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P17 Electric charge

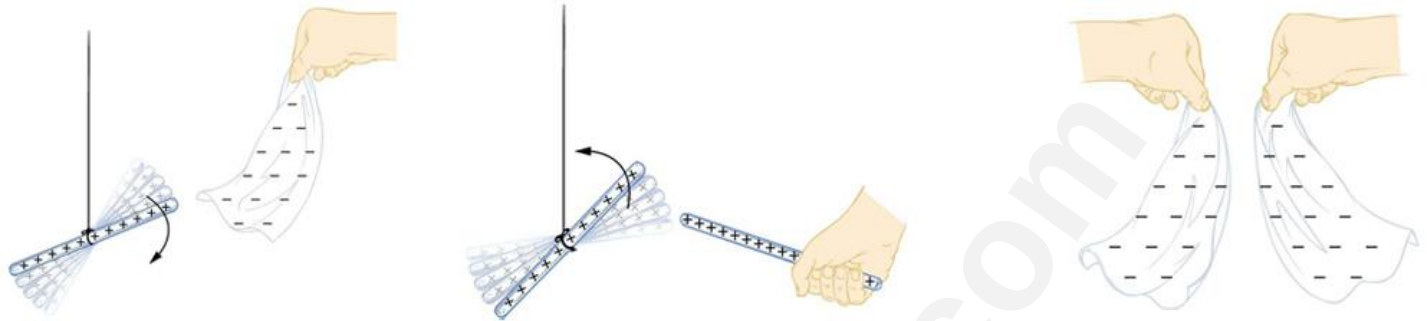
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P17.02 Charging and discharging

static electricity

- made by rubbing

electrostatic charge



- plastic rod is rubbed with a cloth so that both become charged
 - rod becomes **positive charge**
 - cloth becomes **negative charge**
- rod is hung so that it's free to move
- rod moves toward the cloth → attract → **attraction**
- rod + rod or cloth + cloth → repel → **repulsion**

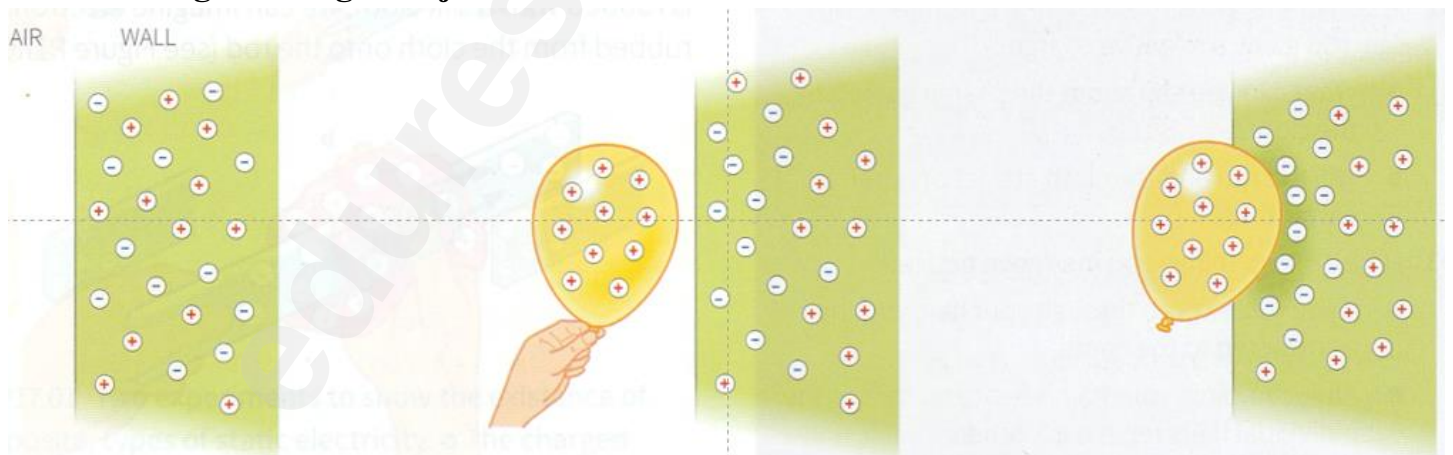
P17.03 Explaining static electricity

1. Friction and charging

The force of friction causes charging

- Friction between cloth and rod - tiny particles **electrons** are transferred from one material to another
- not like atom, since electrons are weakly held, it can be pulled away by friction
- atom has no **electric charge** - **neutral**
- usually polythene get electron - negative charge

2. Attracting uncharged objects



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- 1) wall is neutral, because it has equal amounts of positive and negative charge
- 2) The charged balloon attracts the negative charges in the wall, so that they move towards it
- 3) The positive balloon and the negative surface of the wall stick together

3. Electric fields and electric charge

electric field: the field around a charged object

4. What is electric charge?

electric force

- electric force holds the particles that make up an atom together
- holds atom together to make molecules → objects

5. Charged particles

- **Coulombs(C)** - unit of Charge
- **Electron charge** → $-1.6 \times 10^{-19} \text{ C}$
- **Proton charge** → $1.6 \times 10^{-19} \text{ C}$