# RESISTORS

As the name suggests, resistors resist the flow of electricity and the higher the value of the resistor, the more it resists and the less electrical current will flow through it. We are going to use this to control how much electricity flows through the LED and therefore how brightly it shines.

## BUT FIRST, A BIT MORE ABOUT RESISTORS.

The unit of resistance is called the Ohm, which is usually shortened to Ω the Greek letter Omega. Because an Ohm is a low value of resistance (it doesn't resist much at all), we also give the values of resistors in kΩ (1000 Ω) and MΩ (1000,000 Ω). These are called kilo-ohms and mega-ohms.

In this lesson, we are going to use four different values of resistor, 270Ω, 470Ω, 2.2kΩ and 10kΩ. These resistors all look the same, except that they have different colored stripes on them. These stripes tell you the value of the resistor

The resistor color code works like this, for resistors like this with three colored stripes and then a gold stripe at one end.

Each color has a number, as follows:

Black 0

Brown 1

Red 2

Orange 3

Yellow 4

Green 5

Blue 6

Purple 7

Gray 8

White 9

The first two striped are the first two digits of the value, so red, purple means 2, 7. The next stripe is the number of zeros that need to come after the first two digits, so if the third stripe is brown, as it is in the photograph above, then there will be one zero and so the resistor is 270Ω.

A resistor with stripes brown, black, orange is 10 and three zeros so 10,000 Ω in other words 10 kΩ.

Unlike LEDs, resistors do not have a positive and negative lead. They can be connected either way around.

**REFERENCE:**

https://learn.adafruit.com/adafruit-arduino-lesson-2-leds/resistors