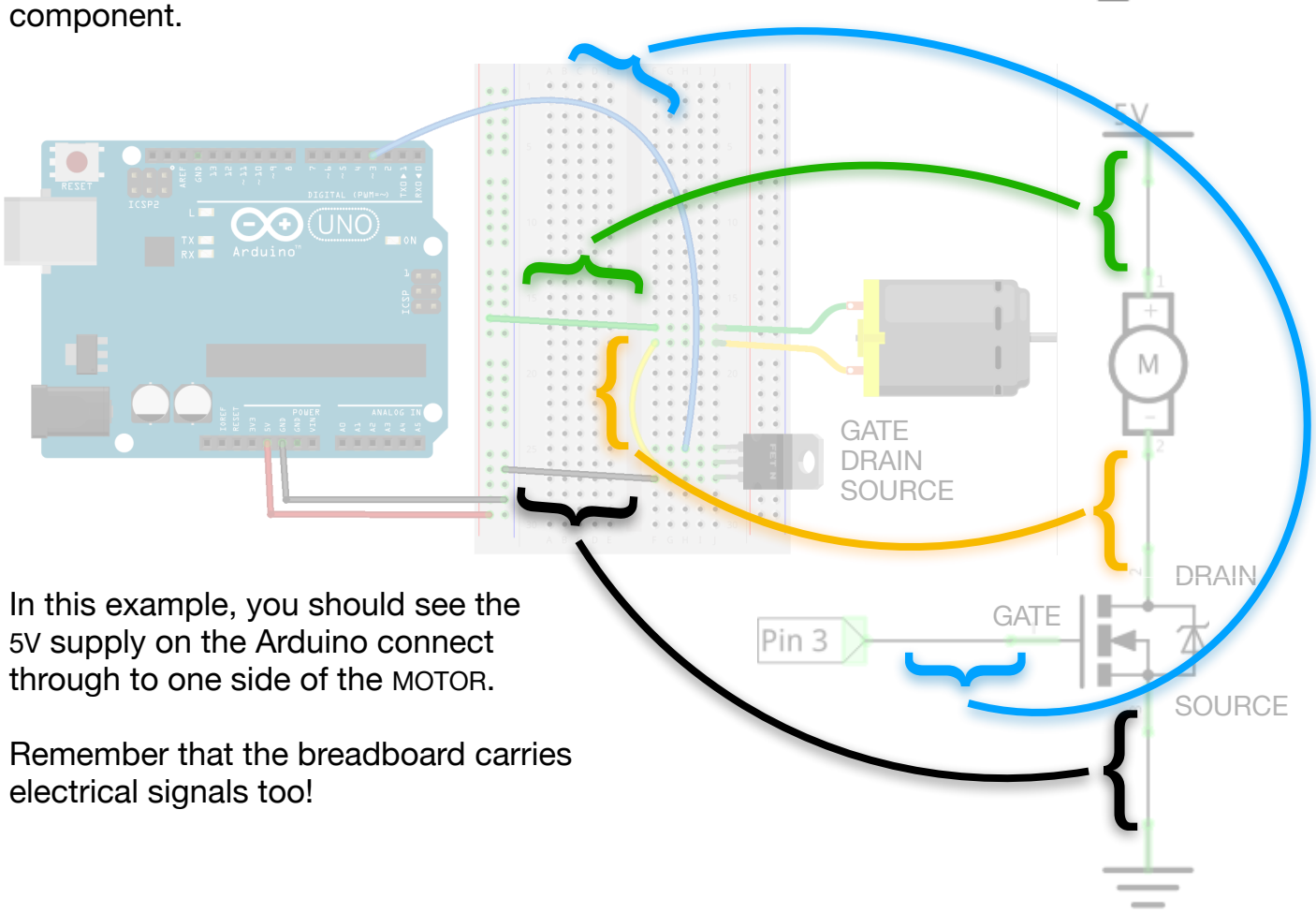
   Two things make this difficult: (a) figuring out which physical lead corresponds to which schematic component lead; and (b) figuring out what is connected to what.





Above, the transistor has three leads, labeled GATE, DRAIN, and SOURCE. The schematic shows which transistor lead is connected to which other component lead.

When you're done, trace the flow from each component to each other connected component.



In this example, you should see the 5V supply on the Arduino connect through to one side of the MOTOR.

Remember that the breadboard carries electrical signals too!