615-3005 (10-095) Positive Negative Electroscope

Introduction: All atoms are naturally charged. This is because protons and electrons naturally carry a positive or negative charge. A stable atom usually has an equal number of protons and electrons, giving it a neutral charge. However, it is possible to transfer electrons from one atom to another. This occurs every day in nature, and is called *static* electricity. The effects of the atmosphere sliding over itself is sufficient to produce vast amounts of static electricity; lightning bolts are simply discharges of this energy.

Electroscopes are devices that respond to changes in static electricity. You will need to supply a 9V battery which is not included.

Electroscopes are a staple of scientific classrooms. Though static electricity is invisible most of the time, an electroscope can visually demonstrate a charge. Consider a standard leaf electroscope: as a charged object is brought near, the leaves move apart. This is a much better way of demonstrating static electricity than a simple discharge would be.

Our new positive negative electroscope takes the concept one step further. Instead of using silver foil or pith balls, this variant uses Light Emitting Diodes, or LED's. A transistor present inside the device responds to changes ion voltage. Most electroscopes are sensitive to a few hundred or thousand volts; due to the nature of the design, our LED electroscope will respond to only a few tens of volts. Simply rubbing a pen on your shirt several times is enough to affect the LED.

Description: Enclosed in a sturdy blue case, our LED electroscope is extremely accurate and exceptionally durable.

First, you will need to install a fresh 9V battery. Removed the four screws on the bottom of the unit to reveal the battery compartment. Install the battery by connecting it to the terminals. Makes sure it is fully seated in the compartment, and put the screws back in. The battery will have a long lifespan in the electroscope.

Leave the unit in an off position to start. Charge a rod or other object, and hold it within 10 centimeters of the brass antenna. Turn the unit on.

If the charge is negative, the green LED will illuminate. When you remove the rod, the red one will light up.

If the charge is positive, the red LED will light when you switch the unit on. When the charge is removed, the green LED will light up.

The center push button will reset the electroscope. The default mode for the LED's is the red LED is illuminated and the green LED is dark.

Warranty and Parts:
We replace all defective or missing parts free of charge. Additional replacement parts may be ordered toll-free. We accept MasterCard, Visa, checks and School P.O.s. All products warranted to be free from defect for 90 days. Does not apply to accident, misuse or normal wear and tear. Intended for children 13 years of age and up. This item is not a toy. It may contain small parts that can be choking hazards. Adult supervision is required.

615-3075 Electroscopes Kit: Detect and identify electrical charges and experiment with electrostatic induction. Includes: two foil leaf electroscopes with 250 mL flask; two ball terminals; ice pail; two disc terminals; instructions.

615-3090 Electrostatic Studies Kit: Make electricity by friction; store and transfer it; learn about electrophorus and proof plane. Includes: electrophorus with charge plate and handle; 6 friction rods, labeled; acetate and polyethylene cloth; proof plane with transfer ball; neon lamp; conductive ball with hook; pith balls; instructions

615-3085 Electrostatic Demo Kit: Charge electroscopes, show electrostatic attraction, duplicate Faraday's ice pail experiment and more! This kit contains everything needed for home or school study of static electricity. Includes: 2 electroscopes with flasks; 2 ball and disc terminals; Faraday cage; 6 friction rods, labeled; electrophorus with charge plate and handle; neon lamp; ice pail; acetate and polyethylene cloth; charge transfer ball; conductive ball; pith balls; mounted point; instructions.