DC Circuits

As you work through the steps in the lab procedure, record your experimental values and the results on this worksheet. Use the exact values you record for your data to make later calculations.

Current and Voltage for a Single Resistor

Complete the table.

Table 1

Voltage (V)	**Current (A)**
1	
2	
3	
4	
5	

Find the slope of the straight line that best fits your data and record your result, including units.

Calculate the resistance R of the resistor, in units of ohms (Ω).

Current and Voltage for a Light Bulb

Complete the table.

Table 2

Voltage (V)	Current (A)	$R = V/I$ (Ω)
2		
4		
6		
8		
10		
12		

Does R increase, decrease, or stay the same as the current I through the light bulb increases?

Two Resistors in Series

Record the potential differences (voltage) V_{150} and V_{700} across each resistor and the voltage V across the two-resistor combination.

Which of the following better represents your results?

- $V = V_{150} + V_{700}$
- $V = V_{150} = V_{700}$

Complete the table.

Table 3

Voltage (V)	**Current (A)**
2	
4	
6	
8	
10	
12	

Find the slope of the straight line that best fits your data and record your result, including units.

Calculate the equivalent resistance R_S of the two resistors in series, in units of ohms (Ω).

Two Resistors in Parallel

Record the currents I_{150} and I_{700} flowing through each resistor and the total current I flowing through the power supply.

Which of the following better represents your results?

- $I = I_{150} = I_{700}$
- $I = I_{150} + I_{700}$

Complete the table.

Table 4

Voltage (V)	**Current (A)**
2	
4	
6	
8	
10	
12	

Find the slope of the straight line that best fits your data and record your result, including units.

Calculate the equivalent resistance R_{p} of the two resistors in parallel, in units of ohms (Ω).