



# Join ACM's S.T.E.A.M. Team!

## Static Electricity Challenge!

### Plan – Design – Make – Test – Evaluate

#### This Week's Challenge:

*Be a scientist: Can you design and create an experiment that involves static electricity?*

First, try this experiment and then, using materials around your home (ask permission first), plan, design and create a new experiment!

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Choose from for this list of materials for the first experiment (you do not need them all):

Balloon  
Hair Comb  
Pen  
Straw  
Small PVC pipe  
Wool sock or sweater  
Your own Head of Hair

Low stream of water  
Empty soda Can  
Rice Krispy Cereal  
Dry Jell-O Powder  
Ground Pepper  
Light-weight silk fabric  
Glitter

#### Instructions:

1. Charge an item (balloon, comb, PVC pipe, or pen) by rubbing it with a wool cloth or on your hair.
2. Run a slow stream of water from a sink faucet
3. Slowly place the charged item next to the stream of water (be careful not to make contact). What happens?
4. Now, set the empty soda can on its side on a flat, level surface so it is still.
5. Charge one of the items again, and slowly place it next to the can. What happens?

#### Plan & Design: Now it's time to design your own experiment:

1. Will you work alone, or collaborate with others to design your experiment?
2. What happens if you choose other items to be charged?
3. What happens if you use something else to charge the item?
4. Change only one thing at a time, then test and record the results.
5. What materials will you choose?

### Once created, put your design to the test!

#### Test:

1. As with our first experiment, you will need to charge an item. Did your item become charged? How do you know?
2. Did the other object move? Why or why not?

## Evaluate:

1. What factors affect your results?
2. Do you need to make any changes? If so, redesign your experiment and try again.

Extend an invitation for at least one other person to participate in your experiment (adult or child)

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## Is it magic or is it science? Here's why it works:

Through science (not magic), we've learned that all matter is made of positive and negative charges; charges that are the same push away from each other and opposite charges attract (we call that static electricity). When you rub the balloon on the sweater, you create extra negative charges on the balloon or pipe. When the charged balloon is brought near the water, the positive charges in the water are attracted to the extra negative charges on the balloon.

*What other ways can you create static electricity?*

*Look around your house ... be a scientist: predict, experiment, test and observe!*

***Don't forget to share your photos!!***



***Next time you're at the museum, visit our Little Monster Maker Space and explore!***

***Want to try more experiments like this one? Sign up for one of our S.T.E.A.M. Team Saturday Workshops!***

<https://akronkids.org/calendar/programs>