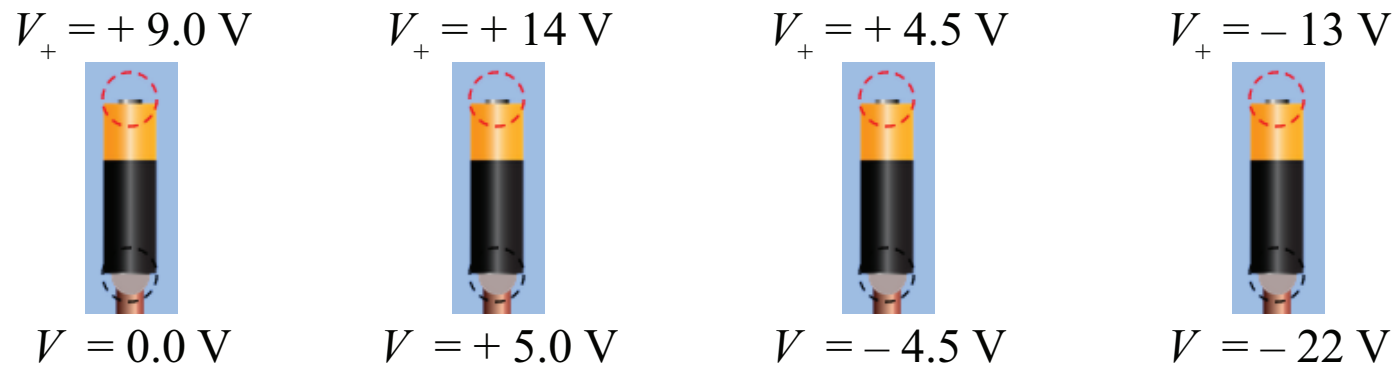


Unit 22 – Session 3

Let's recall a few things from before that will help us today:

- A battery is a source of constant electrical potential, $\Delta V_{battery} = V_+ - V_- = \text{constant}$.
The chemicals in the battery react to keep the potential difference the same between the two ends of the battery, regardless of what circuit is connected to it.
 - For all 4 batteries shown below, $\Delta V_{battery} = V_+ - V_- = + 9.0 \text{ V}$.



- A battery is **not** a source of constant current. The same battery connected to different circuits will not produce the same current in each circuit.
- A battery is what gives the charges potential energy.

- Completing a closed circuit gives the charges a path that allows them to move to lose their potential energy. This is what creates a current: a measure of how much charge goes past a location each second.
- The charges lose potential energy when they flow through the filament of a light bulb (an element with resistance).
- Wires have no resistance – the charges don't lose any of their potential energy when they flow through the wires. Wires are equipotential surfaces – the electrical potential is the same value everywhere on a continuous wire, and on all wires connected directly to each other.
- The charges gain back their potential energy when they flow through the battery.