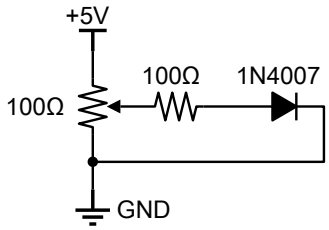
Activity: Diode Voltage versus Current

Required Components

Solderless breadboard and 5 volt power supply
Potentiometer: 100Ω
Resistor: 100Ω
Diode: 1N4007 (or similar)



Procedure

1. Assemble the circuitry shown in the figure to the right.
2. While measuring the voltage across the diode, adjust the potentiometer until the voltage across the diode 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 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	0.75V	max
measured diode voltage [V]								
measured resistor voltage [V]								
calculated current flow [mA]								

Analysis

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