

Oct 13-8:39 AM

Mosley \rightarrow found neutrons
using X-ray diffraction

Oct 13-8:50 AM

	protons	neutrons	electrons
Where?	in nucleus	in nucleus	outside nucleus in 'energy levels' 'clouds', 'shells'
Charge	\oplus +1	0	\ominus -1
Mass	1 amu ✓	\approx 1 amu \approx 1 amu ✓ $\frac{1}{1836}$ amu	\approx 0 amu $\frac{1}{1836}$ amu
Symbol	p or ${}^1_1\text{H}$	n or ${}^1_0\text{n}$	e^- or ${}^{-1}_0e^-$

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ATOMIC MASS \rightarrow 12
 (#p + #n)

ATOMIC NUMBER \rightarrow 6
 (# of protons)

Carbon 6p, 6e⁻, 6n

${}^{23}_{11}\text{Na}$
 11p, 11e⁻, 12n

${}^{19}_9\text{F}$
 9p, 9e⁻, 10n

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If we change:

- ① #p → New element
- ② #e⁻ → Cation (lose e⁻) or Anions (gain e⁻) → IONS have a charge!
- ③ # Neutrons → Some element with a different mass → Isotopes

Diagram of Carbon-12: $\begin{matrix} 12 \\ 6 \\ C \end{matrix}$

Diagram of Carbon-13: $\begin{matrix} 13 \\ 6 \\ C \end{matrix}$

Diagram of Carbon-14: $\begin{matrix} 14 \\ 6 \\ C \end{matrix}$

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Comparison of Carbon-12 and Carbon-14:

Carbon 12: $\begin{matrix} 12 \\ 6 \\ C \end{matrix}$ vs Carbon 14: $\begin{matrix} 14 \\ 6 \\ C \end{matrix}$ (Isotope of carbon)

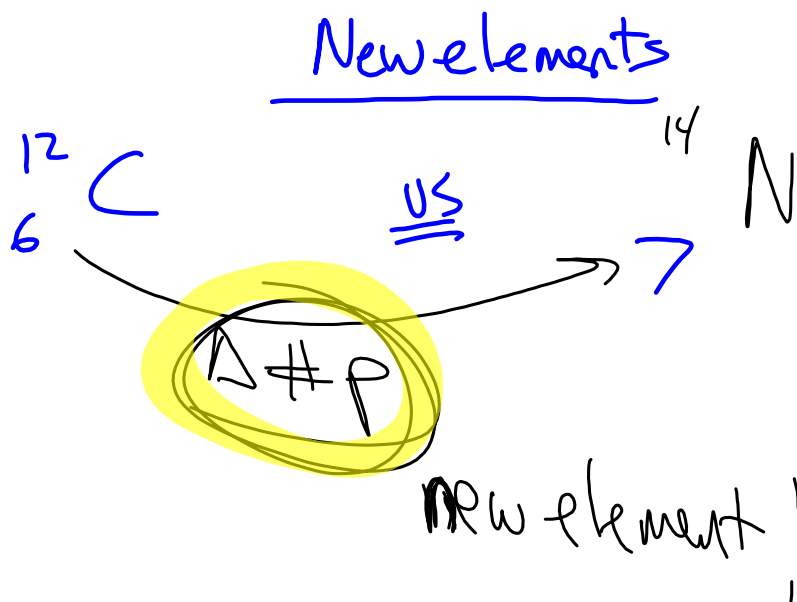
Protons (p): 6p ↔ 6p

Electrons (e⁻): 6e⁻ ↔ 6e⁻

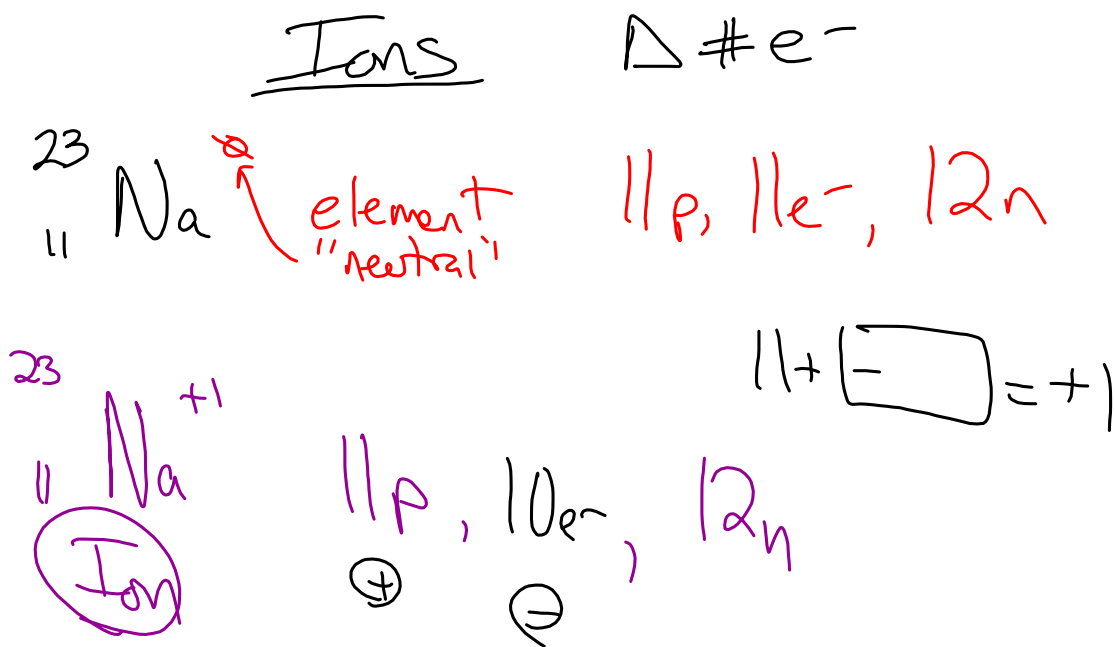
Neutrons (n): 6n ↔ 8n

A yellow circle highlights the neutron counts (6n and 8n), and a yellow starburst is drawn next to it.

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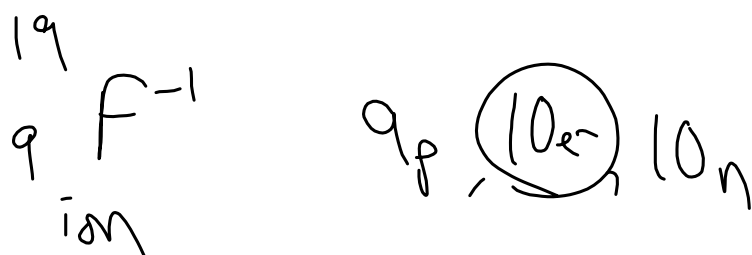
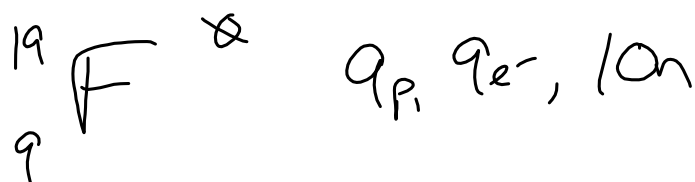
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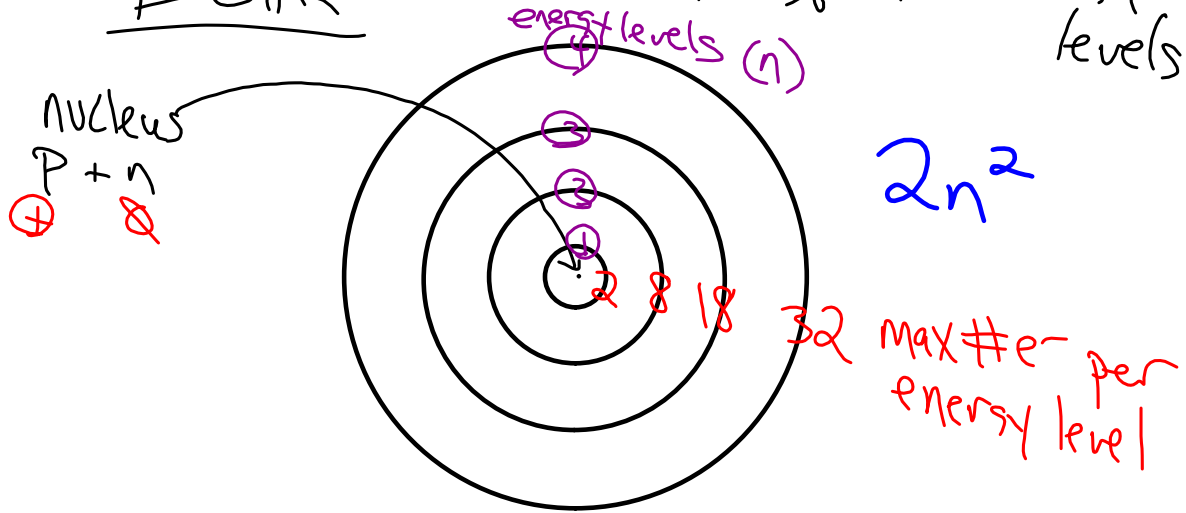


Anion

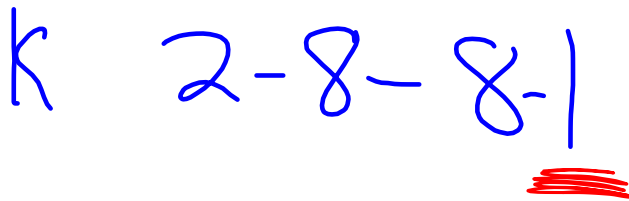
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electron configuration

BOHR \Rightarrow e^- are in specific energy levels



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~~Self?
2-8-9?~~

outermost energy level.
Valence e^-

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