Source: [KBPhysicsMasterIndex]

1 | Circuits

First, some key vocab:

Current

Current is a measure for the flow of electrons. Think about it as "how much water goes through this arbitrary box on this river per second".

See [KBhPHYS201Current]

Resistance

Resistance is a measure of the restriction of electron flow (and hence decrease of voltage — the pressure of electrons), for instance, a lovely resistor.

[KBhPHYS201Resistance] Resistance

Rule of thumb:

- *current does change when resistors are parallel, current does not change when resistors are in sequence.*
- *voltage splits in half when encountering a parallel circuit, current splits, but not in half, based on the capacitance on each of the parallel circuits.*
- Multiples battries can't be solved with the combined resistor method
- So, first guess the current flow
    - Each batteries' current will flow back to itself
    - When currents meet, they will combine
- Use currents identified before + Kirkoff's second law
- Use Kirkoff's first law to find loops (and hence equations) that, together, **covers all components**
- If resulting currents is negative, that means that you drew the current in the wrong direction, or you are charging a battery
    - Either way, if the signs are preserved to solve the rest of the equation, you should be fine numerically
    - Just update your graph to reflect the actual currents' directions

LED longer leg is positive