eisco

Trust | Deliver | Learn

ELECTROSTATIC FRICTION ROD KIT

CAT NO. PH1120150

Experiment Guide

INTRODUCTION

This electrostatic kit provides the necessary tools to free both positive and negative charges for exploration into electrostatic forces. Students can experiment with different combinations of cloth and rod materials to explore how each manufactures charge carriers.

KIT CONTENTS

3 Cloth Squares (wool, cotton, silk)
3 Rods (glass, ebonite, Perspex)

GENERAL BACKGROUND

Perhaps you have walked across a carpet on a dry day and reached out your hand to touch a doorknob and received a small shock, or when separating your bed covers at night you've heard a crackle and seen the light glowing from under your covers as you pull them apart. If you have, then you've seen some consequences of a build-up of static charge. Static charge has been a fascination for humans at least since the 6th century B.C., which is the earliest written record we have of anyone investigating static charge. Thales of Miletus observed that amber (tree sap turned into stone) will attract other light objects such as feathers when rubbed. Thales was a Greek thinker who strived to use natural explanations for natural phenomenon. During the 6th century B.C. most natural phenomenon was explained by supernatural stories of gods warring or driving chariots across the sky.

SUGGESTED EXPERIMENT

Gather several lightweight objects such as small bits (~1cm x 1cm) of paper, balloons (inflated with air), strips of aluminum foil (~10cm x 2cm), feathers.

Take the rods and cloths given to you and see if you can get any of the lighter objects to stick to the rods and cloths by rubbing each of the cloths on each one of the rods and bringing it near the lightweight objects. Record your observations in a neat chart. Pay special attention to how the stickiness of the rods and cloths behave.

Name of object	What it was rubbed with	What it attracted after being rubbed

CRITICAL THINKING

1. Which of the light objects were attracted to the rubbed rods and cloths?

2. Did any combinations of rods and cloths work better than others to make the light objects become attracted to the rods and cloths?

3. Once an object was able to attract other objects, was it permanently able to attract other objects?

4. Which is stronger, the electrostatic force or the force of gravity? Use examples from your experiment to back up your claim.

TROUBLESHOOTING

Sometimes the weather conditions are not optimal to produce results that can be observed by the students. If you are having a difficult time getting charges on objects, here are some tips to try.

Plan to do static electricity experiments on a day with very low humidity. About 70% humidity or less is ideal.

Dry the air around the apparatus with a hot hair dryer before conducting experiments.

Make sure no apparatus is wet when in use.

Someone with sweaty palms will not be able to get a good charge on a charging rod. Use talcum powder to dry off hands and reduce moisture.

Manufactured by :
eisco
Trust | Deliver | Learn
www.eiscolabs.com

U.S. Distributor :
Eisco Scientific
850 St Paul St, Suite 15, Rochester, NY 14605
Website : www.eiscolabs.com