

Basic circuits

$\begin{array}{c} + \\ | \\ - \end{array}$ = battery (generates voltage)
— = wire (carries current - conductor - equipotential surface)
 $\sim \sim \sim$ = resistor
 $\begin{array}{c} + \\ | \\ - \end{array}$ = capacitor

$V = IR$

current (Amps)
resistance (Ω - ohms)
Voltage = Electric Potential (V - Volts)

Resources

<https://www.allaboutcircuits.com/worksheets/simple-circuits/>

Worksheets / exercises:

http://mrsfranklinclassroom.weebly.com/uploads/1/3/3/9/13393756/11-4_worksheet.pdf

http://www.mysciencesite.com/Middle_School_Science_-_Basic_Circuits.pdf

<https://www.livingston.org/cms/lib9/NJ01000562/Centricity/Domain/833/circuitsolutions.pdf>

3000 solved problems in physics, chapter 27

	Series	Parallel	
Voltage	$V_t = V_1 + V_2 + V_3 + \dots$	$V_t = V_1 = V_2 = \dots$	https://byjus.com/physics/difference-between-series-and-parallel-circuits/

Resistance	$R_{tot} = R_1 + R_2 + R_3 + \dots$	$\frac{1}{R_{tot}} = \frac{1}{R_1} + \frac{1}{R_2} + \dots$	
------------	-------------------------------------	---	--

microscopic formula for resistance:

$$\rho = R \frac{A}{L}$$

Series: one long resistor

Parallel: one wide resistor

Capacitance	$\frac{1}{C_{tot}} = \frac{1}{C_1} + \frac{1}{C_2} + \dots$	$C_{tot} = C_1 + C_2 + \dots$	
-------------	---	-------------------------------	--

Composite of resistance

Power: $P = I^2 R = VI$ (Unit = W = Watts = J/s)

Use $V = IR$ to
derive multiple
forms