SPH3U **Note: Introduction to Electric Circuits**  Date:\_\_\_\_\_\_\_\_\_\_\_\_

What do you remember? Match the terms below with the correct definition:

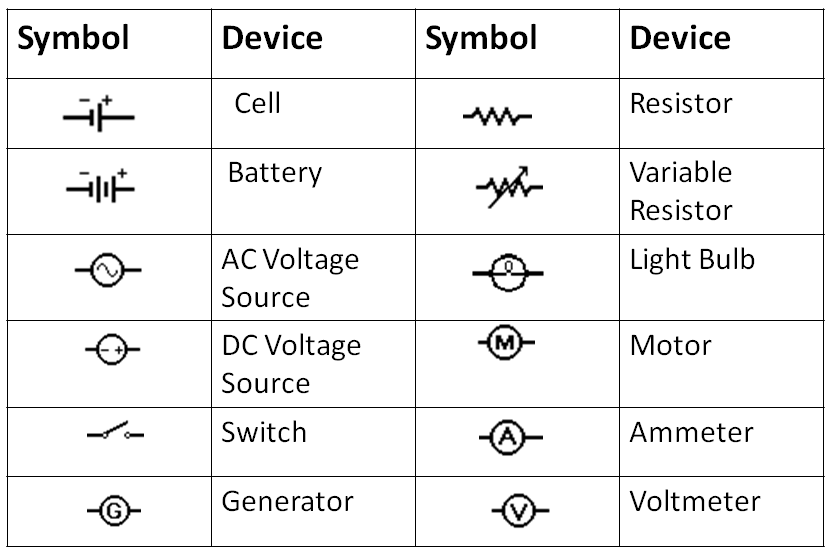
|  |  |
| --- | --- |
| **Term** | **Definition** |
| \_\_\_\_current | A. Circuit in which elements are connected in line so  there is only one path for charges to follow. |
| \_\_\_\_voltage | B. Opposition to the flow of charge. |
| \_\_\_\_load | C. Device which measures electric potential difference. |
| \_\_\_\_switch | D. The work per unit charge required to move a positive  charge between two points in an electric circuit. |
| \_\_\_\_voltmeter | E. Control device in an electric circuit. |
| \_\_\_\_ammeter | F. The rate at which electrical charges flow in a circuit. |
| \_\_\_\_series circuit | G. Circuit in there is more than one path for charges to  follow. |
| \_\_\_\_parallel circuit | H. A direct pathway with low resistance connecting two  sides of a battery or other electrical source. |
| \_\_\_\_resistance | I. Device which converts electrical energy into other  forms of energy. |
| \_\_\_\_short circuit | J. Device which measures electric current. |
| \_\_\_\_source | K. Device which supplies energy to charges in a circuit. |

**Three key components of an electric circuit:**

Source:

Load:

Conductor:

**Circuit Symbols** :

**Draw the circuit below and indicate the direction that positive charge (conventional current) would flow:**

**+**

**-**

**-**

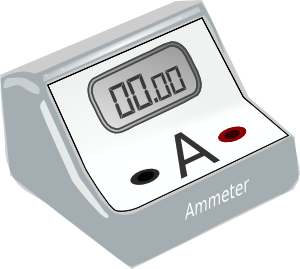


**Direction of Current Flow:**

**Conventional Current:**

**Electron Flow:**

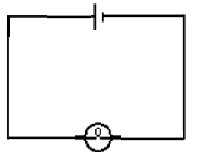
**Diagram:**

**Circuit Measurements**

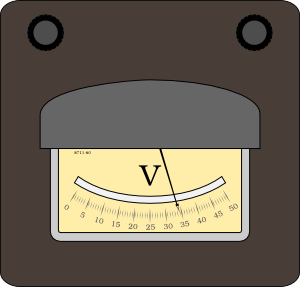
In the diagram below, add an ammeter measuring conventional current flowing from the cell and a voltmeter measuring voltage across the light bulb:

**Current:**

* **Measured with an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

 • connected *in line* ( in \_\_\_\_\_\_\_\_\_\_ ) so that current passes directly

through the meter.

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**Voltage:**

* **Measured with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* **connected *across* the device ( in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)**

**Types of Current**

Direct current (DC):

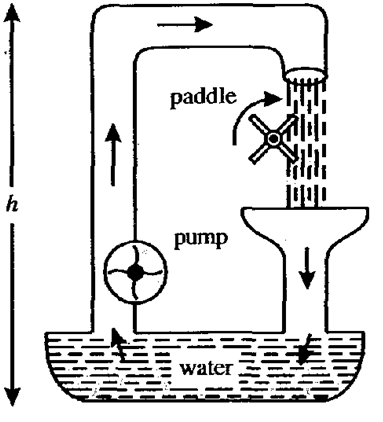
Alternating Current (AC):

**Circuit Parameters**

**Current:**

**Potential Difference or Voltage (V)**

We can compare an electric circuit to a water circuit to understand the concept of potential difference and how a battery works:

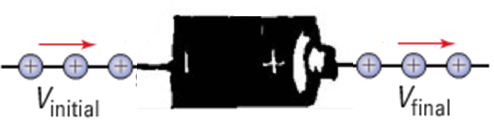
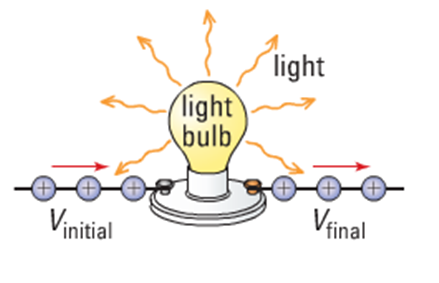
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Definition:

Analogy:

**Potential Gain vs. Potential Drop**

Battery: Potential \_\_\_\_\_\_\_\_\_\_\_\_

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Bulb: Potential \_\_\_\_\_\_\_\_\_\_\_\_

Identify each item below as producing a VOLTAGE GAIN (+ΔV) or VOLTAGE DROP (-ΔV)

|  |  |
| --- | --- |
| Item | ***VOLTAGE GAIN or VOLTAGE DROP*** |
| Battery |  |
| Motor |  |
| Light Bulb |  |
| Resistor |  |
| Power supply |  |