

# Investigating Static Electricity Worksheet

## A. Sticky Charges

Tape Treatment	Observations
Tape Pieces Side by Side	
One Piece of Tape on Top of the Other	

### Post-Lab Questions

- Consider the charged pieces of tape that were created when both were removed side by side from the work surface.
  - What type of charges (like or unlike) did this first treatment produce on the pieces of tape?
  - Why do you think this happened?
- Consider the charged pieces of tape created when one was on top of the other and then pulled apart.
  - What type of charges (like or unlike) did the second treatment produce on the pieces of tape?
  - Why do you think this happened?

## B. The Mysterious Moving Board

Action	Observations
Uncharged Rod Near Corner of Board	
Charged Rod Near Corner of Board	
Charged Rod Near Opposite Corner of Board	
Charged Silk Cloth Near Corner of Board	

### Post-Lab Questions

- Refer to the triboelectric series chart from the *Background* section.
  - What type of charge did the Lucite rod have after it was rubbed with the silk cloth?
  - What type of charge did the silk cloth have?
- Consider the wood board in this activity.
  - During this activity, was the overall charge on the wood board positive, negative, or neutral?
  - Explain your answer.
- Propose an explanation for the motion of the wood board during all parts of this activity.

## C. Ready, Set, Charge!

Charge Method	Observations
Induction	
Conduction	

### Post-Lab Questions

- The drinking straw is made of a type of polypropylene plastic. Refer to the triboelectric series in the *Background* section.
  - Determine the type of charge the straw accumulated after it was rubbed with rabbit fur.
  - After the pith balls were charged by induction, what charge (positive or negative or one of each) was on the sides of the pith balls facing each other?
  - After the pith balls were charged by conduction, what charge did the pith balls carry?
- Explain why the pith balls immediately “fly away” from the charged straw after making contact.

## D. Curving Water

### Observations

Describe what happens to the stream of water as it flows past the charged comb.

### Post-Lab Questions

- Refer to Figure 4 in the *Background* section.
  - Which atoms in the water molecules tend to be more negative?
  - Which tend to be more positive?
- Why is the water stream affected by an external electric charge?

### Going Further *(Answer on a separate sheet of paper.)*

- Often when clothes are taken out of a dryer, certain items (e.g., a nylon sock and a polyester shirt) cling together. Explain why this happens.
- A student stood under a plastic playground slide as other students slid down the slide. Over time, the hair on the student under the slide began to “stand up” toward the underside of the slide. Explain why this occurred.
- A balloon is charged by rubbing it with a piece of rabbit fur. The balloon is then placed against a wall and it sticks. Explain why the balloon stuck to the wall, even though the wall was not charged.