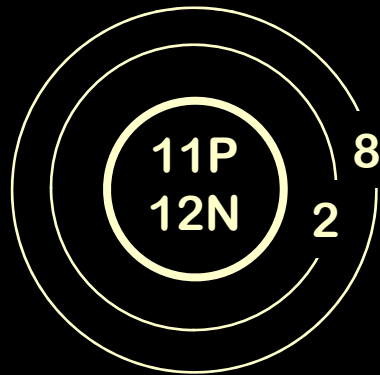


# *Ions*

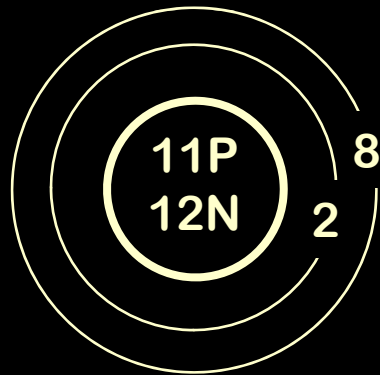
Atoms with different numbers of  
protons and electrons



# *Ions*

Electrons < Protons  
Electrons > Protons

Positive Charge  
Negative Charge



# Ions

Electrons < Protons  
Electrons > Protons

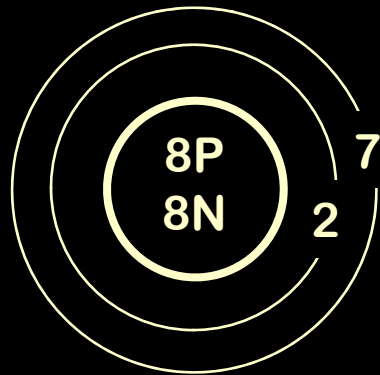
Positive Charge  
Negative Charge



# *Ions*

Electrons < Protons  
Electrons > Protons

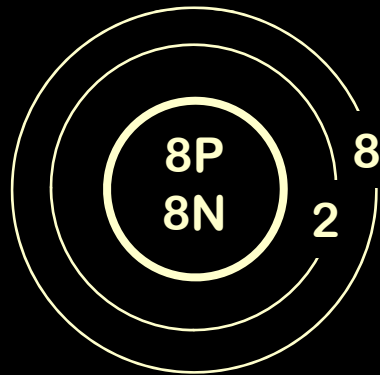
Positive Charge  
Negative Charge



# Ions

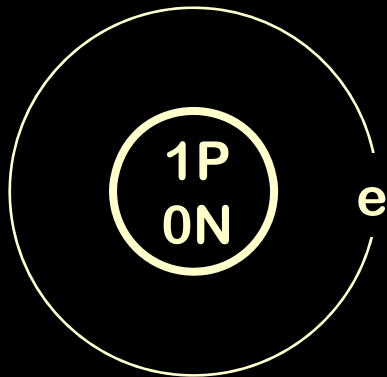
Electrons < Protons  
Electrons > Protons

Positive Charge  
Negative Charge



# *Isotopes*

Atoms with the same number of protons  
but different numbers of neutrons



“light”  
Hydrogen

Mass = 1



deuterium

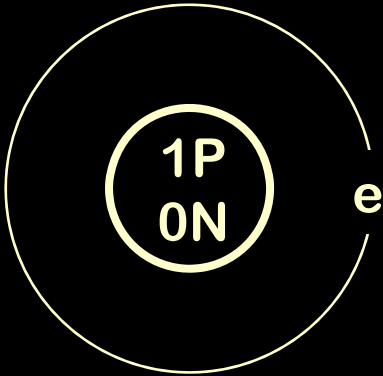
Mass = 2  
0.01%



tritium

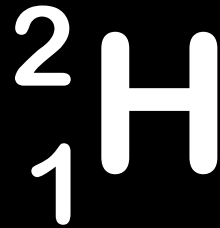
Mass = 3  
radioactive

# *Isotopes*



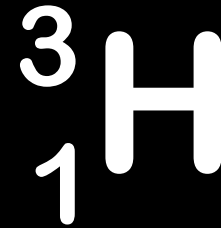
**"light"  
Hydrogen**

**Mass = 1**



**deuterium**

**Mass = 2  
0.01%**

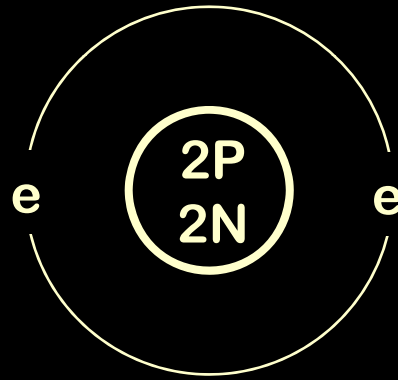
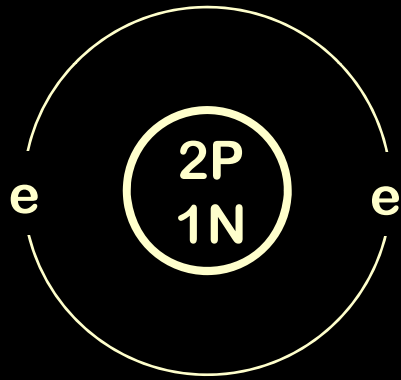


**tritium**

**Mass = 3  
radioactive**



# *Isotopes*

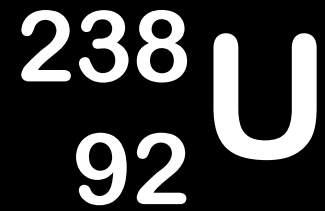


"Helium 3"





# *Isotopes*



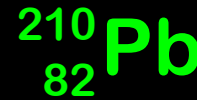
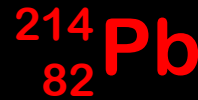
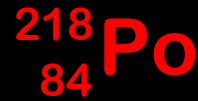
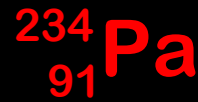
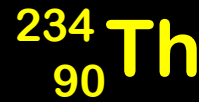
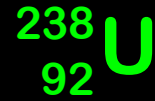
99.3%



0.7%



# U-238 Radioactive Decay



Years  
Days  
Minutes  
Stable



# *Isotopes*



75.5%



24.5%

$$35 \times 0.755 + 37 \times 0.245 = 35.5$$

Atomic Mass on periodic table

