

Review



similar charge Q
spread out as
far as possible
"repel"

$\Delta \# p^+ = \Delta \text{element}$
 $\Delta \# n^0 = \Delta \text{mass} = \text{isotope}$
 $\Delta \# e^- = \Delta \text{charge} = \text{ion}$

e⁻ movement bc p⁺ + n⁰ do NOT move

Conductor

opposite

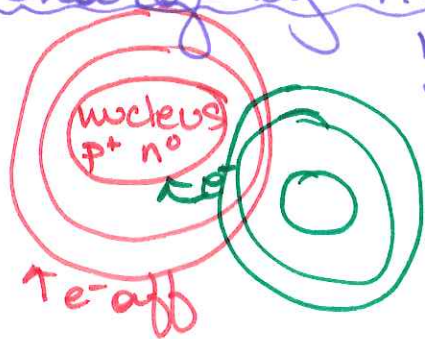
allow e⁻ to flow
allow transfer of E
allow even distribution of charge

Insulator

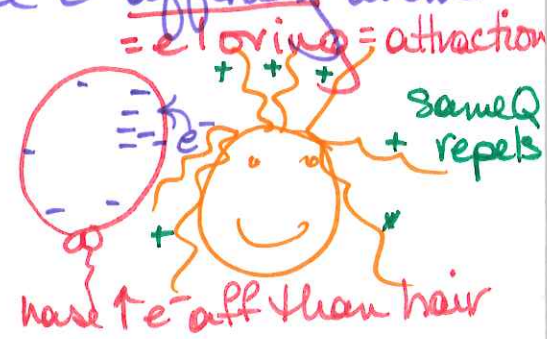
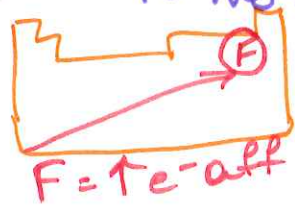
→ Not

3 ways to Charge Q Substance

1) Charge by Friction (rubbing) = static electricity



nucleus of 1 atom gets close to the e⁻ of another substance
e⁻ transfer from the less to more e⁻ affinity atom



2) Charge by Conduction
by contact

3) Charge by Induction
by proximity NOT by touch
near

Van de Graaff Generator = Charge pump ¹⁹³⁰

⑤ metal dome conductor

distributes charge evenly over the dome

⑥ after max \ominus charge is reached

e^- escape to the environment

a) touch = conduction

b) near = induction

zap, shock, spark

④ e^- move by contact from comb to wire to dome Conduction

③ e^- jump from belt to comb = induction

② e^- carried in discrete positions on the insulator rubber belt
Q not distributed

① bottom roller = felt by friction rubber belt transfers free e^- from felt to the belt

