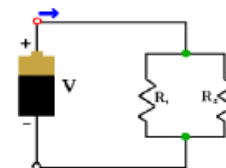


Unit 14 Plan: **Series and Parallel Circuits**
 Physics1 @ PalmHarborUniversityHigh



Day	Date	Topic	Assignments Due /
1		Notes on series circuits CW#1: 1, 2, 3,4, 5 (p 619), 11, 12 (p 623)	Read all of Section 23.1
2		Notes on parallel circuits CW#2: 15,16,17 (p 626)	
3		Combined circuits CW#3: 77 (p 638)	Read all of Section 23.2
4		Circuits Lab Class problems TBA	HW#1: 64, 67, 82, 83 (page 637-639)
5		Video ? Review Problems W/S	HW#2: p.636: 37-44,48,51,52,54,55,56
6		Review concepts	
7		Unit Test	

Note: Homework is due on the day following the assignment, unless otherwise noted.

Objectives / Essential Learnings: (key terms in **bold**)

- Given a diagram of a battery and a bulb connected by wire, determine whether current will pass through the bulb.
- Distinguish between series and parallel circuits.
- Predict what will happen in a series circuit if there is a break at any point.
- Relate the current at any point in a series circuit to the current at any other point.
- Predict what will happen to the current at any point in a series circuit if an additional device is connected in series.
- Predict what will happen in a parallel circuit if there is a break in any branch.
- Calculate **current**, **voltage drops**, and **equivalent resistance** when devices are connected in **series**.
- Calculate **current**, **voltage drops**, and **equivalent resistance** when devices are connected in **parallel**.
- Predict what will happen to the current at any point in a parallel circuit if an additional device is connected in parallel.
- Explain the cause and prevention of overloading household circuits.

Ohm's law $I = \frac{V}{R}$ $R = \frac{V}{I}$ $V = IR$

Power (P) = IV = I²R

	Series	Parallel
Equivalent Resistance	$R_T = R_1 + R_2 + R_3 + \dots$ resistances are additive	$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \dots$
Current	$I_T = I_1 = I_2 = I_3 = \dots$	$I_T = I_1 + I_2 + I_3 + \dots$ currents are additive
Voltage	$V_T = V_1 + V_2 + V_3 + \dots$ voltages are additive	$V_T = V_1 = V_2 = V_3 = \dots$
Circuit	All devices must be "on-line" and <u>depend</u> on the others	Each device works <u>independently</u> of the others