

Electron Current vs. Conventional Current

In 1752, prior to electricity being identified with the electron, Ben Franklin chose a convention regarding the direction of current flow. Franklin assumed that positive charge carriers flowed from positive to negative terminals. We now know this is incorrect. In metals, the charge carrier is the electron whose charge is negative by definition (note negative sign): $(-1.6 \times 10^{-19} \text{ C})$

The flow of electrons is termed *electron current*. Electrons flow from the negative terminal to the positive. *Conventional current* or simply *current*, behaves as if positive charge carriers cause current flow. Conventional current flows from the positive terminal to the negative. Perhaps the clearest way to think about this is to pretend as if movement of positive charge carriers constituted current flow.

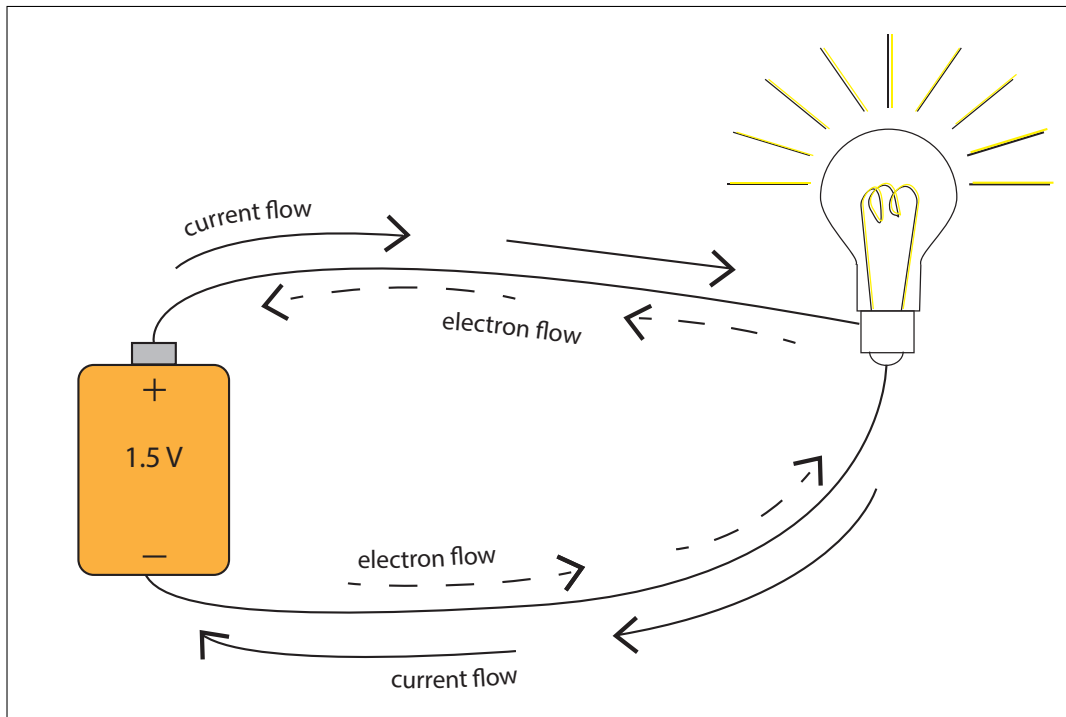


Figure 1: Electron Flow and Conventional Current Flow

It is important to realize that the difference between conventional current flow and electron flow in no way effects any real-world behavior or computational results. In general, analyzing an electrical circuit yields results that are independent of the assumed direction of current flow. Conventional current flow is the standard that most all of the world follows.