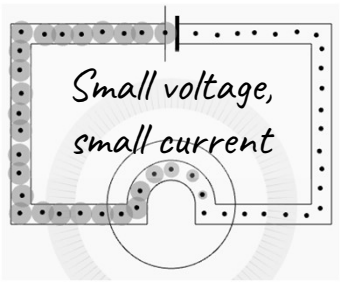
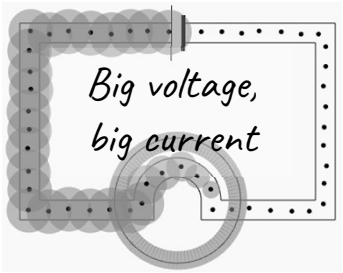
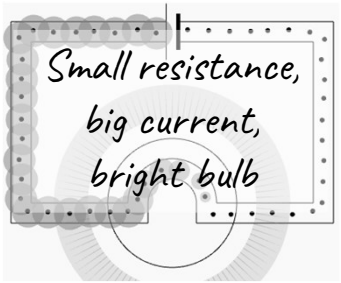
Voltage and current – big voltage -> big current





When you change the battery voltage the new currents and potentials are set up everywhere in the circuit at the same time.
If doubling voltage doubles current then the component obeys Ohm's Law.
Filament bulbs don't, but our simulation does to make the numbers easier.

Resistance and current – big resistance -> small current



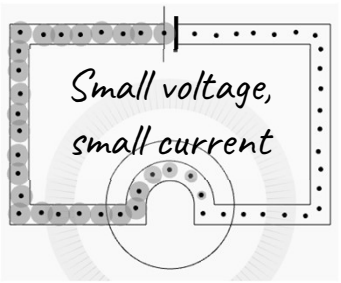
Pattern of potentials doesn't change

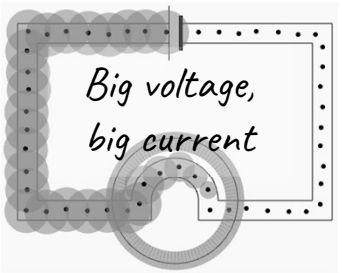
A big resistance is like a marble falling through syrup. A small resistance is like a marble falling through water.

Batteries keep their voltages constant, but change the current they provide depending on the resistance of what they're connected to.

The higher the resistance, the smaller the current and the less hard the battery works. Batteries don't work harder to try and 'overcome' the resistance - they just start giving up.

Voltage and current – big voltage -> big current





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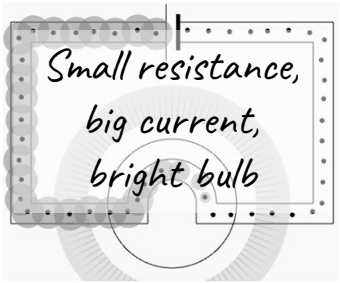
Resistance and current – big resistance -> small current



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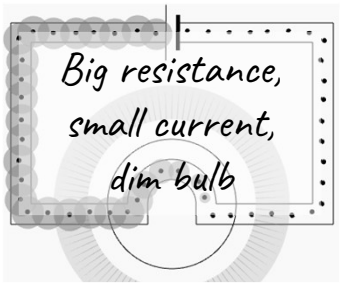

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