SELF-ASSESSMENT - MODULE B – LESSON 2: THE PERIODIC TABLE

1) Fill in the chart below:

ELEMENT	SYMBOL	ATOMIC NUMBER	# ELECTRONS	GROUP	CLASS	# of SHELLS (*row*)	# of Valence Electrons (*column*)
Hydrogen	H	1	1	Main or Rep.	Non-metal	2) 1	1
Oxygen	**O**	**8**	**8**	**Main**	**Non-metal**	**2**	**6**
Neon	**Ne**	**10**	**10**	**Main**	**Noble Gas**	**2**	**8 (non-reactive)**
Chlorine	**Cl**	**17**	**17**	**Main**	**Halogen**	**3**	**7**
Sodium	**Na**	**11**	**11**	**Main**	**Alkali Metal**	**3**	**1**

3) The classification scheme “Groups of Elements” is based on **CHEMICAL** properties.

4) The three groups are: **REPRESENTATIVE OR MAIN GROUP (INCLUDING NOBLE GASES)**,**TRANSITION**, **AND INNER TRANSITION**.

5) The “Main Group” or “Representative” elements are found in columns __**1A**__ - __**8A**___.

6) Column 8A is also known as **NOBLE GASES**, or **INERT GASES**.

7) The classification scheme “Classes of Elements” is based on **PHYSICAL** properties.

8) The three classes are: **METALS**, **NON-METALS** & **METALLOIDS (SEMI-METALS)**.

9) List a few physical properties of metals:

a) **LEFT SIDE OF TABLE**
b) **ALL SOLID AT ROOM TEMPERATURE *EXCEPT MERCURY***
c) **USUALLY HARD**
d) **USUALLY HIGH MELTING POINT**
e) **HIGH DENSITY**
f) **SHINY, LUSTROUS**
g) **REFLECTS LIGHT**
h) **MALLEABLE**
i) **CONDUCT ELECTRICITY AND HEAT**
j) **DUCTILE (WIRE)**

10) The rows on the periodic table represent the number of **ELECTRON SHELLS** in an atom.

11) The columns on the periodic table represent the number of **VALENCE ELECTRONS** in an atom.

12) When an atom has more shells, which of the following is true?

a) Larger or smaller
b) More energy or less energy
c) More electrons or fewer electrons

13) The electrons in the outer shell are called **VALENCE** electrons.

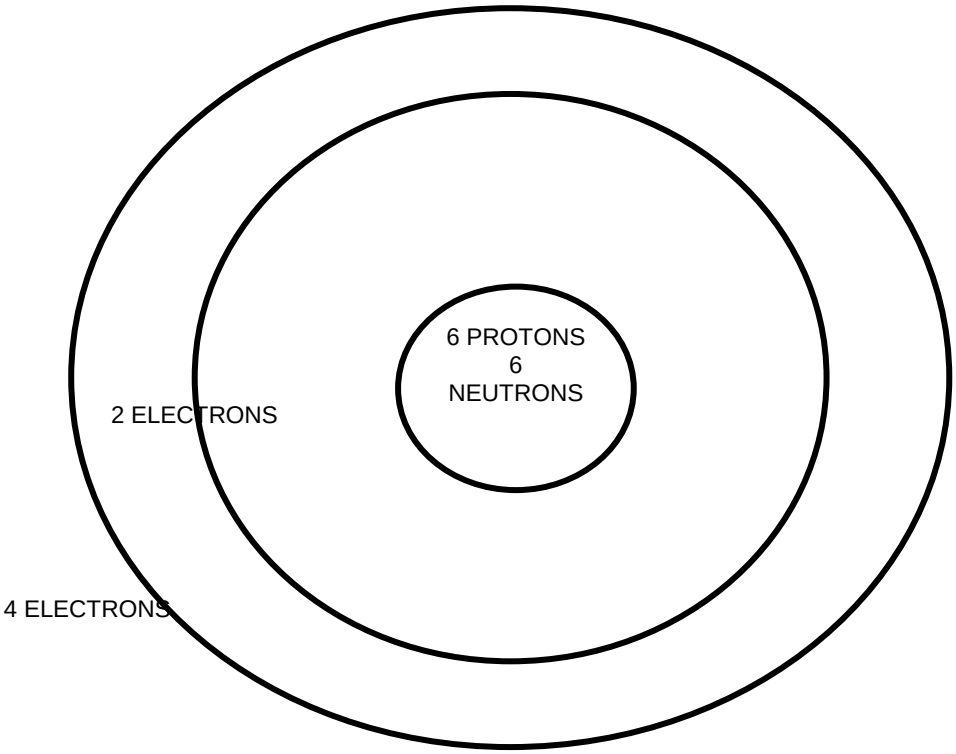
14) Fill in the blanks: n = rows $2(n)^2$ = Maximum number of electrons per shell

a) Shell #1 contains _____**2**_____ electrons when full 2(1x1) = 2
b) Shell #2 contains _____**8**_____ electrons when full
c) Shell #3 contains _____**18**_____ electrons when full
d) Shell #4 contains _____**32**_____ electrons when full

15) Complete the following for an atom of carbon:

a) Number of electrons _____**6**_____
b) Number of shells _____**2**_____
c) Number of electrons in first shell __**2**__
d) Number of electrons in second shell __**4**____
e) Number of valence electrons _____**4**_____

16) DRAW A CARBON ATOM:



17) Metals are usually found on the **LEFT** side of the periodic table.

18) Metals prefer to bond with **NON-METALS**.

19) Non-metals are usually found on the **RIGHT** side of the periodic table.

20) Non-metals like to bond with **OTHER NON-METALS AND METALS**.

21) Metals are usually **SOLID** at room temperature.

22) Non-metals are usually found in **SOLID, LIQUID, OR GAS** form at room temperature.

23) Noble gases are found on the **EXTREME RIGHT** side of the periodic table.

24) Noble gases usually bond with **NOTHING**.

25) Metalloids are found **BETWEEN METALS AND NON-METALS** on the periodic table.

26) Metalloids have the properties of **BOTH METALS AND NON-METALS**.

27) Valence electrons are located **IN THE OUTERMOST SHELL** in an atom.

28) What is the significance of valence electrons? **THESE ELECTRONS ARE INVOLVED WITH CHEMICAL REACTIONS**

29) Sharing, donating or accepting electrons results in the formation of **CHEMICAL BONDING**.

30) In order for electrons to be shared, donated or accepted, what must occur? **CHEMICAL REACTION**

31) All atoms are **NEUTRAL**. (neutral or stable)

32) All atoms are attempting to become **STABLE**. (neutral or stable)