

# Frequently Asked Questions (FAQ)

## Basic Concepts of Electricity

Q: What is the definition of frictional electricity? A: Frictional electricity, also known as static electricity, is generated by the friction of substances upon each other and tends to remain on the surface of bodies without flowing in currents.

Q: What is the origin of the term 'electrified'? A: The term 'electrified' originates from the Greek word for amber, 'elektron', as amber was the first substance found to exhibit electrical properties when rubbed.

Q: What is the difference between static and current electricity? A: Static electricity generally stands still upon the surface of bodies and does not flow in currents, while current electricity involves the flow of electric charge through a conductor.

## Electrification and Conductivity

Q: What are conductors and non-conductors in static electricity? A: Conductors, such as iron, allow electricity to pass into the earth, while non-conductors or insulators, like glass and ebonite, do not conduct electricity away and can maintain a charge.

Q: What is the behavior of frictional electricity on conductors? A: Frictional electricity resides only on the outside of conductors. A hollow tin box can hold as much charge as a solid piece of metal of the same external size and shape.

## Types of Electrification

Q: What are the two kinds of electrification? A: There are two kinds of electrification produced by friction: positive, as with glass and silk, and negative, as with ebonite and flannel, denoted by the signs + and - respectively.

## Laws of Electrification

Q: What are the laws of electrification? A: The laws of electrification state that: (1) charges of the same kind repel each other, (2) charges of unlike kinds attract each other, and (3) either kind of a charge attracts and is attracted by a neutral body.

## **Electroscopes and Detection**

Q: What are electroscopes? A: Electroscopes, such as the pith-ball electroscope and the leaf electroscope, are used to detect the presence, relative amount, or kind of static electricity on a body.

## **Static Electric Machines and Devices**

Q: What is the electrophorus? A: The electrophorus is a simple device used to produce static electricity for experiments. It consists of two insulators and one conductor, and its action depends upon induction.

Q: What was the first electric machine? A: The first electric machine was a ball of sulphur on a spindle, which when turned by a crank and rubbed with hands or silk, produced electricity.

## **Frictional Electricity in Everyday Life**

Q: How can frictional electricity be observed from everyday activities? A: Frictional electricity can be observed in activities such as shuffling feet on a carpet, rubbing a cat's fur, heating and rubbing a piece of paper, or being near rapidly moving belts in a factory.

Q: What are some simple experiments with frictional electricity? A: Simple experiments demonstrating frictional electricity include shuffling feet on a carpet and touching someone to produce a spark, rubbing a cat's fur to see sparks, heating and rubbing paper to make it cling to a wall, and observing sparks near rapidly moving belts in a factory.

## **Historical Context of Electricity**

Q: What is the historical discovery of electricity? A: Electricity produced by friction has been known for over 2,000 years, with amber being the first substance to exhibit electrical properties when rubbed. The term 'electrified' comes from the Greek name for amber, 'elektron'.