Science in Year 4

Year 4 have been learning about electricity and were asked to take part in 3 science experiment at home to learn more about static electricity. Children then made observations, conclusions and described the science behind it all. Have a look at their excellent work!

Shivani Natha Year 4 HH

Experiment 1

I took a bowl and put some salt and pepper in it.
Then I took a comb and combed my hair a few times using it.
Next I placed the comb over the bowl, the salt and pepper moving, some of the pepper was going onto the comb.
When I was combing my hair using the comb, it was creating static electricity, which caused the salt and pepper to move around. The pepper is lighter in weight which is why it went on the comb.
Would this experiment work if I used something else instead of salt and pepper?

Shiv Patel Year 4 HH

I made a circuit and tested objects to see which ones would complete it and which wouldn't.

My conclusion for this experiment:
Anything that is metal will let electricity pass through it but if it is not metal then it won't like for example cotton wool in the first picture .

Rudra Zalawadiya Year 4 HH

What is the science behind all this?

Experiment 1

When you rub the energy into your hair it makes your hair itch and when you put energy on the pepper it goes on the comb. The science behind all this is that the combs energy is like a magnet to the pepper.

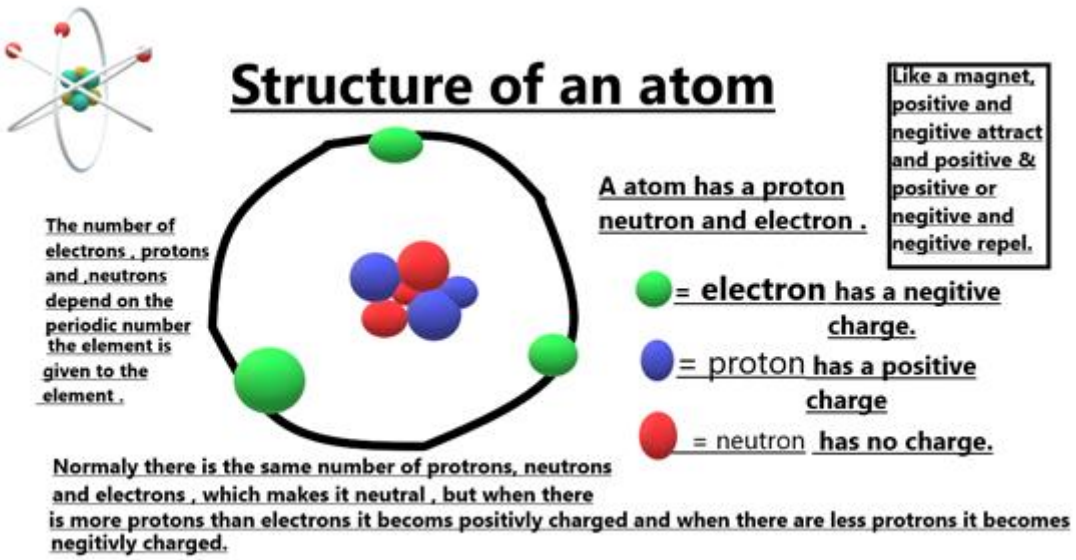
Experiment 2
When you put the energy to the water it attracts the water to the comb and the science behind this is that the static energy attracts water to the comb and makes a wavy shape.

Experiment 3

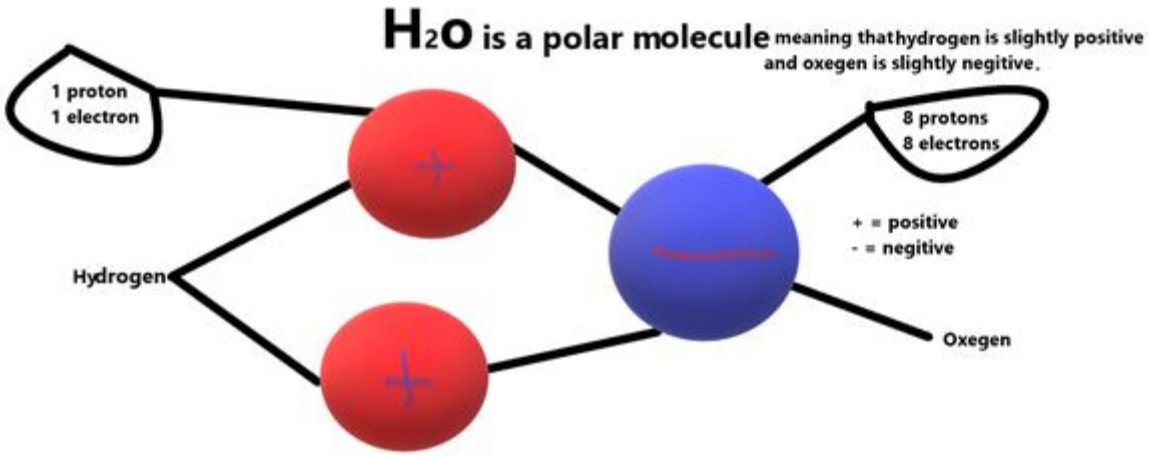
This experiment did not light the bulb up but if it had light the science behind this will be that if the aluminum foil his long straight and put in a certain way it will light the bulb up because the energy of the battery will pass through the object and when the bulb will set its energy line on the aluminum foil it will light up because the energy will be on the whole of the foil. Also since mine did not light up me and my dad made a light bulb light using wires it is in the picture below.

Shyam Parikh Year 4 HH

Before the conclusion I am showing you a picture that I made , it will answer the conclusion.



1. The pepper had a positive charge, and when I rubbed the comb on the hair it passed on electrons (negative charge) – static charge the pepper got attracted to the comb whereas the salt stayed down because it's neutral.
2.



When I rub comb to my hair, the free electrons of my hair passed to the comb and eventually the comb got a negative charge. When I located the negatively charged comb near tap water, H_2O molecules due to its positive charge on the hydrogen side(polarity), it moved towards the comb.

Here are some questions that **Aashi Varsani (Year 4 HH)** wanted to explore further after completing these 3 experiments:

Questions I Would Like To Explore Further for experiment 1:

- Why is pepper lighter than salt?
- If you put water with them, which one will jump up?
- How does your hair and a comb cause static electricity?

Questions I Would Like To Explore Further for experiment 2:

- What other materials would work in this experiment except for water?
- Why does the object have to be a comb. Can it be something else that gives the same results?
- If you do the experiment but when you place the comb near it, at the top will the water bend so it looks like it is folded?

Questions I Would Like To Explore Further for experiment 3:

- Is there a specific material that is used for lights that turn on in our houses?
- If you use a metal object that is made of wrought iron will it still work?
- When you test things does it have to be a certain size like thin or long or can it be anything metal?