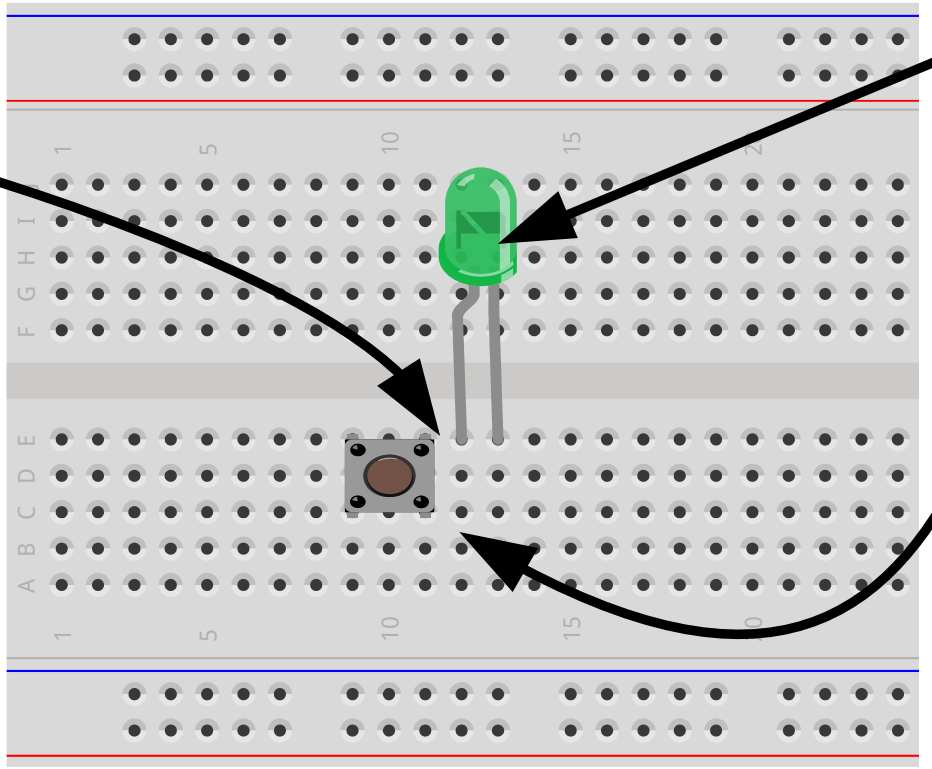
NOT gate – Step 1

Both components far back against gutter

Components are adjacent, not sharing columns



LED:

Flat side, short lead on right

Switch:

Wires stick out of top and bottom of switch, not left and right

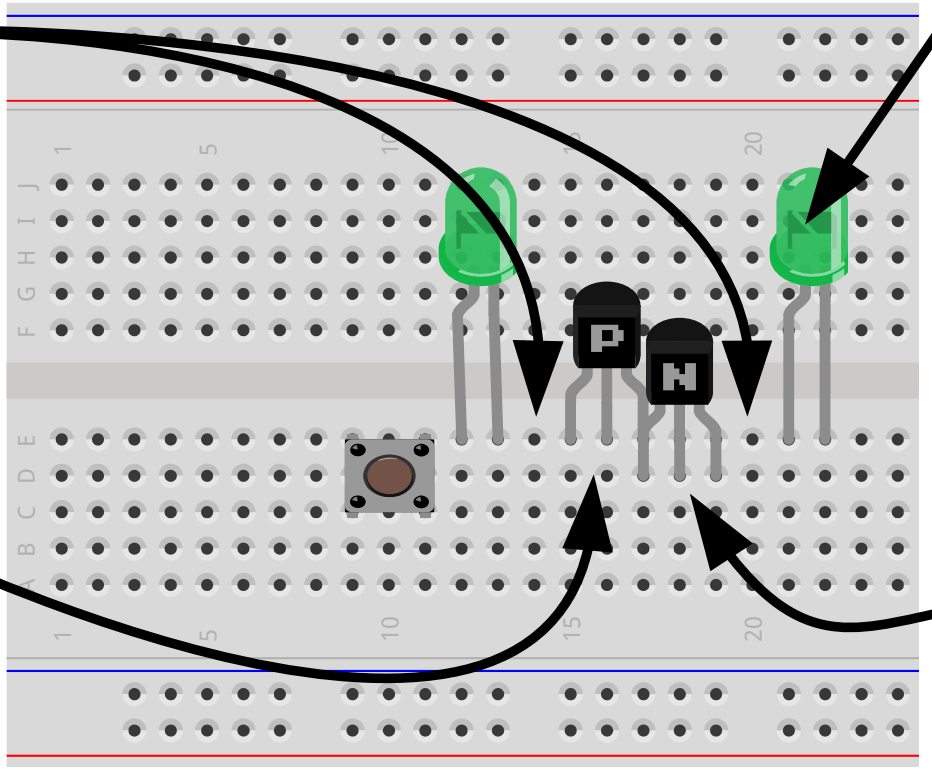
NOT gate – Step 2

One column gap between each LED and the transistors

P-channel transistor (flat back, no pink dot)

Larger flat side facing you

Overlaps N-channel transistor in one column only



LED:

Flat side, short lead on right

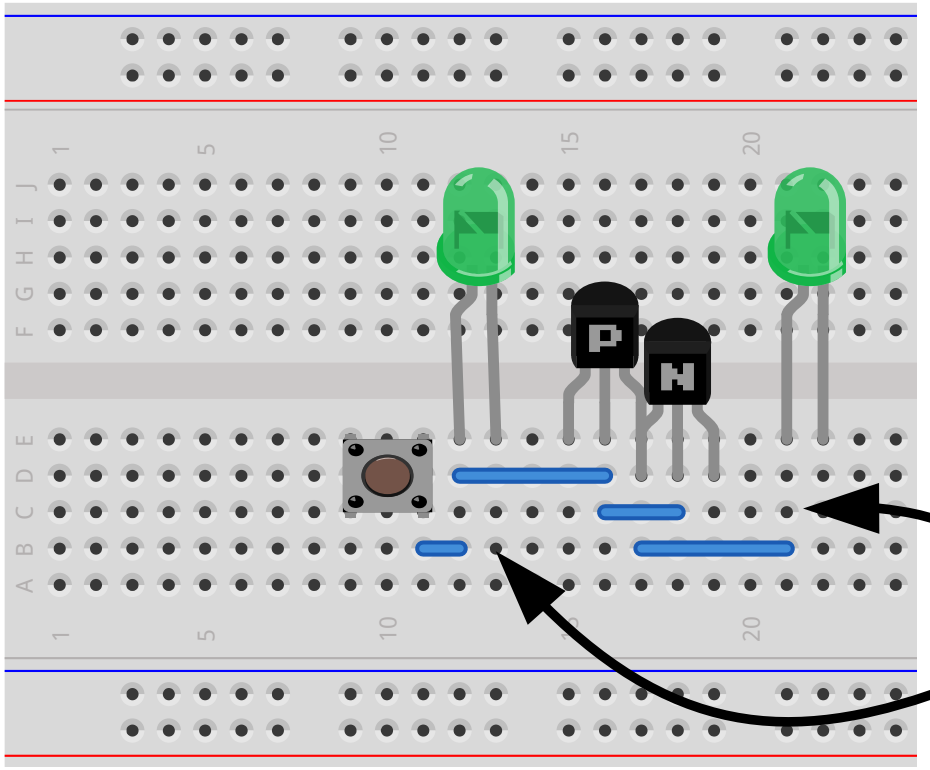
Far back against gutter

N-channel transistor (round back, no pink dot)

Flat side facing you

Overlaps P-channel transistor in one column only

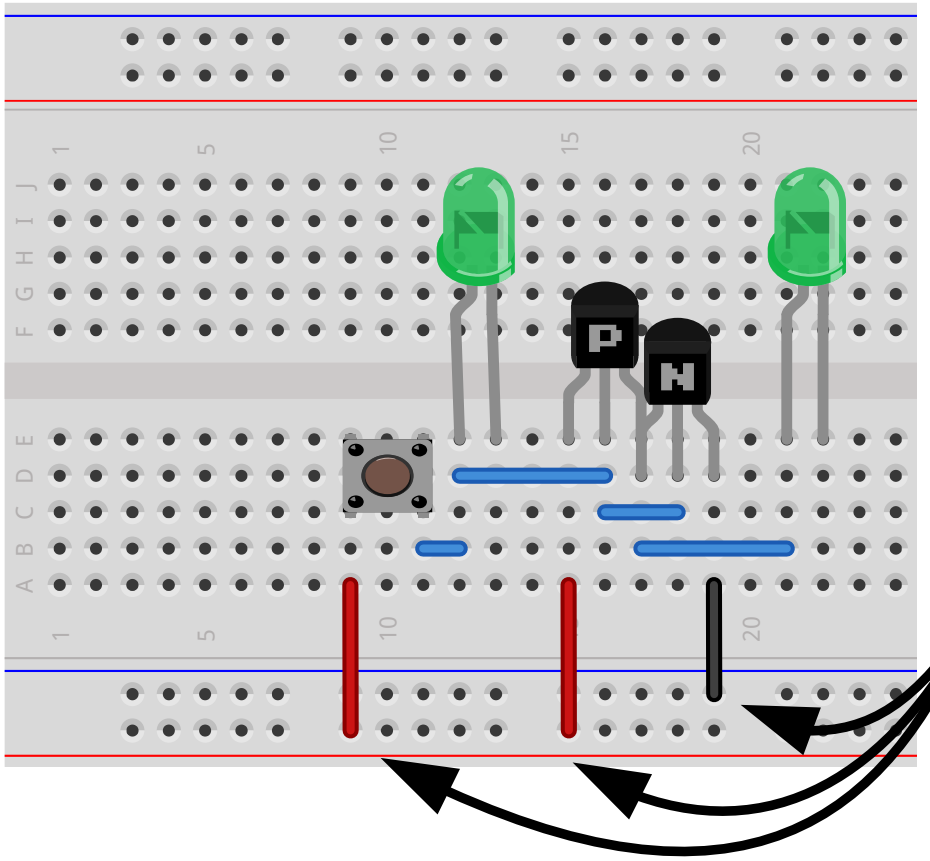
NOT gate – Step 3



Add four Wires

Pay careful attention to exactly match the picture

NOT gate – Step 4



Add three Wires

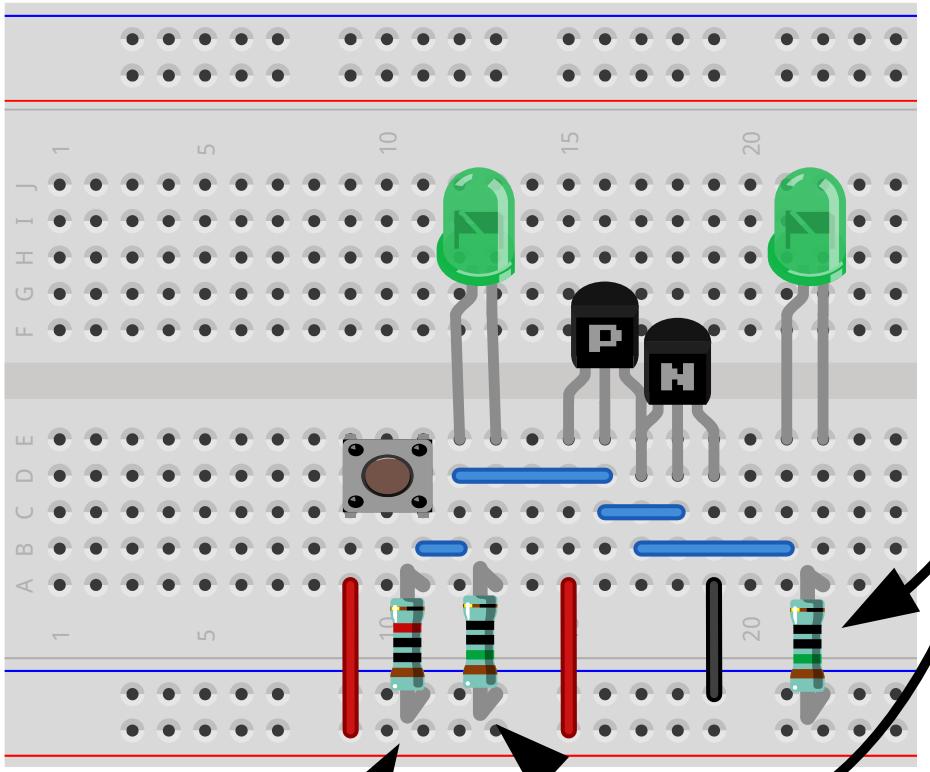
Pay careful attention to exactly match the picture

NOT gate – Step 5

Resistor 10KΩ:

Brown black black red

In the same column as the switch's right wires



Resistor 150Ω:

Brown green black black

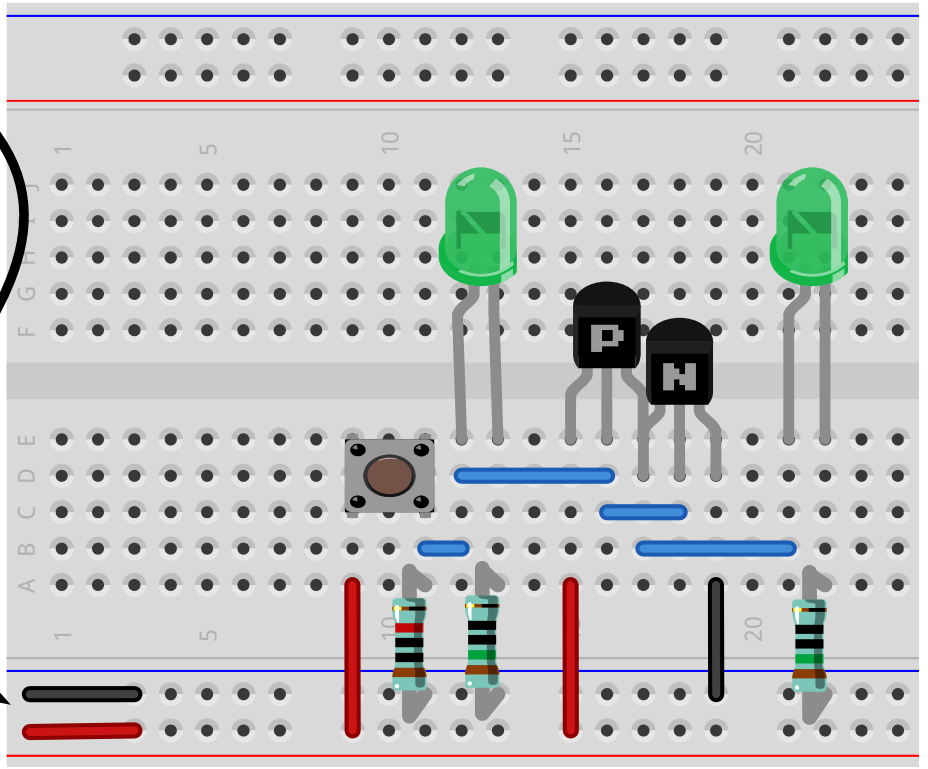
In the same column as each LED's right wire

NOT gate – Step 6

Plug in power once circuit is complete

Pay attention to the colors of the two wires

Observe the two LEDs' behavior when the switch is pressed and released



NOT gate – Analysis

- The left LED is the circuit's input
- The right LED is the circuit's output
- When the switch is not pressed, what state are the input and output? (Each is “on” or “off”)
- When the switch is pressed, what state are the input and output now?
- How does the output relate to the input? (unrelated, always on, always off, same, or opposite)