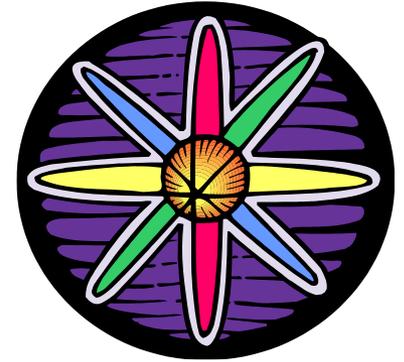


# **NUCLEAR CHEMISTRY**

# Subatomic Particles



- Protons- positive charge
- Neutrons- neutral
- Electrons - negative charge

In the nucleus

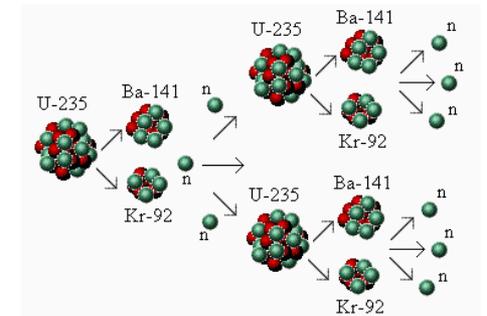
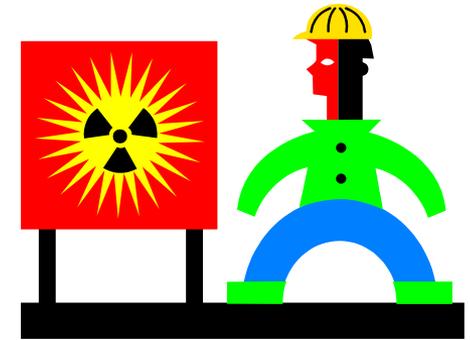
**The part  
involved in  
nuclear  
chemistry!**



# Examples:

## Nuclear Fission

- Carbon-14 Dating
- The nuclear bomb
- Nuclear power
- Nuclear medicine
- Radon testing in basements
- Chain Reactions



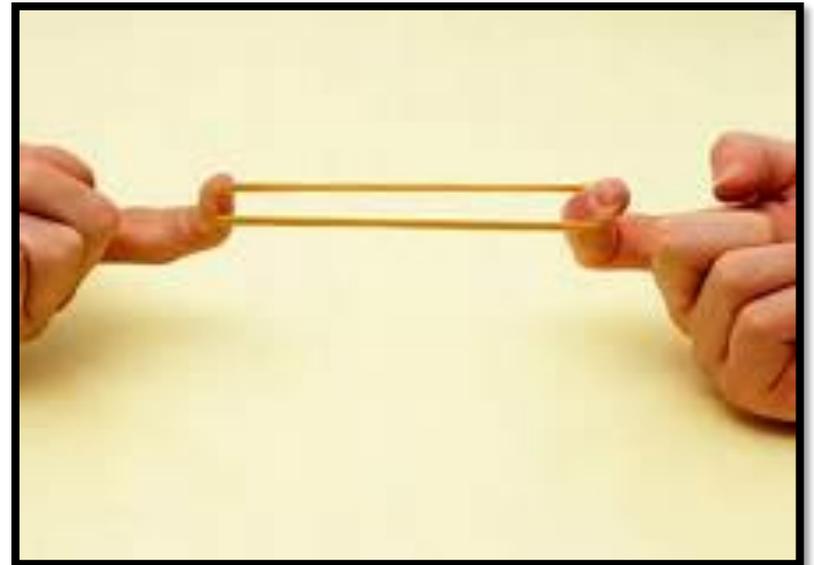
# What holds the nucleus together?

- Normally particles with same charge would repel each other
  - So why doesn't the nucleus fly apart from protons repelling each other?!
- ***Strong Force***



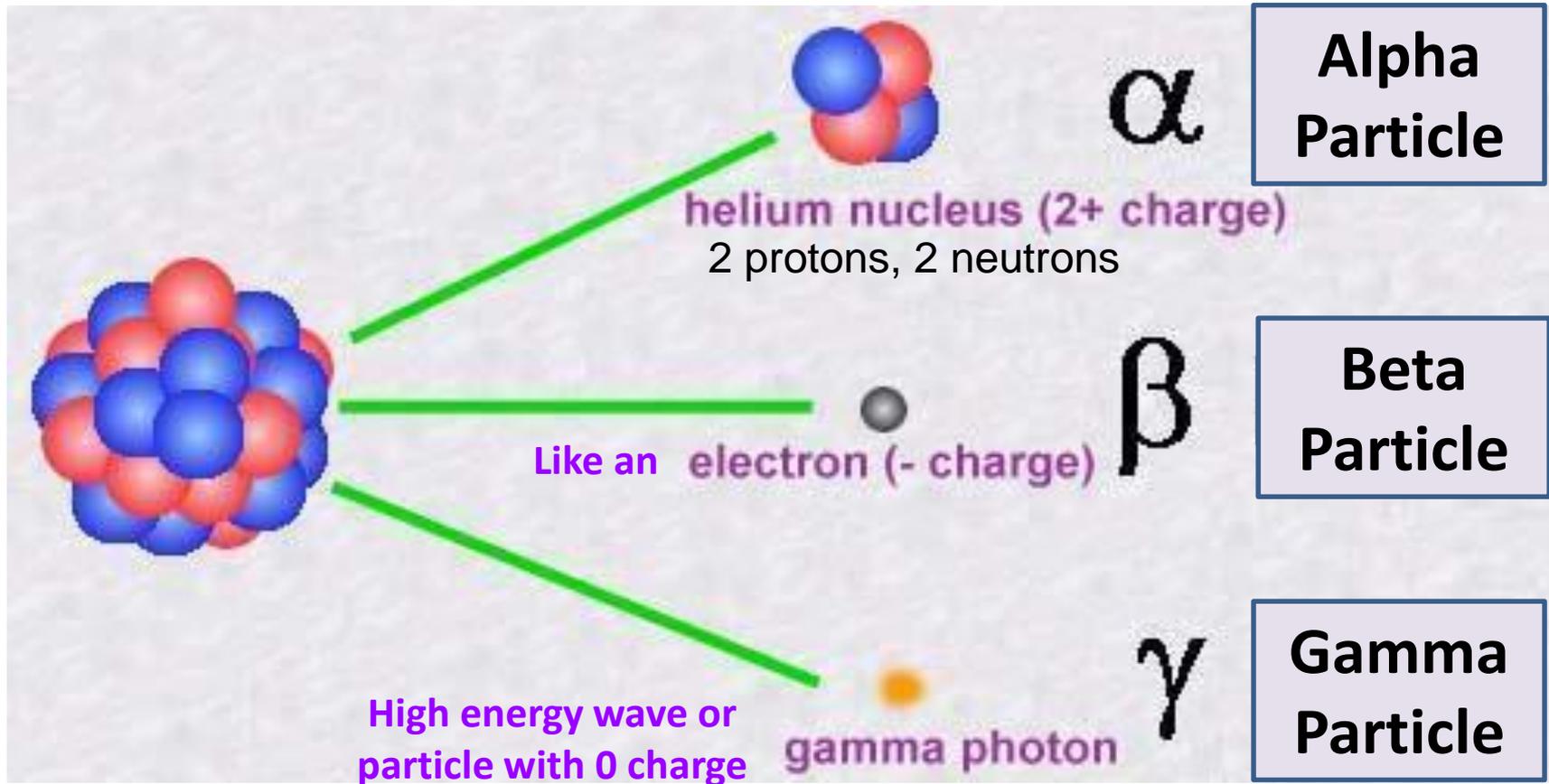
# Where do the radioactive particles and energy come from?

- Sometimes there are *too many neutrons* - makes the atom unstable
- The atom flies apart and releases particles and energy from the nucleus

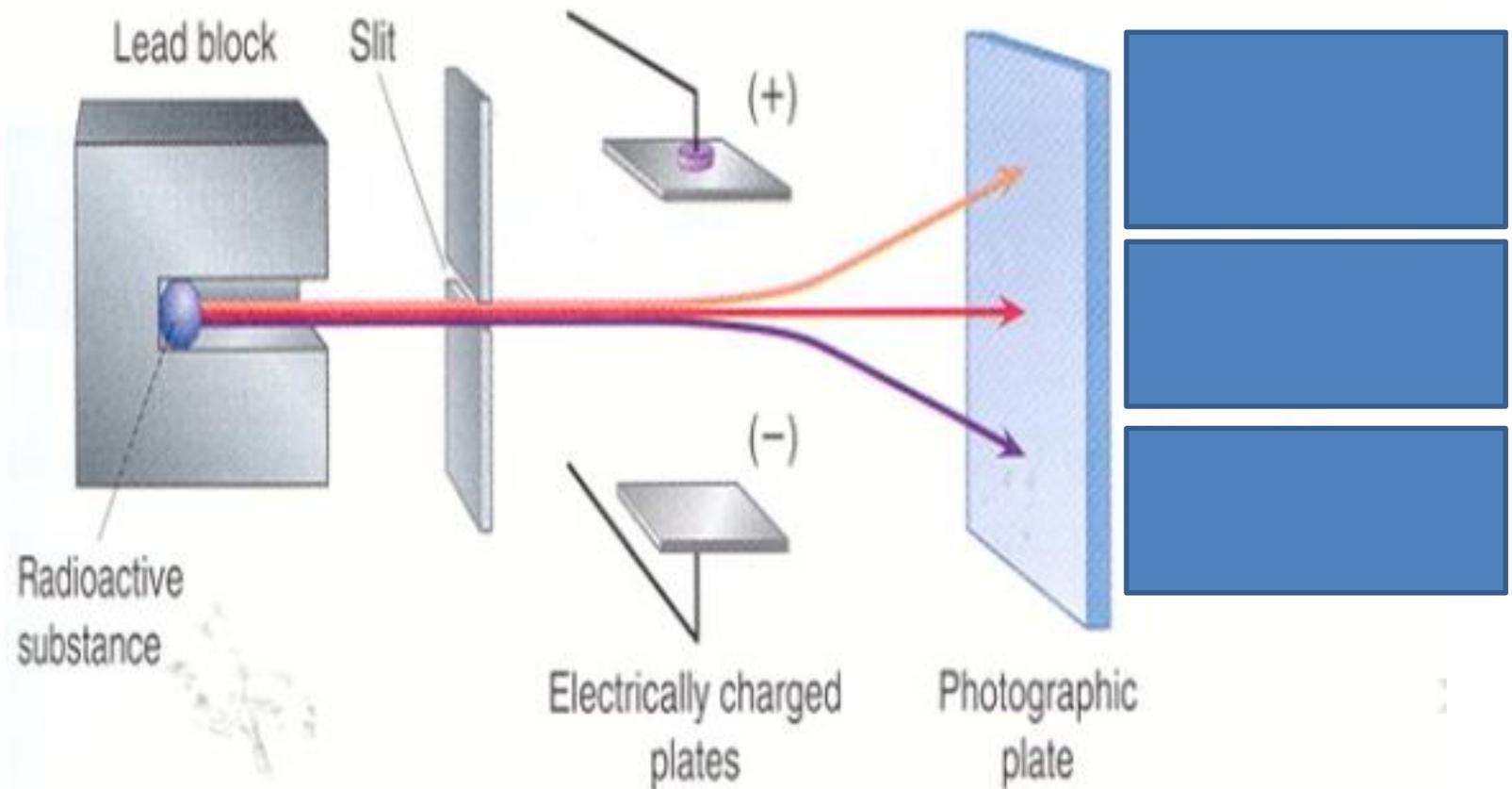


# Radiation

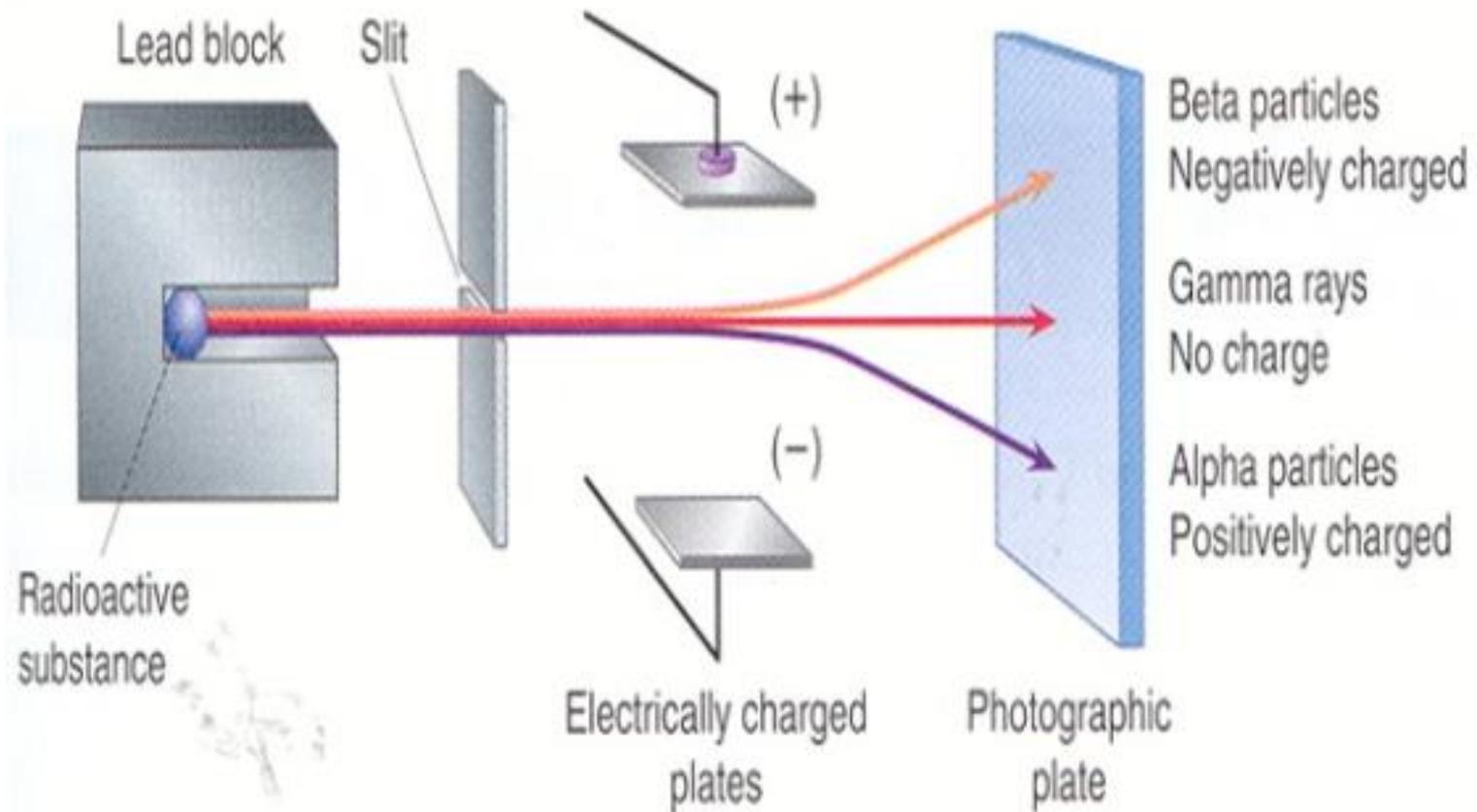
Radiation comes from the nucleus of an atom. Unstable nucleus emits (spits out) a particle or energy



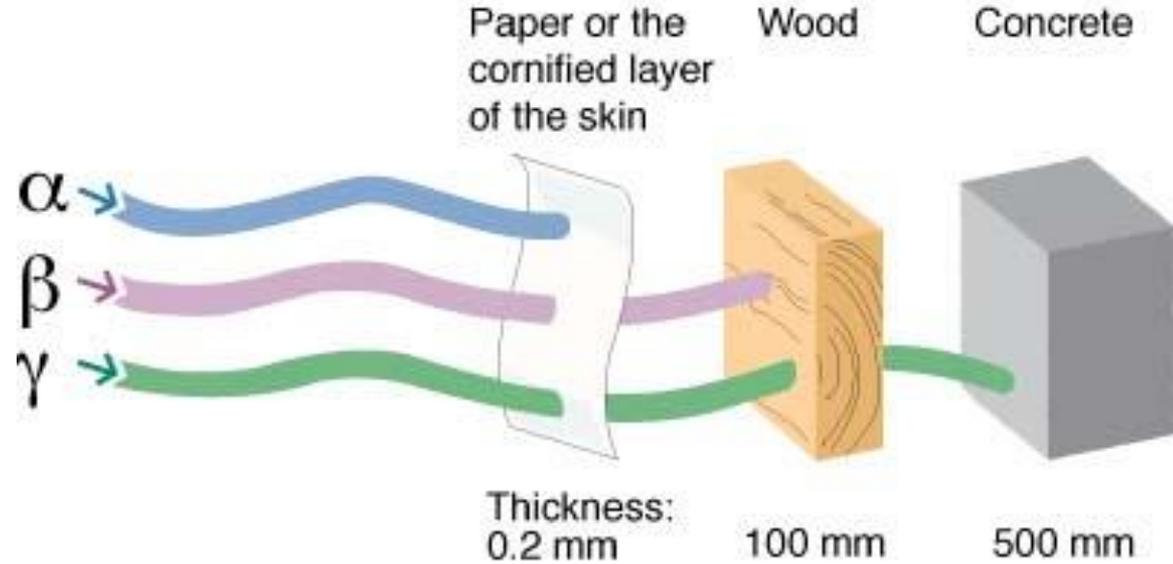
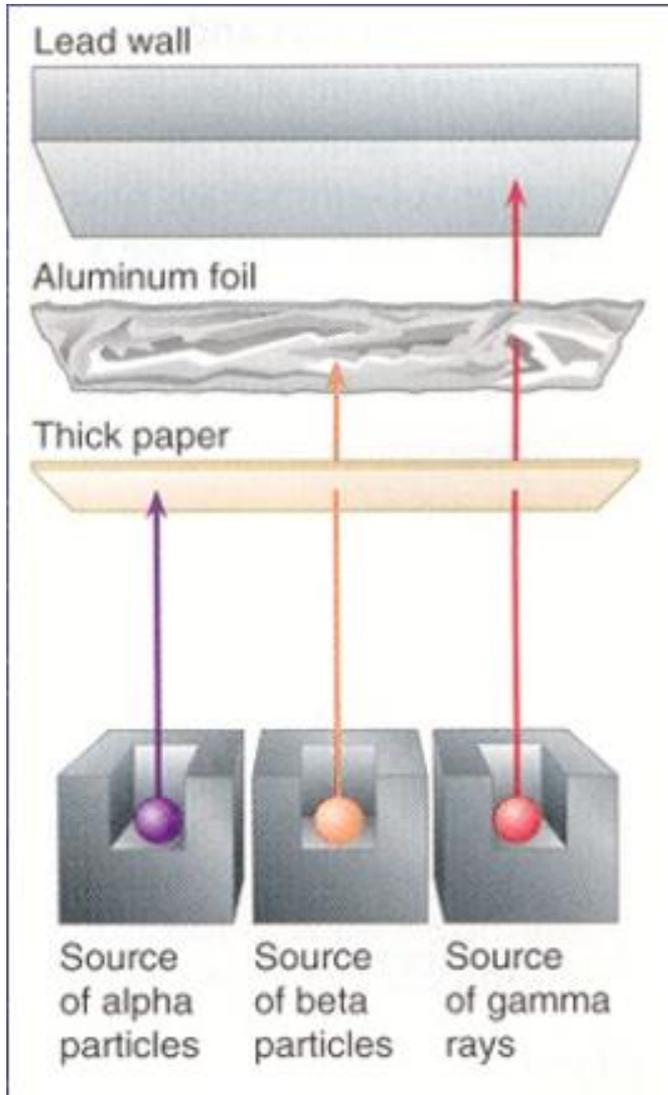
# Charge of Nuclear Particles



# Charge of Nuclear Particles



# Penetrating Power of Radiation



# Copy the symbols down

Type	What is it?	Symbol	Charge	What Stops It
Alpha Particle	2 protons 2 neutrons (Helium nucleus)	${}^4_2\text{He}$ ${}^4_2\alpha$	2+	Paper
Beta Particle	Like an electron	${}^0_{-1}\beta$ ${}^0_{-1}e^-$	1-	Aluminum, wood, clothes
Gamma Ray	High speed energy waves	$\gamma$ ${}^0_0\gamma$	0	Thick lead or concrete