

### Types of Charging

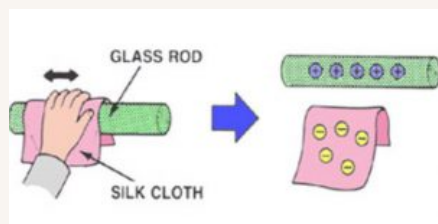
Charging by Friction

Charging by Conduction

Charging by Induction

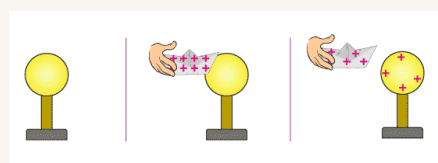
Charging by Polarization

### Charging by Friction



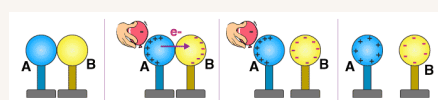
the transfer of electrons from one uncharged object to another by **rubbing** the two objects together. (Like hair and balloon)

### Charging by Conduction



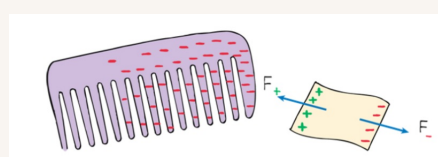
the transfer of electrons from one object to another by **direct** contact. (Like when you rub your feet on the carpet, but the charges move to your hands)

### Charging by Induction



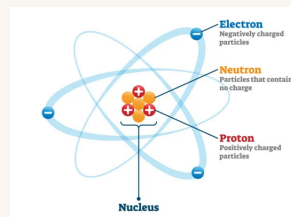
the transfer of electrons from charged object without touching the object itself (**indirect**). (Like When a computer monitor or television screen is turned on it begins to build up a charge)

### Charging by Polarization

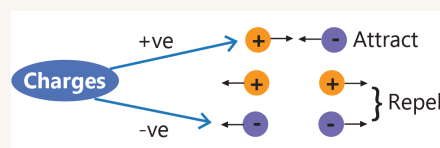


All the atoms or molecules near the neutral material become electrically polarized by **rearranging** when a charged object is

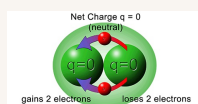
### Atom: smallest unit of matter



### Like charges repel, Unlike charges attract

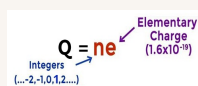


### Conservation of Charge



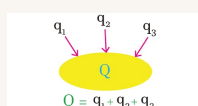
which means charge can neither be created nor be destroyed but can be transferred from one body to another

### Quantization of Charge



which means that charge is a quantized quantity and is expressed as integral multiples of the basic unit of charge

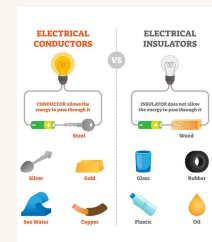
### Additivity of Charge



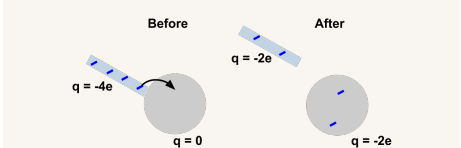
which means that if there are n number of charges present inside, The total charge present will be the algebraic sum of the individual charges

### Coulomb's Law

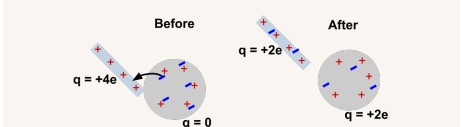
### Materials Connectivity



### How does an object get negatively charged?



### How does an object get positively charged?



brought close. (Like a charged balloon when it is stuck to the wall)

Diagram illustrating Coulomb's Law:

$$F = k \frac{Q_1 Q_2}{r^2}$$

Labels:

- $F$ : magnitude of the force
- $k$ : Coulomb's constant
- $Q_1, Q_2$ : product of the two charges
- $r^2$ : distance between the charges squared
- Unit of  $F$ : Newton [N]
- Unit of  $Q$ : Coulomb

### Electric Force vs Gravitational Force

Comparison of Coulomb's Law and Universal Law of Gravitation:

Coulomb's Law	Universal Law of Gravitation
$F_e = k \frac{Q_1 Q_2}{r^2}$	$F_g = G \frac{m_1 m_2}{r^2}$
Force between charges	Force between masses
Constant $k$	Constant $G$
Distance between charges squared ( $r^2$ )	Distance between objects squared ( $r^2$ )



By mohadsam96

[cheatography.com/mohadsam96/](https://cheatography.com/mohadsam96/)

Not published yet.

Last updated 12th October, 2022.

Page 1 of 2.

Sponsored by **ApolloPad.com**

Everyone has a novel in them. Finish Yours!

<https://apollopad.com>