

**Activity – Charging by Induction****Purpose:**

To determine what kind of charge is induced on a neutral object when it is approached by a charged object.

**Background:**

Use your text on pg. 407 to explain what charging by induction is. Put your answer in the space provided.

**Charging by induction:**

a charged object induces (does not touch) a charge in a neutral object and then ground the neutral object so it remains charged


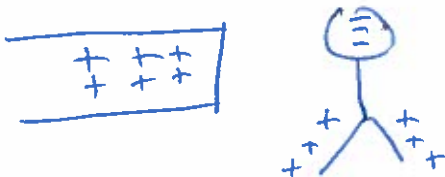
**Materials:** metal-leaf electroscope  
vinyl strip (opaque)  
acetate strip (clear)  
paper towel

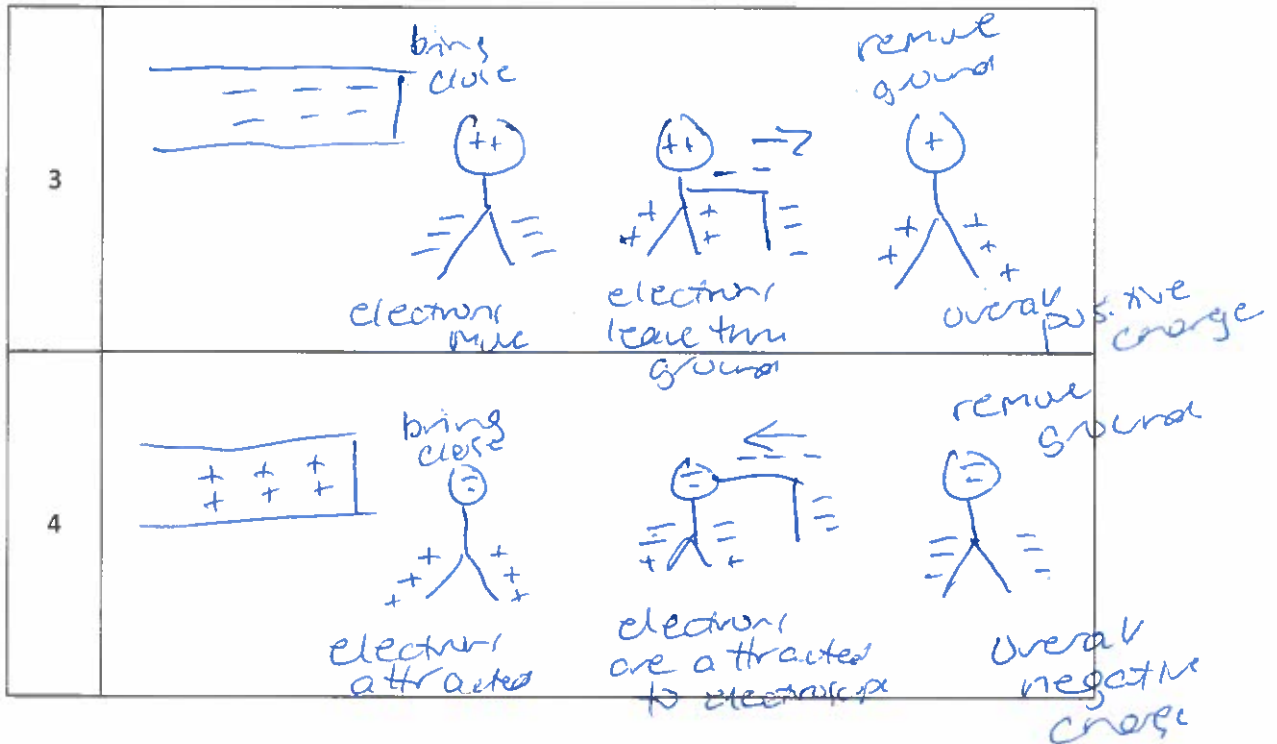
**Procedure:**

1. Move a negatively charged polyethylene strip toward and then away from the metal-leaf electroscope. Do this several times. Record observations.
2. Repeat step 1 using a positively charged acetate strip. Record observations.
3. Move a negatively charged polyethylene strip toward the grounded metal-leaf electroscope (do not touch the electroscope). With the charged strip close to the metal ball remove the ground and then remove the strip. Record observations.
4. Repeat step <sup>3</sup> using a positively charged acetate strip. Record observations.

**Observations:**

Your observations should be diagrams with a brief explanation.

Step	Observations
1	
2	



**Analysis:**

1. Compared to the original strip, what kind of charge was temporarily induced on the leaves of the electroscope in steps 1 and 2?

same charge

2. Compared to the original strip, what kind of charge was permanently induced on the electroscope in steps 3 and 4?

opposite charge

3. Why did you have to remove the ground first before you moved the strip away?

- the attraction / repulsion of electrons (movement of electrons) would stop if you removed the strip first