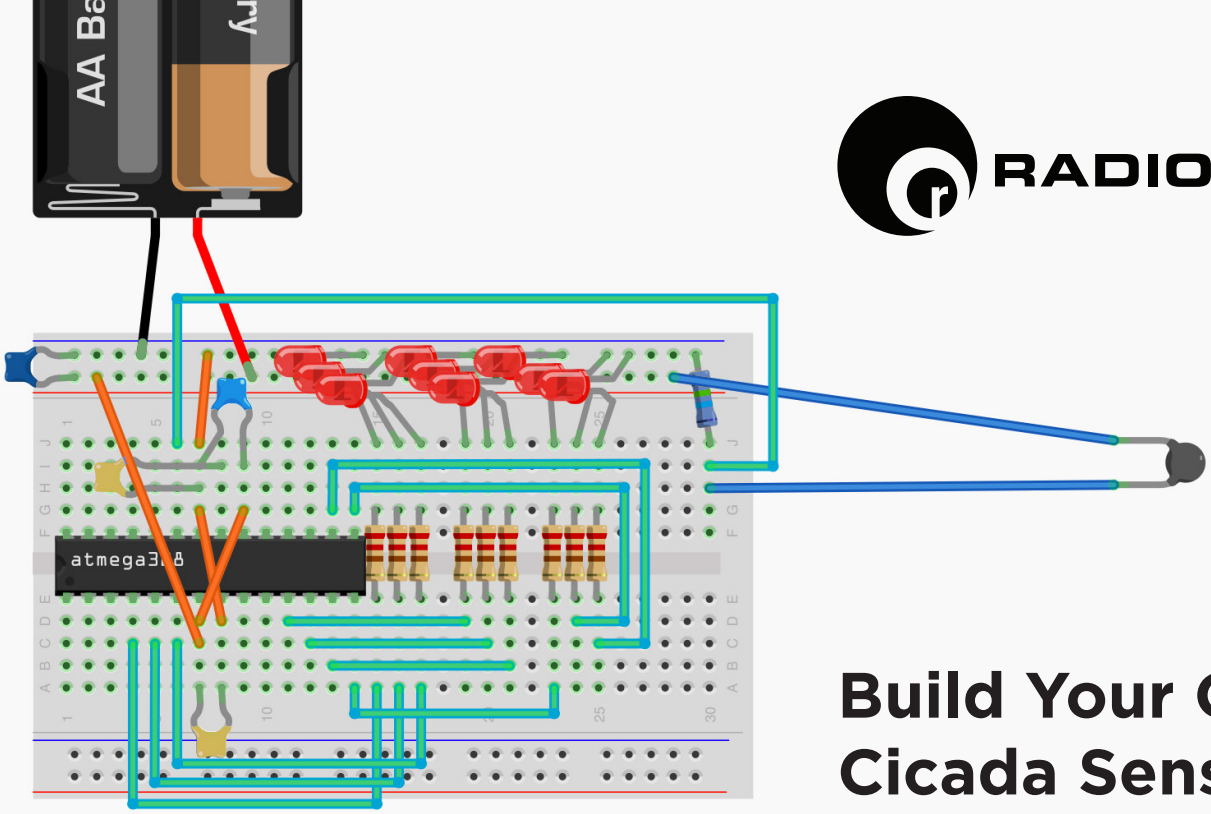
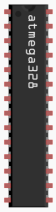


RADIOLAB

Build Your Own Cicada Sensor Kit

These instructions also live at: **wny.cc/bugkit**

Parts List



Microcontroller
ATmega328P
1x

Pre-programmed by Radiolab

LEDs
9x

Thermistor
1x

Resistor
47k ohm, 0.1%
1x

Resistors
220 ohm
9x

Capacitor
10uF / 10V
1x

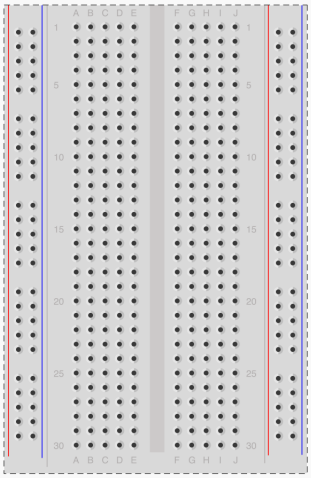
Capacitor
100nF / 6.3V
1x

Capacitors
100nF / 6.3V
2x

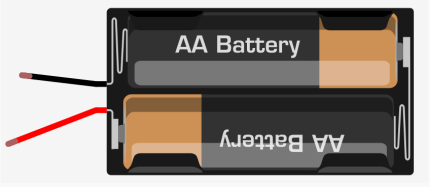
Orange wires
3 inches
4x

Green wires
5 inches
10x

Long wires
12 inches
2x

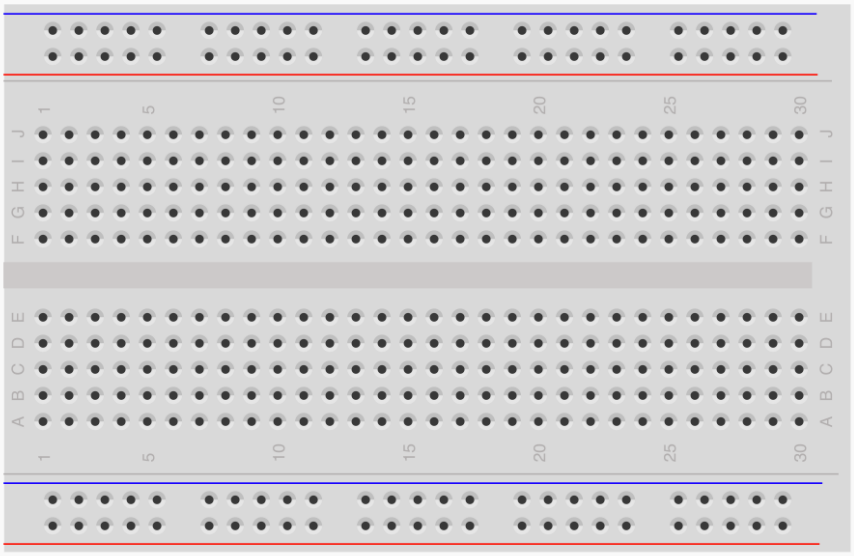


Breadboard
1x

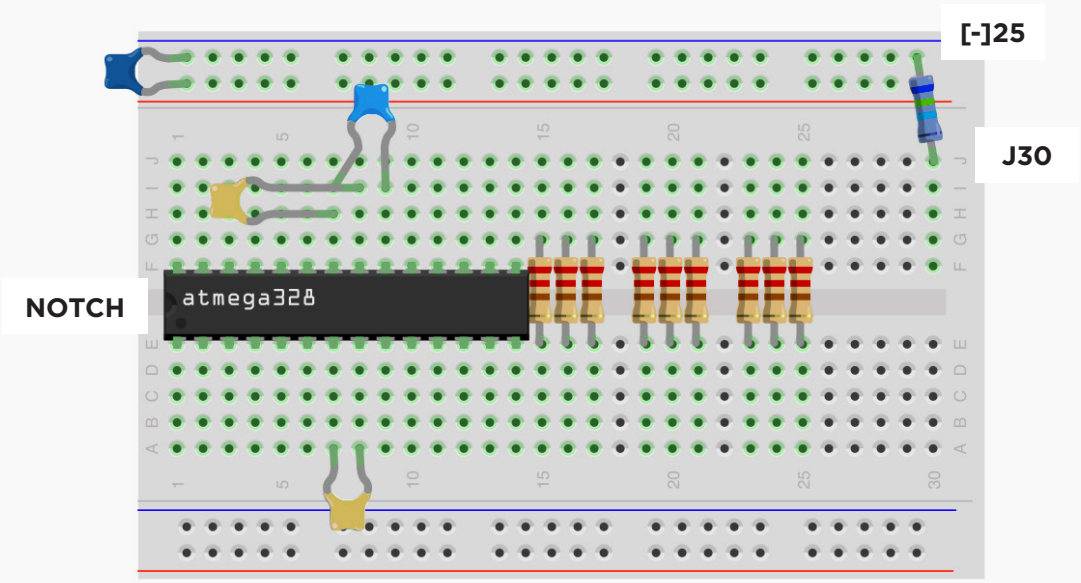


2 AA Battery Holder
1x

1.5V AA Batteries
2x



You have your breadboard...



...and then you put your parts on it.

220 ohm resistors go from

E15 to **G15**
E16 to **G16**
E17 to **G17**

E19 to **G19**
E20 to **G20**
E21 to **G21**

E23 to **G23**
E24 to **G24**
E25 to **G25**

Microcontroller goes on the left of the breadboard, from **E/F1** to **E/F 14**. The notched side points towards the end.

The 47k ohm resistor goes from **[-]25** to **J30**.

Dark blue capacitor goes in **[+]1** and **[-]1**.

Light blue capacitor goes in **i7** and **i9**.

Tan capacitors goes in **H7** and **I8**, **A7** and **A8**.

The Adam DePrince Splice

(named after our developer, Adam Deprince)

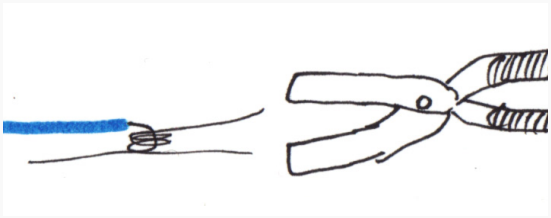
Set aside the breadboard for a minute. Do up your thermistor by attaching the blue wires to its ends.

1 Take one end of the thermistor and one end of the blue wire.

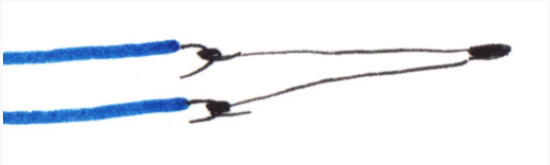
2 You want to make a bend in the end of the blue wire...

3 ...and coil the end of the thermistor around that bend.

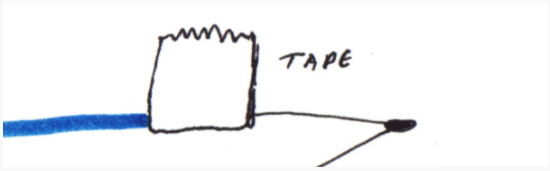
4 Then, use a pair of pliers or hard crushing object to crimp the end of the blue wire so that it compacts the coil.



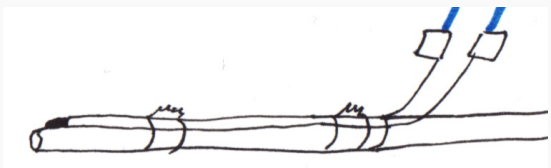
5 Do the same with the other blue wire and other end of the thermistor.

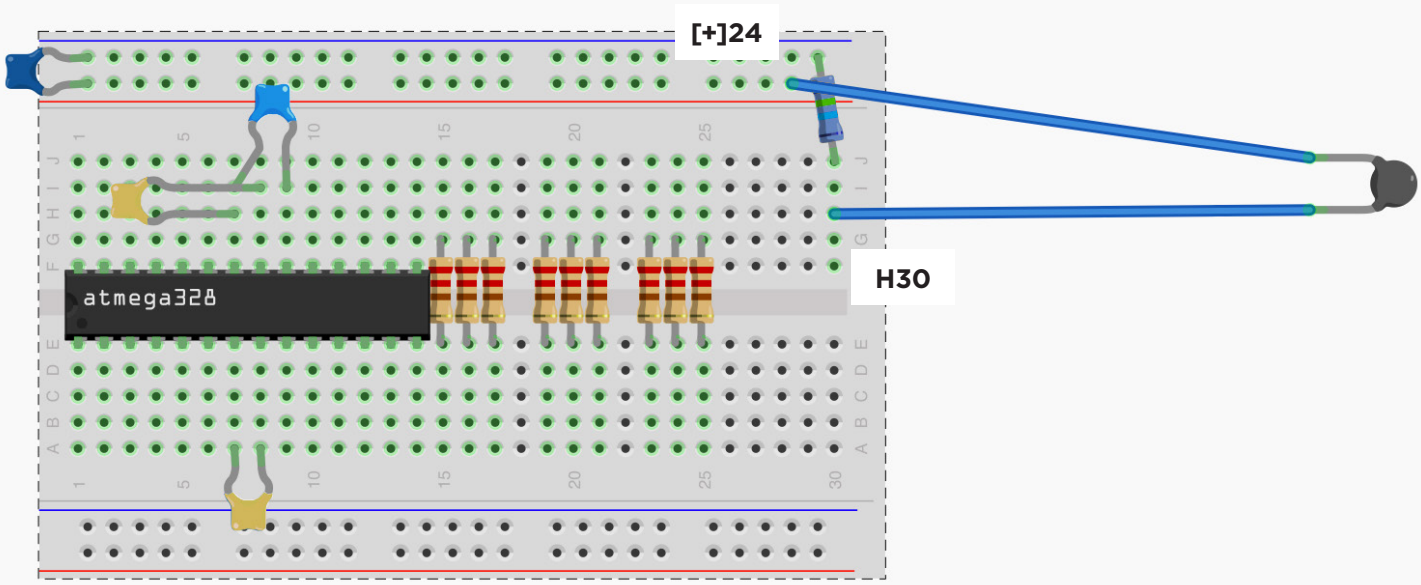


6 If you have electrical tape, wrap some electrical tape around this joint.

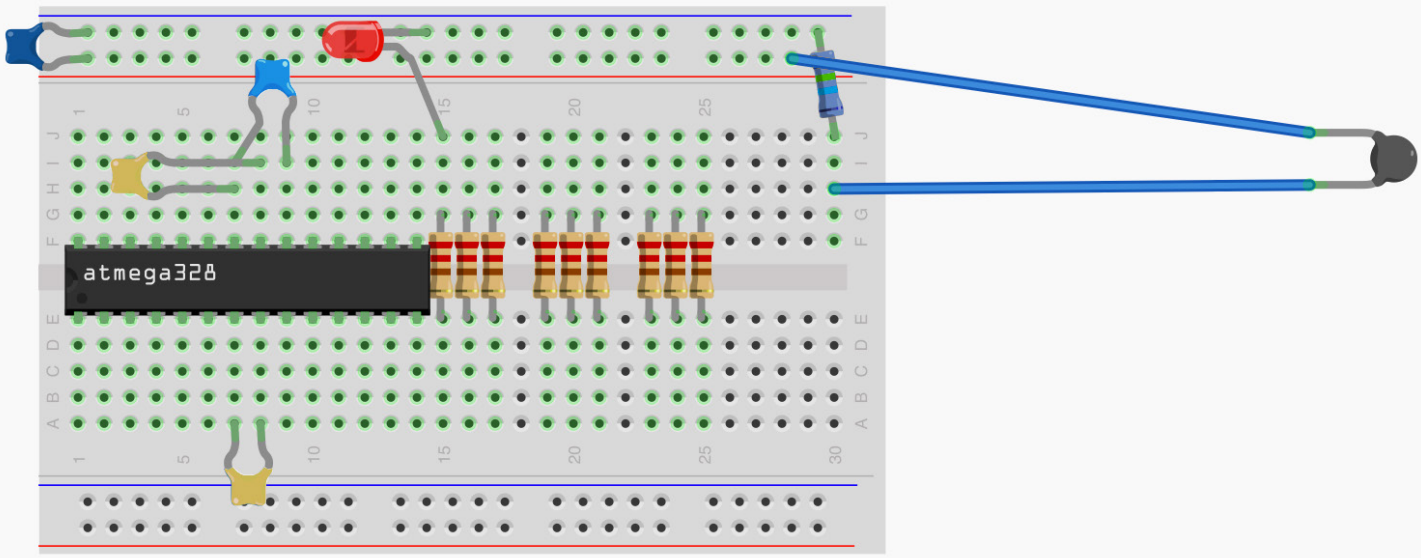


7 Finish off this step by taping your thermistor down onto the wooden dowel.





The blue wires go in **[+]24** and **H30**.



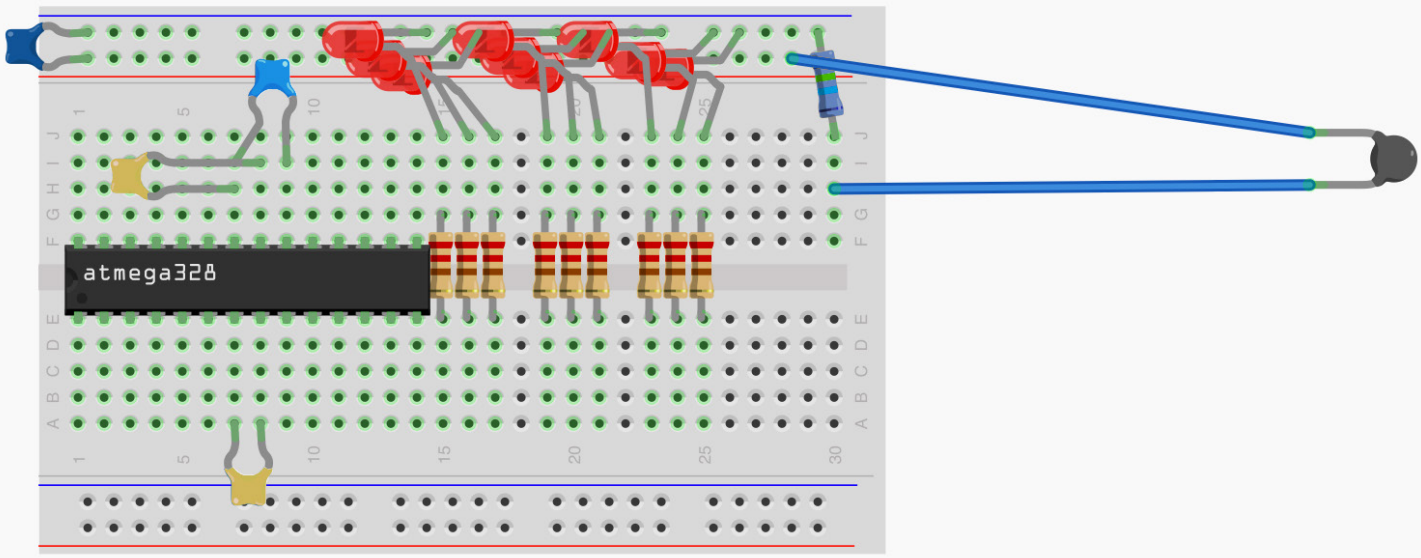
Time to put in your LEDs.

LEDs have a long leg (anode) and a short leg (cathode).

Put the first of nine resistors on the breadboard:

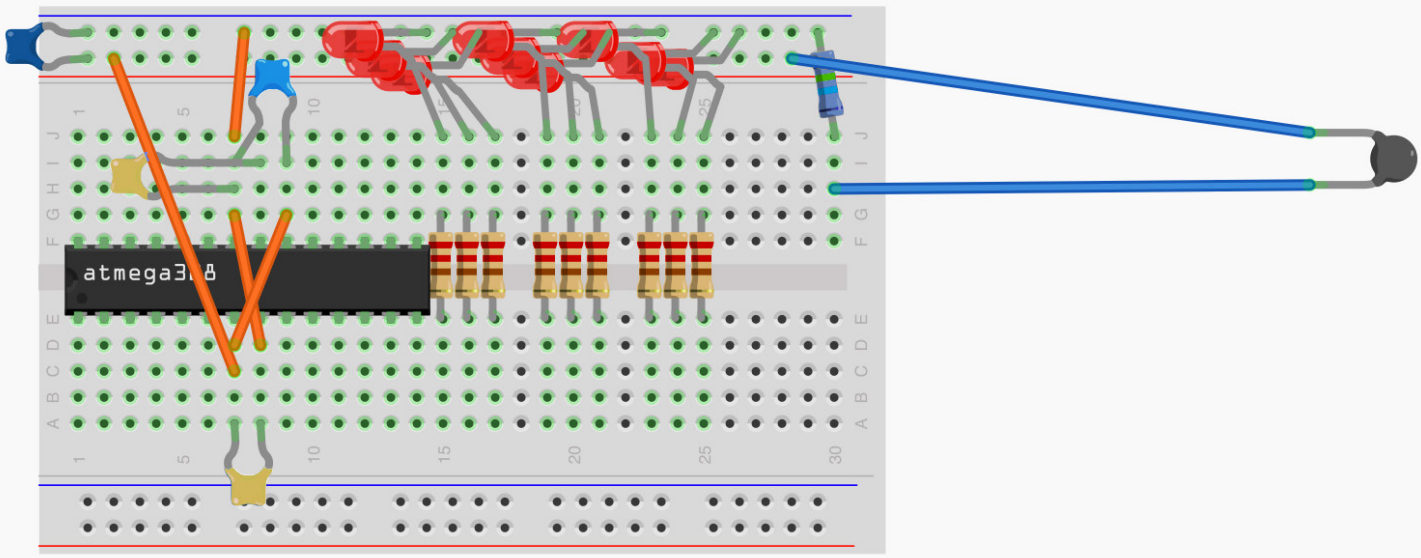
Long leg in **J15**,

Short leg in **[-]12**.



The rest of the LEDs goes on the board like this:

Long leg	Short leg
J15 (just did)	**[-]12** (just did)
J16	**[-]13**
J17	**[-]14**
J19	**[-]16**
J20	**[-]17**
J21	**[-]18**
J23	**[-]20**
J24	**[-]21**
J25	**[-]22**



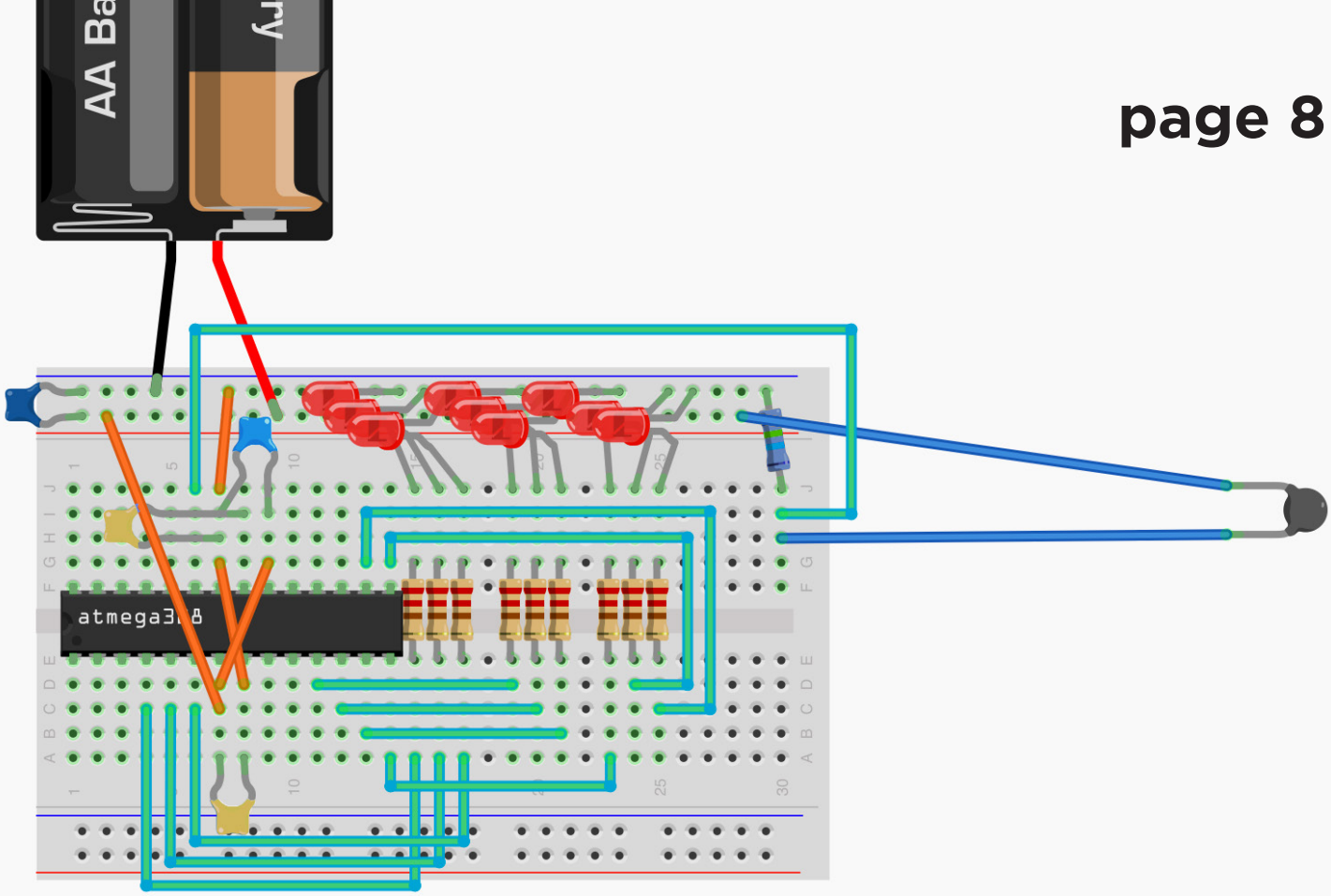
Put in your 3” orange wires:

[+]2 to **C7**

[-]6 to **J7**

G7 to **D8**

G9 to **D7**



Connect your 5” green wires:

J6 to **i30**

G13 to **C25**

G14 to **D24**

D11 to **D19**

C12 to **C20**

B13 to **B21**

A14 to **A23**

C4 to **A15**

C5 to **A16**

C6 to **A17**

Battery wires go to **[-]4** and **[+]8**.

Troubleshooting:

To test your finished tracker, take one leg of the thermistor out. Within 5 seconds the LEDs should light up.

If they don’t, check the connection of your wires and LEDs.

Check the LEDs against the pattern at **wnyc.org/bugs** to be sure all the LEDs are working.