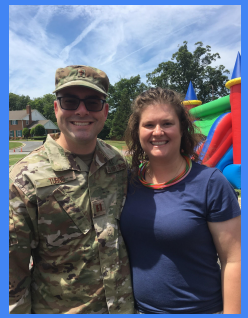
Coding, Covid, and Life Support

Nathan W. Tubbs
Brooklyn, NY

About me...



Middle School Science Teacher, 13 years

SEEC Crew Member, Unity

JPL Solar System Ambassador

Space Foundation Teacher Liaison

Husband, Father, Pastor, USAF Reserve Chaplain

SOLAR SYSTEM AMBASSADORS

SPACE EDUCATOR EXPEDITION CREW 2 YEAR IN SPACE EDUCATION SPACE CENTER HOUSTON

SPACE STATION EXPLORERS

SPACE FOUNDATION

BLUF

That's an Air Force acronym for "Bottom Line, Up Front"

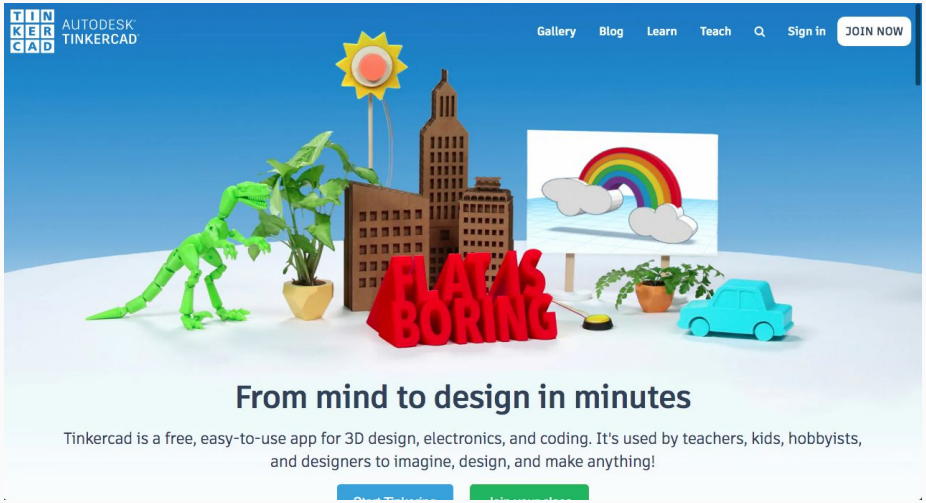
- We want to teach our students about coding.
- Materials are **expensive**.
- New Covid regulations involving sanitizing supplies and distancing makes sharing in the classroom difficult.
- Today, we will learn about **FREE online resources** to help you teach your students about the practical value of coding and microelectronics.
- Then, we can make connections to the life support sensors used in spacecraft and on the ISS.

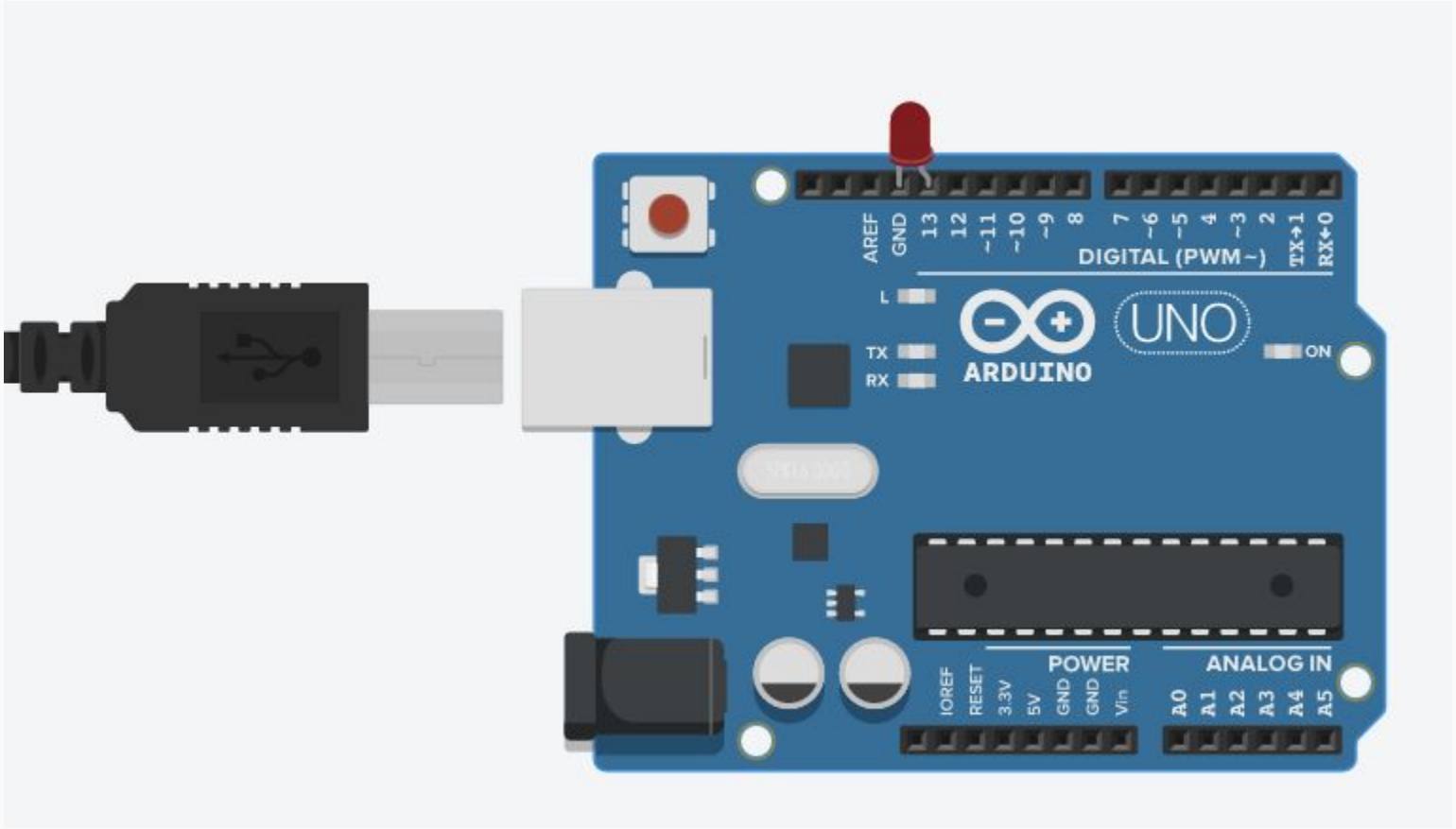
Coding and Microelectronics

Tinkercad.com

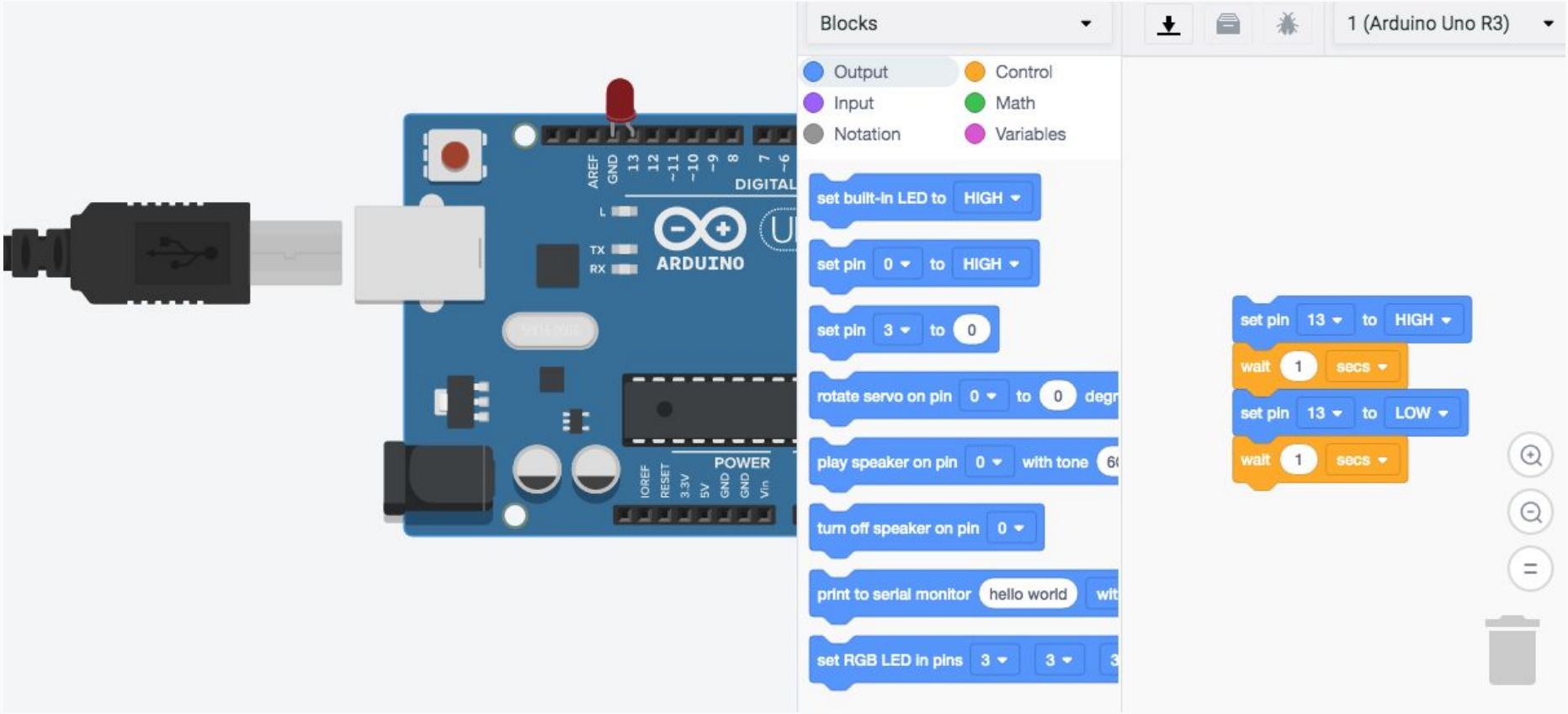
Login with Google credentials.

Select “Circuits.”

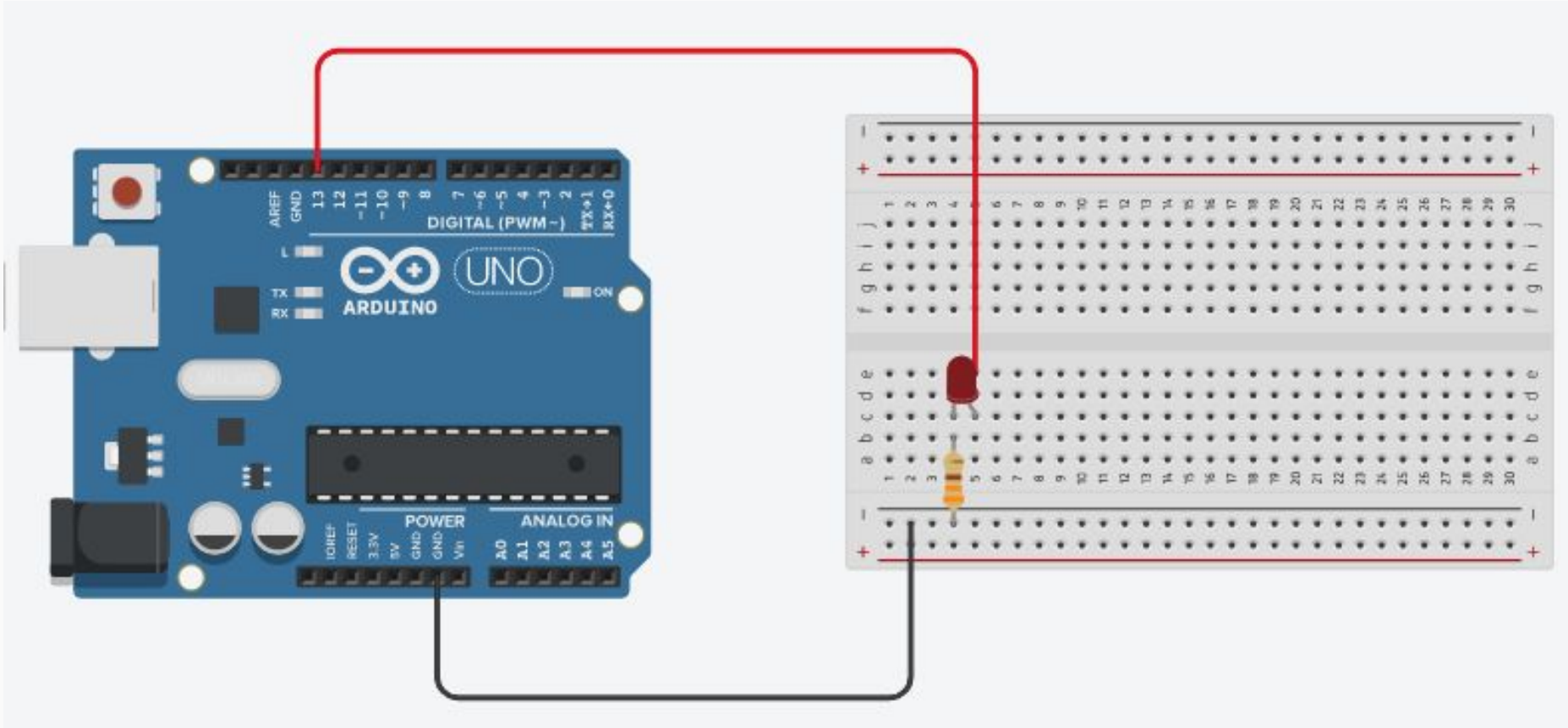




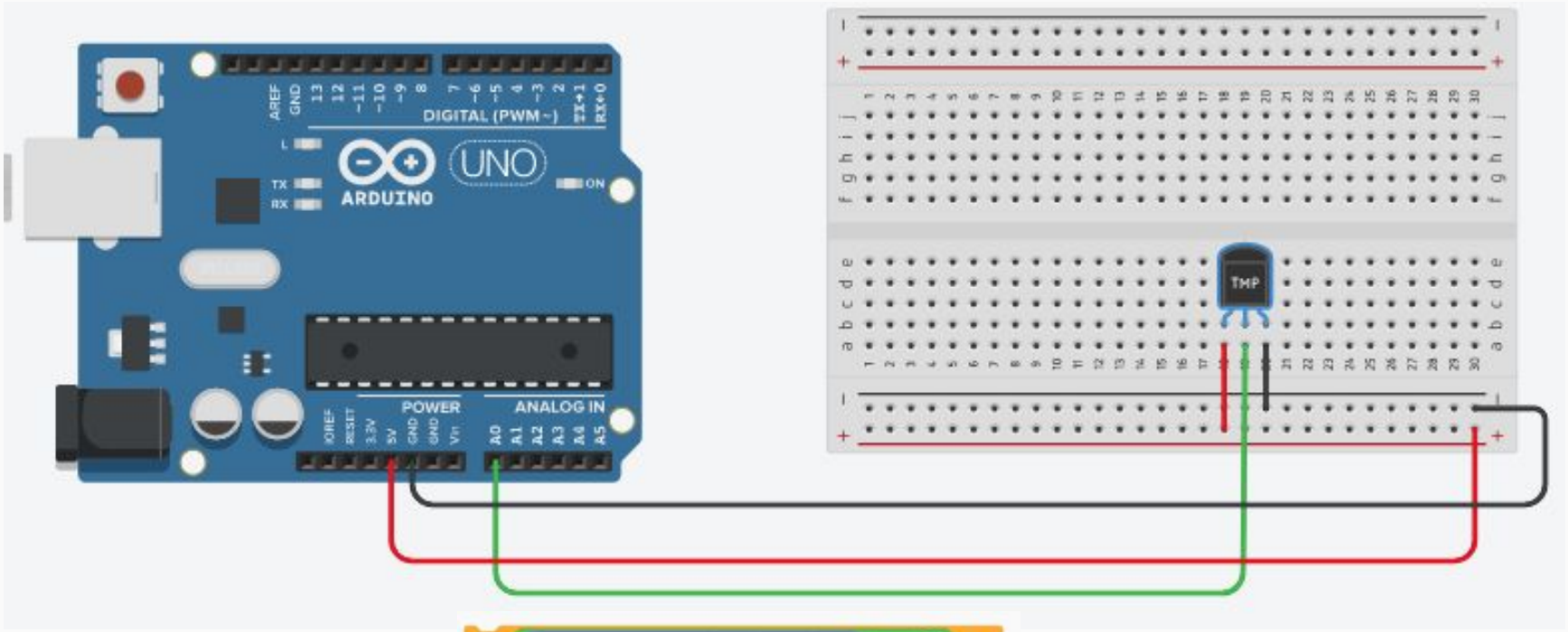
Add an Arduino Uno to the workspace and place an Led into the ports as shown (GND/13).

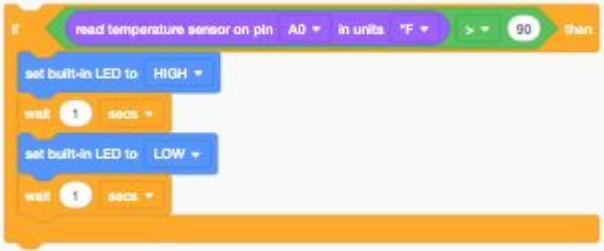


The built-in LED will be coded automatically. You can change the code to read “pin 13”.



Then, you can add a breadboard, resistor, and wires to expand your design. You can use any of the digital ports, as long as you amend the code.



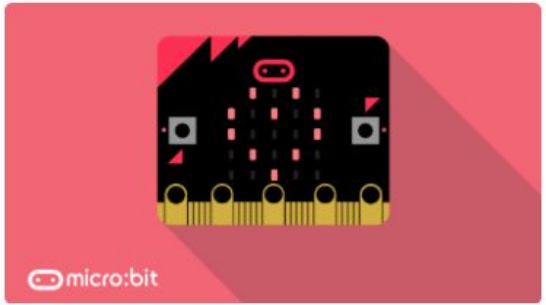


We can also add a temperature sensor and make an LED blink...like an alarm for high temperatures in a spacecraft.

Microsoft | MakeCode About Get started Resources All Microsoft

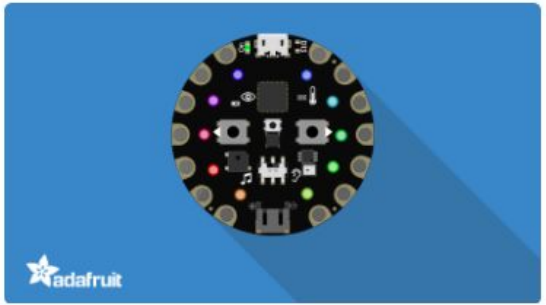
Hands on computing education

Microsoft MakeCode brings computer science to life for all students with fun projects, immediate results, and both block and text editors for learners at different levels.



micro:bit

Learn more with micro:bit >



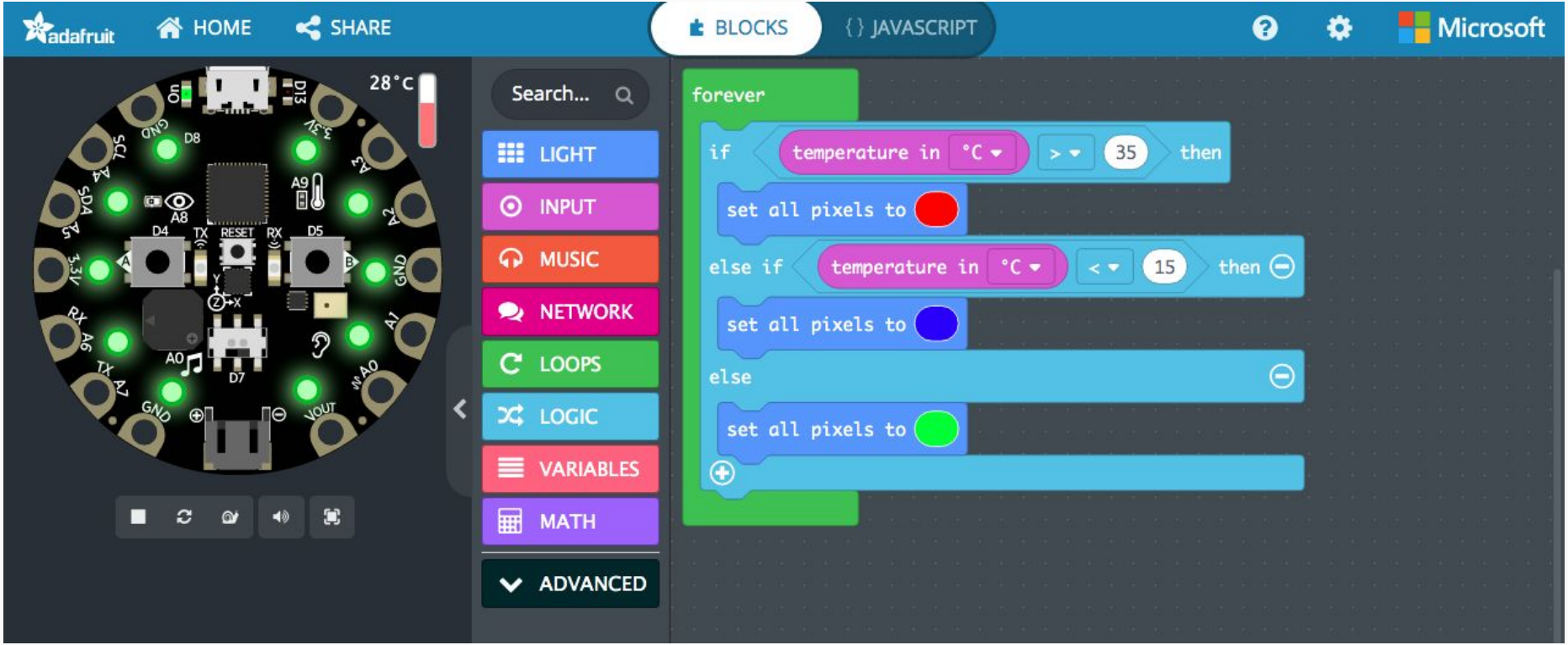
Circuit Playground Express

Use Circuit Playground Express >

Minecraft

Learn more with Minecraft >

Adafruit and Microsoft's Makecode have an online simulator for the Circuit Playground Express as well!



Using blocks (similar to Scratch), we can make a temperature sensor to let us know when we are too hot or cold.

The possibilities are endless!

Links/Resources

Tinkercad.com

Makecode

Student Inventor’s Kit by SparkFun v3.2 and v4.0

Circuit Playground Express

Arduino Uno

Contact Me:

nathanwtubbs@gmail.com
Twitter/Instagram: @sciencenate