

Period Table Worksheet 1

1. While doing a research project, you noted the following information about five elements.

Element A :
· is a solid;
· conducts electricity;
· has 2 electrons in its outermost shell;
· has a low density.

metal

Element B :
· is not malleable
· does not conduct electricity;
· has 7 electrons in its outermost shell;
· is light green in colour.

non-metal

Element C :
· has all its outer orbits full
· does not form compounds with other elements;
· is in a gaseous state;
· has a very low boiling point.

non-metal

Element D :
· is a poor conductor of heat;
· is very hard;
· is non-ductile and non-malleable;
· conducts electricity.

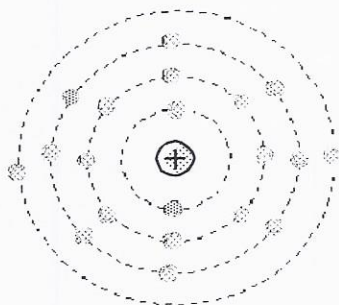
metalloid

Element E :
· is ductile and malleable;
· is a solid;
· is a good conductor of heat and electricity;
· has a high melting point.

metal

Classify the elements above as metals, non-metals or metalloids.

2. The simplified atomic model of an element is shown below.



What are, respectively, the Group and the Period of the Periodic Table to which the element belongs?

A) IIA and 4

B) II A and 3

C) IV A and 2

D) IV A and 3

- C) An element that immediately follows a noble gas always has its last electron in the same energy level as the preceding noble gas. This means that the element is in a new Period
- D) An element that immediately follows a noble gas always has its last electron in a new energy level. This means that the element is in the same Period.

11. Give the name of each element described below.

- The element has electrons in two energy levels (shells) and the outer level is full. *Ne Mg*
- The element has electrons in three energy levels (shells) and it has two valence electrons. *Mg*
- The element has an atomic number of 14. *Si*
- The element reacts vigorously with water and the electric charge of its nucleus is +19. *K*

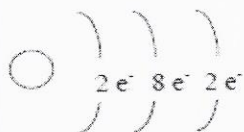
12. Five elements are identified in the following periodic table.

I A 1	II A 2	III A 13	IV A 14	V A 15	VIA 16	VII A 17	VIII A 18
						9 F 19.00	10 Ne 20.18
11 Na 22.99				15 P 30.97			
	20 Ca 40.08						

Match each of the five elements with one of the characteristics listed below

- Its third energy level contains 5 valence electrons. *P*
- It is a gas that does not react with metals or nonmetals. *Ne*
- It is an element whose chemical reactions are similar to those of potassium. *Na*
- It is one of the most corrosive gases. *F*
- It is an alkaline earth metal that is a component of bones and teeth. *Ca*

13. The following diagram shows the Rutherford-Bohr model of an atom.



Using the periodic table answer the following questions:

a) To what group does this element belong? *Alkaline earth metal (2)*

b) To what period does this element belong? *3*

14. The following table gives some information about four elements (E₁, E₂, E₃ and E₄).

Element	Protons	Electrons
E ₁	19	
E ₂		18
E ₃	12	
E ₄		9

Which of these elements is an alkaline earth metal?

A) Element E₁

B) Element E₂

C) Element E₃

D) Element E₄

*K
Ar
Mg
F*

15. The chemical symbols of four elements are given in the table below. Fill the table.

ELEMENT	NUMBER OF VALENCE ELECTRONS	CHEMICAL FAMILY NAME
Br	7	halogen
Ca	2	alkaline earth
Na	1	alkali
Ne	8	noble or inert

16. The table below gives the chemical symbols of four elements and provides space to indicate the following characteristics: the number of valence electrons, the number of energy levels, chemical reactivity (none, low or high) and the family number. Using the periodic table, fill in the blank boxes in the table.

Element Symbol	Number of Valence Electrons	Number of Energy Levels	Chemical Reactivity	Family Number
Li	1		high	
C		2		IV (4)
Cl	7	3		
Ne			none	VIII (8)

17. The table below provides certain information about the symbol, the electron configuration, the name of the chemical family and the period number of four elements in the periodic table.

Symbol	Electron configuration	Name of the chemical family	Period number
Mg	$1s^2 2s^2 2p^6 3s^2$	alkaline earth	
Li	$1s^2 2s^1$	Alkali metals	2
B	$1s^2 2s^2 2p^1$		2
He	$1s^2$	Noble	

Using the above information and the periodic table, fill in the empty boxes in the table

18. The following are statements about certain elements in the periodic table. Which statement is true?

- A) Nitrogen (N) is a noble gas located in period 5.
- B) Bromine (Br) is a halogen located in period 4.
- C) Hydrogen (H) is an alkali metal located in period 1
- D) Magnesium (Mg) is an alkaline earth metal located in period 2.

19. An element in the halogen family has four electron shells. What is the name of this chemical element?

- A) Beryllium
- B) Bromine
- C) Iodine
- D) Potassium