

Lithium-ion: What is it?

How can lithium-ion technology power everything from cellphones to electric cars? Here's a quick explanation of the process.

A battery is made up of an anode, cathode, separator, electrolyte and two current collectors: positive and negative. The anode and cathode store the lithium while the electrolyte carries positively charged lithium ions from the anode to the cathode and vice versa through the separator.

The movement of the lithium ions creates free electrons in the anode, which creates a charge at the positive current collector. The electrical current then flows from the current collector through the device being powered, like a cellphone or laptop computer, to the negative current collector. The separator blocks the flow of electrons inside the battery.

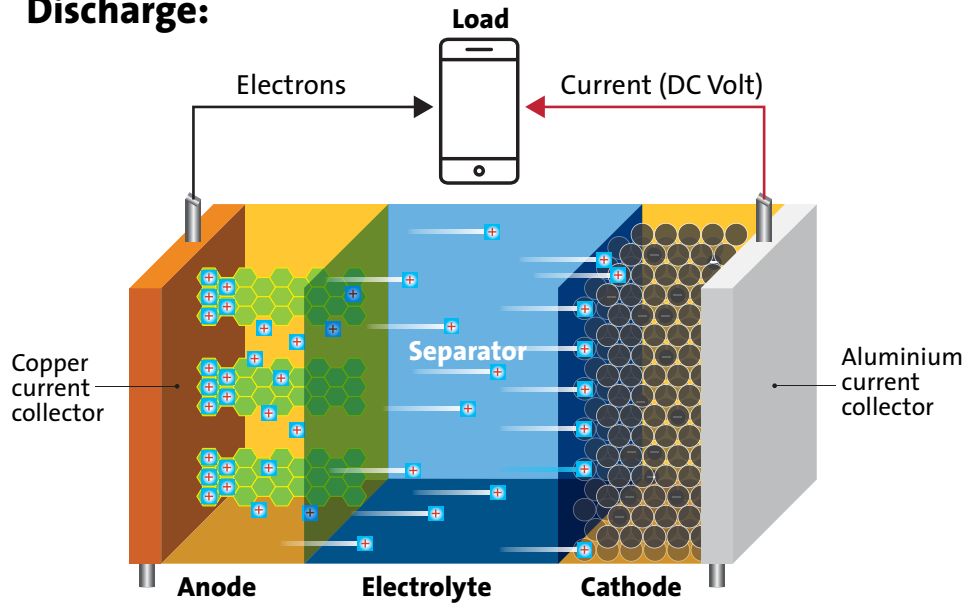
While the battery is discharging and providing an electric current, the anode releases lithium ions to the cathode, generating a flow of electrons from one side to the other. When the device is plugged into an electrical outlet, the opposite occurs: lithium ions are released by the cathode and received by the anode. 📱

Source: The U.S. Department of Energy

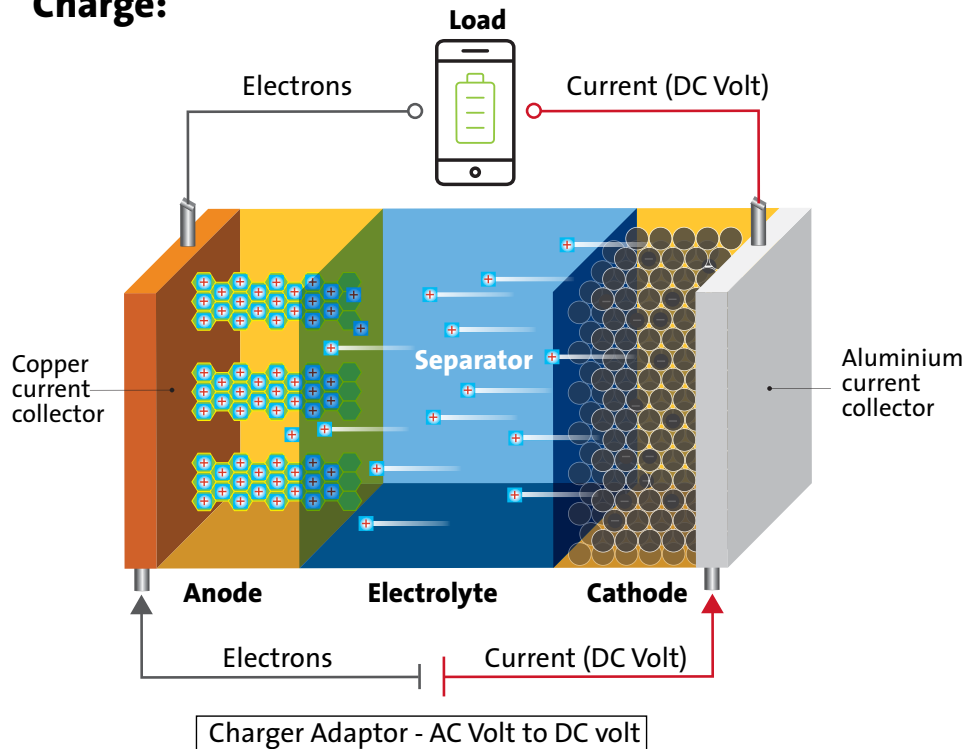
Lithium-ion rechargeable battery

(Discharge / Charge mechanism)

Discharge:



Charge:



Cathode	Anode	Cathode	Separator
Lithium Nickel Cobalt Oxide doped with Aluminium	Graphite	Solution of lithium salt	Thin sheet of micro-perforated plastic