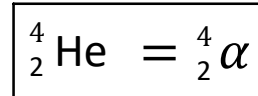


# C11 - 2.3 - Radioactive Decay/Fission/Fusion Notes

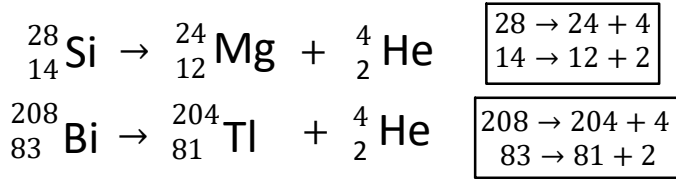
## Alpha Particle: $\alpha$



- Alpha particle = Helium nucleus
- Charge of +2
- Mass of 7000 electrons.
- No electrons
- Slow moving
- Can barely penetrate skin/paper



Examples:

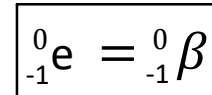


Top = Top + Top  
Bottom = Bottom + Bottom

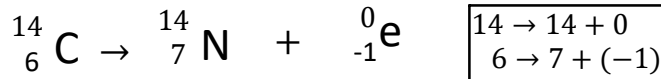
## Beta Particle $\beta$



- Electron
- Charge of -1
- Mass of 0\*
- Can only penetrate a few sheets of aluminum



Example:



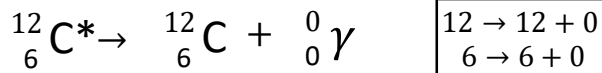
- Neutron sends its electron away
- Increases charge of neutron by 1, turns into proton
- No change in mass
- Change in atomic #.

## Gamma Particle: $\gamma$



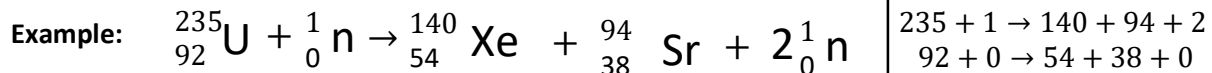
- Energetic "light"
- No charge
- No mass
- Can penetrate a few centimetres of lead

Example:



**Fission:** Splitting a nucleus in two.

- Creating an unstable isotope.
- Less powerful
- Used in nuclear power plants
- Atomic bombs (Hiroshima)



**Fusion:** Joining two nuclei into one.

- More powerful than fission
- Takes place in the sun
- Hydrogen bombs

Examples:

