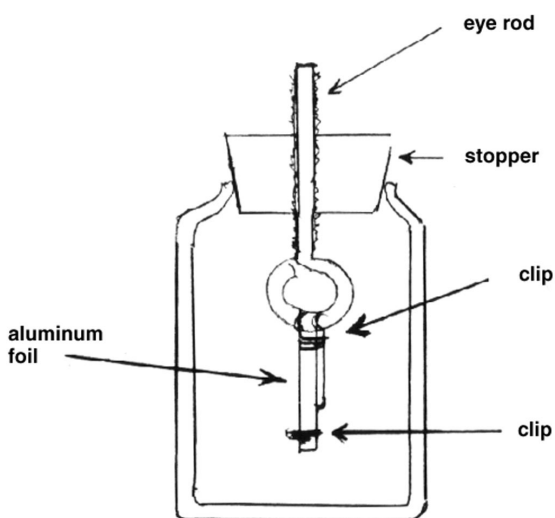


How to Construct an Electroscope

Materials. 2-qt. Mason jar, large rubber stopper with hole (to fit jar), eye rod (to fit snugly into hole in stopper), aluminum foil (thinnest grade available), small paper clips



Procedure. Place a smoothly cut sheet of foil on cardboard on a flat surface to use as a cutting board. Use a single edged razor and ruler to cut a $\frac{1}{4}$ inch by 6-in.-strip of foil. Fold the strip roughly in half (so the crease has length of $\frac{1}{4}$ in.) with one side of the folded strip about $\frac{1}{4}$ in. longer than the other. Mount the eye rod into the stopper so the hook end is on the narrower side of the stopper. Mount the aluminum foil leaves to hang over the hook as shown, with one leaf slightly lower than the other, and carefully use a small clip to crimp the leaves together just below the hook. Attach a second clip as a weight carefully to the end of the lower lying leaf so that the leaf will tend to hang vertically. The clip should be below the lowest point of possible contact with the un-weighted leaf. Carefully rub your finger along the pair of leaves as they rest on the flat table top to get them to lie as closely on top of one another as

possible when hanging freely, and be sure the small irregularities from cutting are not holding the two parts locked to each other at any point, as tends to happen. Some careful bending and adjustment of the un-weighted leaf may be needed to get it to hang smoothly and freely as close as possible to the weighted leaf. Carefully insert the mounted assembly into position with the stopper now in the mouth of the jar. Test the apparatus to be sure the leaves separate properly when a charged rod is brought nearby.

Other possible constructions of an electroscope are possible. The kind of electroscope described here would normally be commercially manufactured using, not aluminum foil, but gold leaf, since gold is extremely malleable and can be hammered into extremely thin sheets. Moreover, some well constructed commercial electroscopes can be calibrated and used in quantitatively measuring the charge deposited on them. The less elaborate homemade electroscope described here can be constructed from materials easily purchased in any hardware store. If a commercially-made electroscope is available, it will probably function more sensitively, and should be used in preference. Keep in mind that all electroscopes vary in their sensitivity, and with the homemade version some experience will be needed in testing its sensitivity before using it further.