

## Electroscope Investigation

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### Electroscopes

- An instrument used to detect charge by attraction or repulsion of metal leaves.
- When metal leaves are hanging loosely, this tells you that the charge detected is \_\_\_\_\_.
- When metal leaves move apart, this tells you that the charge detected is either \_\_\_\_\_ or \_\_\_\_\_.
- Electrons can move freely through an electroscope because metal are \_\_\_\_\_.



### Making a *temporary negative charge* by induction

#### Procedure

1. Rub ebonite rod with fur.
2. Hold ebonite rod near the ball of the electroscope. **Do Not Touch the Ball!**
3. Remove the ebonite rod.

#### Questions

1. What is the charge on the ebonite?
2. What happens to the electrons in the sphere?

Draw the charges on the electroscope when the rod is next to the ball.

3. What is the charge on the metal leaves? How do you know?

### Making a *temporary positive charge* by induction

#### Procedure

1. Rub acetate rod with silk.
2. Hold rod near the ball of the electroscope. **Do Not Touch the Ball!**
3. Remove the rod.

#### Questions

1. What is the charge on the acetate?
2. What happens to the electrons in the electroscope?

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Draw the charges on the electroscope when the rod is next to the ball.

3. What is the charge on the metal leaves? How do you know?

### **Making a *permanent negative* charge by contact**

#### **Procedure**

1. Rub ebonite rod with fur.
2. Touch the rod to the ball of the electroscope.
3. Remove the rod.

#### **Questions**

1. What is the charge on the ebonite?
2. What happens to the electrons between the rod and the electroscope?

Draw the charges on the electroscope when the rod is touching the ball.

3. What is the charge on the metal leaves? How do you know?

### **Making a *permanent positive* charge by contact**

#### **Procedure**

1. Rub acetate rod with silk.
2. Touch the rod to the ball of the electroscope.
3. Remove the rod.

#### **Questions**

1. What is the charge on the acetate?
2. What happens to the electrons between the rod and the electroscope?

Name: \_\_\_\_\_

Date: \_\_\_\_\_ Page: \_\_\_\_\_

Draw the charges on the electroscope when the rod is touching the ball.

3. What is the charge on the metal leaves? How do you know?

## Making a *permanent positive charge* by induction & grounding

### Procedure

1. Rub acetate rod with silk.
2. Bring the rod next to the ball of the electroscope. **Do Not Touch the Ball!**
3. "Ground" by touching the ball with your finger without moving the rod away.
4. Remove your finger.
5. Remove the rod.

### Questions

1. What is the charge on the acetate?
2. What happens to the electrons in the electroscope when the rod is next to it?
3. What happens to the electrons when you touch the ball?
4. What is the charge on the metal leaves after removing the rod? How do you know?

Draw the charges on the electroscope after grounding.

### Charging by Induction

- The close presence of a strongly charged object will cause \_\_\_\_\_ to redistribute themselves in a nearby neutral object.

### Charging by Contact

- The same \_\_\_\_\_ is transferred to a neutral object by being touched with a \_\_\_\_\_ object.