NAME_____DATE_____

An LED requires approximately 2 volts to light up. A 9-volt battery is available. How many volts must be 'thrown away' by the current limiting resistor so that the LED will not be damaged? _____ **V**

step-1: measure the disconnected battery voltage, V_{NL} and enter next to the battery.

step-2: determine the resistor value based on color code and enter in the box provided below.

note: To measure current, the 'switch' between the resistor and the LED Anode represents a place to insert the multimeter when set to the OFF position.

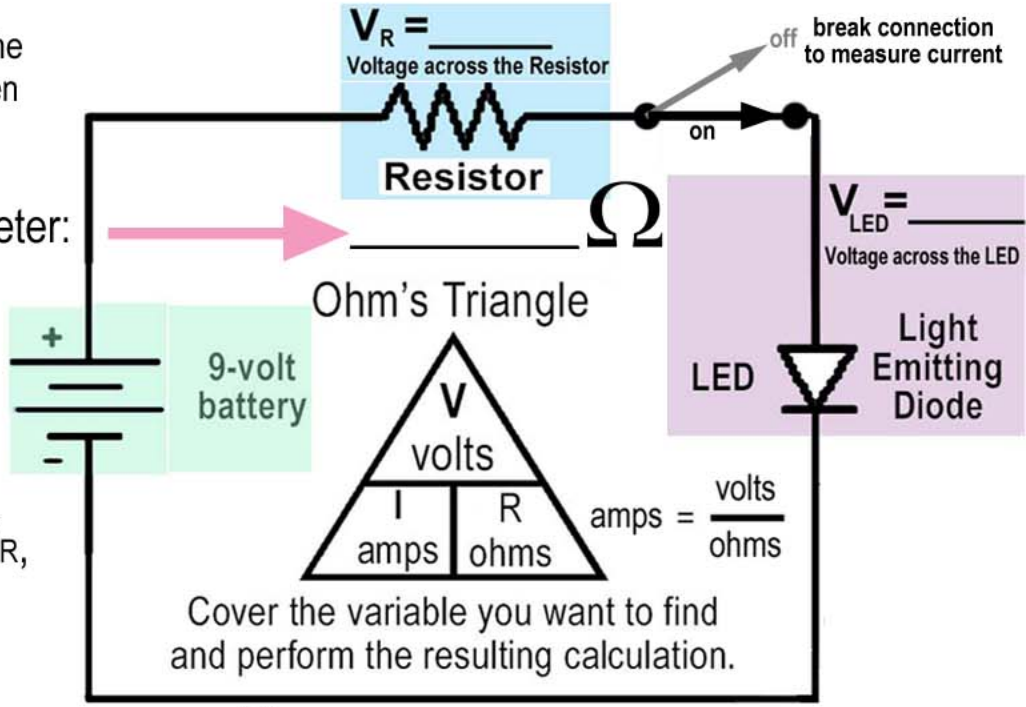
step-3: measure the resistor value with the multimeter: _____ Ω

step-4: Connect the battery, LED and Resistor.

If the LED is lit, then measure

V_{NL} = _____ NL = No Load

V_{FL} = _____ FL = Full Load



step-5: measure the voltage across the resistor, V_R, and enter that number above the resistor.

step-6: measure V_{LED} and enter above the LED.

step-7: Enter and prove: V_R _____ + V_{LED} _____ = _____ = V_{FL}. If not, find your mistake.

step-7: Use Ohm's Law to ***calculate*** the current THROUGH the Resistor $\frac{V_R}{\Omega}$ _____ = _____ Amps

step-8: Break the circuit to measure the current with the Multimeter = _____mA

note: .001 Amp = 1 mA (milli-Amp)

dc ac ohms

DC Resistance and AC Impedance are in Ohms

1st BAND	2nd BAND	MULTIPLIER		TOLERANCE
				◄colors
		X	=	Ω @ %