



Concept:

This demonstration verifies that electrical charge has two polarities, positive and negative. To predict the respective polarities of any two materials which have exchanged surface charge via friction (rubbing), we can refer to their relative ranking in what is known as the “triboelectric series” (see http://en.wikipedia.org/wiki/Triboelectric_effect). In this demonstration, two PVC rods are both negatively charged and exert a repulsive force on one another. A polycarbonate rod is then charged positive and is shown to attract the PVC rod.

Equipment:

1. (2) PVC Rods
2. Polyester Felt
3. Polycarbonate Rod
4. Pivoting Stand
5. Glass Rod (Not shown. Available upon request)

Procedure:

1. Vigorously rub the felt against the end of the PVC rod to give it a negative charge.
2. Balance the rod on the pivoting stand so it can rotate freely.
3. Rub the felt against the other PVC rod to give it the same charge.
4. Hold the charged end of the rod near the charged end of the rotating rod (without touching). Notice that they repel.
5. Now rub the felt against the polycarbonate rod to give it a positive charge.
6. Hold the charged end of the polycarbonate rod close to the charged end of the rotating PVC rod (without touching). Notice that now the charged ends attract.

Notes and Extras:

- Try and use the charged bag and/or felt to also attract and repel the charged rod.