

CURRENT IN A PARALLEL CIRCUIT LAB

To explore current in a parallel circuit, please go to the [Physics Education Technology Web](http://phet.colorado.edu/) site (<http://phet.colorado.edu/>). Click on the “Play with sims” button and under Simulations (on the left side of the window) select Physics -> Electricity, Magnets, and Circuits and from the main window click on the Circuit Construction Kit (DC only). Select “Run” and wait for the simulation window to pop up. Using your mouse, you can place any circuit element into the main window by clicking, holding down the mouse and dragging the element. Release the mouse once the circuit element is in the main window.

1. On the paper, design a two bulb parallel circuit so that you can measure the current through each branch of the circuit separately (hint: you will have to use three ammeters). Show your circuit to your instructor before proceeding to the next step.
2. Build the circuit in the simulation window. Make sure you have a switch such that you can use to open or close your circuit.
3. When the circuit is closed, what is the current through the battery (main circuit)?
4. What is the current through one of the resistors?
5. What is the current through the other resistor?
6. How is the current through the battery connected to the current through the resistors?
7. Open the switch such that no current passes through your circuit. Change the value of one of the resistors from $10\ \Omega$ to $30\ \Omega$ by right-clicking on the resistor and selecting “change resistance”. **Predict** first the current that will pass through the $30\ \Omega$ resistor.
8. Now close the switch and check the current through the $30\ \Omega$ resistor. Record its value.

