

A6: Build a Simple LED Circuit

1001-act6 Introduction to Electronics

Summary

In this activity you will be making use of your TOP and JackBord to put together a small simple LED circuit.

Light Emitting Diodes (LEDs) are a special kind of diode (one-way current device) that emit light when current is passed through them. This is what will be used as the light in the circuit.

Note that these components are very sensitive to current however, and too much will cause them to blow. For that reason, the circuit will also include a 10K resistor as a safety limiter to prevent a blowout.

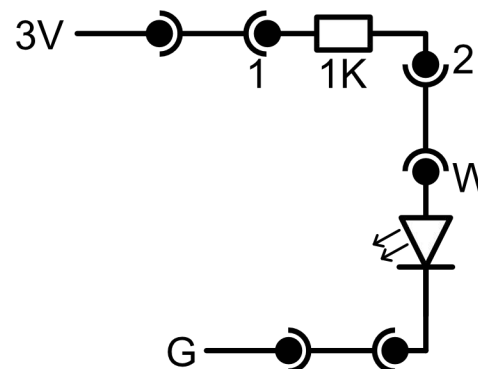
What You Need

- JackBord
- JackBord TOP
- 10 x 10cm Jumper Wires
- Means of viewing [Using the TOP Part 1: Attaching the TOP to the JackBord tmt3Nnbl](#)
- Book "Using the JackBord TOP" from tmt3Nnbp

Instructions

1. Making this circuit is simple. First, make sure that the JackBord TOP is already connected to the JackBord power pins and the two power LEDs are on (Check 1001-act5 if not). Turn off the JackBord.
2. Take one jumper and connect any one of the yellow 3V pins on the outer edge of the TOP to pin 1 of the 1K resistors.
3. Take another jumper and connect pin 2 of the 1K resistors to the white LED on the TOP. The pin is labelled 'W'.
4. Finally, use one more jumper to connect the corresponding ground '-' pin of the white LED (bottom most pin opposite the LEDs) to one of the green ground pins on the TOP.
5. If done correctly, the white LED should turn on when you turn on the JackBord. If it does not, check your connections and follow the steps again. Also compare your circuit to the pictures shown right.

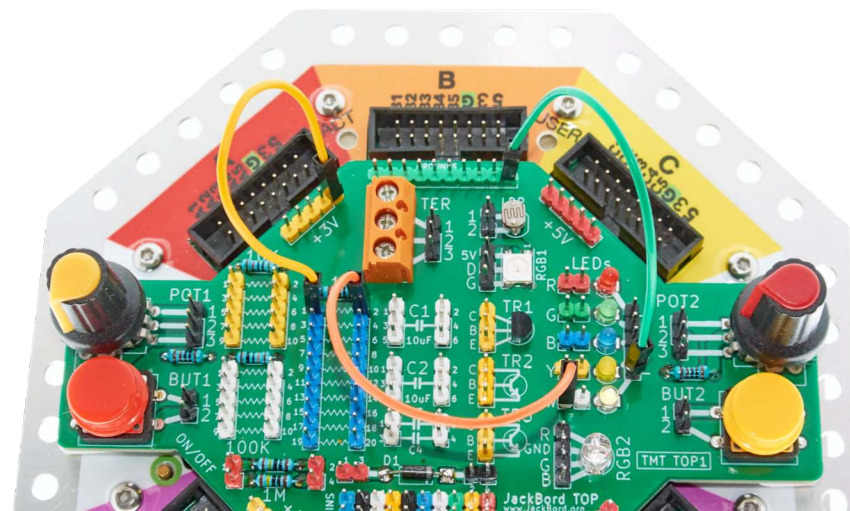
Circuit Diagram



TOP 3V rail pin	TOP 1K resistor pin 1
TOP 1K resistor pin 2	TOP LED pin W
TOP LED - pin (Corresponding to white LED)	TOP Ground rail

The table above contains the connections in the circuit diagram. Simply connect a jumper from the left column pins to the corresponding right column pin in the same row.

Completed Circuit



Extension

- Once you have one LED lit up, try to light up another one as well.
- What happens when you change the resistor from a 1K to a 10 or 100K?
- What happens to the brightness of the LED if you replace the 1K resistor with two 1K resistors in series?