



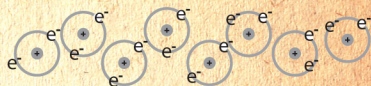
# IS FOR CHARGE

Charge is the electrostatic unit of electricity – A surplus or deficit of electrons relative to the number of protons in a material. The unit of charge is the Coloumb, which is equal to the charge of 6,240,000,000,000,000 electrons.

What makes a material a conductor or an insulator is the ability of its atoms to pass electrons between them. Picture the electrons in a good conductor as a cloud or gas within the material – they are only very loosely bound to one atom over another.

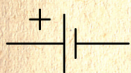


*A positively charged material*



*A negatively charged material*

Like charges repel each other and opposites attract, so if there is a collection of charge on a conductor, it will try to find a path by which it can expel or attract electrons to zero out its charge.



*A battery. Note the larger plate for the (+) terminal*

A battery combines chemicals as to generate excess electrons at the negative terminal, and a like deficit of electrons at the positive terminal. In general, materials (including earth ground) cannot accept or donate an unending supply of electrons, so the only way a battery or other DC supply can discharge is by finding a path between the positive and negative terminals



*A capacitor. Note the equal plate size.*

If you were to push a large number of electrons onto one side of a conducting plate, it would force a like number of electrons off a nearby plate. This is a capacitor, which are notable for being able to store and discharge large amounts of charge very quickly. Large capacitors must be treated with respect.