Science 9		
M. Lam	Series and Parallel Circuits Simulation	Block:

Name:

Website: https://phet.colorado.edu

Play with Simulations > Physics > Electricity, Magnets & Circuits > Circuit Construction Kit: DC

Purpose

To predict and observe the voltage and current in a circuit with resistors in series and parallel

Part 0

- 1. Make a simple circuit consisting of only one battery, one resistor and as much wire as needed.
- 2. What do the blue circles represent?
- 3. Remove the resistor and close the circuit. Record at least two observations.

Part 1: Series Circuit

- 1. Make a series circuit consisting of two or more resistors.
- 2. Change the resistances of the resistors so that each of the resistors has a different resistance. (Leftclick or ctrl-click to change the resistance.)
- 3. Draw a circuit diagram for your series circuit. On your diagram, include labels for the different resistors (R₁, R₂, etc.).

4. Use the voltmeter and ammeter to investigate the voltage and current at different points in the circuit. Record your measurements in the table below. Also record the resistance of each resistor.

	Voltage (V)	Current (A)	Resistance (Ω)
Total			
Resistor 1			
Resistor 2			

5. How is the voltage across each of the resistors related to the total voltage (of the battery)?

6. How is the current across each of the resistors related to the total current (across the battery)?

7. How are voltage, current and resistance related for each of the resistors? Provide a sample calculation.

Part 2: Parallel Circuit

- 1. Make a parallel circuit consisting of two or more resistors.
- 2. Change the resistances of the resistors so that each of the resistors has a different resistance. (Leftclick or ctrl-click to change the resistance.)
- 3. Draw a circuit diagram for your series circuit. On your diagram, include labels for the different resistors (R₁, R₂, etc.).

4. Use the voltmeter and ammeter to investigate the voltage and current at different points in the circuit (across the battery and each of the resistors). Record your measurements in a table. In your table, also record the resistance of each resistor.

5. How is the voltage across each of the resistors related to the total voltage (of the battery)?

6. How is the current across each of the resistors related to the total current (across the battery)?

7. How are voltage, current and resistance related for each of the resistors? Provide a sample calculation.