Electrostatics-Low Prep Balloon Labs

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Directions

- 1) Set up lab stations
- 2) Separate students into groups of 2-4 students
- 3) Students spend 4-5 minutes at each station.
- 4) Students perform the experiment and then model their findings and describe what happened.
- 5) At the end of the lab stations, students can create CER's for each situation: charged vs. charged, charged vs. neutral and charged vs. water for an assessment

Notes and Helpful Hints

- Humidity affects these electrostatics labs. Check your humidity for the day. Over 60% will make some more difficult to do.
- Make sure students are charging on their hair, yarn, felt or wool. Hair works the best!
- Make sure balloons are blown up the maximum amount.
- Replace balloons daily or halfway through the day (if they are being used more than 3 times in a day)
- All balloons should be wiped down with a damp paper towel and dried between each station.
- If you have a Van De Graaff it is great compliment to these stations. It will provide additional evidence for their CERs.

Balloon Labs

Materials Needed:

- 9 Balloons blown up to maximum (replace daily)
- □ Yarn, felt, wool, etc.
- Plastic band from plastic bag (halo)
- Hole Punch scraps
- Plastic Ruler (optional)
- Salt and Pepper
- 🖵 Sink
- Bubbles
- Ping Pong Ball and/or empty soda can
- □ Foil, Streams, scrap paper, etc.

- Place 15-20 scraps of paper from a hole punch on the table.
- Charge a balloon or plastic ruler for 1 minute.
- Bring the balloon or plastic ruler close to the hold punches.
- Observe the effect the ruler has on the scraps of paper.

- Charge the balloons for 1 minute.
- Place the balloons next to each other without touching them together.
- Observe the interaction of the balloons.
- Now only charge 1 balloon and bring them close together. Observe.

- Charge the balloon for 1 minute.
- Bring the charged balloon near the salt. Observe what happens
- Bring your charged balloon near the pile of salt and pepper particles.
 Observe what happens.
- Wipe of the balloon with a wet paper towel and dry.

- Charge the balloon for 1 minute.
- Turn on a faucet so a thin, steady stream of water comes out.
- Bring the balloon near the stream of water, but not touching. Observe.

- Charge the balloon for 1 minute.
- Place a ping-pong ball or soda can on a level surface such as a table.
- Bring the charged balloon near the ping-pong ball and/or soda can.
 Observe.

Station 6

- Charge a balloon.
- Bring the balloon close to each object that is laid out (yarn, string, aluminum, otc)
 - etc.).
- Observe what you notice.

Modeling Assessment

- You charge a balloon for 1 minute. You are given a plastic bag "halo", hold it above the balloon and drop it. What will happen?
- Create a model to show what will happen.
- Use 1-2 labs from the Balloon stations and/or VDG to defend your claim.