General Physics Laboratory (Phys 119)

Life without Electricity---!!!

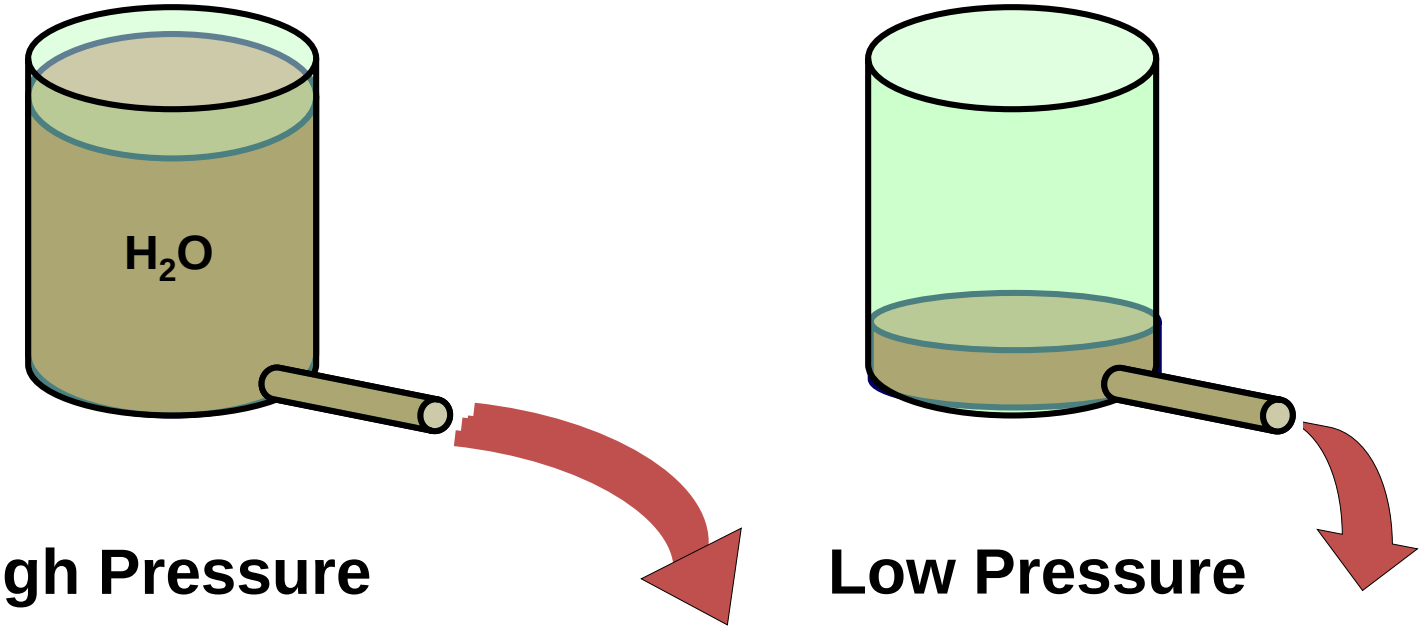
Introduction to Electric Circuits

Here we are going to remind what are:

- **Voltage**
- **Current**
- **Current flow**
- **Voltage Sources**
- **Voltmeter (Multimeter)**

What is Voltage?

V = “Electrical pressure” - measured in *volts.*

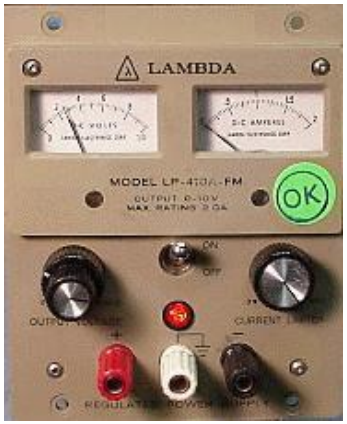


What Produces Voltage?

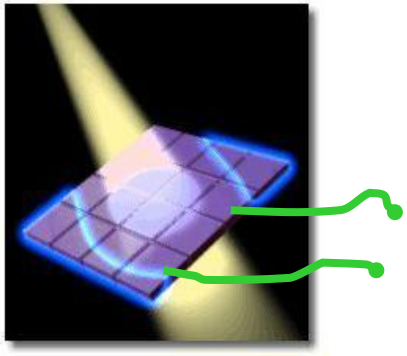
V = "Electrical pressure"

A Battery

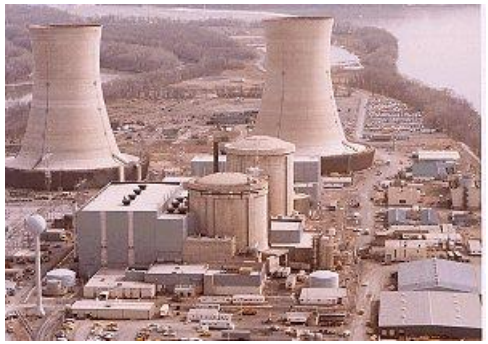
Lab Power Supply



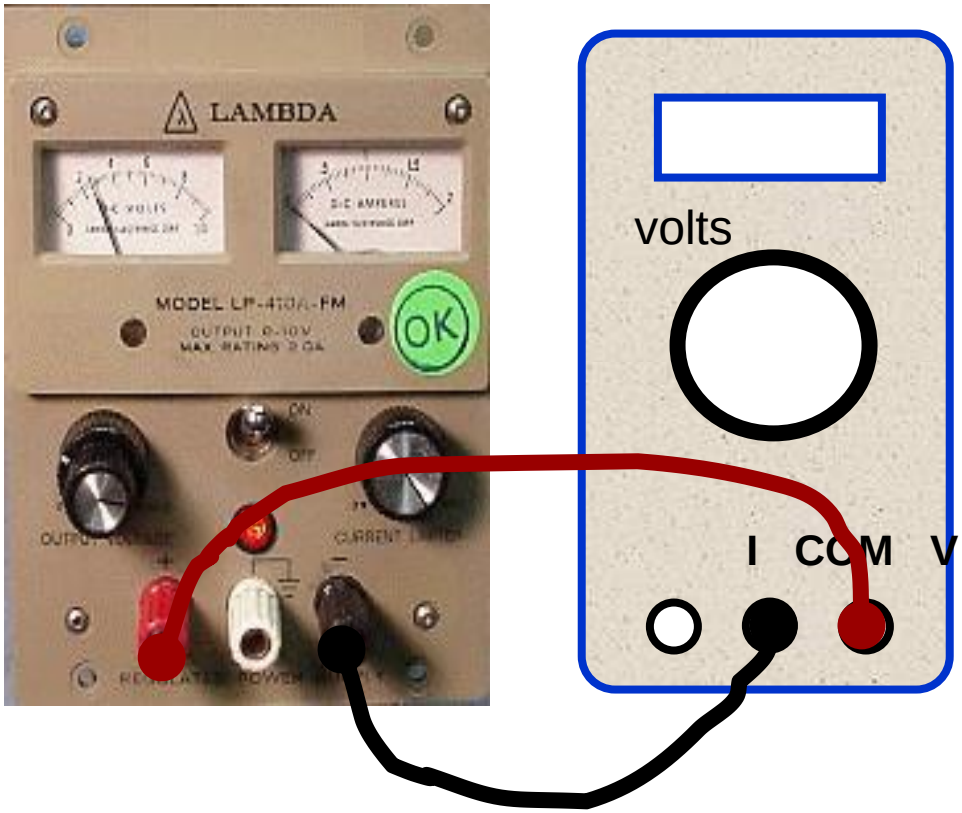
Solar Cell



Electric Power Plant

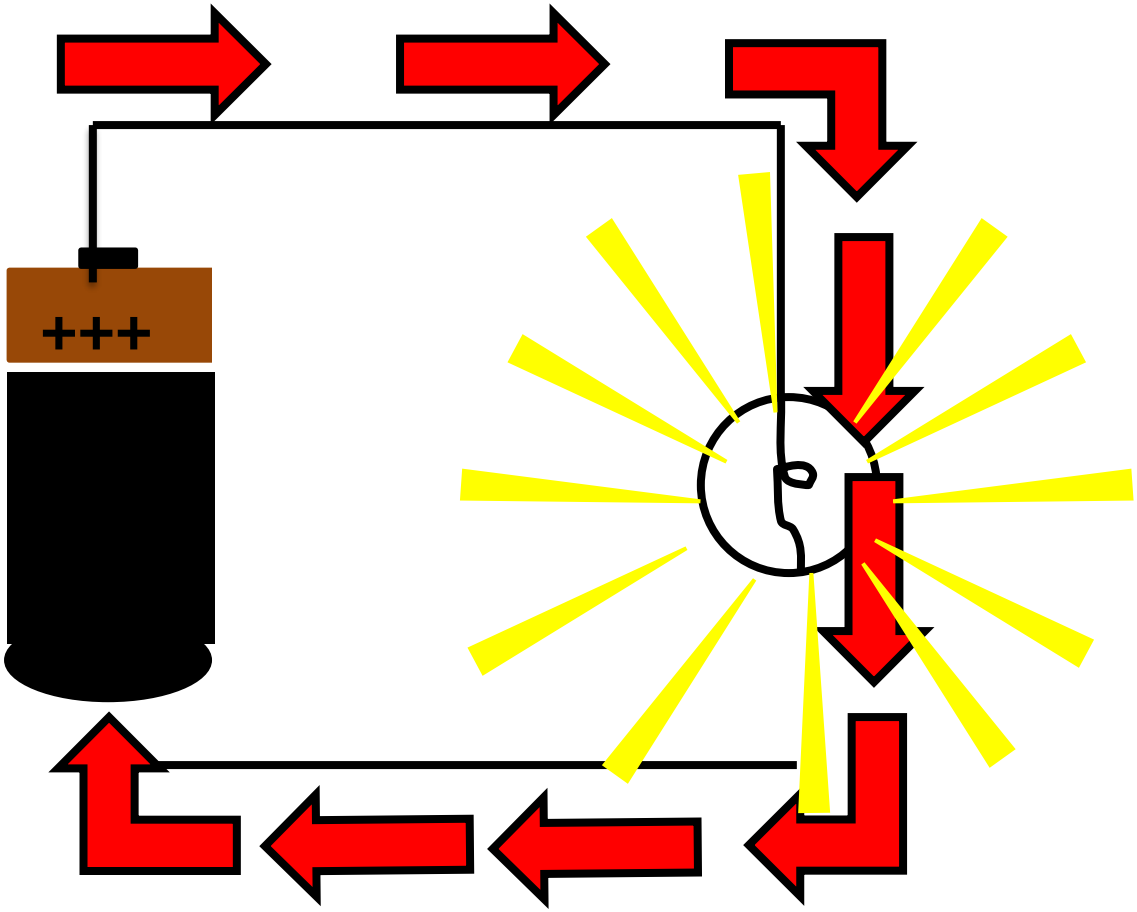


Measuring Voltage

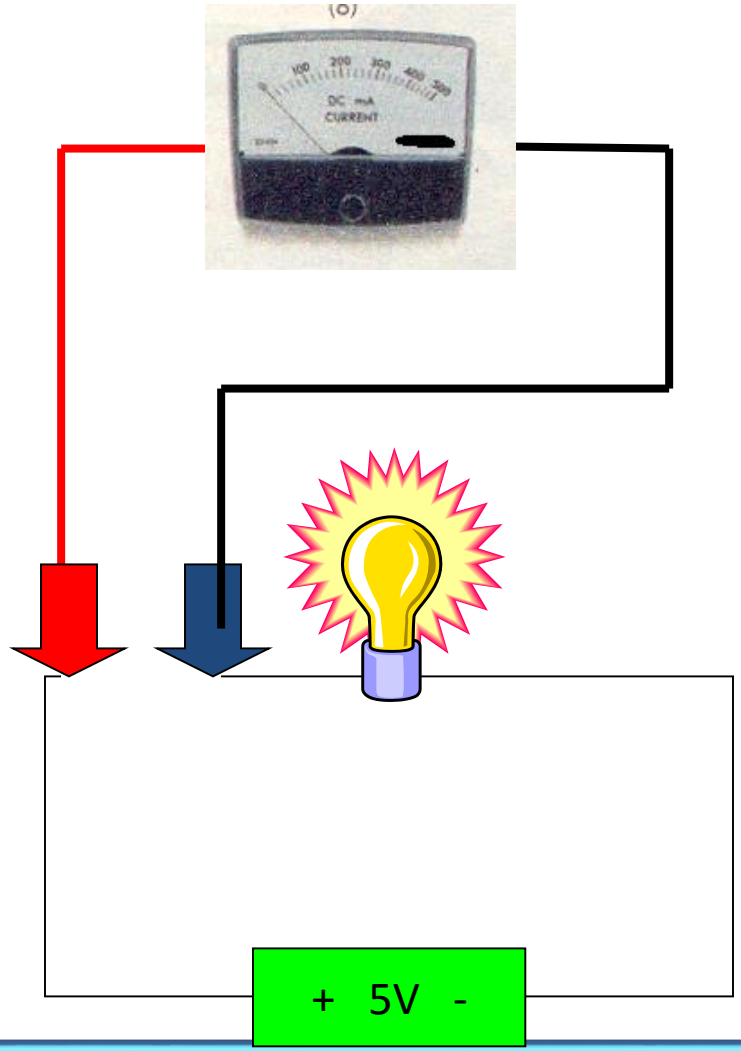


What is Current?

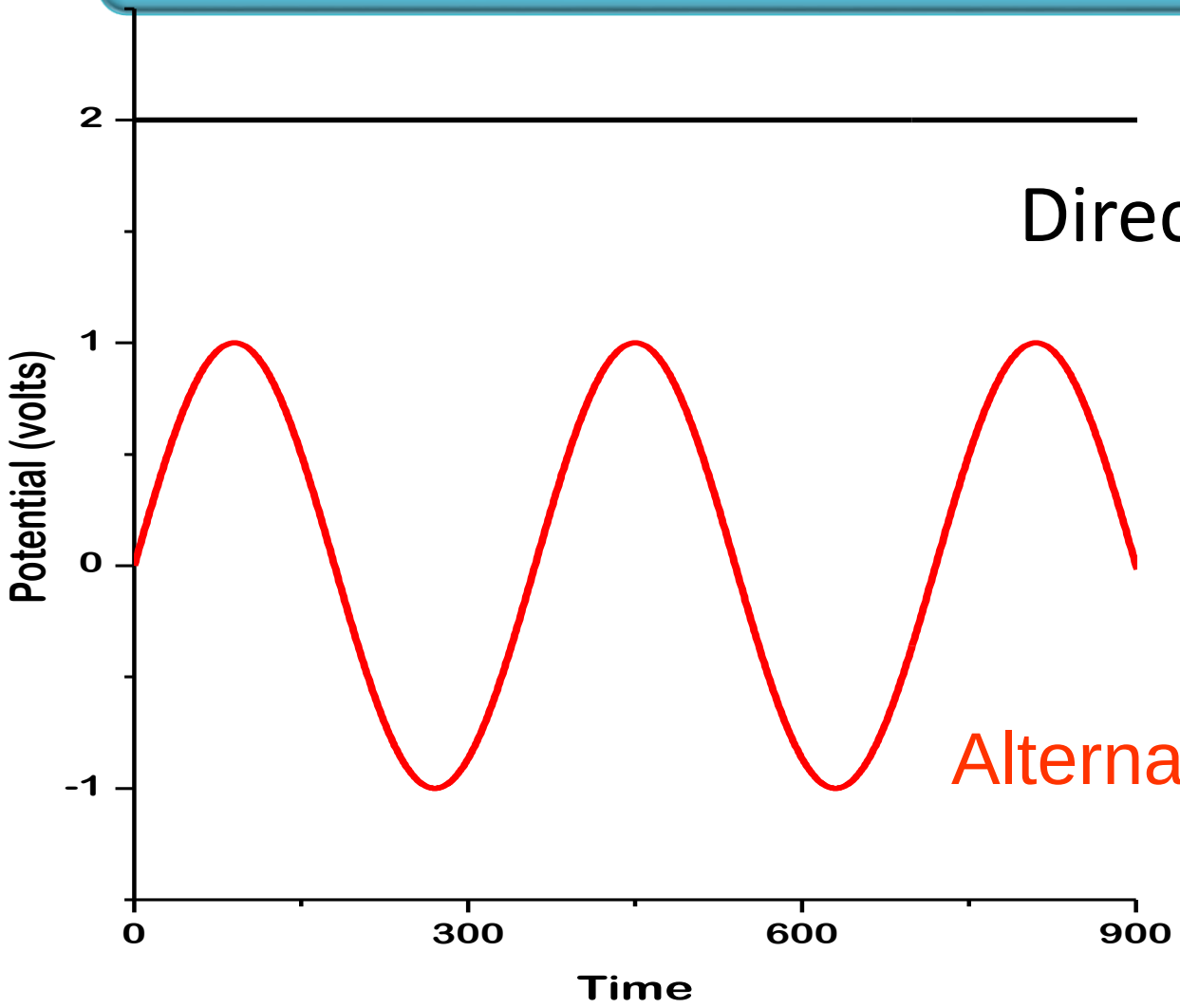
Current is the flow of charge from a voltage source Ampere (A)



Measuring Current



AC vs. DC Electricity



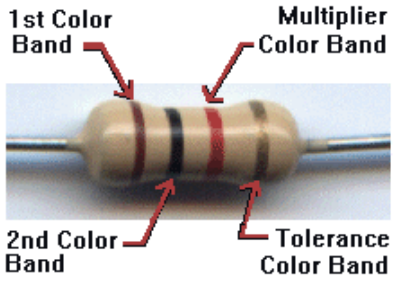
Direct current (DC)

Alternating current (AC)

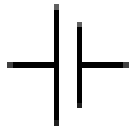
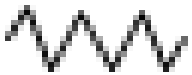
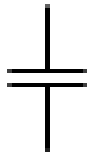
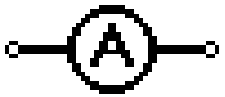
Electrical Components

- Capacitors

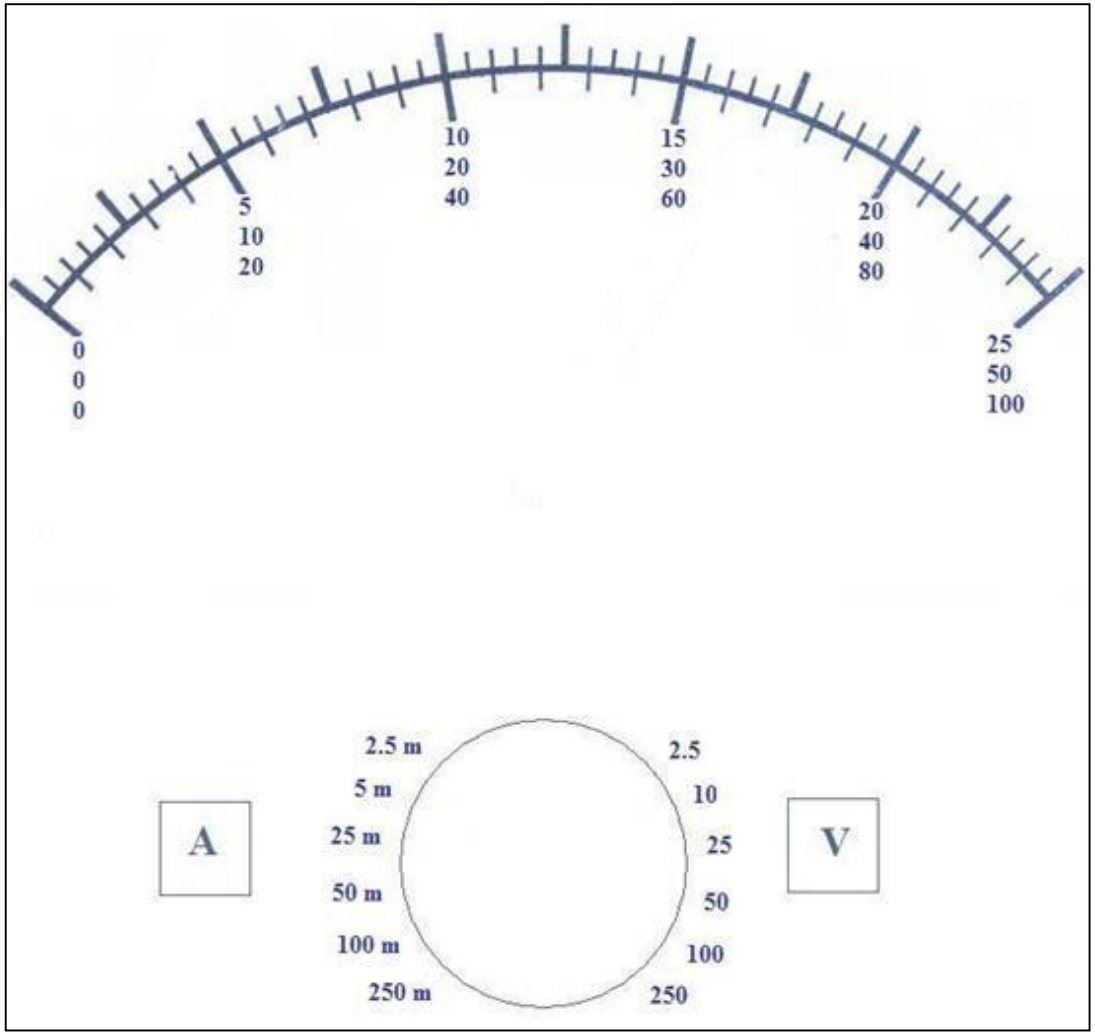
- Resistors



symbol in electric circuit

Voltage	
Resistors	
Capacitors	
Voltmeter	
Ammeter	

Reading from multimeter



Series And Parallel Resistors

	Series	Parallel
Current I	$I = I_1 = I_2$	$I = I_1 + I_2$
Voltage V	$\Delta V = \Delta V_1 + \Delta V_2$	$\Delta V = \Delta V_1 = \Delta V_2$
Equivalent resistance R_{eq}	$R_{eq} = R_1 + R_2$	$R_{eq} = \left(\frac{1}{R_1} + \frac{1}{R_2}\right)^{-1}$