Conduction and Induction

The fundamental charge that is found in nature is that of an electron, – 1.60 x 10-19 C, A proton also has this same amount of charge, 1.60 x 10-19 C. When objects are rubbed together, electrons will be transferred from one object to another, and they will remain on the object to which they were transferred. A rubber rod rubbed with wool will transfer electrons from the wool to the rubber, and there will be a lack of electrons left on the wool. The wool will have an overall, or net charge equal to the net negative charge deposited on the rod. This is the principle behind static electricity. The same reason you shock yourself on a door knob in the winter, or why your socks stick to the towels in the laundry.

If the rubber rod is now touched to an object that is suspended by a string, some of those negative charges on the rod will flow onto the new object unitl the charge on the rod and the new object are equal. This process of charging by touching is called **conduction**.

If the rubber rod is brought near an object without touching, the negative charges on the rubber rod will repel the electrons in the new object and the electrons will move to the opposite side of the object. The rubber rod’s negative charge will attract the now positive side of the object and there will be a noticeable force between the rod and the object. When I remove the rod from the area, the electrons will move back to their original positions on the object, and it will not be charged, This demonstrates the idea that charged objects can affect the space around them by creating what is known as an electric field.

If we bring a rubber rod close to an object, moving the electrons, and then we touch the object, the electrons will flow completely off of the object and when we remove our finger the new object will have a net positive charge, because we have removed electrons from it. This process is known as **Induction.** We have induced a charge on the object by bringing the rubber rod nearby, and then given the electrons on the object a path to the ground by touching.

See the following video for further explanation

[Conduction and Induction](https://www.youtube.com/watch?v=qN1Drrtc5eQ)

Or check this one out as well

[Conduction and induction](https://www.youtube.com/watch?v=lW8It9Z9jM4)