

Ions, Isotopes & Average Atomic Mass

2. Not Whole #'s

Name: _____ Per: _____

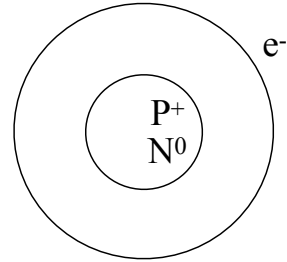
Substance	Symbol	Atomic Number (Z)	Atomic Mass (A)	Protons	Neutrons	Electrons
Helium	He	2	4	2	2	2
Magnesium	Mg	12	24	12	12	12
Zinc	Zn	30	65	30	35	30
Bromine	Br	35	80	35	45	35
Aluminum	Al	13	27	13	14	13
Uranium	U	92	238	92	146	92
Sodium	Na	11	23	11	12	11
Krypton	Kr	36	84	36	48	36
Calcium	Ca	20	40	20	20	20
Silver	Ag	47	108	47	61	47
Oxygen	O	8	16	8	8	8

1. What if not the same

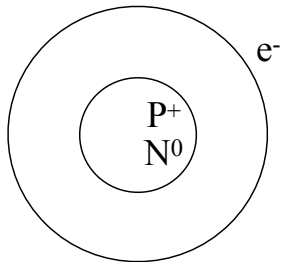
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Ions

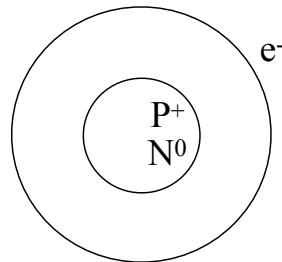
- Atoms with a charge
 - Anions
 - Negatively charged
 - Formed by gaining electrons
 - Electron rich
 - Cations
 - Positively charged
 - Formed by losing electrons
 - Electron deficient



Ca⁺²



N⁻³

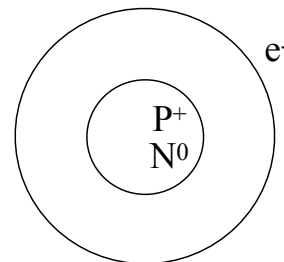
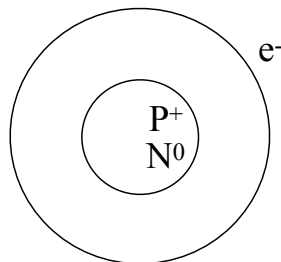
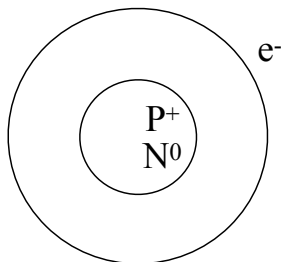


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Isotopes

- Atoms of the same element with differing masses

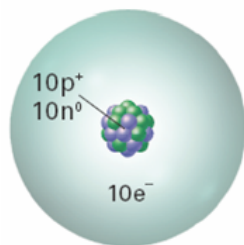
Carbon



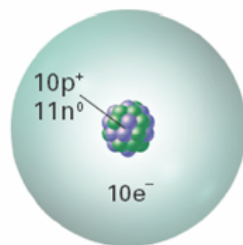
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Isotopes

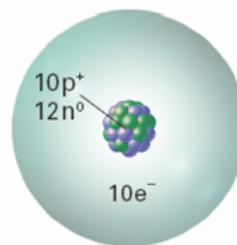
- Atoms of the same element with differing masses
- Due to differing numbers of neutrons
- There is no “correct” isotope of an element
 - *All atoms of an element are isotopes of each other and they all behave chemically the same*



Neon-20
10 protons
10 neutrons
10 electrons



Neon-21
10 protons
11 neutrons
10 electrons

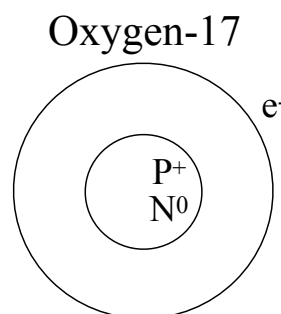
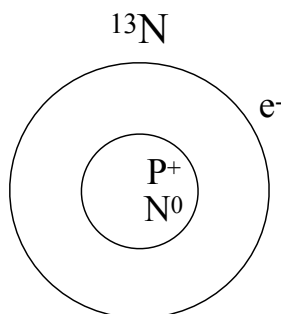


Neon-22
10 protons
12 neutrons
10 electrons

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Isotopes

- Atoms of the same element with differing masses
- Due to differing numbers of neutrons
- There is no “correct” isotope of an element
 - All atoms of an element are isotopes of each other and they all behave chemically the same



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Practice

Name	Abr	Z	A	P ⁺	N ⁰	e ⁻
	Mg ⁺²					
Lead-209						
	Al		25			10