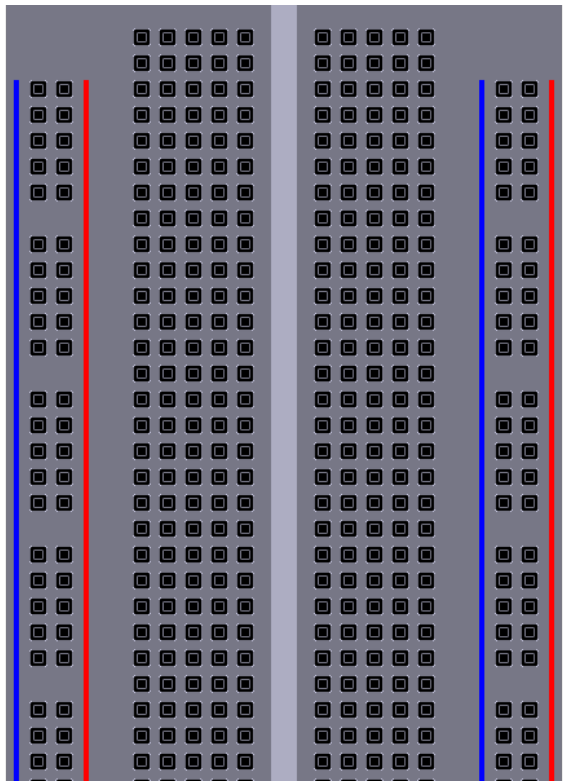
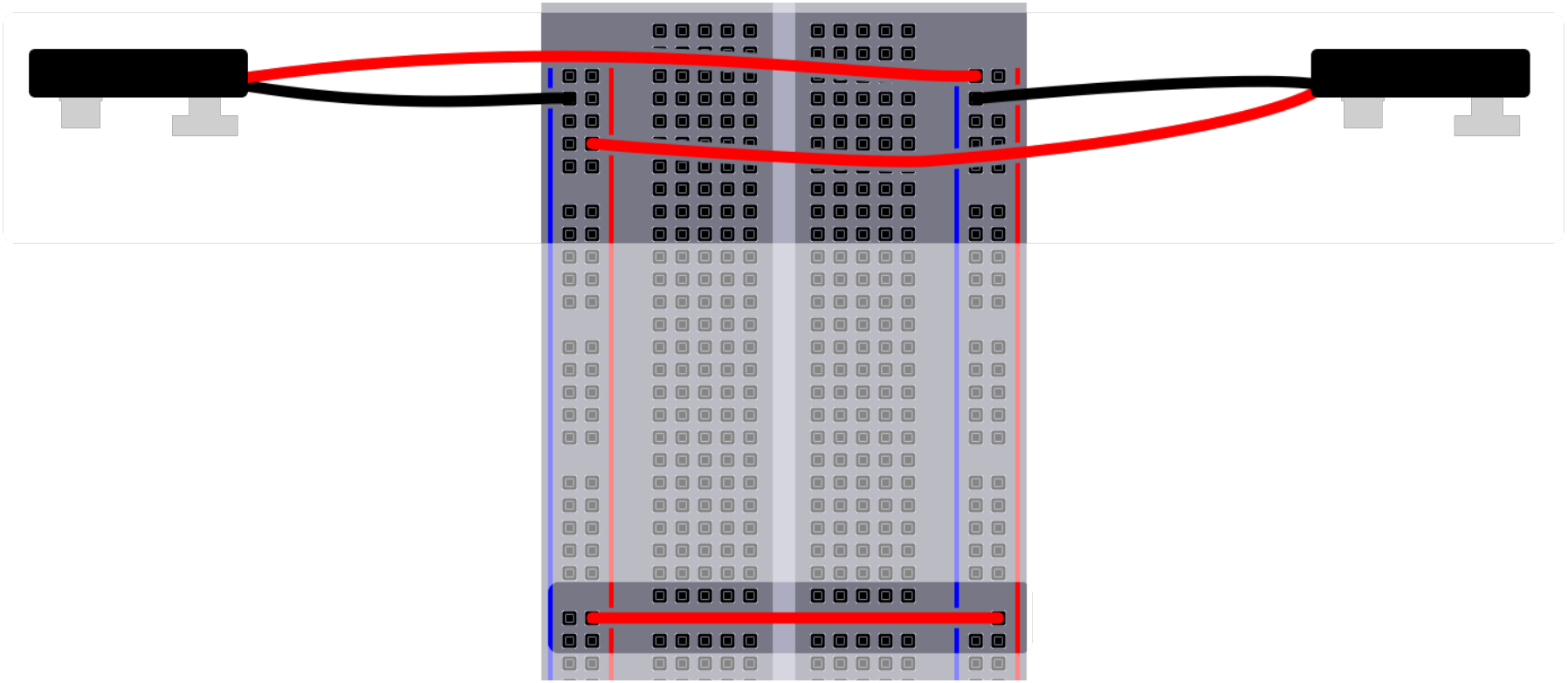
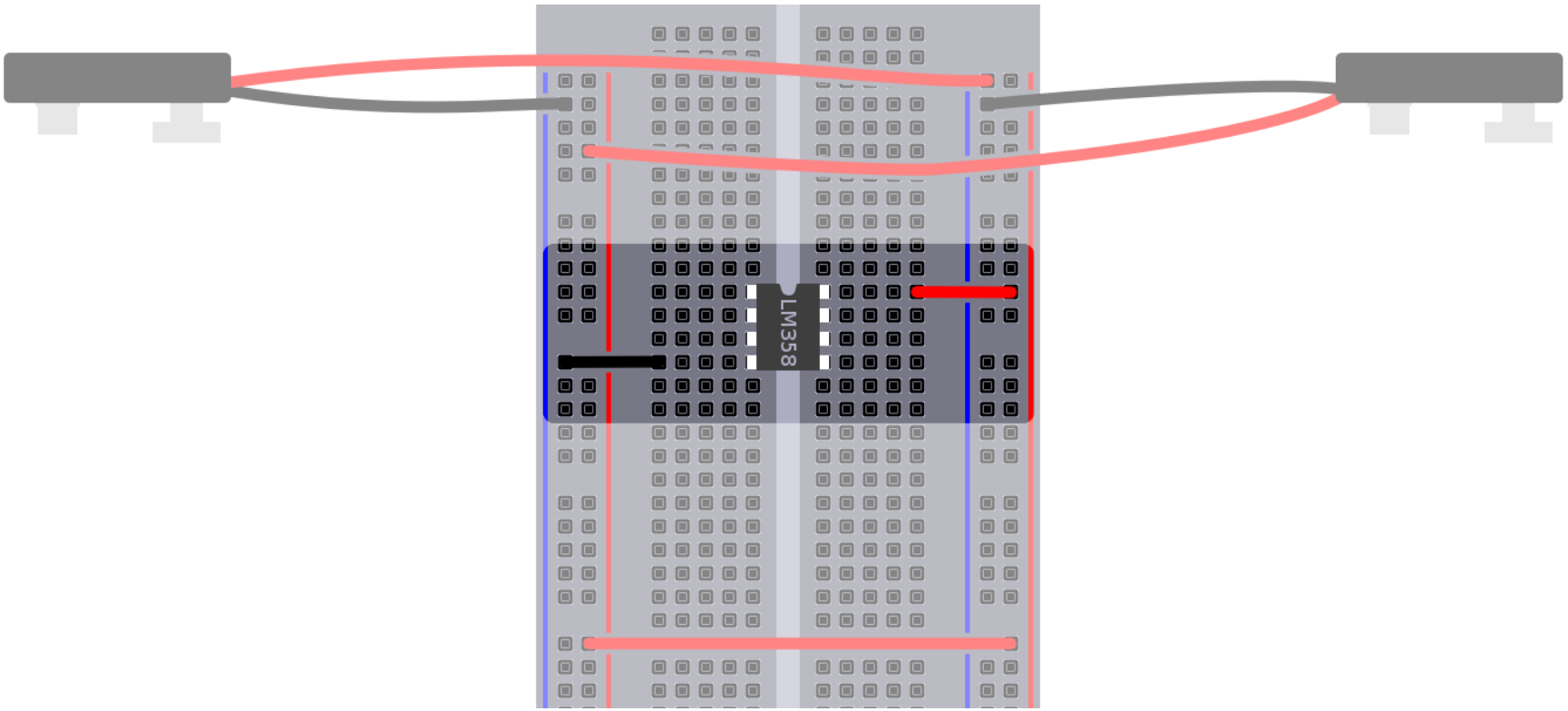


Start with an empty breadboard



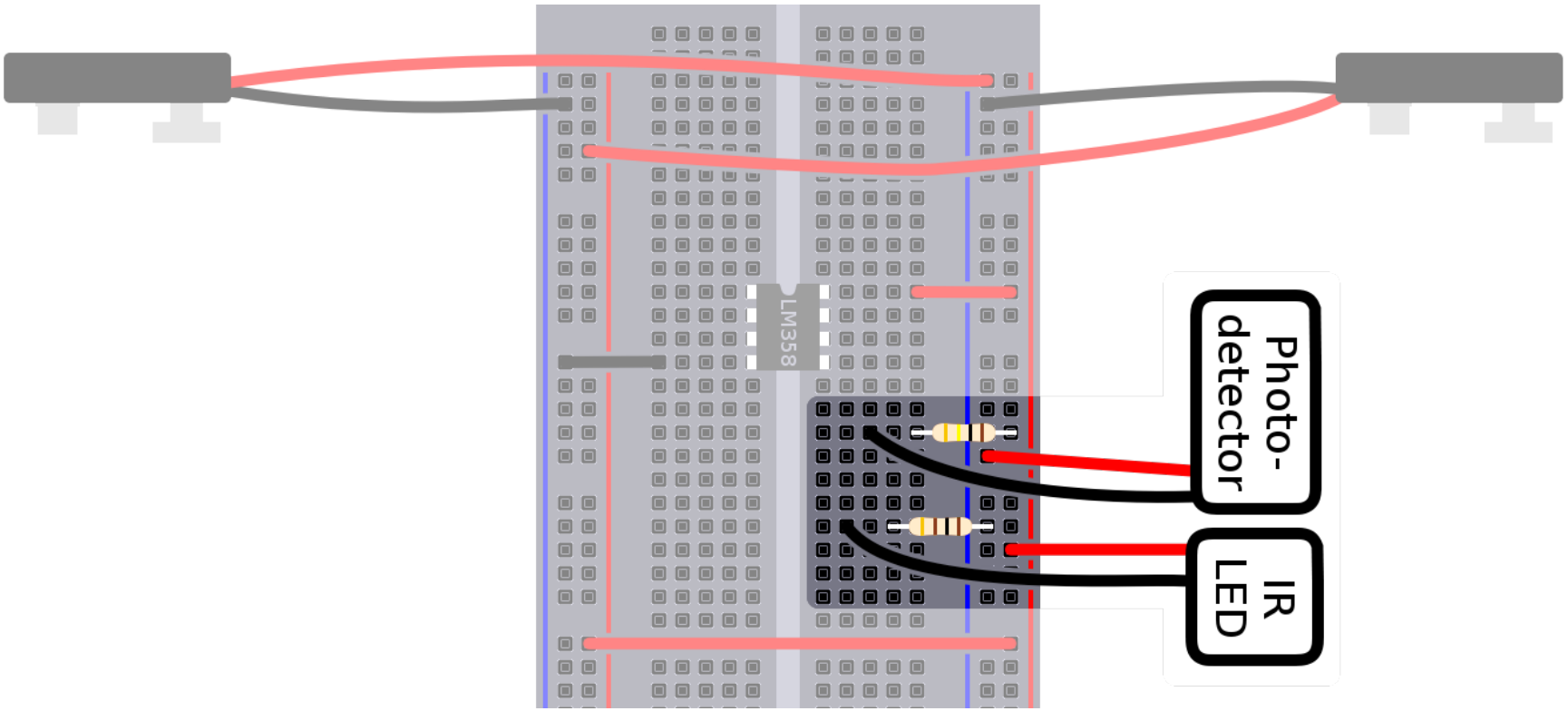
Create a dual supply:

1. Connect two, 9V battery snaps as shown above. Observe very carefully the busses that are used for each snap!
2. Connect the positive bus on the left side of the breadboard to the unused bus on the right side.



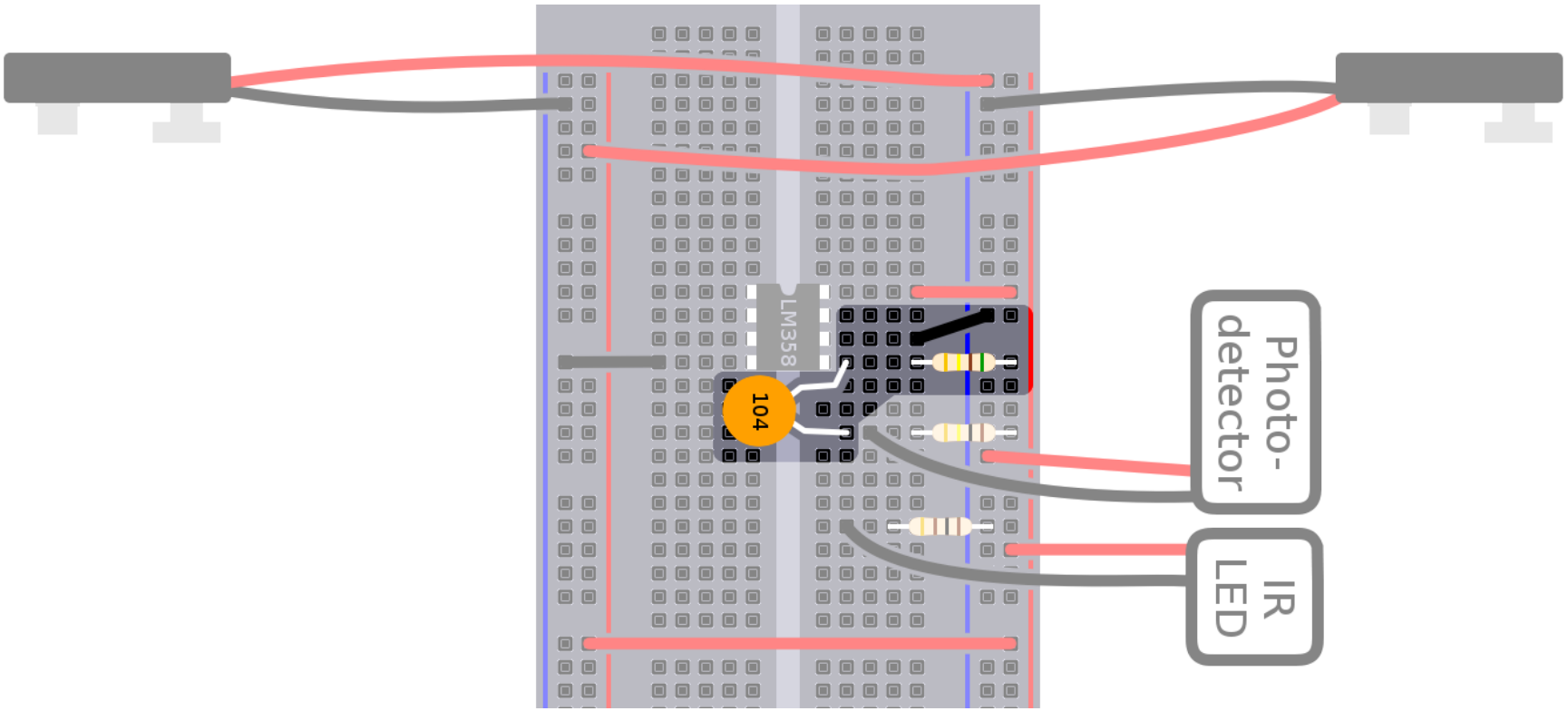
Place the dual op-amp on the board:

1. Place the IC chip across the center groove in the breadboard. Make sure to observe the orientation of the notch on the IC.
2. Connect the IC to the power busses.



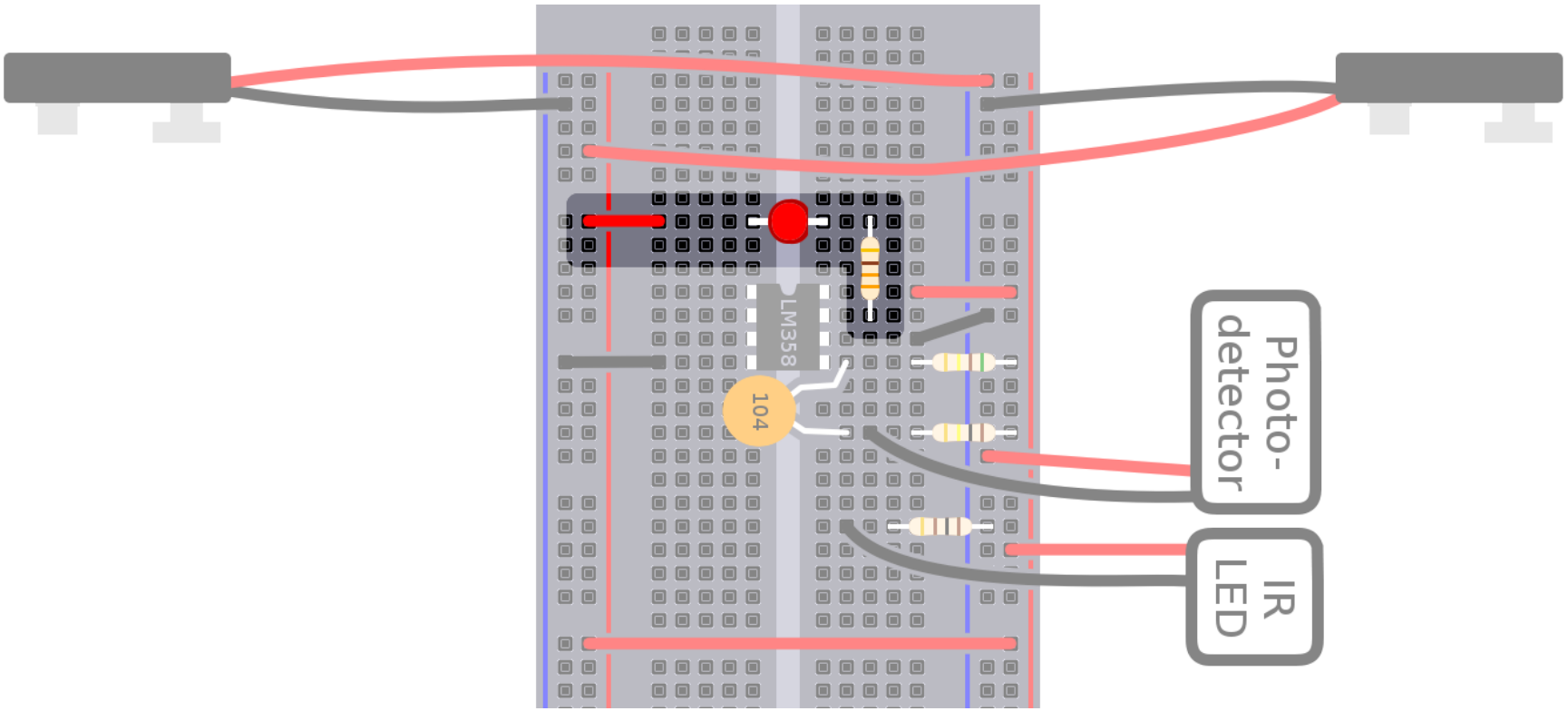
Wire the sensor:

1. Connect the photodetector and the IR LED as shown in the illustration.
    1. Use a 100 kΩ resistor for the photodetector. The color code for 100 kΩ is: Brown, black, yellow, gold
    2. Use a 100 Ω reistor for the IR LED. The color code for 100 Ω is: Brown, black, brown, gold



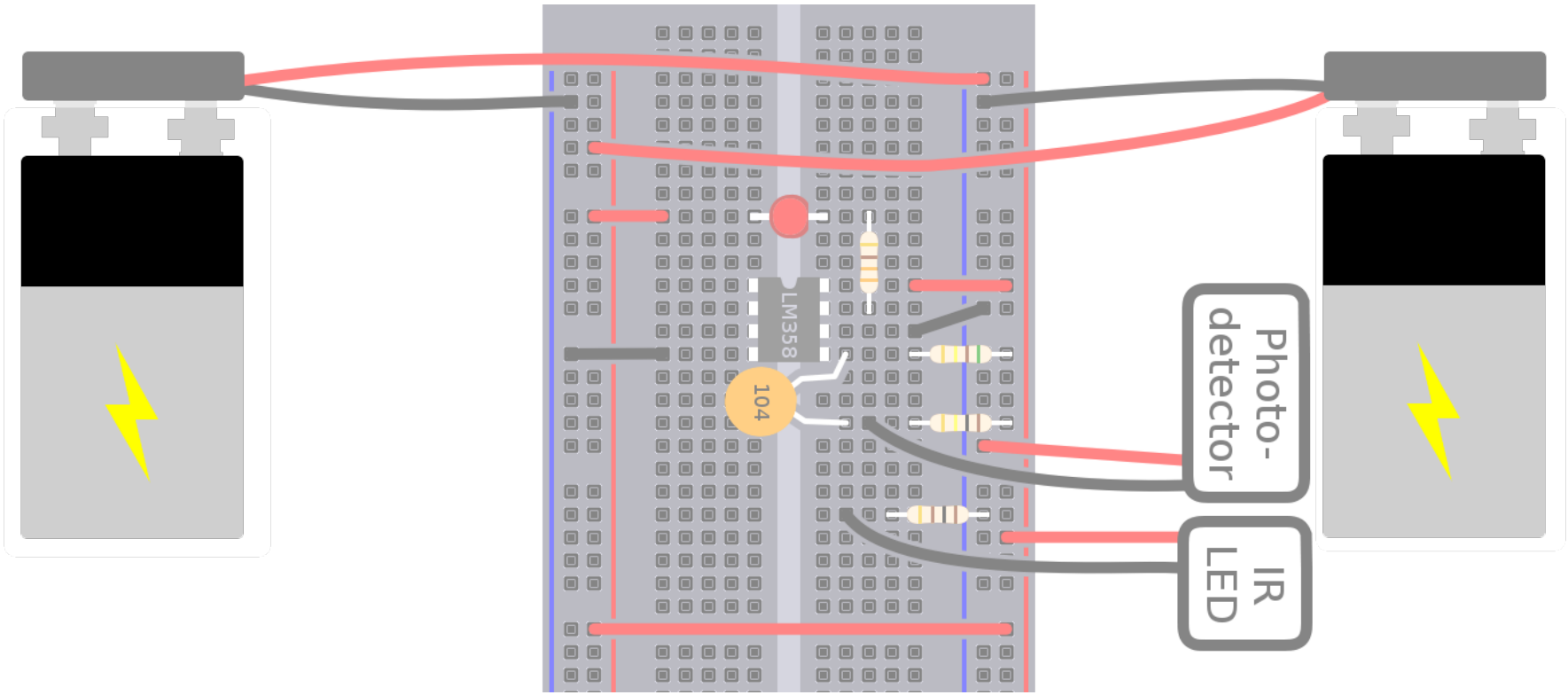
Connect the comparator inputs:

1. Connect the non-inverting input, pin 5, to the coupling network.
    1. Use a 0.1 uF, ceramic coupling capacitor (marked 104)
    2. Use a 510 kΩ resistor, which will be marked: green, brown, yellow, gold.
2. Connect the inverting input to ground
    1. Use a jumper wire to connect pin 6 directly to ground.



Create the indicator circuit

1. Connect a 330 Ω resistor from the comparator output, pin 7, to an unused node on the breadboard. The color code for 330 Ω is: orange, orange, brown, gold.
2. Connect cathode, which is the shorter lead, of an LED to the node where you connected the resistor.
3. Connect the anode of the LED, which is the longer lead, to the positive bus.



Power the circuit

1. Plug a battery into each battery snap.
2. If everything is wired correctly the circuit should work.