***Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_ Class: \_\_\_\_\_***

**General Outcome #1: Investigate technologies that transfer and control electricity.**

* ***Can I measure voltages and amperages in circuits?***
* ***Can I describe electrical currents using models and explain the relationship between current, resistance and voltage?***

## Measuring Current

***Current*** – is the amount of charge that passes a point in a conductor every second

* measured in amperes (**A**) or milliamperes (mA)

****1000milliamps = 1 Amp**

* **Galvanometer** measures a **small** amount of current

G

The circuit symbol for a galvanometer is:

* An **Ammeter** measures a **larger** amount of current

A

The circuit symbol for an ammeter is:

*Draw a circuit showing 2 cells, 2 lamps, a switch, and an ammeter to measure the current running through the circuit.*

## Measuring Voltage

***V=RI (voltage = resistance x current)***

***Voltage*** – is the **push** that makes electrons move. Each charge that passes along a conductor has a certain amount of energy. Voltage represents how hard the electricity has to work to pass through an object. The **potential difference** in energy for each charge between one point in the circuit and another point is the voltage.

* Measured in **Volts (V)**
* A voltmeter measures voltage

V

The circuit symbol for a voltmeter is:

Voltage above 30V is dangerous.

Wet skin has 500 times less resistance to electric current than dry skin.

Clothes dryers and stoves use 220 V and regular electrical outlets are 110V.

*Draw a circuit showing 2 cells, 2 lamps, a switch, and a VOLTMETER to measure the POTENTIAL DIFFERENCE either side of the light bulbs.*