Armstrong

School Program 2023-2024

Lesson 2

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Lesson Content

- Revising previous lesson
- Electrical circuit basics
- Getting started with Tinkercad
- Blinking LEDs

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Remember

HIGH= on, LOW=off

In programming a pin is HIGH when it outputs electricity (led on) and LOW when it doesn't output electricity.

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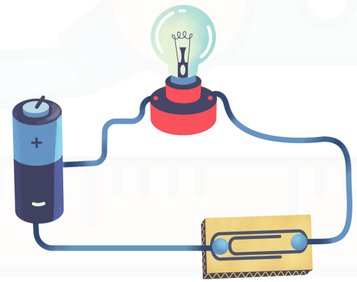
Electronic circuits

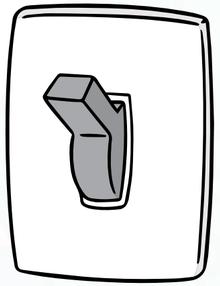


How does a flashlight work?

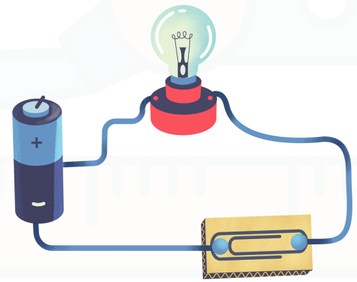
A flashlight is a device that produces light when you press a button.

what parts are inside a flashlight?

The batteries, the switch, the lamp.



Electronic circuits

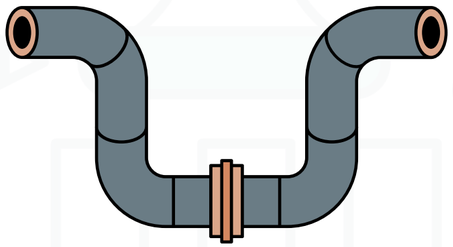


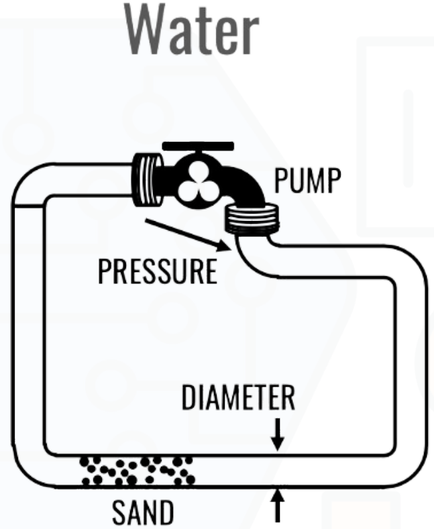
Batteries

Batteries are like tiny boxes that store electricity.

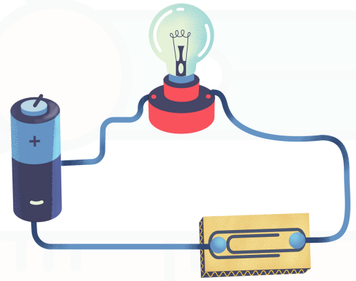
what is electricity?

Electricity is a form of energy that can make things move or glow.
Electricity flows like water in a pipe, but it needs a path to follow.





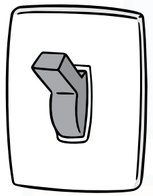
Electronic circuits



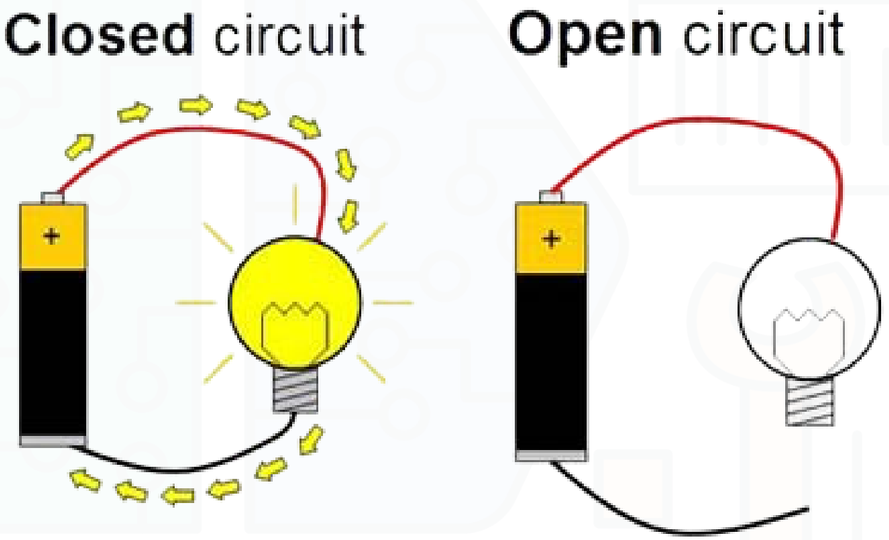
What is a circuit?

A circuit is like a circle. When a circuit is closed,
the electric current can move from the power source, such as a battery, to the device, such as a light bulb, and back to the power source. This makes the device work.

Switch



A switch is like a gate that controls the flow of electricity.



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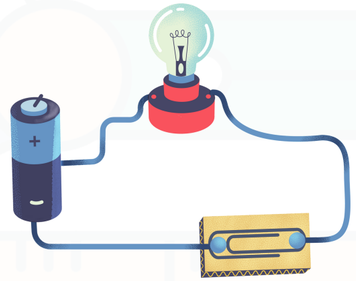
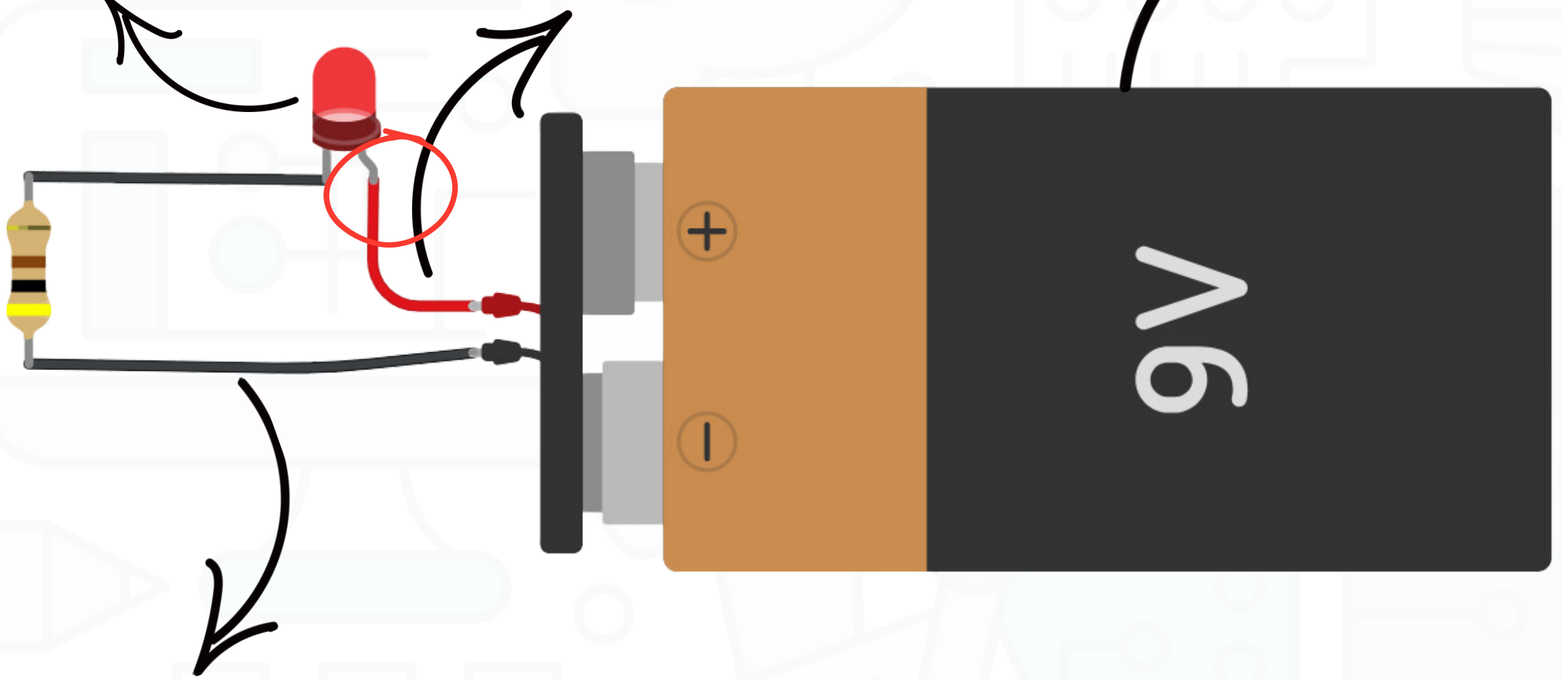
Electronic circuits



Example of a closed circuit

LED + connected to long leg

battery



- connected to short LED's leg

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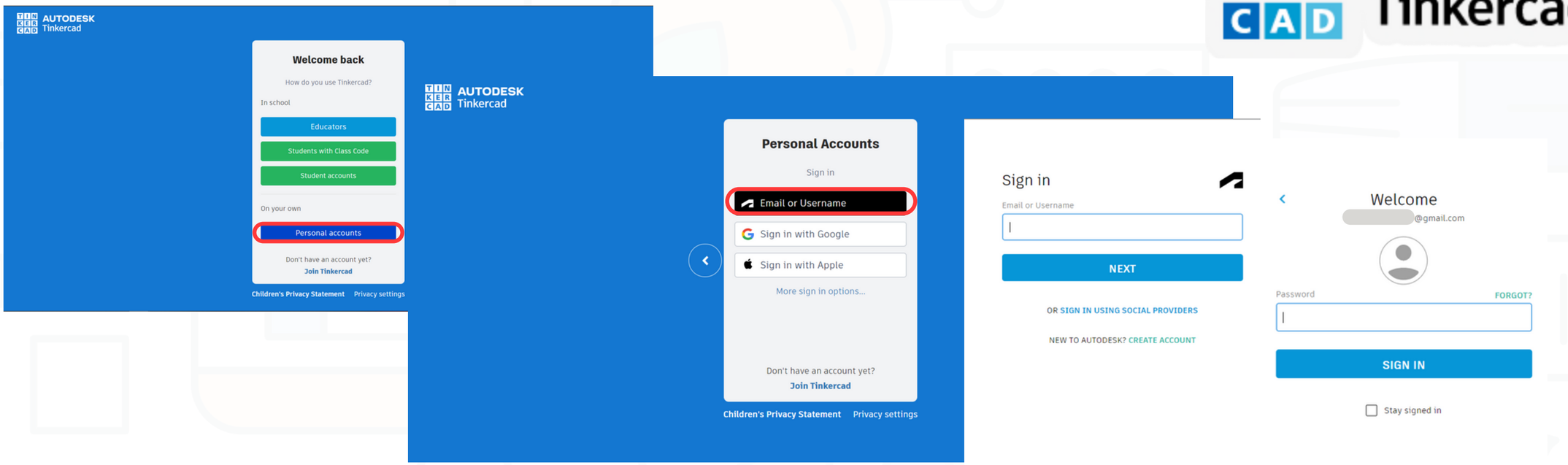
Getting started with Tinkercad

Step 1: sign in.



TINKERCAD AUTODESK Tinkercad

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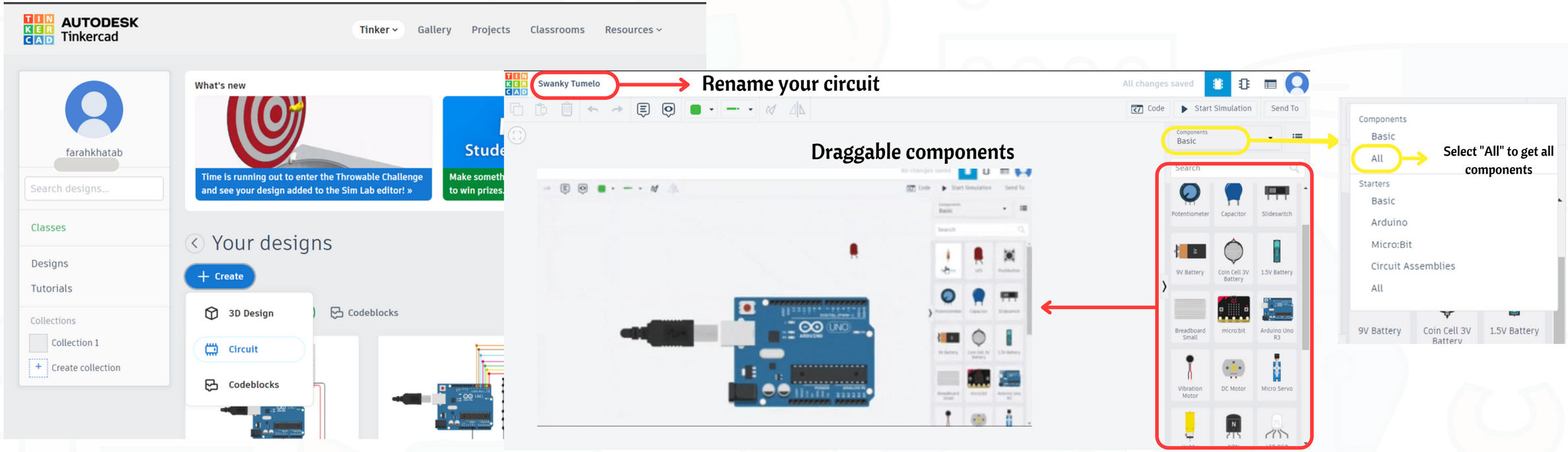
Getting started with Tinkercad

Step 2: create new circuit.



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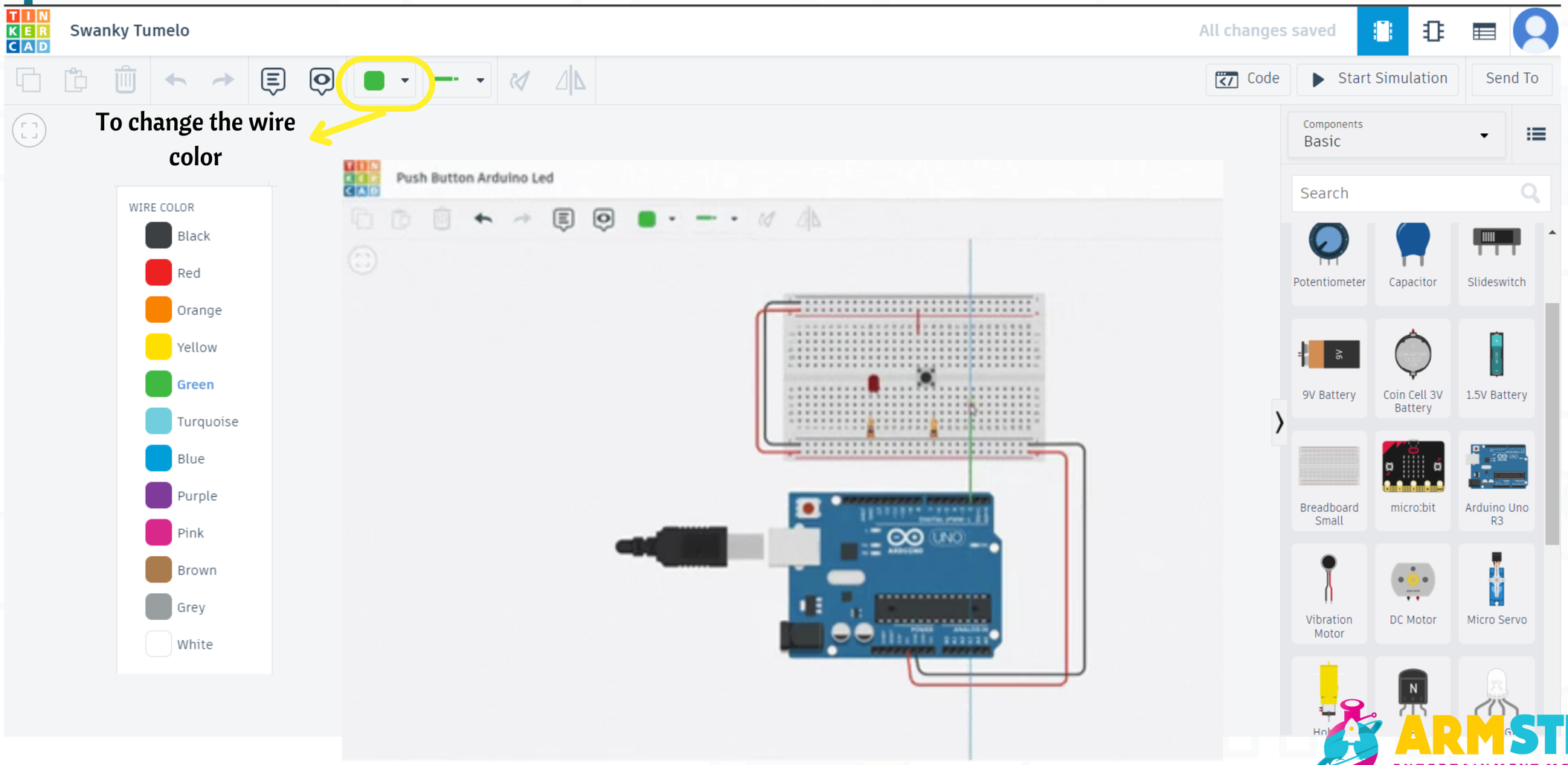
Getting started with Tinkercad

Step 3: connect and simulate.



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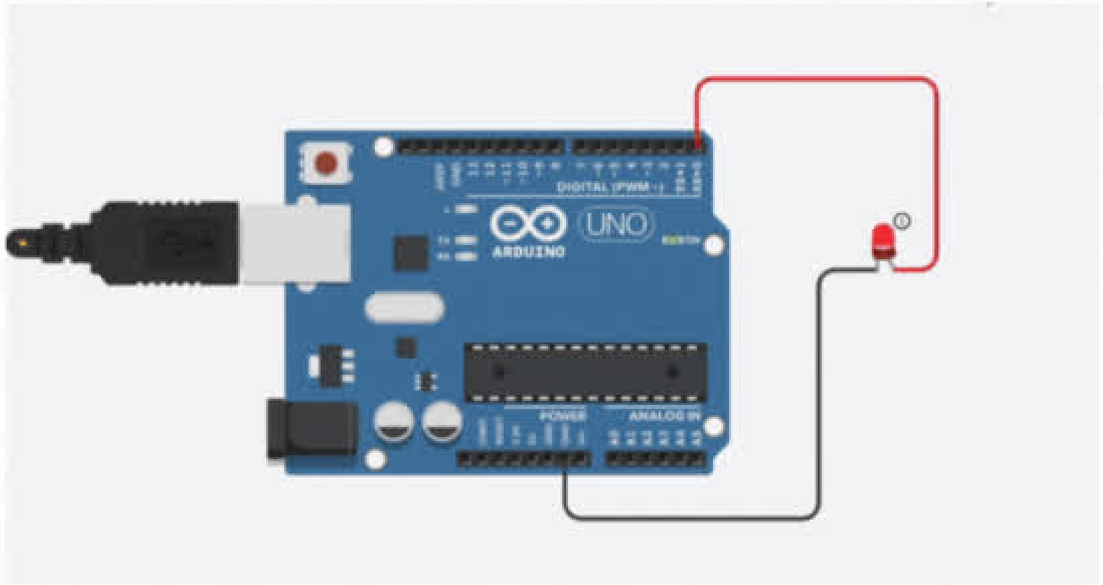
Let's start our first simulation



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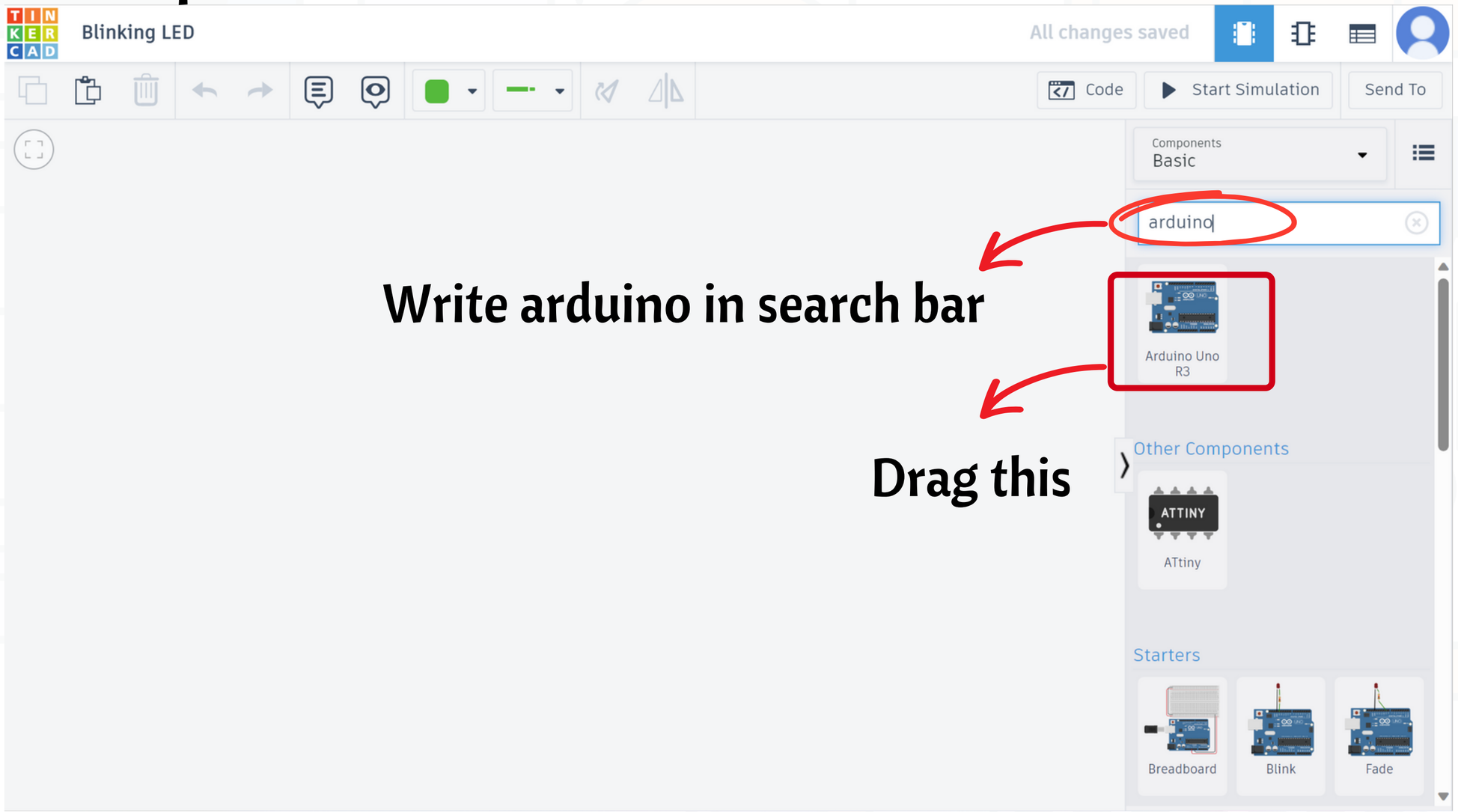
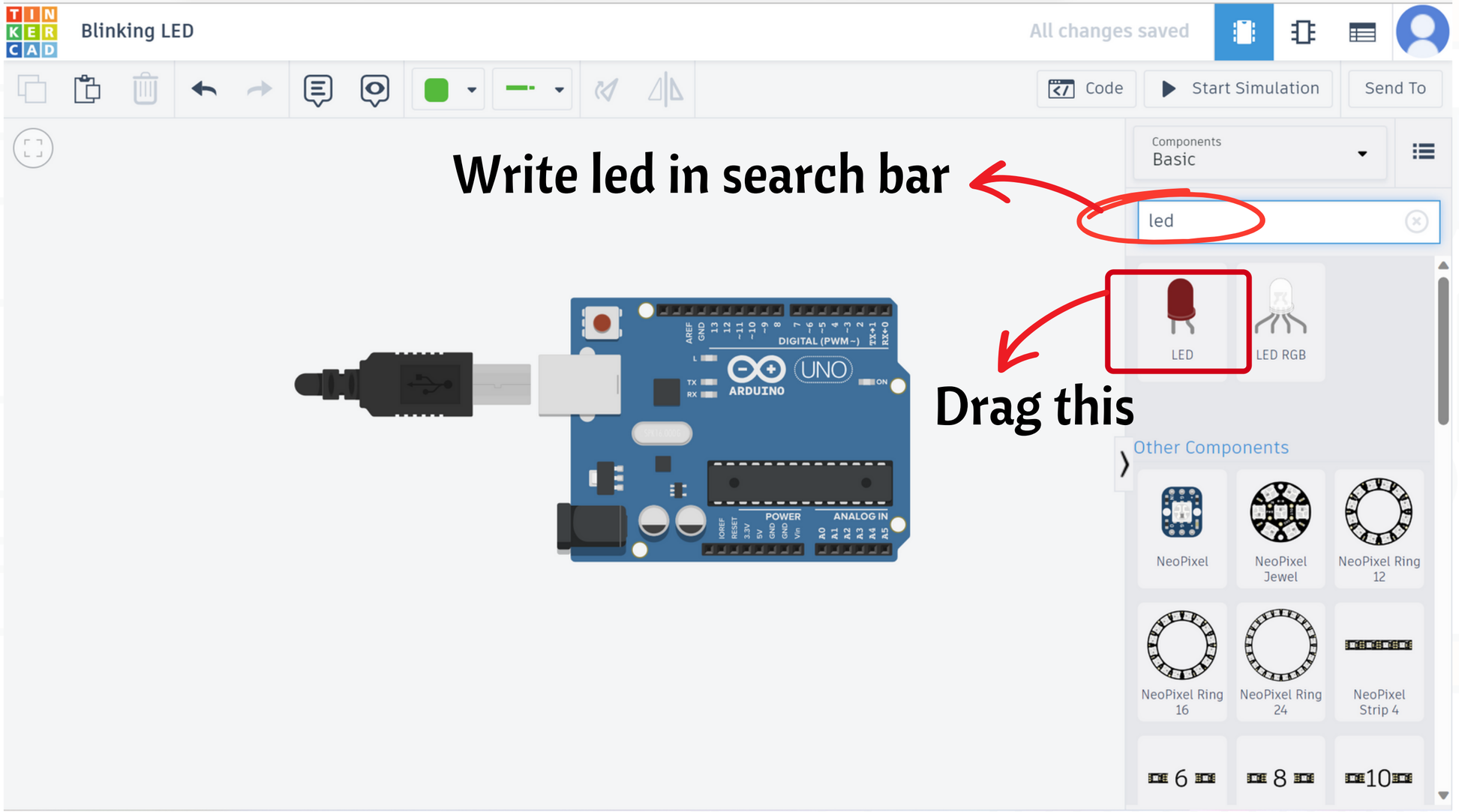
Blinking LEDs

Step 1: components



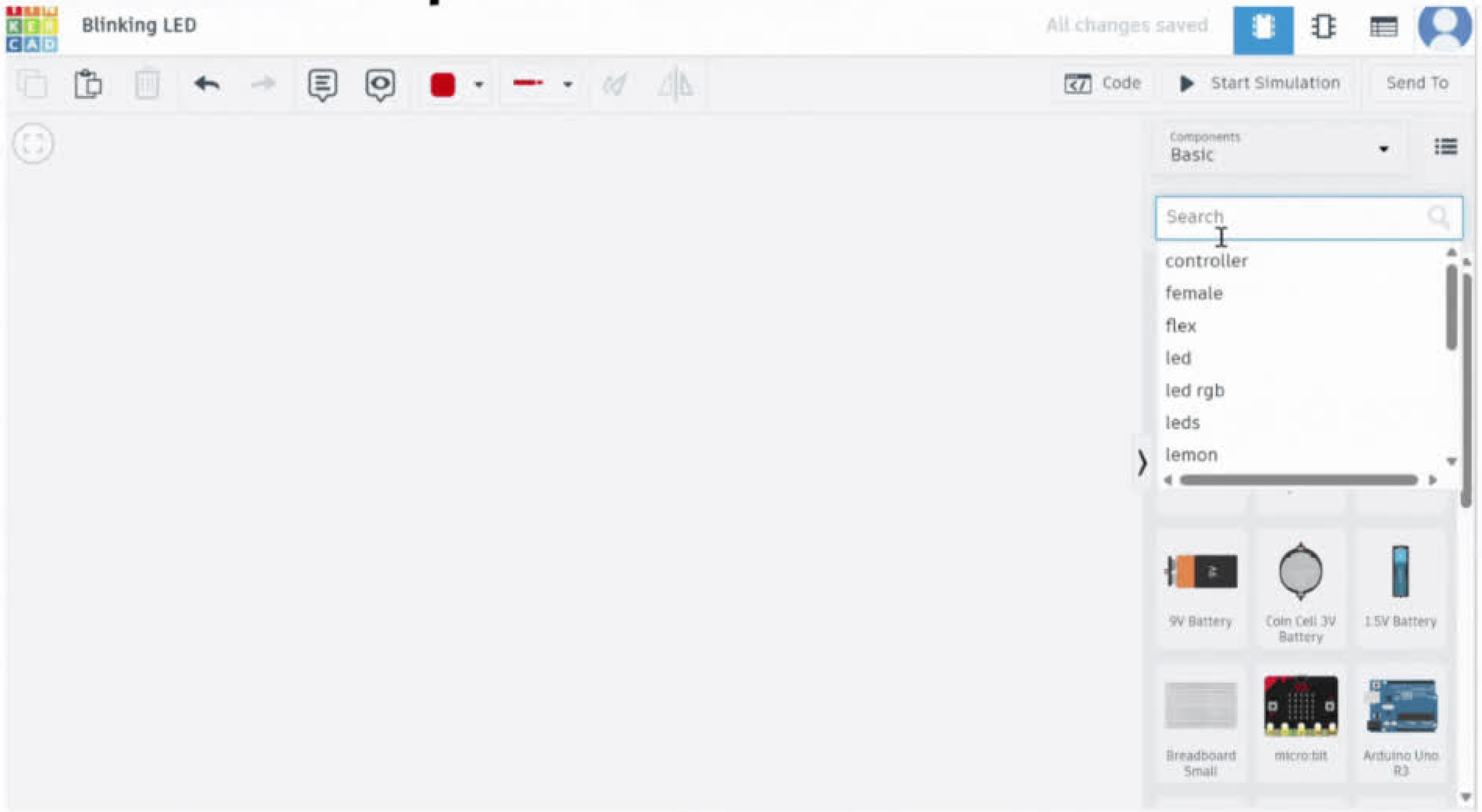
Blinking LEDs

Step 1: components



Blinking LEDs

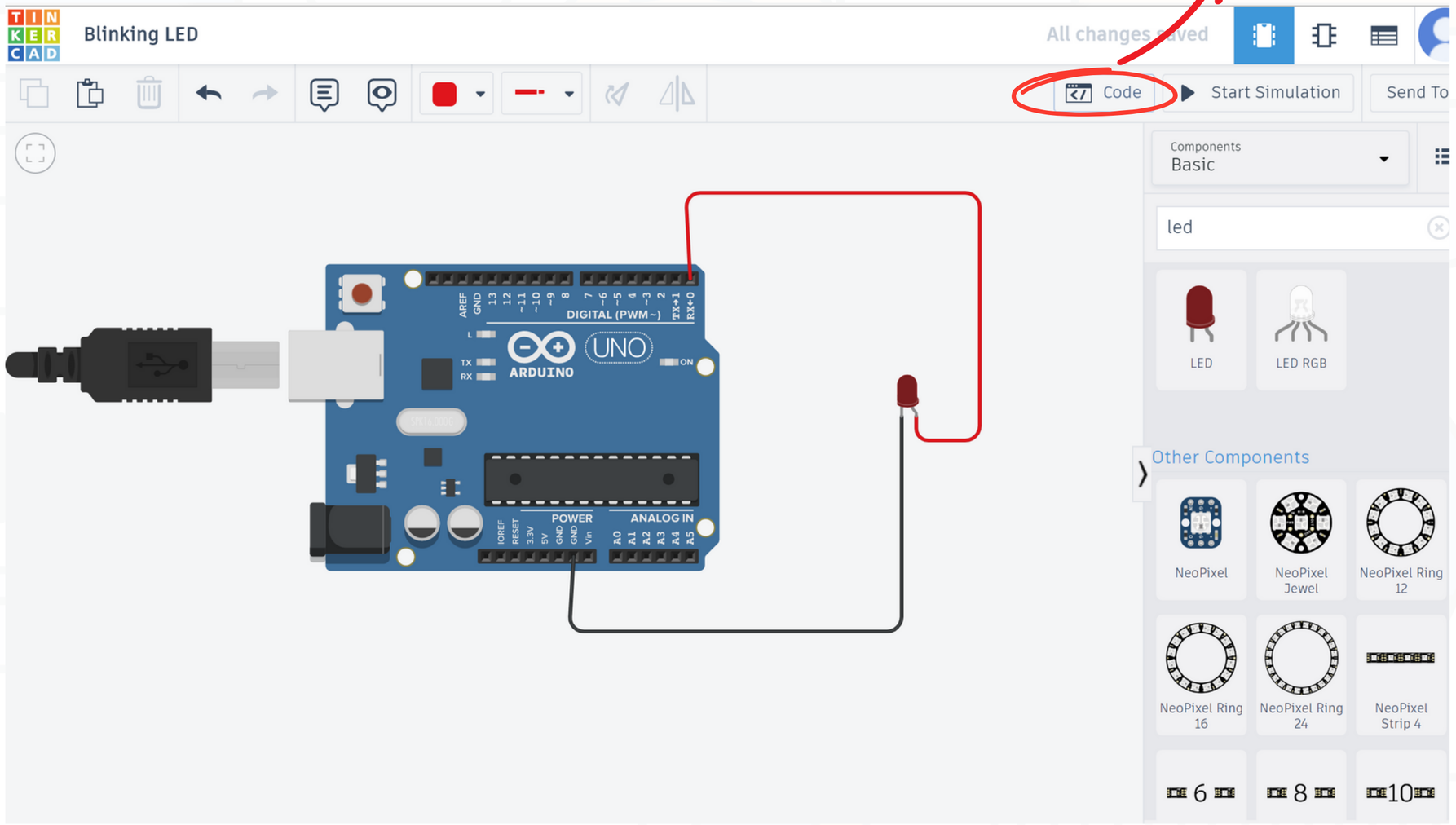
Step 2: Connect components



Blinking LEDs

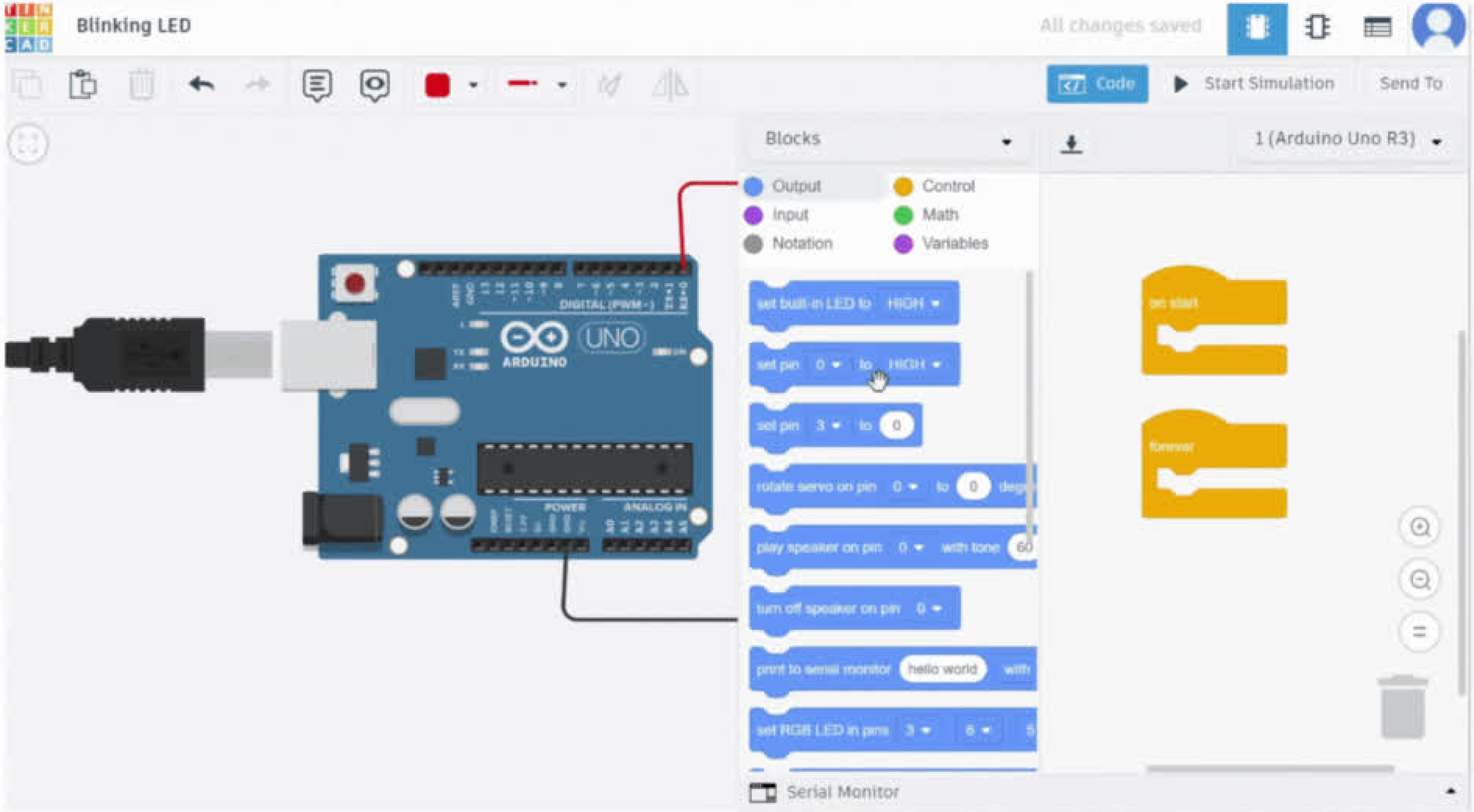
Step 3: Write code to blink one LED

Click here to write code



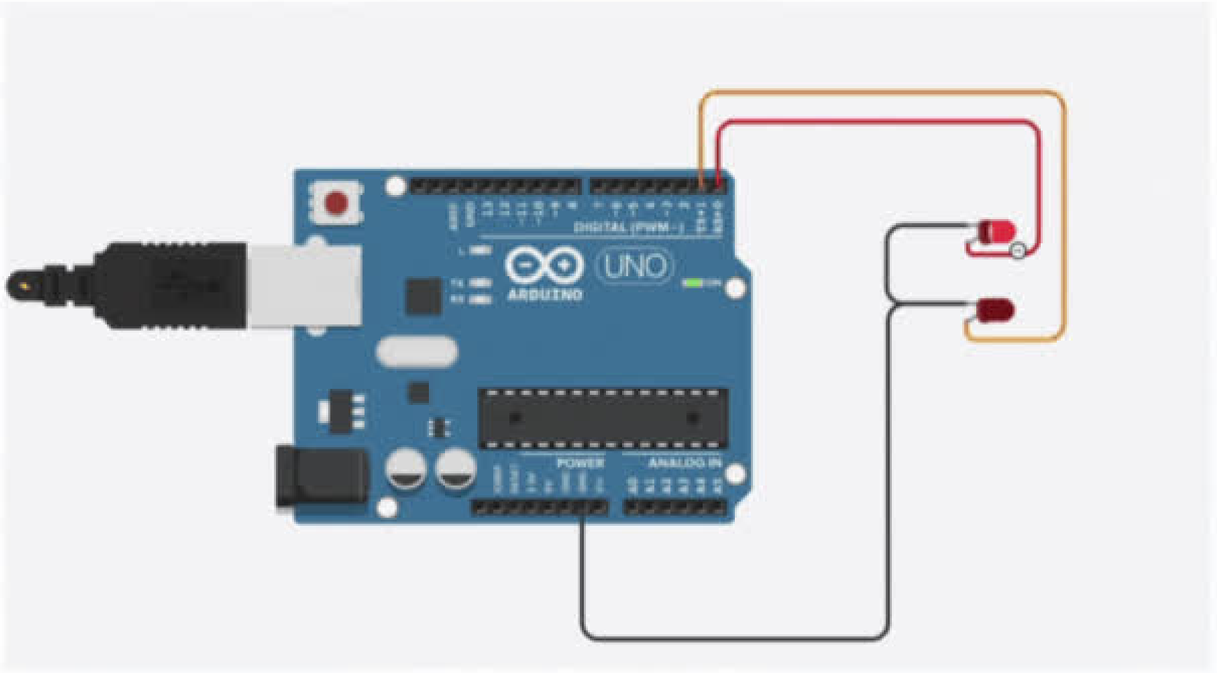
Blinking LEDs

Step 3: Write code to blink one LED



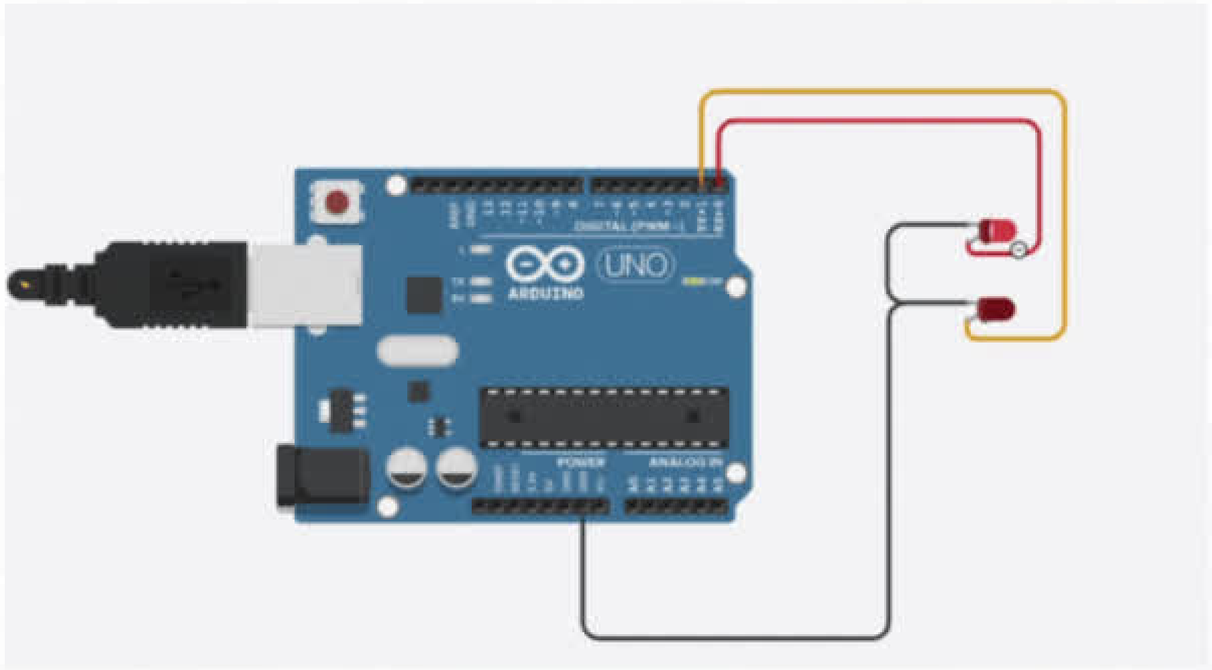
Blinking LEDs

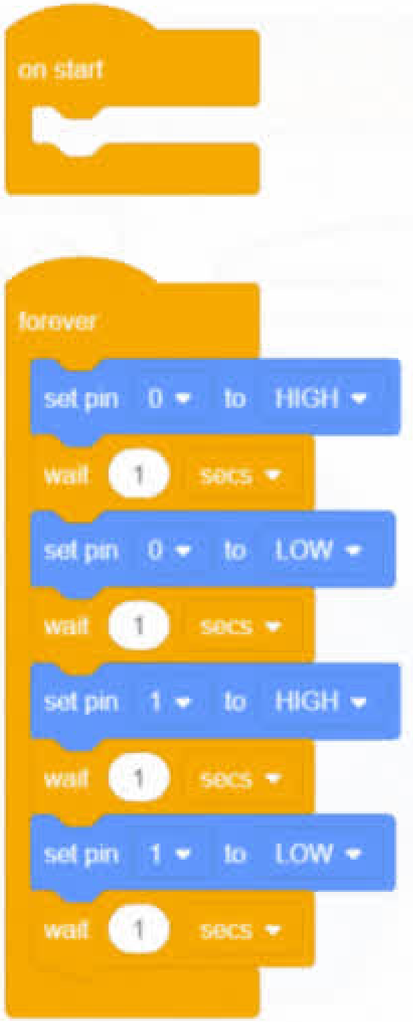
Mission 1: Blink 2 LEDs



Blinking LEDs

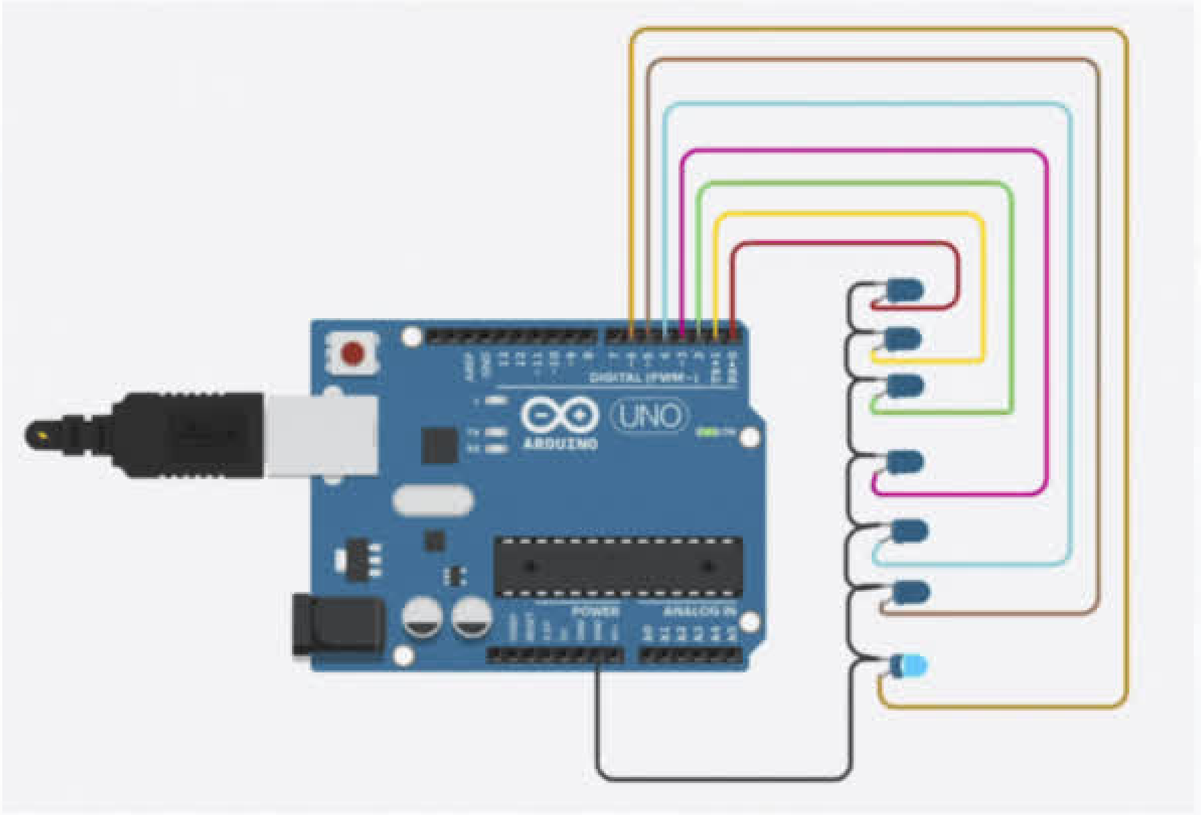
Mission 1: Blink 2 LEDs





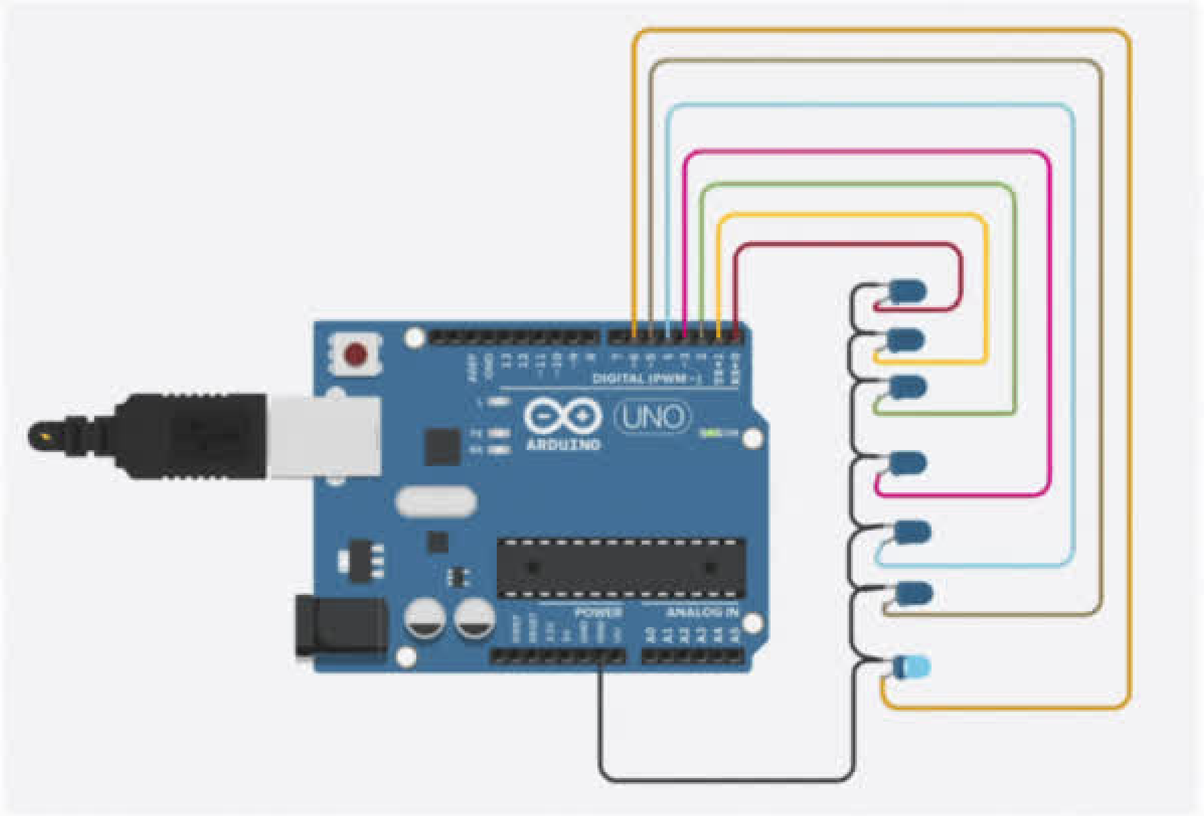
Blinking LEDs

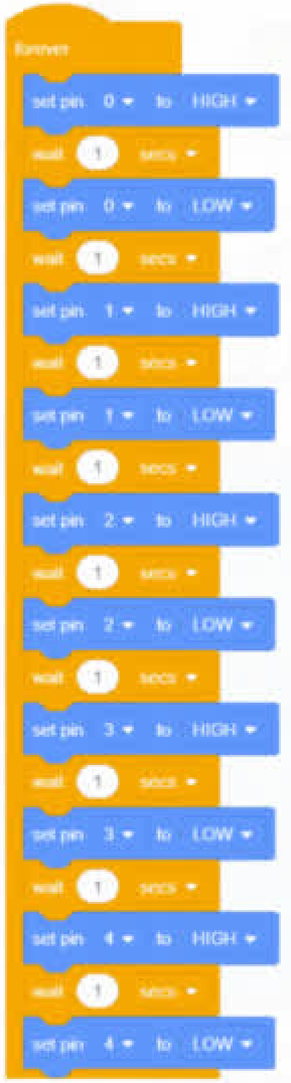
Mission 2: Blink 7 LEDs

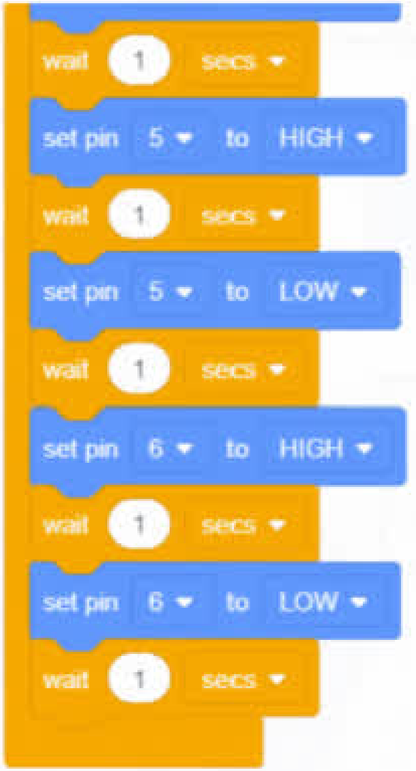


Blinking LEDs

Mission 2: Blink 7 LEDs

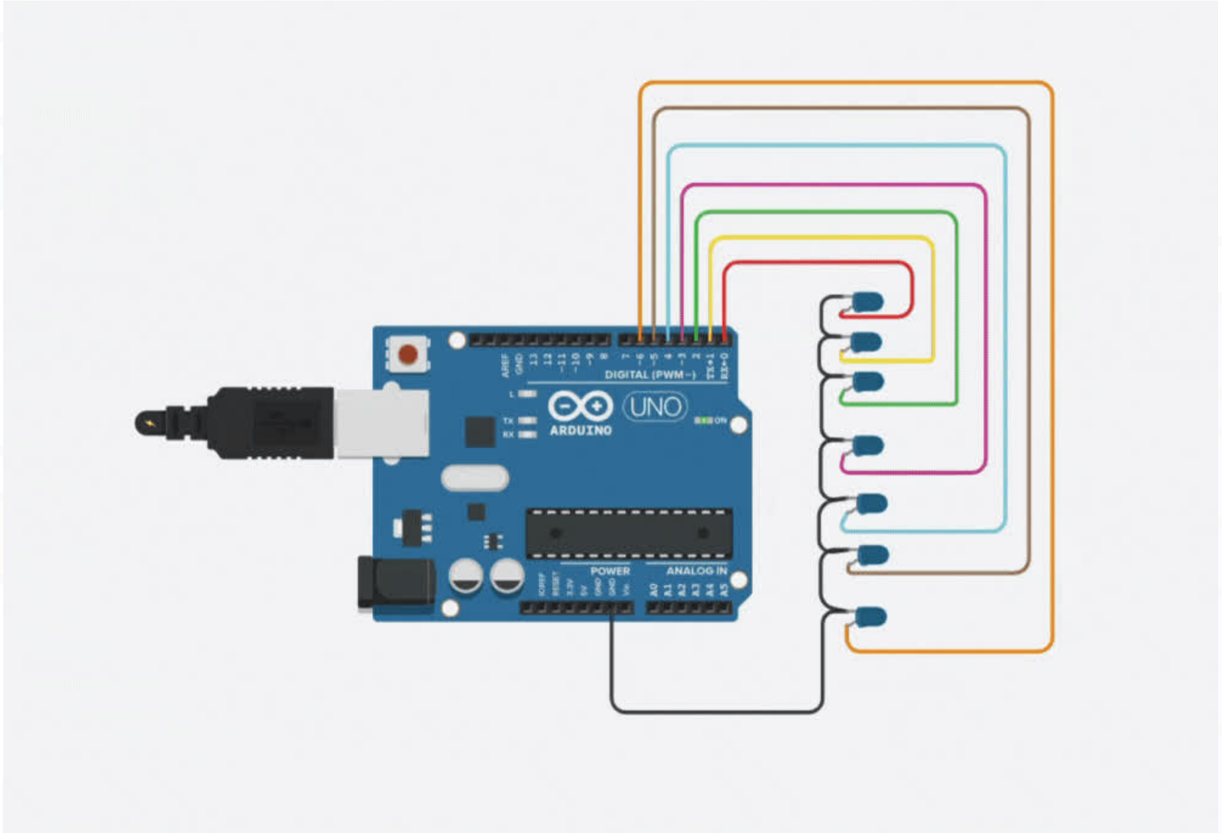






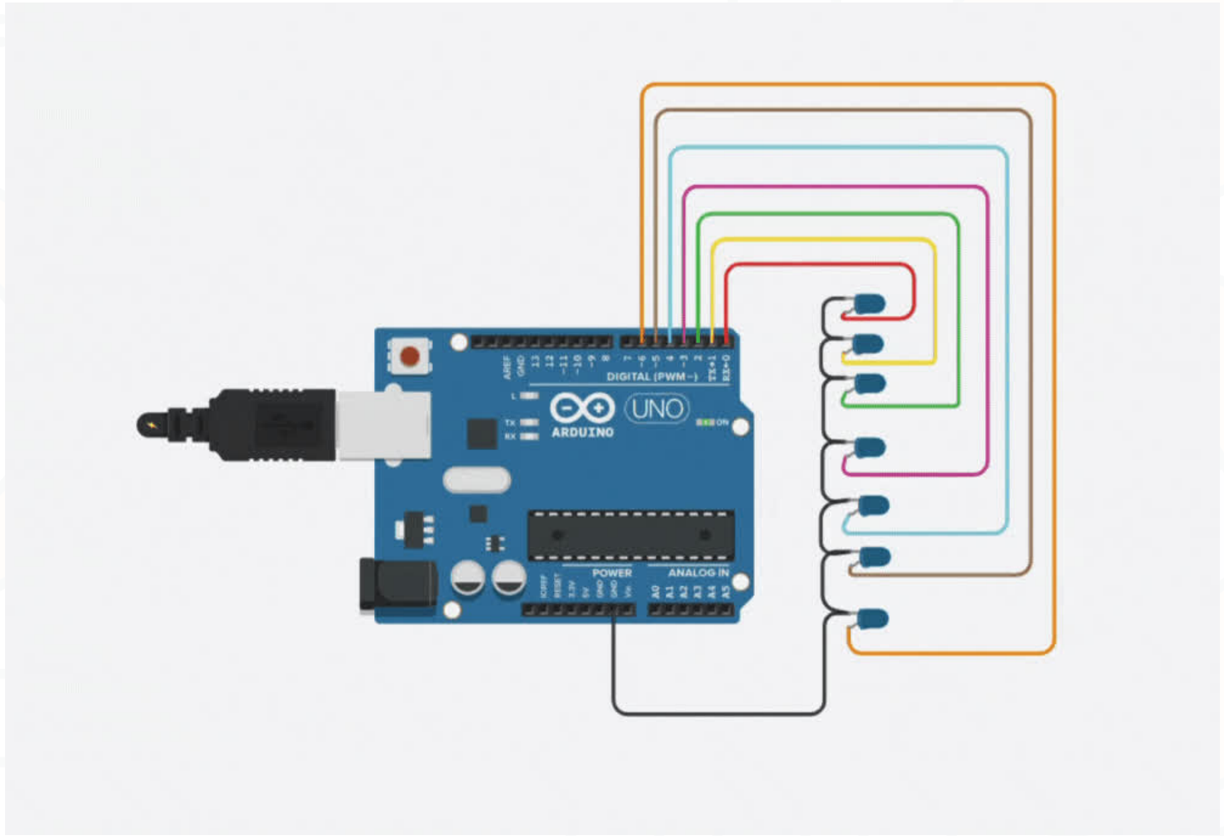
Blinking LEDs

Mission 3: Blink 7 LEDs with pattern #1



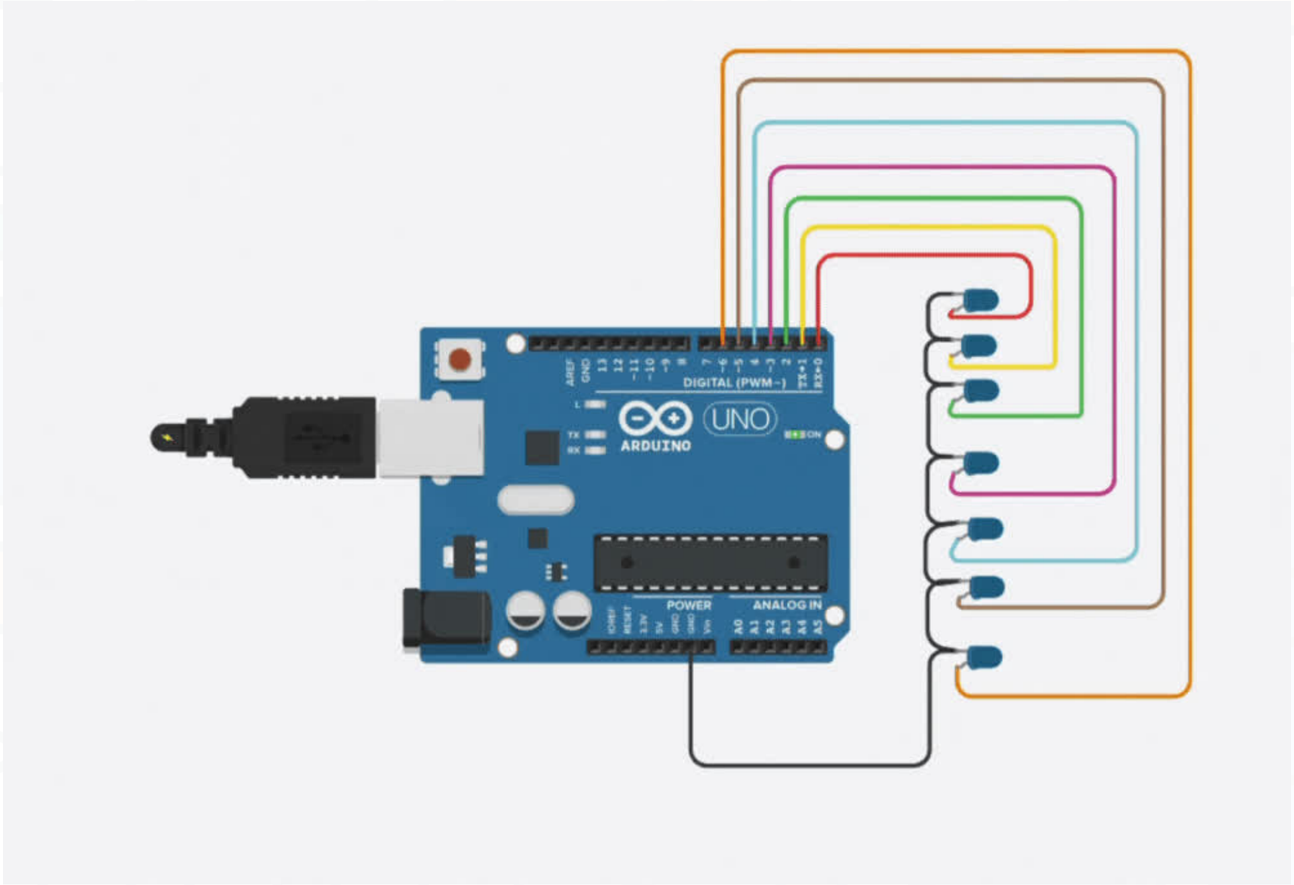
Blinking LEDs

Mission 3: Blink 7 LEDs with pattern #1



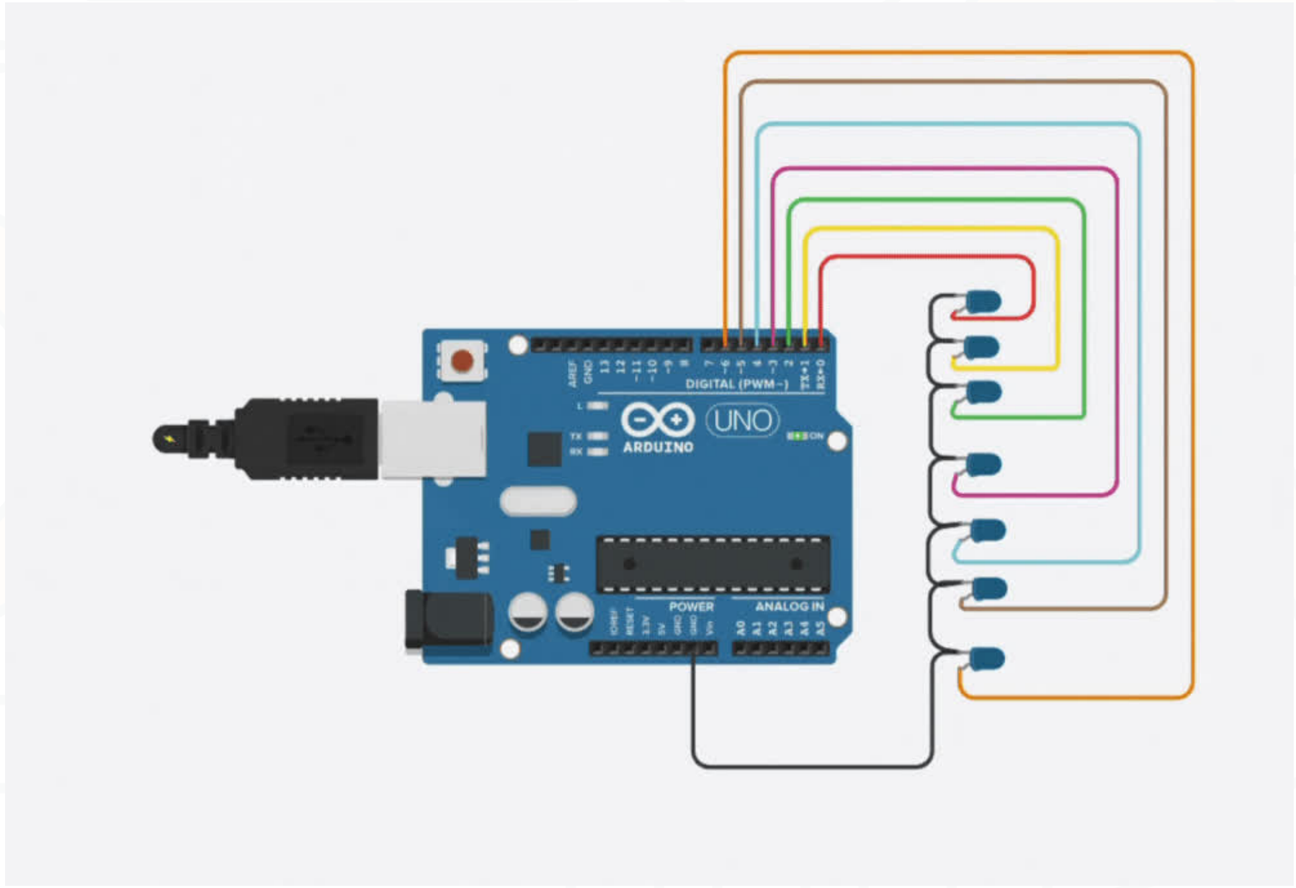
Blinking LEDs

Mission 4: Blink 7 LEDs with pattern #2



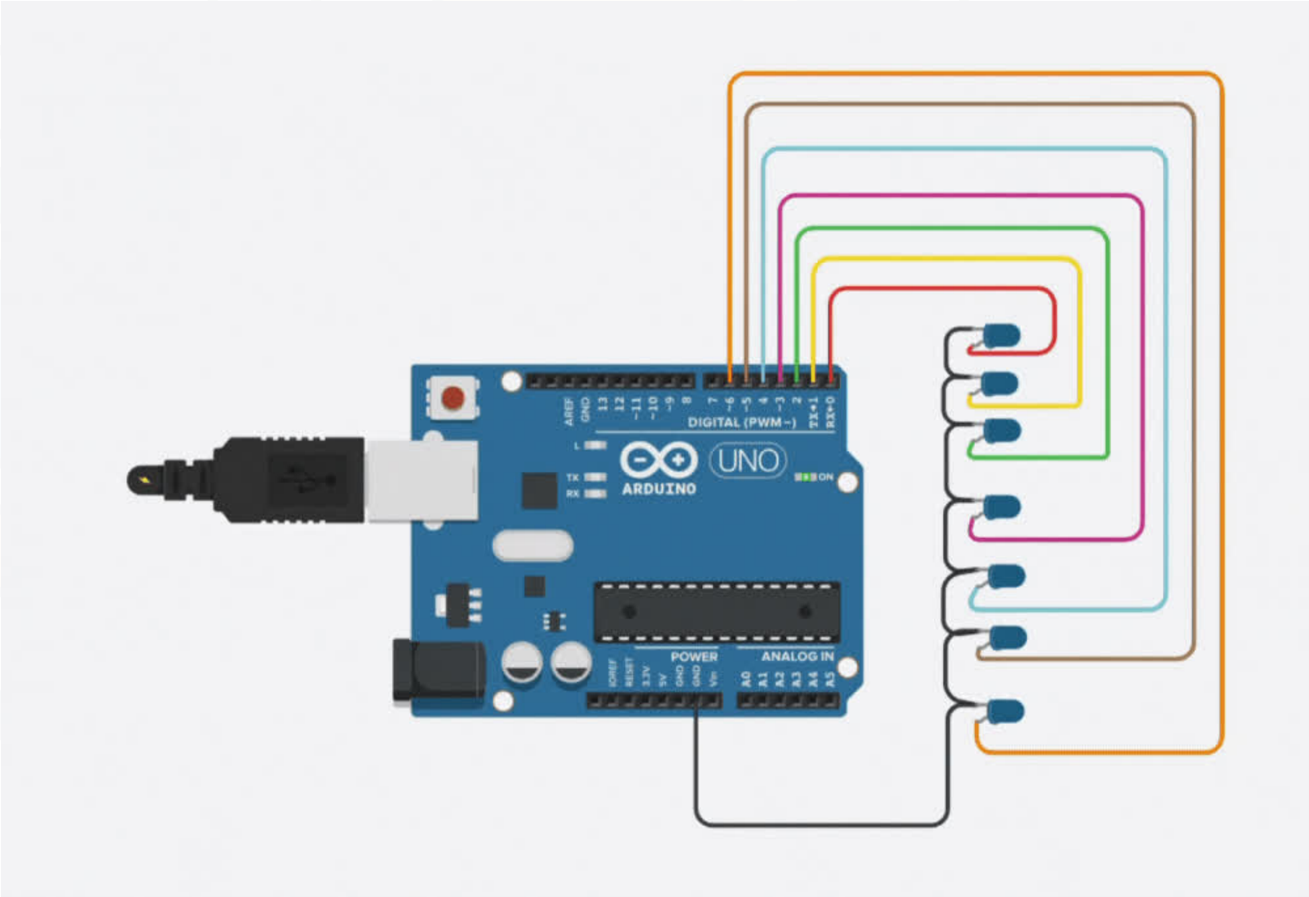
Blinking LEDs

Mission 4: Blink 7 LEDs with pattern #2



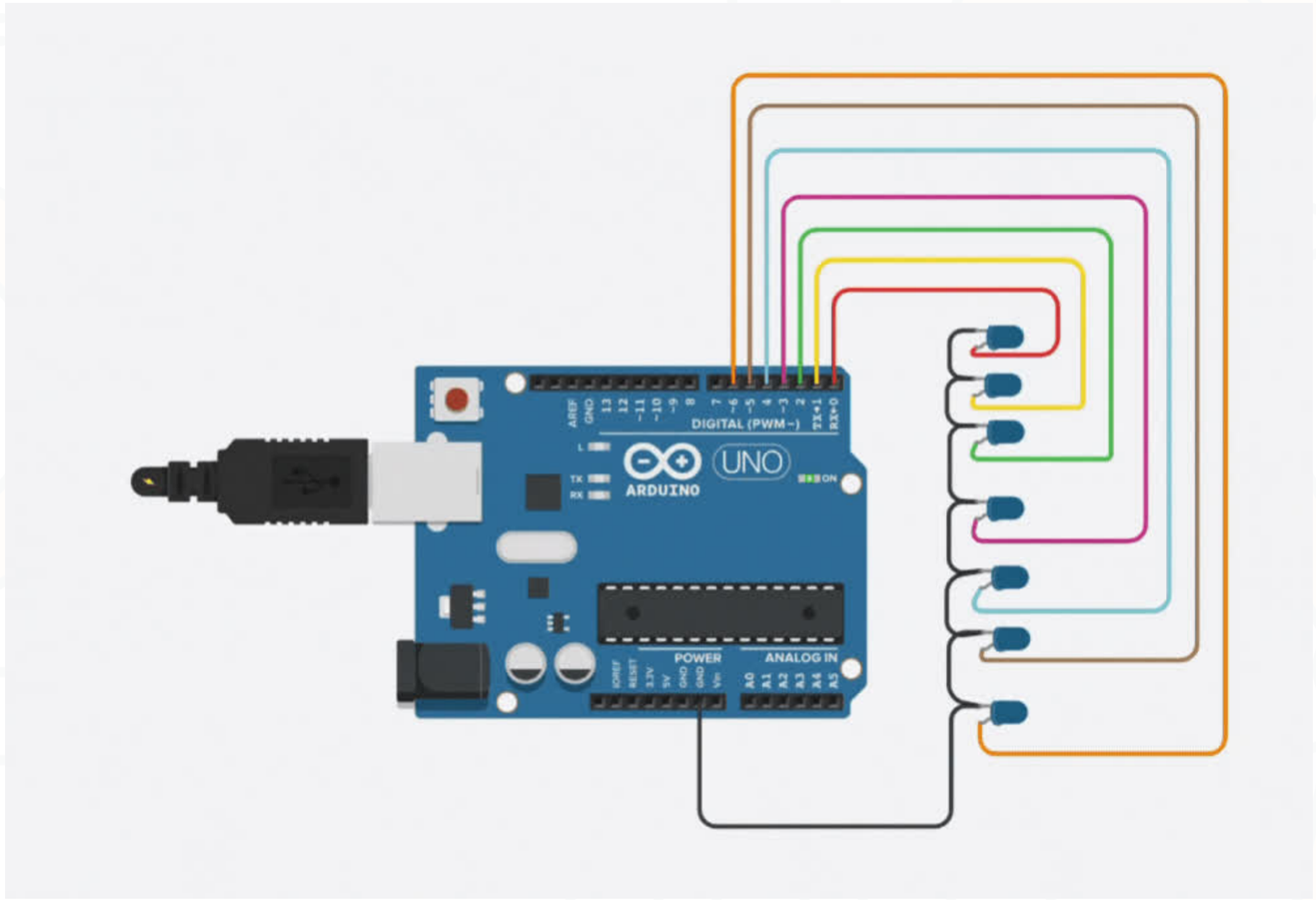
Blinking LEDs

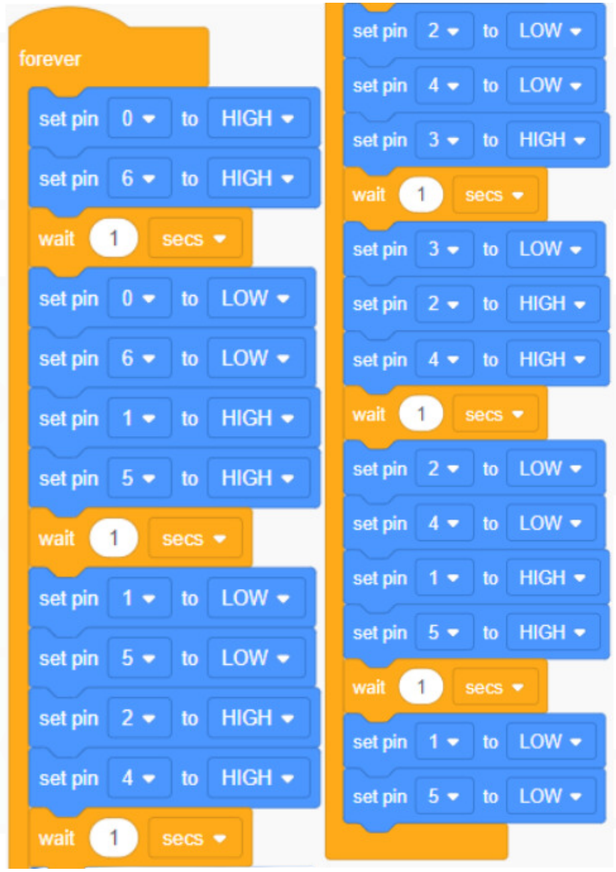
Mission 5: Blink 7 LEDs with pattern #3



Blinking LEDs

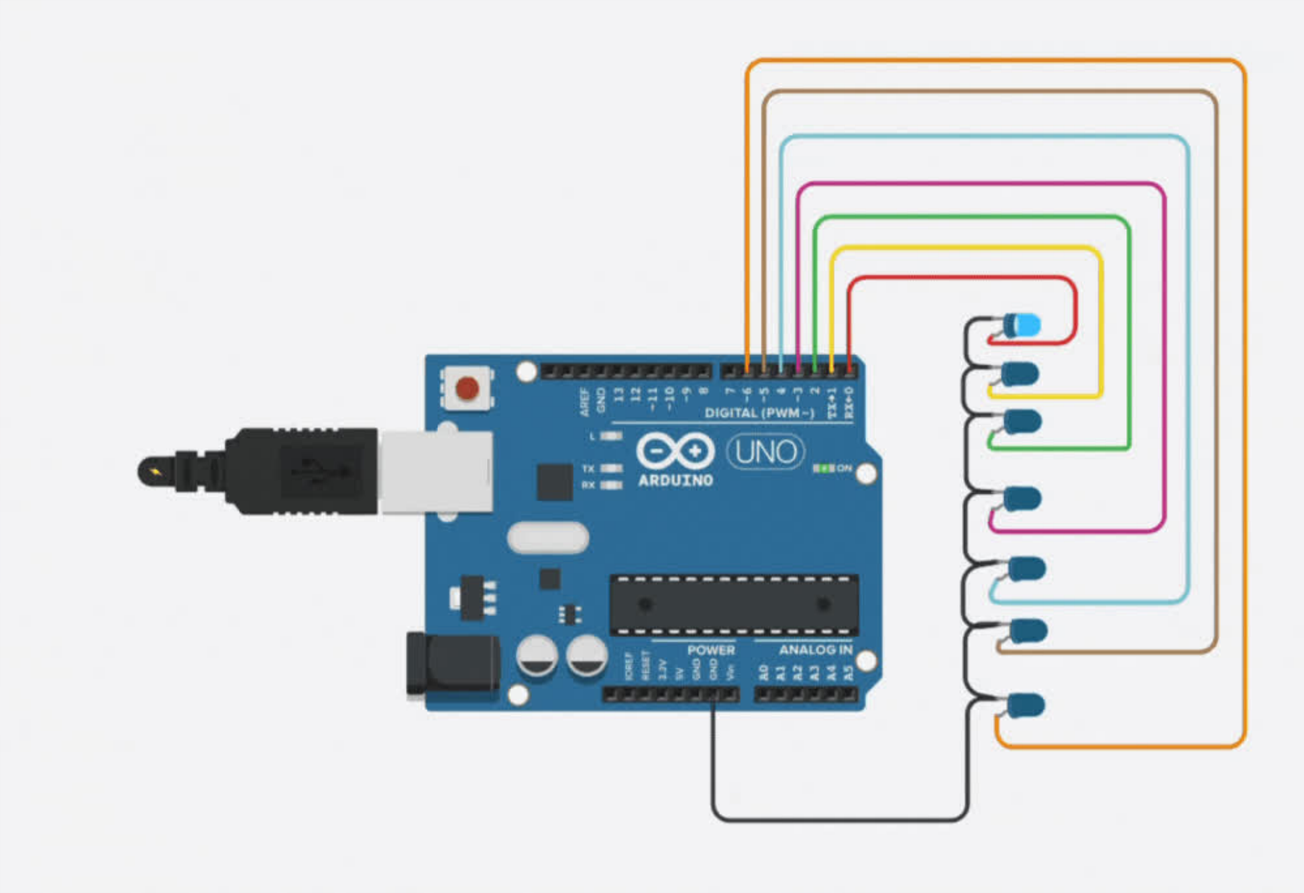
Mission 5: Blink 7 LEDs with pattern #3





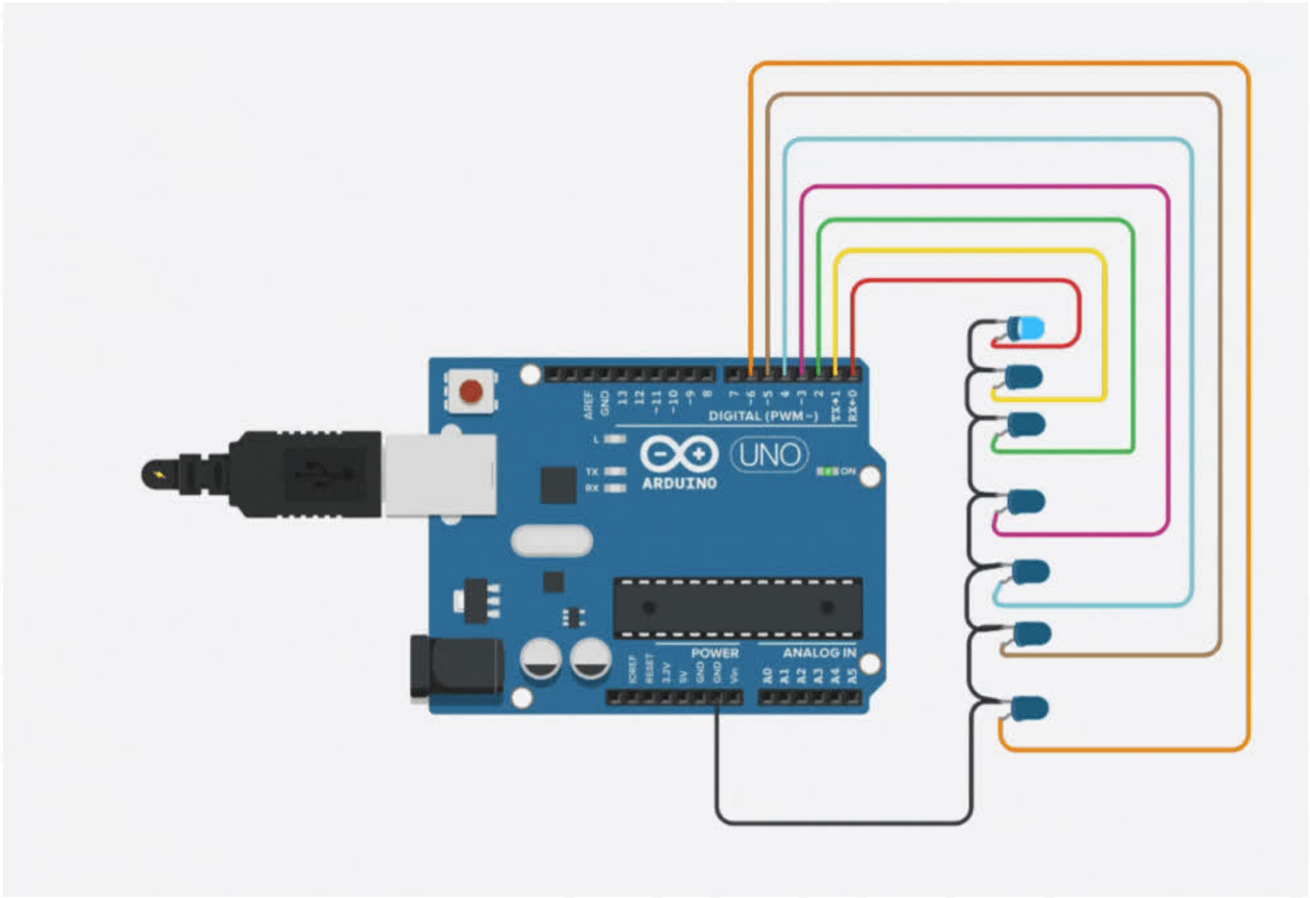
Blinking LEDs

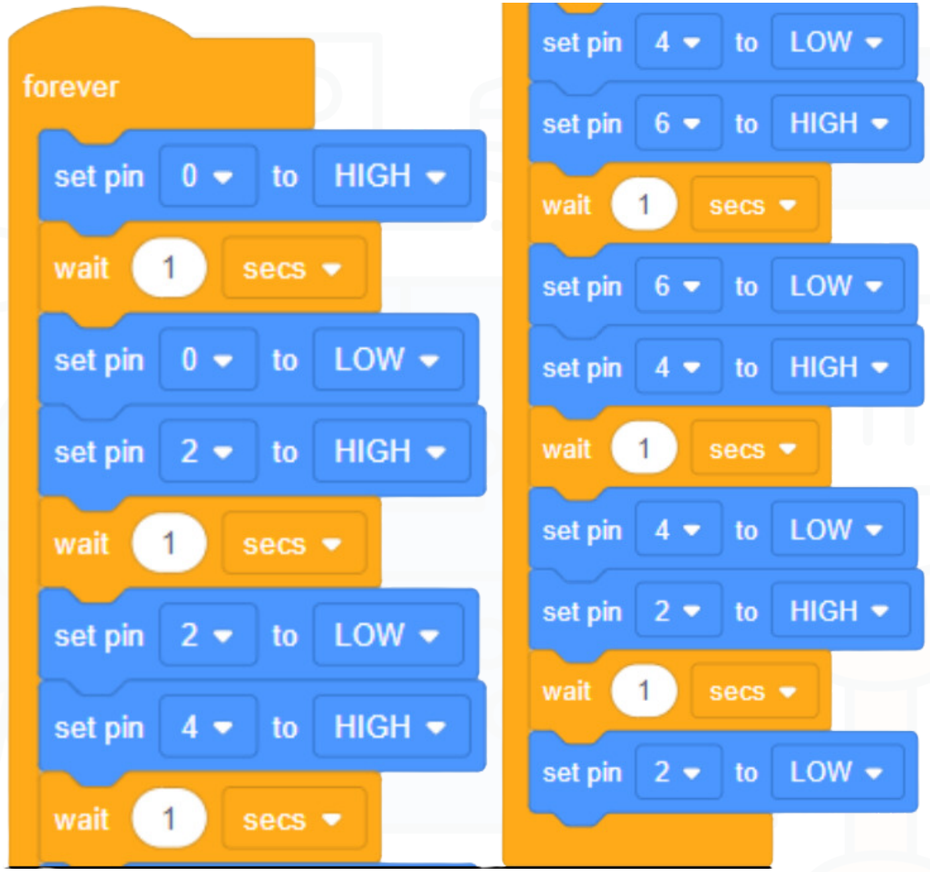
Mission 6: Blink 7 LEDs with pattern #4

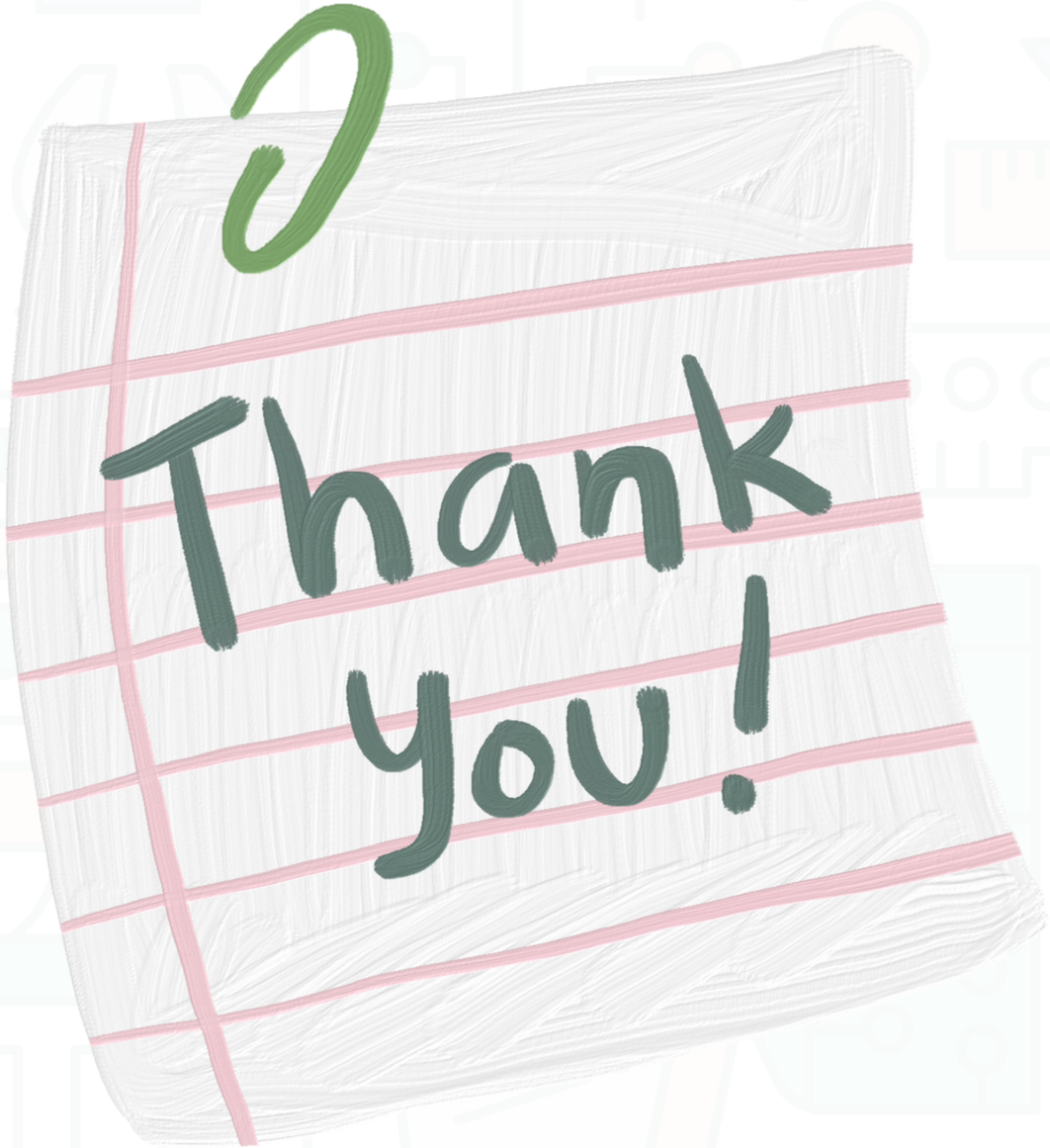


Blinking LEDs

Mission 6: Blink 7 LEDs with pattern #4







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