

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

**PHYSICS: ELECTRICITY & MAGNETISM**  
**Activity: Charges and Static Electricity**

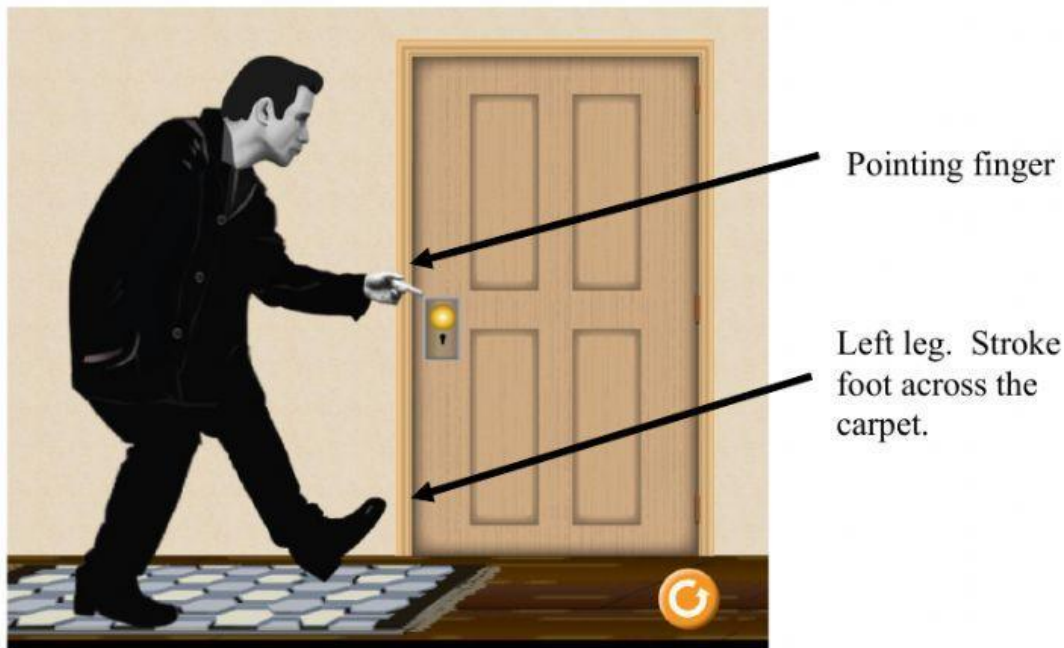
**Part 1: PHET John Travoltage Static Electricity**

Go to the PHET John Travoltage simulation

[https://phet.colorado.edu/sims/html/john-travoltage/latest/john-travoltage\\_en.html](https://phet.colorado.edu/sims/html/john-travoltage/latest/john-travoltage_en.html)

**Instructions**

1. Grab his pointing arm. Rotate the arm such that his hand/finger points towards his head.
2. Grab his left foot. Repeatedly stroke his foot back and forth across the carpeted floor (10-20 times).
3. Move his hand/finger towards the doorknob.
4. Repeat instructions 1-3, and do the simulation again.
5. Observe what happens to his body and to the doorknob. Write your answers in the spaces provided.



A. What happened to John Travoltage's body when his foot was stroked across the carpet?	
B. What happened the carpet as John Travoltage's foot was stroked across the carpet?	
C. Which type of static electricity was made when John's foot was moved back-and-forth over the carpet?	
D. When he pointed his finger at the doorknob, what happened?	
E. Why did the electricity flow into the doorknob? (what is the doorknob made of?)	

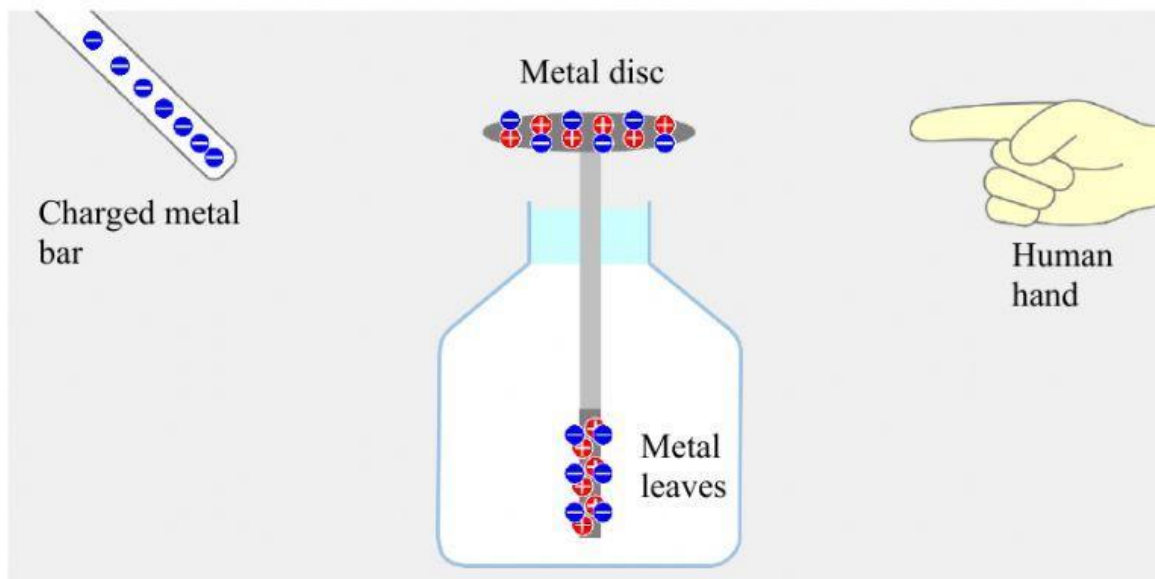
## Part 2: JavaLab Electrostatic Simulator

Go to the JavaLab Electrostatic Simulator

[https://javalab.org/en/electroscope\\_en/](https://javalab.org/en/electroscope_en/)

### Instructions

1. Set the metal bar to be "charged with negative (-)". The metal bar on the left will be loaded with negative charges (-).
2. The electroscope will be in the center of the field. The disc at the top will be electrically-neutral, equal number of positive and negative charges. The metal leaves inside the sealed jar of the electroscope will be electrically-neutral, equal number of positive and negative charges.



3. Grab the charged metal bar. Move it to the metal disc at the top of the electroscope. Observe what happens to the charges in the metal disc. Observe what happens to the charges in the metal leaves inside the jar.
4. Move the charged metal bar away from the electroscope. Observe what happens to the charges in the metal disc and in the metal leaves.
5. Repeat steps 3 and 4 a few times. Observe the charges and observe the metal leaves.

A. When the negatively-charged metal bar <b>was very close to the metal disc</b> , what happened to the charges in the metal disc?	
B. When the negatively-charged metal bar <b>was moved away from the metal disc</b> , what happened to the charges in the metal disc?	

C. What happened to the position of the metal leaves inside of the jar when the negatively-charged metal bar was moved close to the disc on top of the electroscope?	
D. Why did the leaves move apart?	