Exercise 2: More LEDs

Equipment

For this exercise you will need:

- 1 x Arduino Uno
- 1 x Red LED
- 1 x Green LED
- 1 x Yellow LED
- 3 x $\sim 60 - 220\Omega$ Resistors
- Wires
- *Optional: 2 x Red LED*

The **serial monitor** allows you to read the printouts from Serial.print(). Open it using **ctrl+shift+m** or by clicking on the magnifying glass in the top right corner.

Reading

Chapter 2 - 5

Setup

- Connect the anodes of the LEDs to 3 different digital ports on the Uno. Use resistors to limit the current going through the LEDs.
- Set the baudrate of the communication to 115200 $\frac{bit}{s}$ with Serial.begin(115200) in setup(){. . .}

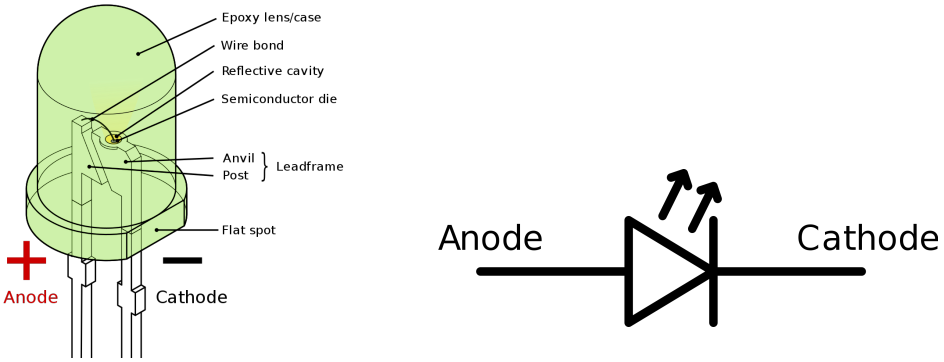


Figure 2: LED

Questions & Exercises

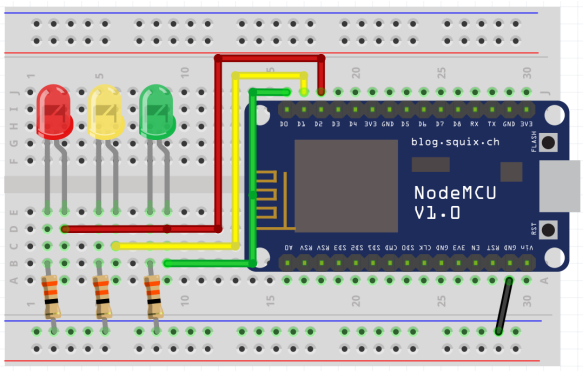
2a: You should be used to the normal arithmetic operators + - * / , but do you know this operator: %? What is 42 % 5?
2b: Make a traffic light:

- Implement the blinking sequence of a traffic light. (no sensor, just the light)
- Use Serial.print() to write an instruction for the drivers every time the light changes, e.g. "STOP!"

2c: Make a binary counter:

- *Optional: change all the LEDs to red*
- Use the three LEDs to show the value of the counter in binary.
- The counter should count from 0 (000_{BIN}) to 7 (111_{BIN}) and then start over.
- Print the value of the counter to the serial monitor.

2d: What could you have used the %-operator for in this exercise?



Hint

You may want to write functions to help you out e.g.

```
void YellowGreen(){
    DigitalWrite(D5, HIGH);
    DigitalWrite(D6, HIGH);
    delay(2000);
    DigitalWrite(D5, LOW);
    DigitalWrite(D6, LOW);
}
```