

Standard: #2-1  
Atomic Structure, AT-1

- I. Subatomic structure
  - a. Describe the properties of all subatomic particles.
- II. How does an atom acquires mass.
  - a. Understand why atoms of the same element have different masses.
- III. How does an atom acquires a charge.
  - a. Understand how an atom acquires a charge.
  - b. Understand why an atom acquires a charge.
  - c. Be able to determine an atom's most common charge and why.

Isotope (nuclear) notation:

Mass number: 24 (12 protons + 12 neutrons)	24	$\text{Mg}^{2+}$	Charge: 2+ (12 protons - 10 electrons)
Atomic number: 12 (12 protons)	12		Chemical element: Mg (Magnesium)

Symbol and Charge	Atomic Number	Mass Number	n°	e <sup>-</sup>	Charge	p <sup>+</sup>
Sr <sup>+2</sup>	38	85	47	36	+2	38
K <sup>+1</sup>	19	40	21	18	+1	19
Se <sup>-2</sup>	34	79	45	36	-2	34
Co	27	60	33	27	0	27

Isotope (Nuclear) Notation	Atomic Number	Mass Number	n°	e <sup>-</sup>	Charge	p <sup>+</sup>
$^{12}_6\text{C}$	6	12	6	6	0	6
$^{18}_9\text{F}^{-1}$	9	18	9	10	-1	9
$^{30}_{16}\text{S}^{-2}$	16	30	14	18	-2	16
$^{231}_{92}\text{U}^{+1}$	92	231	139	91	+1	92
$^{209}_{95}\text{Am}$	95	209	114	95	0	95

Hyphen Notation	Atomic Number	Mass Number	n°	e <sup>-</sup>	Charge	p <sup>+</sup>
O-15	8	15	7	8	0	8
Ba-146	56	146	90	56	0	56
Al-25	13	25	12	13	0	13