

Charging by Conduction and Induction Lab

Purpose: To investigate in the lab charging by induction and conduction



Prelab

- Using the electrostatic series, determine the charge of:
 - An ebonite rod if it is rubbed with wool. Ebonite rod will have a _____ charge.
 - A glass rod if rubbed by plastic. Glass rod will have a _____ charge.

Materials

Pith Ball
Ebonite Rod

Glass Rod
Wool

Plastic

Method

PART 1

- 1) Rub an ebonite rod with wool so that it's charged.
- 2) Bring the charged ebonite rod close but DO NOT let it touch the pith ball.
- 3) Observe the reaction of the pith ball. Based on the reaction of the pith ball, what charge would it appear to have? Record this in your observation chart.
- 4) TOUCH THE PITH BALL WITH YOUR HAND TO NEUTRALIZE IT.

PART 2

- 1) Rub an ebonite rod with wool so that it is charged,
- 2) TOUCH the pith ball with the charged ebonite rod. Charge the ebonite rod again and bring it close to the pith ball.
- 3) Observe the reaction of the pith ball. determine the charge of the pith ball at this time based on its reaction to the charged ebonite rod. Complete your observation chart.
- 4) TOUCH THE PITH BALL WITH YOUR HAND TO NEUTRALIZE IT.

PART 3

- 1) Rub a glass rod with plastic so that it is charged.
- 2) Bring the charged glass rod close but do not touch the pith ball.
- 3) Observe the reaction of the pith ball. Based on the reaction of the pith ball, what charge would it appear to have? Complete your observation chart.
- 4) TOUCH THE PITH BALL WITH YOUR HAND TO NEUTRALIZE IT.

PART 4

- 1) Rub a glass rod with plastic so that it is charged.
- 2) Touch the pith ball with the charged glass rod. Charge the glass rod again and bring it CLOSE to the pith ball.
- 3) Observe the reaction of the pith ball. Determine the charge in the pith ball at this time based on its reaction to the charged acetate strip. Complete your observation chart.
- 4) TOUCH THE PITH BALL WITH YOUR HAND TO NEUTRALIZE IT.

Observations: Complete the following Chart

Situation	Observation	Charge Pith Ball Appears to Have (positive or negative)
Part 1: Charged ebonite rod brought close to pith ball		
Part 2: Charged ebonite rod touched pith ball and then brought close		
Part 3: Charged glass rod brought close to pith ball		
Part 4: Charged glass rod touches pith ball and then brought close		

Conclusion:

- 1) When a negatively charged object is brought close to a neutral object, the neutral object is _____ the charged object. (Part 1)
repelled from *or* attracted to
- 2) When a positively charged object is brought close to a neutral object, the neutral object is _____ the charged object. (Part 3)
repelled from *or* attracted to
- 3) Therefore, when any charged object is brought close to a neutral object, the neutral object will be _____ the charged object.
repelled from *or* attracted to **This is charging by induction.**
- 4) When a negatively charged object touches a neutral object, the object become _____ charged. (Part 2)
negatively *or* positively
- 5) When a positively charged object touches a neutral object, the object becomes _____ charged. (Part 4)
negatively *or* positively
- 6) Therefore, when any charged object touches a neutral object, the neutral object get the _____ charge as the charged object has.
negatively *or* positively **This is charging by conduction.**