Dougherty Valley HS Chemistry
Periodic Table Structure

Worksheet #2

Name: **Period:** **Seat#:**

Use each of the terms below just once to complete the passage. Some may not be used.

Atomic mass	atomic number	elements	accepted	Dmitri Mendeleev
Properties	Henry Moseley	eight	protons	periodic law

The first periodic table is mostly credited to **(1)** _____. In his table, the elements were arranged according to increasing **(2)** _____. One important result of this table was that the existence and properties of undiscovered **(3)** _____ could be predicted. The elements in the modern periodic table are arranged according to increasing **(4)** _____, as a result of the work of **(5)** _____. This arrangement is based on number of **(6)** _____ in the nucleus of an atom of the element. The modern form of the periodic table results in the **(7)** _____, which states that when elements are arranged according to increasing atomic number, there is a periodic repetition of their chemical and physical **(8)** _____.

Use the information on the left taken from the periodic table to complete the table on the right.

7
N
Nitrogen
14.007
$1s^2 2s^2 2p^3$

Atomic mass	**9.**
Atomic Number	**10.**
Electron Configuration	**11.**
Chemical Name	**12.**
Chemical Symbol	**13.**

For each item in Column A, write the letter of the matching item in Column B:

_____ **14)** A column on the periodic table
_____ **15)** A row on the periodic table
_____ **16)** Group B elements
_____ **17)** Elements that are shiny and conduct electricity
_____ **18)** Group A elements

a. metals
b. group
c. period
d. Transition elements
e. Representative elements

Write *true* if the statement is true; if the statement is false, change the italicized word or phrase to make it true.

_____ **19)** There are *two* main classifications of elements.
_____ **20)** More than three-fourths of the elements in the periodic table are *nonmetals.*
_____ **21)** Group 1A elements (except for hydrogen) are known as the *alkali metals.*
_____ **22)** *Group 3A* elements are the alkaline earth metals.
_____ **23)** Group 7A elements are highly reactive nonmetals knows *halogens.*
_____ **24)** Group 8A elements are very unreactive elements known as *transition elements.*
_____ **25)** Metalloids have properties of both metals and *transition metals*

Match each element in Column A with the element in Column B that has the most similar properties.

_____ **26)** Arsenic (As)
_____ **27)** Bromine (Br)
_____ **28)** Cadmium (Cd)
_____ **29)** Gallium (Ga)
_____ **30)** Germanium (Ge)
_____ **31)** Iridium (Ir)
_____ **32)** Magnesium (Mg)
_____ **33)** Neon (Ne)
_____ **34)** Nickel (Ni)
_____ **35)** Osmium (Os)
_____ **36)** Sodium (Na)
_____ **37)** Tellurium (Te)
_____ **38)** Tungsten (W)
_____ **39)** Yttrium (Y)
_____ **40)** Zirconium (Zr)

a. Boron (B)
b. Cesium (Cs)
c. Chromium (Cr)
d. Cobalt (Co)
e. Hafnium (Hf)
f. Iodine (I)
g. Iron (Fe)
h. Nitrogen (N)
i. Platinum (Pt)
j. Scandium (Sc)
k. Silicon (Si)
l. Strontium (Sr)
m. Sulfur (S)
n. Zinc (Zn)
o. Xenon (Xe)

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41) Why do sodium and potassium have similar chemical properties?

42) How is the energy level of an element's valence electrons related to its period on the periodic table? Give an example.

43) Into how many blocks is the periodic table divided?

44) What groups of elements does the s-block contain?

45) Why does the s-block portion of the periodic table span two groups?

46) What groups of elements does the p-block contain?

47) Why are members of group 8A virtually unreactive?

48) How many d-block elements are there?

49) What groups of elements does the d-block contain?

50) Why does the f-block portion of the periodic table span 14 groups?

51) What is the electron configuration of the element in period 3, group 6A?

52) Write the electron configurations for the elements in periods 2-4 of group 2A

Period 2, Group 2A:

Period 3, Group 2A:

Period 4, Group 2A:

53) Determine the group, period, valence electrons and group name of the elements below:

a. $1s^2 2s^2 2p^4$
Group #: Period #: # Valence e-: Group Name:

b. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^1$
Group #: Period #: # Valence e-: Group Name::

c. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^2$
Group #: Period #: # Valence e-: Group Name:

54) Write the electron configuration of the element fitting each of the following descriptions.

a. Group 8A element in the third period.

b. Halogen in the second period.

c. Group 4A element in the fourth period.

d. Group 1A element in the fourth period

55) What are the noble-gas configurations of all the elements with the following valence electron configurations

a. s^2

b. $s^2 p^1$