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 inducti	ion:		

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 metalleaf 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 <u>grounded</u> 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 2 using a positively charged acetate strip. Record observations.

Observations:

Your observations should be diagrams with a brief explanation.

Step	Observations
1	
2	

	3	
	4	
An	alysi	s:
	1.	Compared to the original strip, what kind of charge was <u>temporarily</u> induced on the <u>leaves</u> of the electroscope in steps 1 and 2?
	2.	Compared to the original strip, what kind of charge was <u>permanently</u> induced on the <u>electroscope</u> in steps 3 and 4?
	3.	Why did you have to remove the ground first before you moved the strip away?