Notes: Current and Voltage

# What is current?

Also sometimes referred to as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* It’s a measure of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (electrons)
* Basically counting the number of electrons that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Symbol for current (used in formulas): \_\_\_\_\_\_\_\_\_\_\_\_

Unit (current is measured in …): \_\_\_\_\_\_\_\_\_\_\_\_

Symbol used: \_\_\_\_\_\_\_\_\_\_\_\_



Often, electric currents are very small and therefore measured in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

$$150 mA=\\_\\_\\_\\_\\_\\_\\_ A$$

# Alternating and Direct Current (AC and DC)

## Direct Current

The electrons are transferred through the circuit always in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ direction.



## Alternating Current

The electrons \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *(in a regular pattern)* the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in which they travel through the circuit.



Device used to measure the amount of current travelling through any part of a circuit: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Schematic (circuit diagram) symbol for an ammeter: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Example**

To measure the current, the ammeter must be installed into the circuit so that the electrons pass **through it.**



# What is voltage?

Also often referred to as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* A measure of the difference in electrical \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between two points, per unit electric charge.
	+ It’s like measuring the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that will push (and be carried by) the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a circuit.

Symbol for potential difference (used in formulas): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit (voltage is measured in …): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

* Symbol used: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



Sometimes, voltages are very high and therefore measured in kilovolts.

$$735 kV=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_ V$$

## Grounding

In very basic terms, grounding is used as a means to \_\_\_\_\_\_\_\_\_\_\_\_ you from electrical shock

* Imagine an appliance that has metal components
	+ These would \_\_\_\_\_\_\_\_\_\_\_\_ electricity if they somehow came into contact with it
	+ So they are usually connected back to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that will take those charges away and back to the electrical panel, tripping the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_ the flow of electricity

Device used to measure the potential difference (voltage) across any part of a circuit: \_\_\_\_\_\_\_\_\_\_\_\_

Schematic (circuit diagram) symbol for a voltmeter: \_\_\_\_\_\_\_\_\_\_\_\_

**Example**

1. We wish to measure the potential difference across the resistor.

In order to measure the potential difference across a component, the voltmeter must be connected to **each side** of the component.



1. If we wish to measure the potential difference across the light…



# Summary

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Definition** | **Symbol** | **Unit** |
| Current Intensity |  |  |  |
| Potential Difference |  |  |  |
| Resistance |  |  |  |