

# Static Electricity

Sometimes electric charges can build up on the surface of objects. This is called static electricity.

Everything is made of atoms. Atoms are made of protons (with a positive charge), neutrons (with no charge) and electrons (with a negative charge). When an atom has the same number of protons (+) and electrons (-), there is a no overall charge and the atom is neutral. This is because the positive charge from the proton is equal to the negative charge of the electron, and therefore cancel each other out making the atom neutral.

Sometimes electrons can move from one atom to another, when this happens the electric charge of the atoms are out of balance. The atom that loses an electron will now be positively charged, while the atom that gains an electron will now be negatively charged. Opposite charges attract each other, while the same charges repel each other – think of two magnets.

Static electricity is simply the result of an imbalance between positive and negative charges in an object. The charges build up on an object until they can find a way to be released. A common way to transfer electrons, is to rub materials together.

When a balloon is rubbed against your hair, some of the electrons from you hair move onto the balloon. Your hair is left with an imbalance of electrons and protons. It now has more protons, so it is now positively charged rather than being neutral. The positively charged strands of hair are all repelled from each other, making them stand on end.

Have you ever pulled a woollen hat off your head quickly and heard the 'crackles'? Or combed your hair and made it stand on end? Or even received a shock from touching a metal doorknob after having walked across the carpet? These are all examples of static electricity and the attract-and-repel rule.

Remember, static electricity is simply an imbalance of positive and negative charges.

**Comprehension Questions** (use the RAPS strategy to help you answer in detail)

- In your own words describe what static electricity is
- What happens when electrons move from one atom to another?
- Describe a text-to-self connection
- Write a short summary paragraph that could go at the end of the text
- Record three open questions about static electricity to independently research

