



Revision

LAW OF ELECTRICAL CHARGE

Experiment n 1: Let's get some ATTRACTION!!!

What do you need?

- A balloon
 - Wool cloth (scarf, pullover ...)
 - Pieces of paper,
 - hair,
 - wall,
 - soap bubbles
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What do you need to do?

- Blow up, tie and straighten the balloon.
 - Rub the balloon with the wool cloth.
 - Put the balloon close to the pieces of paper, to the hair to the wall and to the soap bubbles.
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What do you notice?

- The balloon attracts everything
 - Only where it's rubbed the balloon is charged
 - After a while the "charge effect" disappears
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HOW does it happen?

- Why does the balloon stick to the wall when you rub it? Why does it attract the soap bubbles?
- Let's see a simulation

https://phet.colorado.edu/sims/html/balloons-and-static-electricity/latest/balloons-and-static-electricity_en.html

Benjamin Franklin

- Benjamin Franklin did the same experiment with a glass tube and a silk cloth. With this experiment he discovered positive and negative charges.

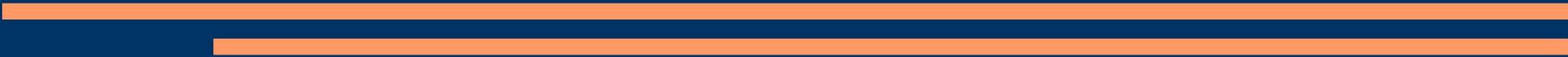
Experiment n2 REPULSION!!!

What do you need?

- A balloon
 - Wool cloth (scarf, pullover ...)
 - soap bubbles
 - A plastic bag shaped like a jellyfish
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What do you need to do?

- Blow up, tie and straighten the balloon.
- Rub the balloon with the wool cloth (as we did in the previous experiment)
- Rub the jellyfish bag, throw it in the air and put underneath the balloon. See what happen.

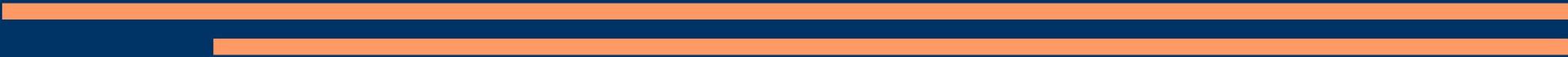


What do you notice?

- To charge the jellyfish bag you need to rub it with the wool cloth.
 - The tentacles repel each other
 - After a while the "charge effect" disappears.
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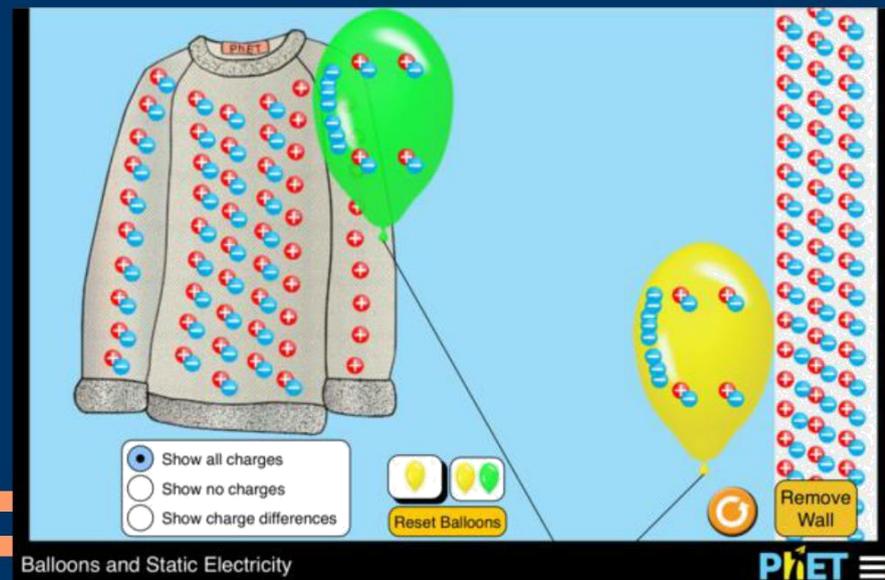
Why does the jellyfish bag float in the air?

- Stephen Gray did this experiment with a feather. He discovered that **when the objects have the same charge they repel each other**. When they have opposite charges they attract each other.

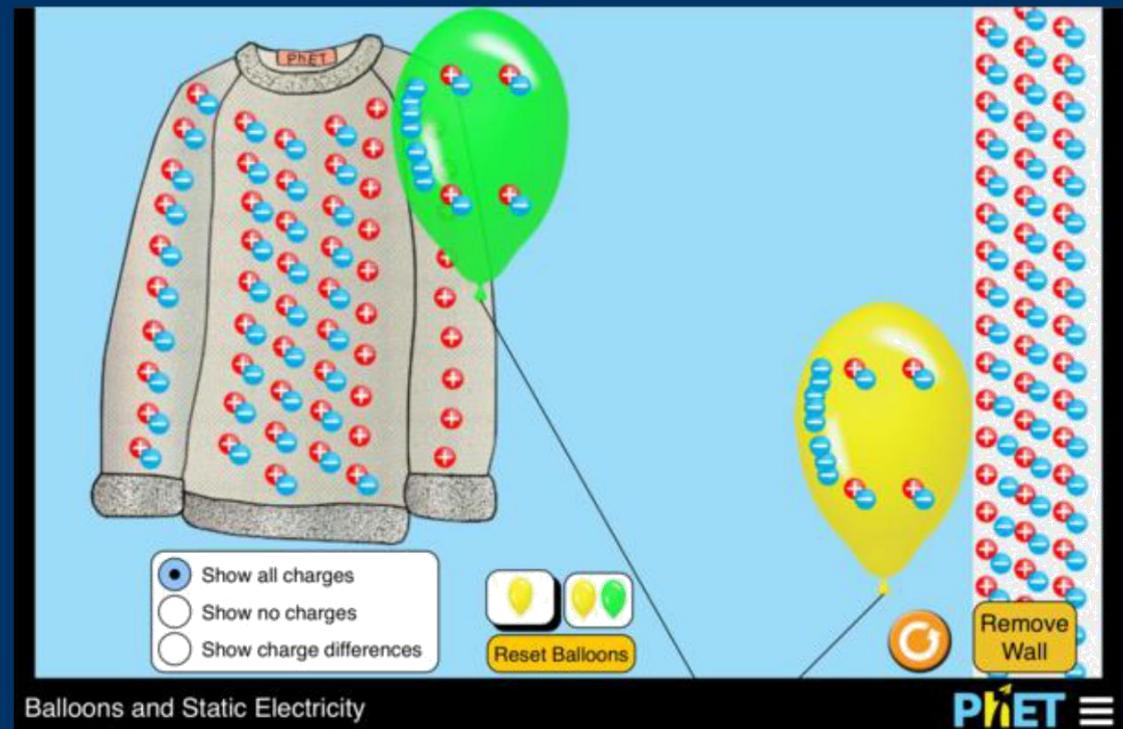


Let's sum up.

- Everything is made of charges mixed together
- when we rub the balloon a certain number of negative charges (-) pass from the wool to the balloon, leaving the wool with an excess of positive (+) charges and the balloon with an excess of negative (-) charges.



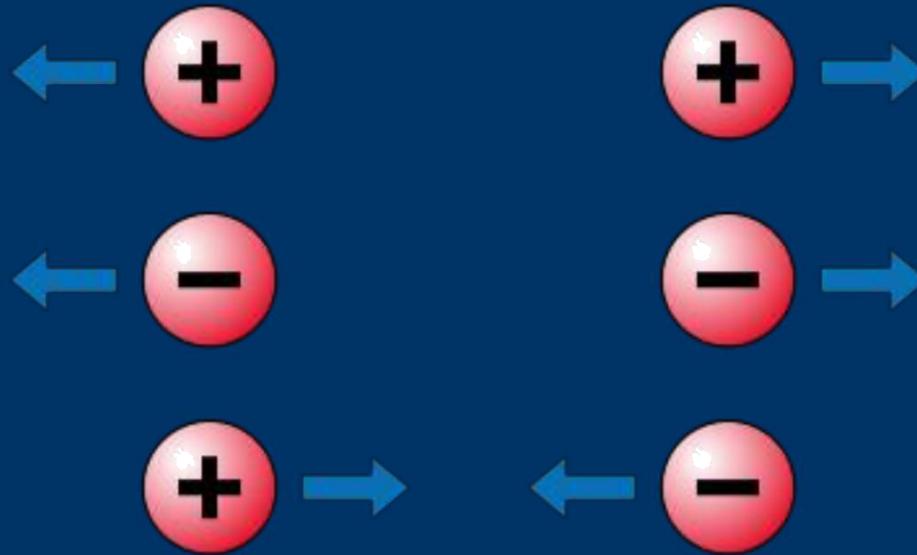
- So at the end, the wool will have more positive charges and the balloon will have more negative charges



PhET Interactive Simulations
University of Colorado Boulder
<https://phet.colorado.edu>

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- Charges that have the **same sign repel** one another, charges have **different sign attract** one another



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