

Series Circuit Demo

OK, what we're looking at here is an example of a series circuit. If you see here, I have a battery located here. I also have a switch, which I'm going to turn off for a moment. That's right down here. This would be like a light switch that would turn on a light bulb. I could actually put a light bulb right here, too, which would be a part of that. When I turn on the light switch, the electrons, which are the blue, will flow through and actually turn the light bulb on. But I'm going to go ahead and remove that for the simplicity of this demonstration.

So we also have three resistors connected in series. As you see here, the blue electrons, or the current, have no other place to go except through each one of the resistors. The battery is 9 volts. And then you can see the resistance for each resistor, 20 ohms for this one, 10 ohms for this one, and 5 ohms for this guy over here.

I'm going to go ahead and turn on the schematic so that it looks similar to what we've been looking at diagram-wise. So when I turn on the switch, you'll notice that the electrons start to begin because I've connected the circuit completely.

And I'm going to go ahead and use this non-contact ammeter, which measures current, to show you that at each point in the circuit, the current is going to be the same. So you're to have 0.26 amps here. You have 0.26 amps here. You have 0.26 amps here. And you have 0.26 amps here. So that really just confirms our belief that the current is the same through a circuit that is connected in series.

I'm going to go ahead and bring out the voltmeter, which measures voltage. And we're going to go ahead and connect it on the first resistor here. And you're going to see that it's 5.14 volts across this first resistor and that the voltage is going to be 2.57 across this less resistant resistor. And then the third resistor is going to be 1.29 volts.

So if you were actually to add up 1.29 volts plus 2.57 plus 5.14, you'd find that the voltage in the entire circuit would actually not equal 9 volts. But because we're in a series circuit, that voltage is split between the three resistors.
