

## ***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

### ***What do you need to do?***

1. Blow up, tie and straighten the balloon.
2. Rub the balloon with the wool cloth.
3. Put the balloon close to the pieces of paper,
4. Put the balloon close to the hair
5. Put the balloon close to the wall
6. Put the balloon close to the soap bubbles.

### ***What do you notice?***

- What does attract the balloon?
  - Just Hair
  - Just Paper
  - Just Wall
  - Just Soap bubbles
  - Everything
- Where is the balloon charged?
  - Everywhere
  - Where it has been rubbed
  - Where it hasn't been rubbed
- Does the "charge effect" stay forever?
  - Yes
  - No

### ***HOW does it happen? Explain!***

The simulation

[https://phet.colorado.edu/sims/html/balloons-and-static-electricity/latest/balloons-and-static-electricity\\_en.html](https://phet.colorado.edu/sims/html/balloons-and-static-electricity/latest/balloons-and-static-electricity_en.html)

**Step 1** Use the ***simulator*** and answer to these questions:

1. The balloon, the wall and the pullover have
  - ☐ Positive charge
  - ☐ Negative charge
  - ☐ Neutral charge

**Step 2** Rub the balloon against the pullover and observe ...

2. What happens to the charges?
  - ☐ nothing
  - ☐ the negative charges gather on the balloon
  - ☐ the positive charges gather on the balloon
3. What happens to the balloon?
  - ☐ The balloon is attracted by the pullover
  - ☐ Nothing happen
  - ☐ The balloon is repulsed by the pullover
4. Put the balloon close to the wall
  - ☐ The balloon is attracted by the wall
  - ☐ The balloon is not attracted by the wall
  - ☐ The balloon is repulsed by the wall
5. Put the balloon close to the wall. What happens to the positive charges in the wall?
  - ☐ They move away
  - ☐ Nothing happen
  - ☐ They come closer to the balloon
6. Put the balloon close to the wall. What happens to the negative charges in the wall?
  - ☐ They move away
  - ☐ Nothing happen
  - ☐ They come closer to the balloon
7. Why does the balloon stick to the wall?
  - ☐ Because the negative charges in the balloon attract the positive charges in the wall
  - ☐ Because the positive charges in the balloon attract the positive charges in the wall
8. The opposite charges
  - ☐ attract each other
  - ☐ Repel each other

### ***What have we learned with this experiment?***

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### **Glossary**

Wool cloth = pezza di lana

Blow up = gonfia

Tie = lega

Straighten = raddrizza

Rub = strofina

“charge effect” = effetto carica

gather on = raccogliersi su ....

attracted by = attratto da ...

repulsed by = respinto da ...

closer = più vicino

move away = allontanarsi