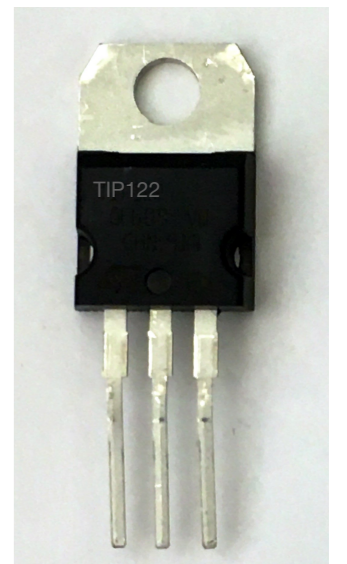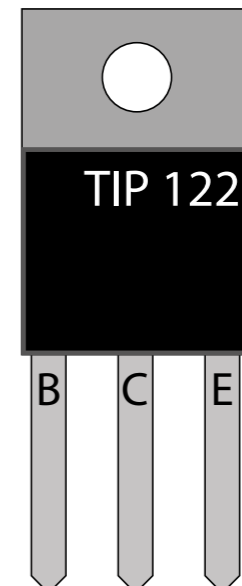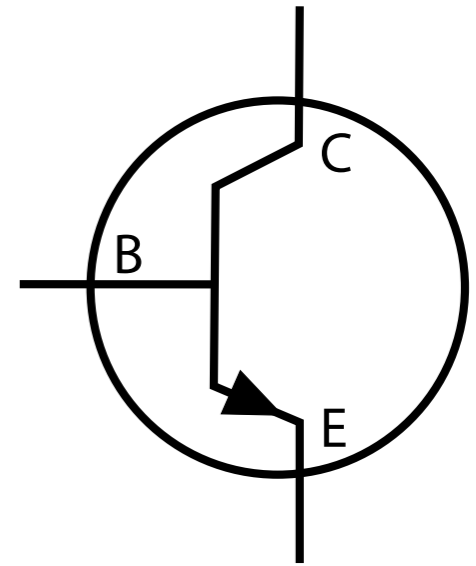# TRANSISTORS

building blocks

Part 1

Transistors

What are Transistors?

Transistors

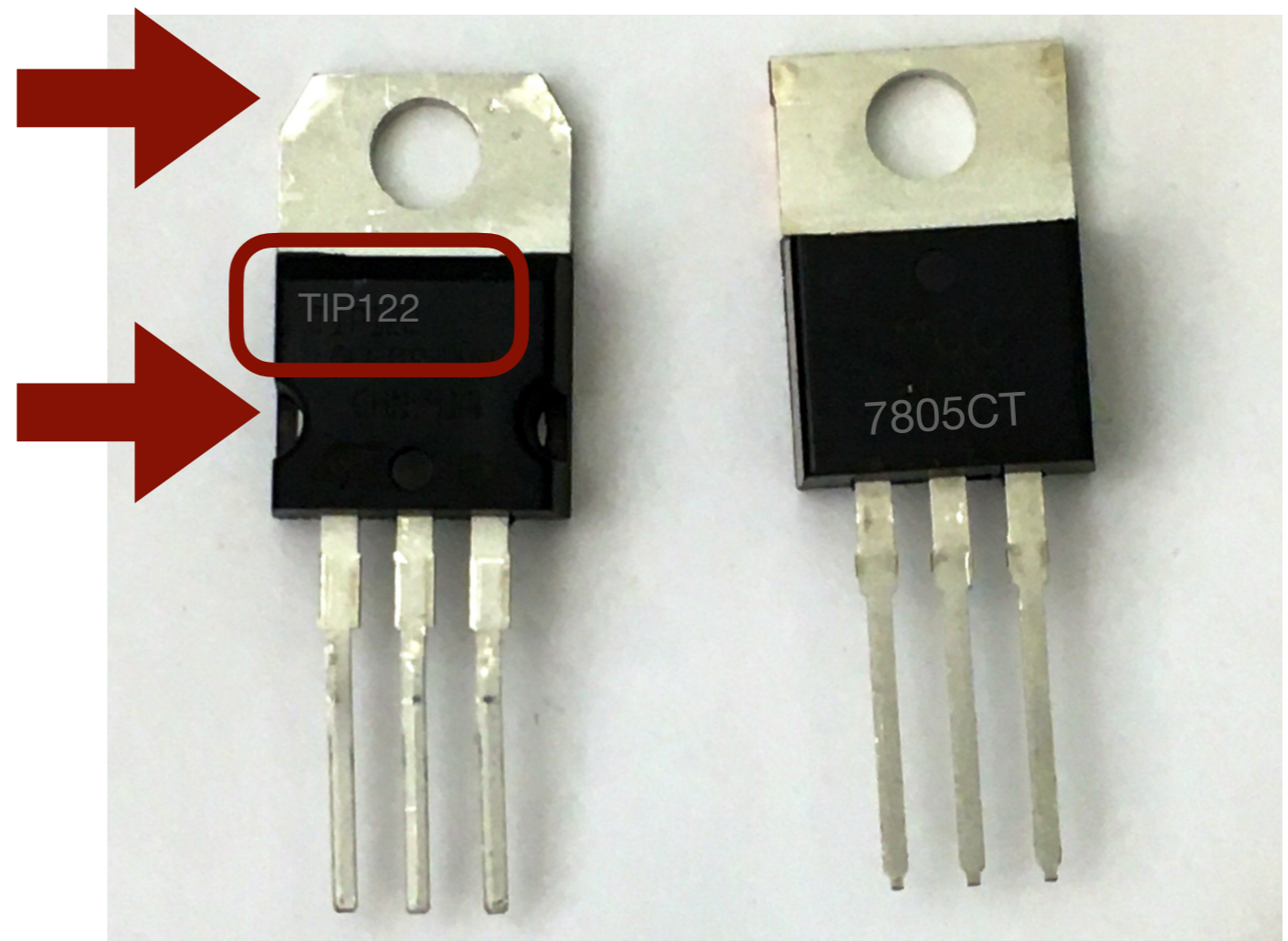Electrical switches we can control with a signal from Arduino

Know your TO-220

These components have the same packaging, called TO_220.

But they are not the same.

The component on the left is a **TIP122 transistor.**

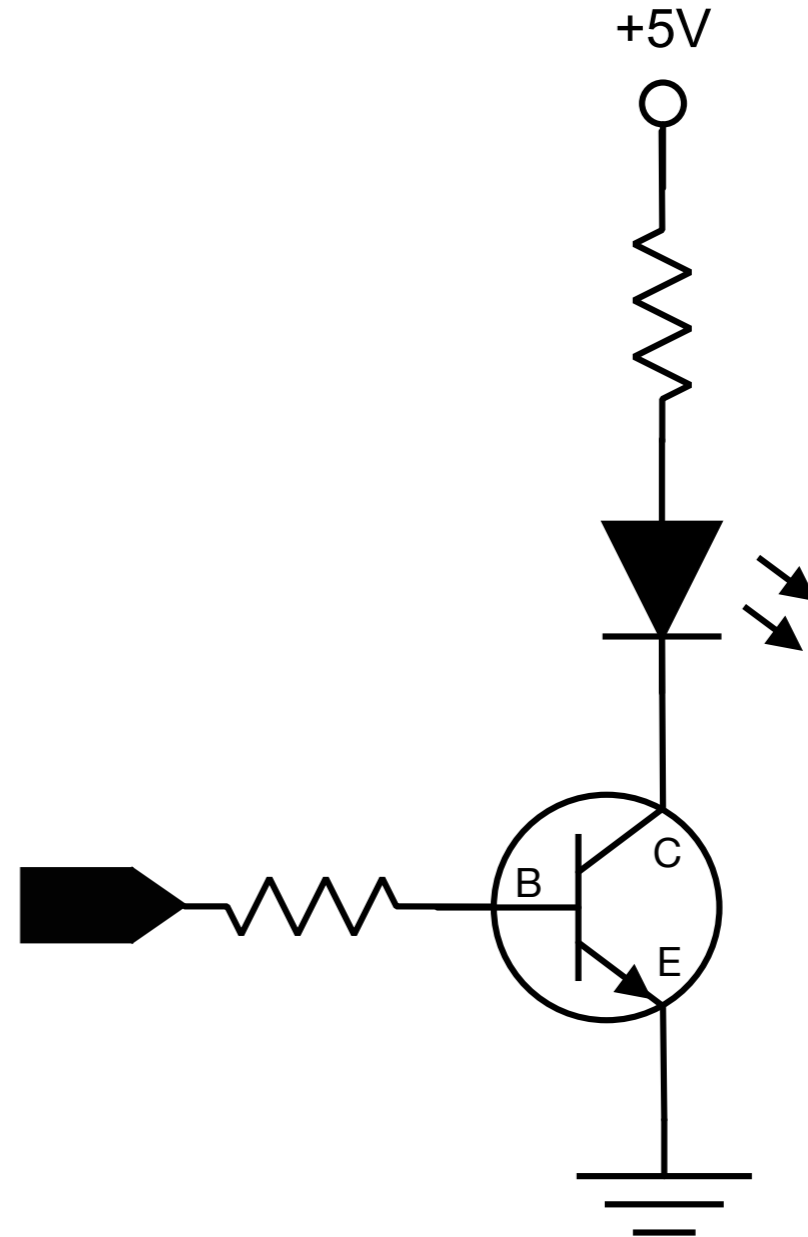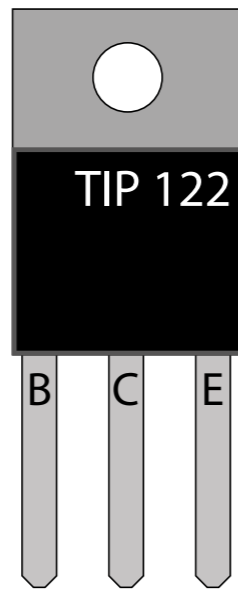On the right, 7805 voltage regulator.

TIP122   7805

- There are two main types of transistor, NPN and PNP.

- We have **TIP122** NPN transistors in our kits.

- NPN transistors are connected to the negative side of the circuit they switch.

- NPN turn ON with a positive signal (HIGH, 1)

- Identify the legs.
  B= Base
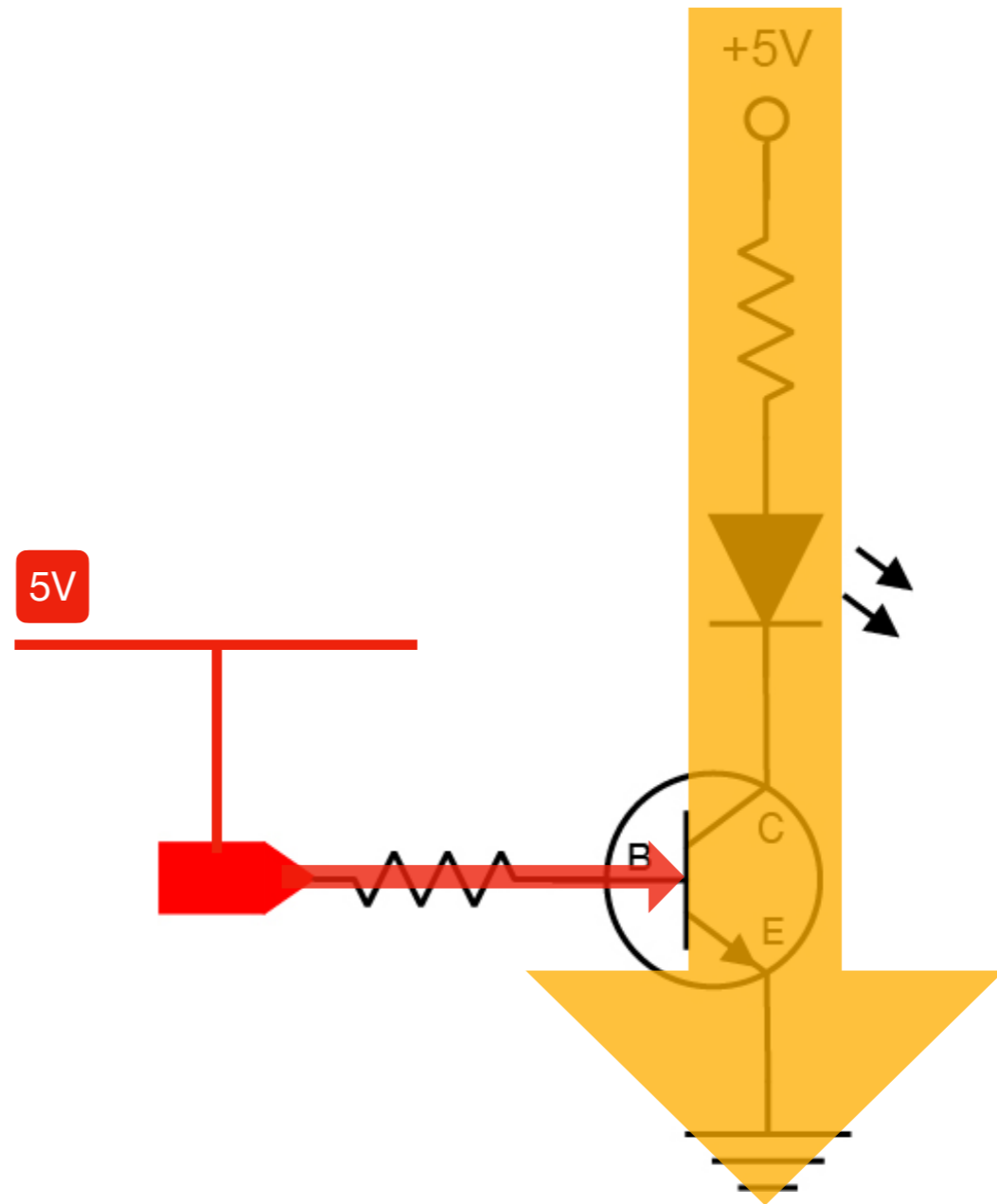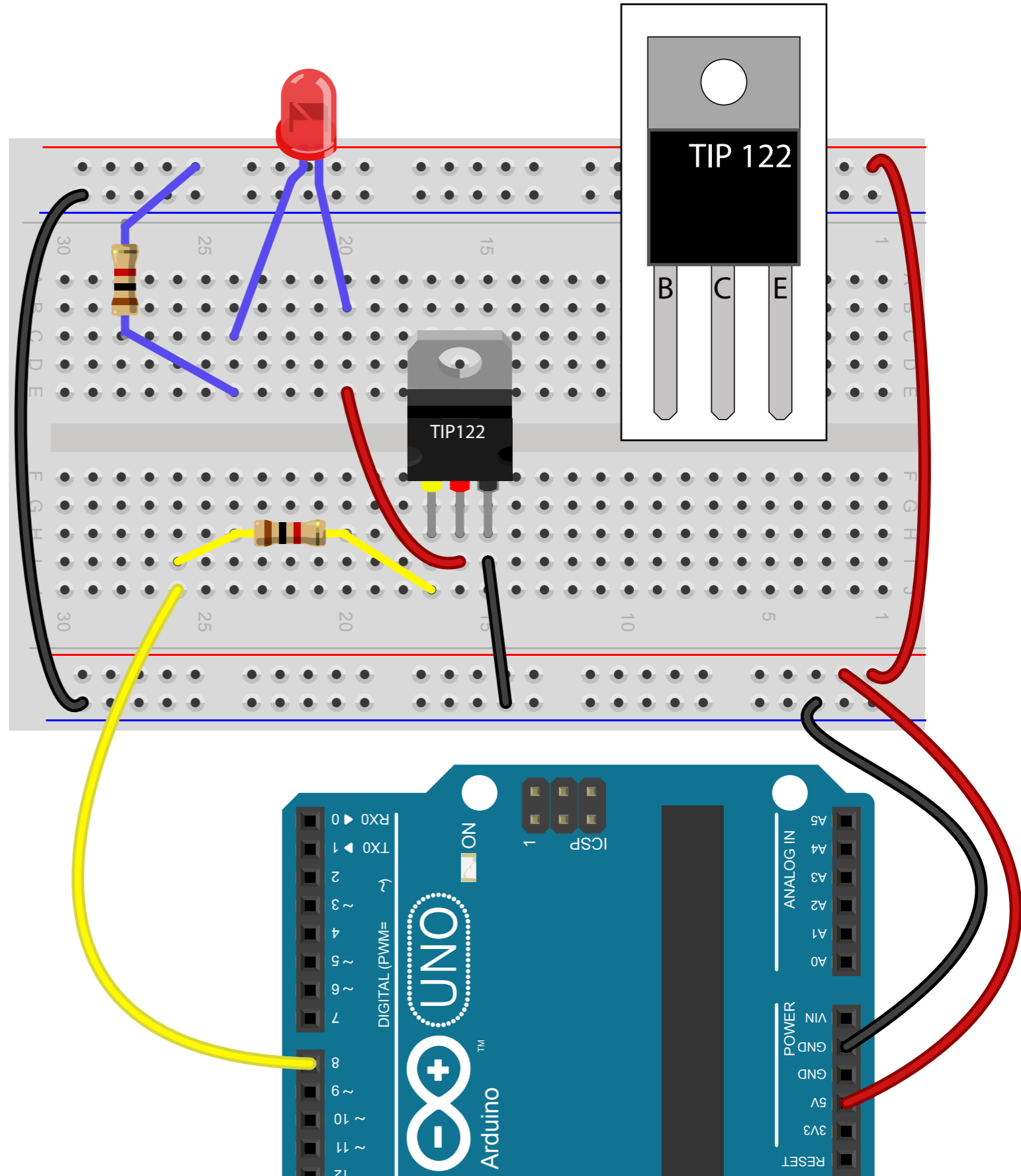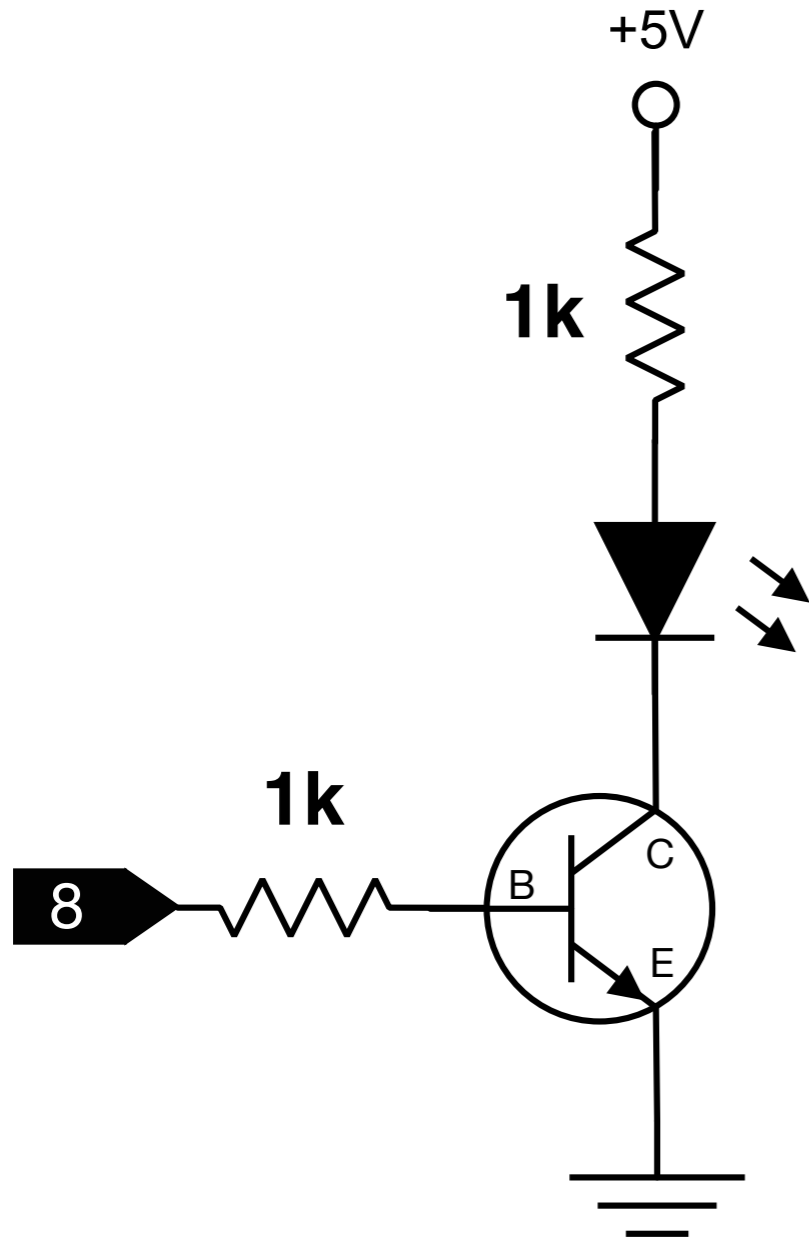 **C**= Collector
  E= Emitter

building blocks

B= Base
C= Collector
E= Emitter

+5V

TIP 122

B   C   E

TIP 122

B C E

B= Base
C= Collector
E= Emitter

+5V

5V

building blocks

building blocks
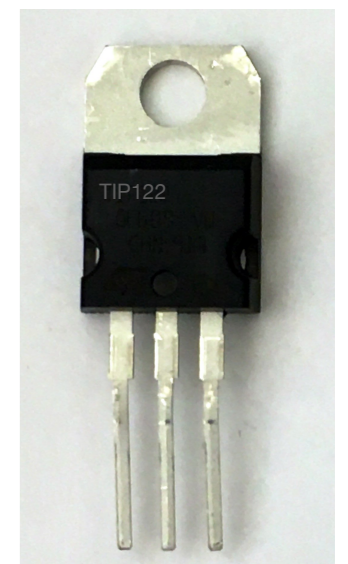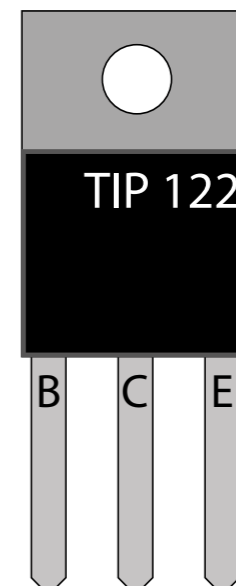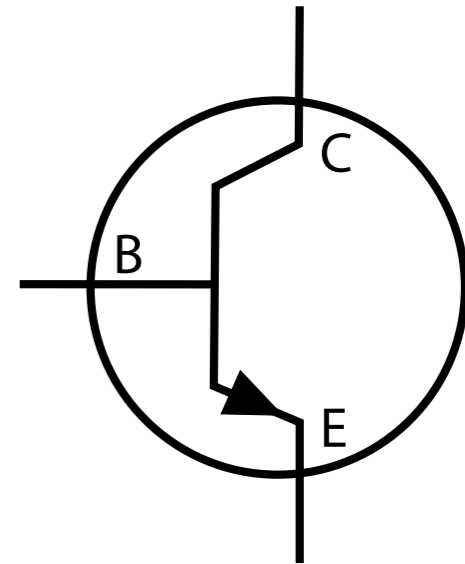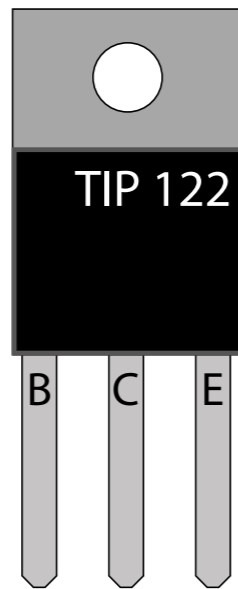
MAX current of parts in our kit

SOURCE (mA)

Single
Arduino Pin

Tip122
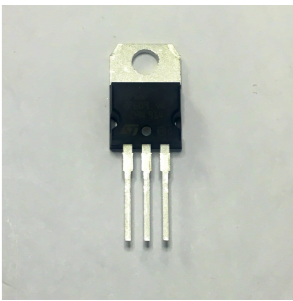
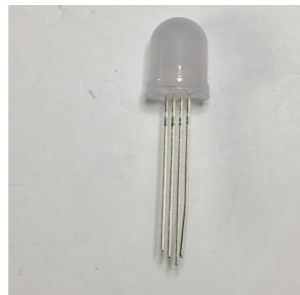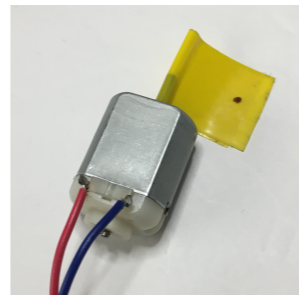| 20mA	40mA	60mA	200mA	1000mA	>1A	5A
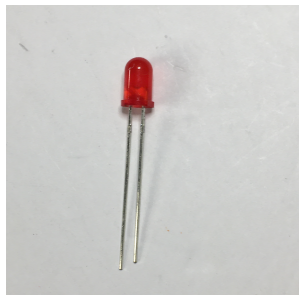
Simple LED

RGB LED

Simple Motor

Gear Motor

Solenoid

SINK (mA)