Answer #70466, Physics / Electric Circuits

Initially, scientists believed that the charge carriers are positively charged particles and the current flows from “+” to “-“.

On this “–“ was adopted as zero potential.

Later it was found out that in the conductors the charge carrier is the electrons and the current moves from “-“ to “+”.

but they decided not to change the principles of calculation.

When we develop or analyze an electrical circuit, for convenience, we equate one of the battery (or other power supply) contacts to zero.

Choice of zero is our decision, it’s necessary for understanding how currents flow in the circuit.

Usually a negative terminal is taken as the zero potential. And say that “+” has a higher potential with respect to zero.

Circuit can be complex and consist of several cascades.

To calculate several successive cascades, we need a point relative to which we will calculate.

It is called a ground (GND) and it equated to zero.

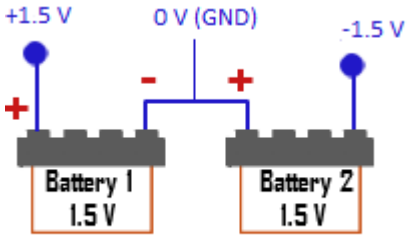
There are circuits for which it would be better to accept a positive terminal as GND.

But most often the scheme is simply represented as inverted.

Also there are circuits with three terminals +U, 0, -U. (0 – GND).

Potential difference of two batteries connected in series with central point

Then we say that the potential is +1.5 higher then 0, and -1.5 is lower then 0 (or GND).



Potential difference of two batteries connected with series is +3.0V higher then 0 (or GND).