Electronic Configurations for the First Eighteen Chemical Elements – Hydrogen to Argon

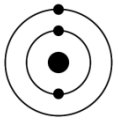
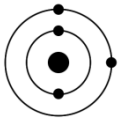
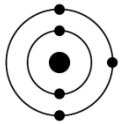
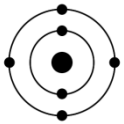
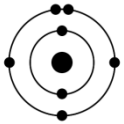
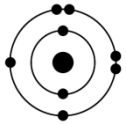
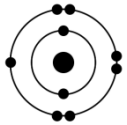
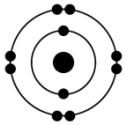
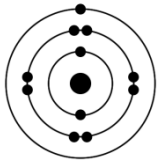
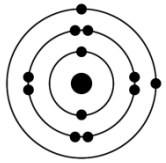
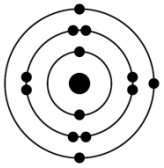
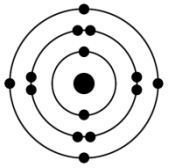
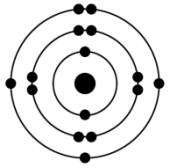
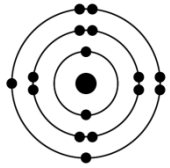
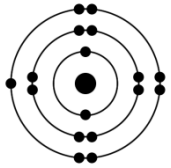
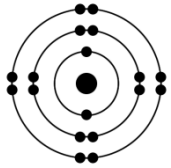
Name: ……

Class: ……

Date: …… / …… / ……

Mass Number → 12
Atomic Number → 6
C

- Atomic Number = Number of Protons
- Mass Number = Number of Protons + Number of Neutrons
- For a Neutral Atom, Number of Electrons = Number of Protons
- Number of Neutrons = Mass Number – Atomic Number
- Number of Electron Shells = Period Number
- Number of Valence Electrons = Group Number (units only)*

	Group 1	Group 2	Group 13	Group 14	Group 15	Group 16	Group 17	Group 18
Period 1	$^{1}_{1}$H Hydrogen Protons = 1 Electrons = 1 Neutrons = 0							$^{4}_{2}$He Helium Protons = 2 Electrons = 2 Neutrons = 2
Period 2	$^{7}_{3}$Li Lithium  Protons = 3 Electrons = 3 Neutrons = 4	$^{9}_{4}$Be Beryllium  Protons = 4 Electrons = 4 Neutrons = 5	$^{11}_{5}$B Boron  Protons = 5 Electrons = 5 Neutrons = 6	$^{12}_{6}$C Carbon  Protons = 6 Electrons = 6 Neutrons = 6	$^{14}_{7}$N Nitrogen  Protons = 7 Electrons = 7 Neutrons = 7	$^{16}_{8}$O Oxygen  Protons = 8 Electrons = 8 Neutrons = 8	$^{19}_{9}$F Fluorine  Protons = 9 Electrons = 9 Neutrons = 10	$^{20}_{10}$Ne Neon  Protons = 10 Electrons = 10 Neutrons = 10
Period 3	$^{23}_{11}$Na Sodium  Protons = 11 Electrons = 11 Neutrons = 12	$^{24}_{12}$Mg Magnesium  Protons = 12 Electrons = 12 Neutrons = 12	$^{27}_{13}$A*l* Aluminium  Protons = 13 Electrons = 13 Neutrons = 14	$^{28}_{14}$Si Silicon  Protons = 14 Electrons = 14 Neutrons = 14	$^{31}_{15}$P Phosphorus  Protons = 15 Electrons = 15 Neutrons = 16	$^{32}_{16}$S Sulfur  Protons = 16 Electrons = 16 Neutrons = 16	$^{35}_{17}$C*l* or $^{37}_{17}$C*l* Chlorine  Protons = 17 Electrons = 17 Neutrons = 18 or 20	$^{40}_{18}$Ar Argon  Protons = 18 Electrons = 18 Neutrons = 22

***Note:** The number of electrons in the valence shell of an atom equals the *units value* of the element's Group number. *e.g.* S in Group 1<u>6</u> has 6 valence electrons.