

1	1A	1	2
1		H	
		Hydrogen	
		1.01	
2		3	4
		Li	Be
		Lithium	Beryllium
		6.94	9.01
3		11	12
		Na	Mg
		Sodium	Magnesium
		22.99	24.31
4		19	20
		K	Ca
		Potassium	Calcium
		39.10	40.08
5		37	38
		Rb	Sr
		Rubidium	Strontium
		85.47	87.62
6		55	56
		Cs	Ba
		Cesium	Barium
		132.91	137.33
7		87	88
		Fr	Ra
		Francium	Radium
		(223)	(226)

group ↕

					18
					8A
					2
					He
					Helium
					4.00
13	14	15	16	17	
3A	4A	5A	6A	7A	
5	6	7	8	9	10
B	C	N	O	F	Ne
Boron	Carbon	Nitrogen	Oxygen	Fluorine	Neon
10.81	12.01	14.01	16.00	19.00	20.18

period ↔

Groups: up and down
(18 groups*, 1-18)

* Traditional: 1A-8A, 1B-10B

Periods: left to right
(7 periods, 1-7)

	1
	1A
1	1
	H
	Hydrogen
	1.01

group # (modern)
group # (traditional)

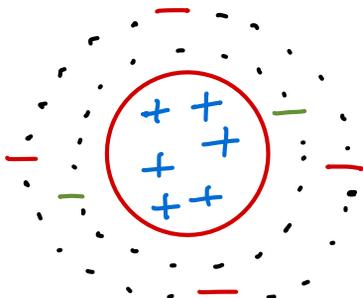
Element # (Atomic #)

Element Symbol

Element Name

Average Atomic Mass

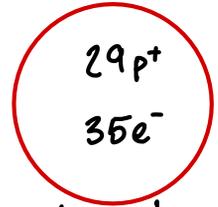
period # (modern)



Carbon: $6p^+ + 6e^-$

Carbon-12

Copper-65



Small atoms
 $p^+ = n^0$

Large atoms
 $p^+ < n^0$

Neutral Atom	$\#p^+ = \#e^-$
Atomic #	$= \#p^+ = e^-$

Mass #	$= p^+ + n^0$
Atomic Mass	= Particles In Nucleus

6	← Atomic #
C	← Symbol
Carbon	← Name
12.01	← Atomic Mass (not mass #!)

$6p^+, 6e^-, C, \text{Carbon}$
 n^0 and mass # not given!

Overall Subatomic Particle Relationships
$\text{Atomic \#} = p^+ = e^-$ = Element Name = Element Symbol
$\text{Mass \#} = p^+ + n^0$
$n^0 = \text{Mass \#} - \text{Atomic \#}$ n^0 not on periodic table

21	←	Atomic # (p^+ and e^-)
Sc	←	Element Symbol
Scandium	←	Element Name
44.96	←	Average Atomic Mass

From Periodic Square Above

Atomic #: 21 # p^+ : 21 # e^- : 21

Element Name: Scandium Element Symbol: Sc

n^0 and mass #

$$\#n^0 = \text{Mass \#} - \text{Atomic \#}$$

$$\text{Mass \#} = 45, \text{ find } n^0$$

$$n^0 = 45 - 21$$

$$n^0 = 24$$

$$\text{Mass \#} = \#p^+ + \#n^0$$

$$n^0 = 24, \text{ find mass \#}$$

$$\text{mass \#} = 21 + 24$$

$$\text{mass \#} = 45$$

Isotope Notation

Scandium - 45
 Element Mass #

45 Sc ← Mass #
 21 ← Element Symbol
 ← Atomic #

Scandium only has 1 isotope (scandium-45)