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Electric Charge: Like Charges Repel, Unlike Attract

1. Why a sweater sparks

Rubbing two bodies **transfers electrons** from one to the other. Charge is not created: it only moves, so a neutral pair still totals zero.

2. Positive and negative

The body that **loses electrons** becomes **positive**; the one that **gains electrons** becomes **negative**. The names positive and negative are due to Benjamin Franklin.

Pair	Positive	Negative
Glass rubbed with silk	Glass	Silk
Plastic rubbed with fur	Fur	Plastic

3. The rule

Like charges repel. Unlike charges attract.



Solved example

Q. A neutral rod gives 5 electrons to a neutral cloth. What are their charges, in units of e?
A. Rod **+5e**, cloth **−5e**. The total stays 0.

Practice questions

1. (MCQ) When glass is rubbed with silk, the silk becomes (a) positive (b) negative (c) neutral (d) magnetic
2. (Very short) What moves when two bodies are rubbed?
3. (True/False) Rubbing creates new charge.
4. (Short) What happens when two rubbed glass rods are brought close?
5. (Short) What happens between a rubbed glass rod and a rubbed plastic rod?
6. (Short) Why does a sweater spark when pulled off?

Answer key

1. (b).
2. Electrons.
3. False: it only transfers charge.
4. They repel: both are positive.
5. They attract: one is positive, the other negative.
6. Charge builds up between the sweater and shirt and discharges as a spark.

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