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Name: _____

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Unit: Electrical Engineering Board Game Challenge Lesson 2: Electric Forces & Fields

Find 2-3 reliable websites with information on the topics listed below.

Topic	Resource	Notes
Free Electrons		
Electric Charges		
Electric Forces		
Static Electricity		
Current Electricity		



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Modeling Electric Charges, Attractive and Repulsive Forces, & Electric Fields:

Think-Pair-Share: Take a few minutes to individually think about and write a response to the questions below. Then pair up with someone and discuss your ideas. Listen to your partner's ideas. Be prepared to share with the whole group.

Questions:

1. How are free electrons, or charges, affected by electric forces?
2. How did the class model this interaction using the electric charge labels?

Write and draw your ideas in this space.

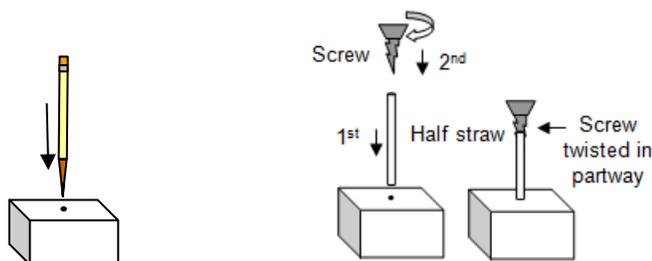
Name: _____

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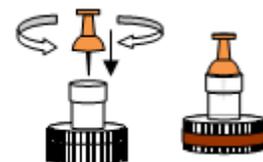
Follow the instructions below to assemble the Static Merry-Go-Round

How to build it:

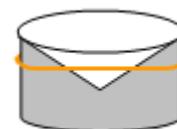
1. Make a small hole in the foam block with a pencil. Insert a half straw into the hole until the straw stays upright.
2. Twist the screw halfway into the top of the straw.



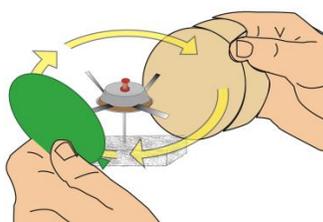
3. Position the tip of a pushpin over the center of the sports cap (right). Slowly push and twist the pin into the cap.
4. Place the thick rubber band around the sports cap.
5. Position the Mylar strips evenly around the sports cap and bend them just above the rubber band.



6. Put the fabric square over the soft foam piece, letting the corners hang over the sides. Place a thin rubber band over the corners to secure the fabric to the foam (right).
7. Put the sports cap onto the top of the screw so that it is balanced (above right). Spin the sports cap, adjusting as necessary.
8. Inflate and tie the balloon.
9. Rub the fabric and balloon together and then position them on opposite sides of the merry-go-round as shown below.



10. Try rubbing the fabric on different materials and observe the effect on the static merry-go-round. Which materials appear to produce the greatest charge imbalance? What does this mean in terms of the strength of the static electric field produced by each pair of rubbed materials? Record Your observations.





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Write and draw your observations for the different materials you rub together and test using the Static Merry-Go-Round.

Record your observations

First Material Used:

Example: Party Balloon, green

Effect on device (relative force strength):

2nd Material Used:

Example: Plastic container, opaque

Effect on device (relative force strength):

3^d Material Used:

Effect on device (relative force strength):

Hypothesis: Formulate your own hypothesis on the existence of static electric fields that can be investigated for future research.