Name:_____.

Investigation: Charging by Contact

In this investigation, you will use a pith ball apparatus to determine the kind of charge transferred from one object to another.

Question

How can we determine the kind of charge transferred to a neutral object when a charged object touches it?

Prediction

(a) Use the laws of electric charges to predict what kind of charge is transferred from each object to a pith ball apparatus.

_____.

_____.

_____.

Observations

Record your observations in the table below.

Action	Observations
Charged ebonite rod brought close to, but not touching, the pith ball.	
Charged ebonite rod touches the pith ball and then brought close.	
Charged Lucite rod brought close to, but not touching, the pith ball.	
Charged Lucite rod touches the pith ball and then brought close.	

Analysis and Conclusion

(b) Write a statement about the transfer of electric charge when the pith is touched by a negatively charged object.

_____.

_____.

(c) Write a statement about the transfer of electric charge when the pith is touched by a positively charged object.

_____.

_____.

(d) Ideally the pith ball is repelled by the charged ebonite rod after being touched. With the aid of a labeled diagram, use your knowledge of electrostatics to explain why this happens.

(e) Ideally the pith ball is repelled by the charged Lucite rod after being touched. With the aid of a labeled diagram, use your knowledge of electrostatics to explain why this happens.

(f) Write a statement to compare the movement of electric charges in the ebonite rod and the Lucite rod.

_____.

_____.

_____

Making Connections

1. If your hands were negatively charged and you touched a neutral doorknob, in which direction would the negative charges move? Explain your answer.

_____.

_____.

2. How do you think charging by contact could be used to paint a car?

_____.

_____.

3. State some safety precautions that you should take if caught outside in a lightning storm.

_____.

_____.

_____.

_____.

4. Use the table below to predict what would happen if two pith ball apparatuses were charged and brought close together. (If there is time, try this.)

Pith balls	Prediction
Charged alike	
Oppositely charged	
One is charged and the other is not	