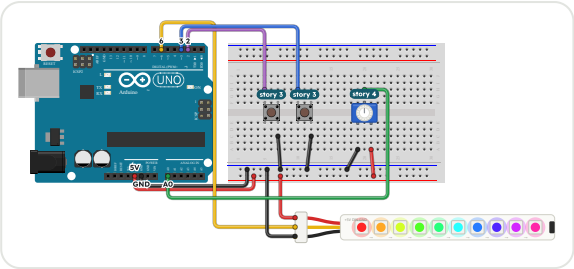
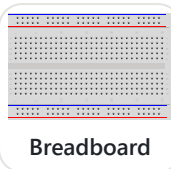


Rainbow lightsaber · START A BIT



Scan to open

Parts you need



- pin 6 → strip DIN
- 5V → + rail → strip +
- GND → – rail → strip GND
- pin 2 → ignite button
- pin 3 → retract button
- A0 → knob, middle leg

story 3

story 3

story 4

Unplug the USB cable while you wire.
Keep the brightness low: the Arduino powers the strip.

Remember

Addressable LEDs

Change the colours in the program, then show: nothing changes until the program sends them.

Breadboard

Two legs in the same column are connected. Two legs in the same row are not.

Arduino libraries

Install it once, include it at the top, make an object, call its functions.

Push button

One side to a pin, the other side to GND. With pull up, the pin reads 1, and 0 while pressed.

Knob (potentiometer)

Middle leg to an analog pin: the program reads 0 (turned fully one way) to 1023 (fully the other way).

Story 1: A moving rainbow

```
#include <Adafruit_NeoPixel.h>

const int stripPin = 6;
const int ledCount = 10;
Adafruit_NeoPixel strip(ledCount, stripPin);

unsigned int firstHue = 0; // where the rainbow starts

void setup() {
  strip.begin();
  strip.setBrightness(40); // of 255: keep it low!
}

void loop() {
  strip.rainbow(firstHue); // the whole strip is one color
  strip.show();           // send the data to the strip
  firstHue += 512;         // move the rainbow to the next color
  delay(20);
}
```

Story 2: Chase the light

```
#include <Adafruit_NeoPixel.h>

const int stripPin = 6;
const int ledCount = 10;
Adafruit_NeoPixel strip(ledCount, stripPin);

void setup() {
  strip.begin();
  strip.setBrightness(40);
}

void loop() {
  for (int index = 0; index < ledCount; index++) {
    strip.clear();
    strip.setPixelColor(index, strip.Color(0, 0, 255));
    strip.show();
    delay(30);
  }
}
```

Story 3: Switch on the blade

```
#include <Adafruit_NeoPixel.h>

const int stripPin = 6;
const int ledCount = 10;
const int igniteButtonPin = 2;
const int retractButtonPin = 3;
Adafruit_NeoPixel strip(ledCount, stripPin);

void setup() {
  strip.begin();
  strip.setBrightness(40);
  strip.show();
  pinMode(igniteButtonPin, INPUT_PULLUP);
  pinMode(retractButtonPin, INPUT_PULLUP);
}

void loop() {
  if (digitalRead(igniteButtonPin) == LOW) {
    for (int index = 0; index < ledCount; index++) {
      strip.setPixelColor(index, strip.Color(0, 0, 255));
      strip.show();
      delay(20);
    }
  }
  if (digitalRead(retractButtonPin) == LOW) {
    for (int index = ledCount - 1; index >= 0; index--) {
      strip.setPixelColor(index, 0);
      strip.show();
      delay(20);
    }
  }
}
```

Story 4: Turn for colours

```
#include <Adafruit_NeoPixel.h>

const int stripPin = 6;
const int ledCount = 10;
const int igniteButtonPin = 2;
const int retractButtonPin = 3;
const int knobPin = A0;
Adafruit_NeoPixel strip(ledCount, stripPin);

bool lit = false; // is the blade on?

// The knob gives 0 to 1023; map turns it into a hue
uint32_t bladeColor() {
  long hue = map(analogRead(knobPin), 0, 1023, 0, 360);
  return strip.gamma32(strip.ColorHSV(hue));
}

void setup() {
  strip.begin();
  strip.setBrightness(40);
  strip.show();
  pinMode(igniteButtonPin, INPUT_PULLUP);
  pinMode(retractButtonPin, INPUT_PULLUP);
}

void loop() {
  if (digitalRead(igniteButtonPin) == LOW) {
    for (int index = 0; index < ledCount; index++) {
      strip.setPixelColor(index, bladeColor());
      strip.show();
      delay(20);
    }
    lit = true;
  }
  if (digitalRead(retractButtonPin) == LOW) {
    lit = false;
    for (int index = ledCount - 1; index >= 0; index--) {
      strip.setPixelColor(index, 0);
      strip.show();
      delay(20);
    }
  }
  if (lit) {
    strip.fill(bladeColor()); // the whole strip is one color
    strip.show();
  }
  delay(20);
}
```