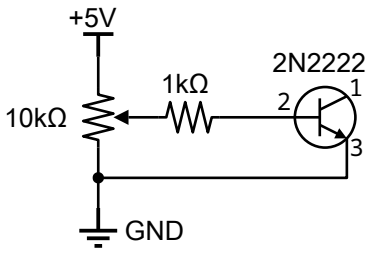
Activity: BJT – Base-Emitter Voltage vs Current

Required Components

Power Supply: 5 Volt
Potentiometer: 1kΩ
Resistor: 1kΩ
Transistor: 1N2222 (or similar NPN BJT)



Procedure

1. Assemble the circuitry shown in the figure to the right.
2. While measuring the voltage between the base and the emitter, adjust the potentiometer until the voltage measures within about 0.02 volts of one of the voltages given in the table below. Record the exact measured voltage in that row of the table.
3. Without changing the setting of the potentiometer, measure the voltage across the base resistor and record the measured voltage in the same row of the table.
4. Repeat steps 2 and 3 in sequence until the all cells of the table contain values. For the column labeled "max", turn the potentiometer fully to the side that maximizes the voltage across the diode.

ideal diode voltage	0.25V	0.50V	0.55V	0.60V	0.65V	0.70V	max
measured base-emitter voltage [V]							
measured base resistor voltage [V]							
calculated current flow [mA]							

Analysis

1. Plot the points for the calculated ***base-emitter current*** versus the ***measured base-emitter voltage*** on the graph, below. As neatly as possible, draw a smooth curve to join the points.