Matter Study Guide

P.PM.07.21 Identify the smallest component that makes up an element.

Atom: smallest part of an element that still has the properties of that element.

Element: cannot be broken down into a simpler substance and is made of only one kind of atom.

Compound: made of several elements and contain more than one kind of atom.

P.PM.07.22 Describe how the elements within the Periodic Table are organized by similar properties into families.

Every element in the periodic table has a set of unique properties.

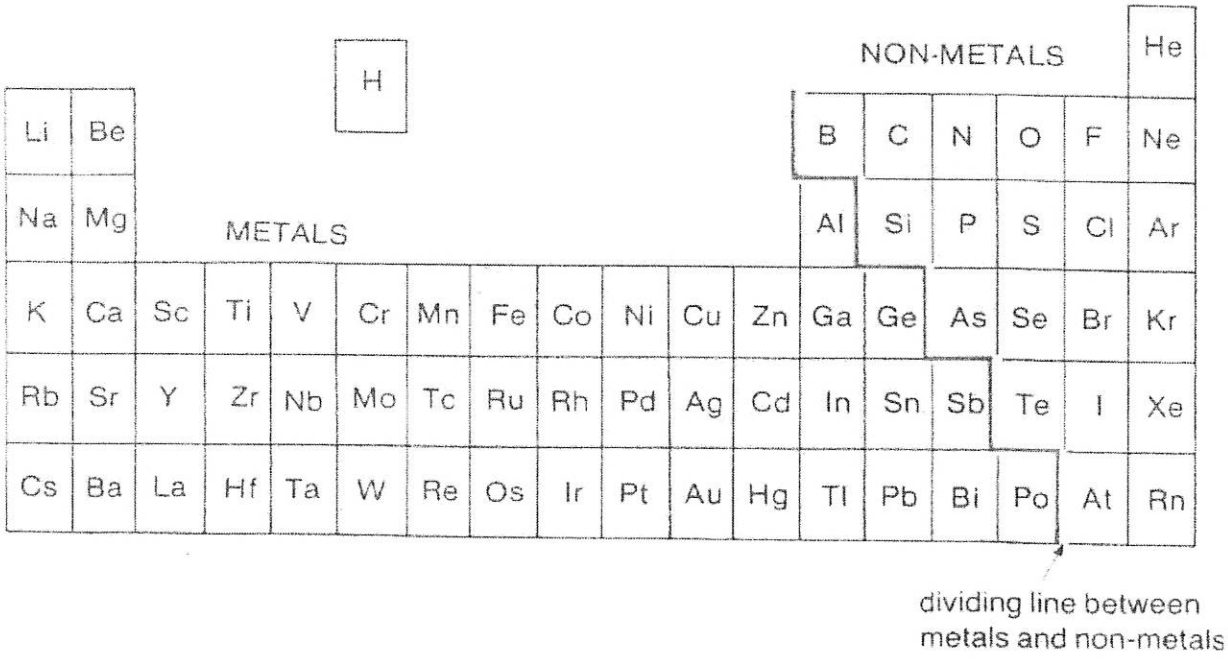
Compounds can be recognized by having multiple capital letters.

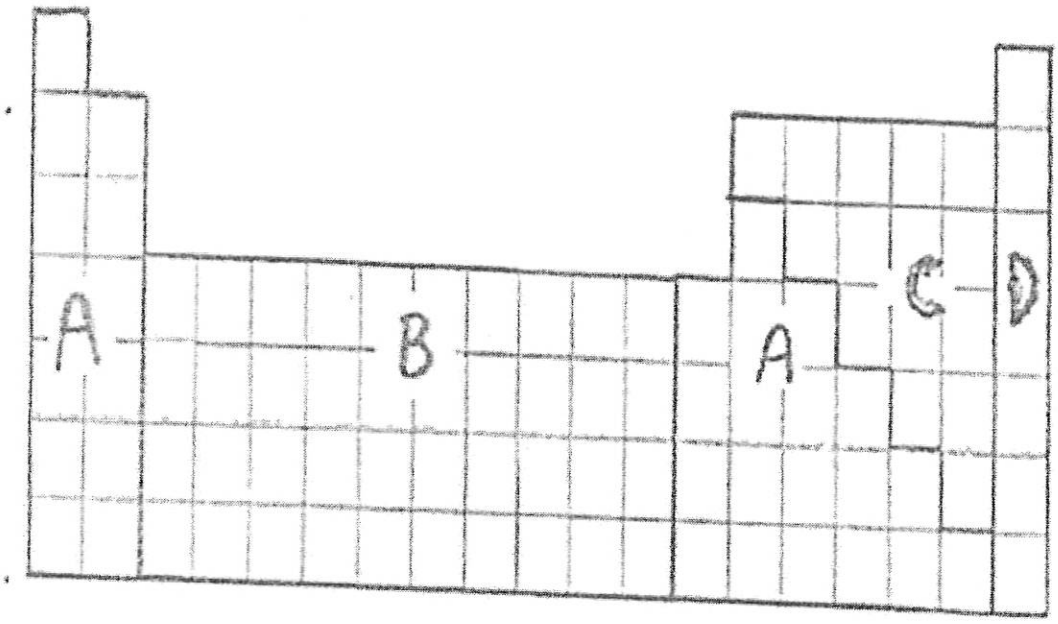
Elements are arranged in the periodic table in order of increasing atomic number.

The horizontal columns in the periodic table are called rows or periods.

The vertical columns in the periodic table are called families or groups.

The elements left of the stair like line are metals and the elements right of the stair like line are nonmetals.





Section A is highly reactive metals.

Section B is least reactive metals.

Section C is highly reactive nonmetals.

Section D is least reactive nonmetals (Noble Gases).

P.PM.07.23

Different element atoms bonding chemically is how compounds form.

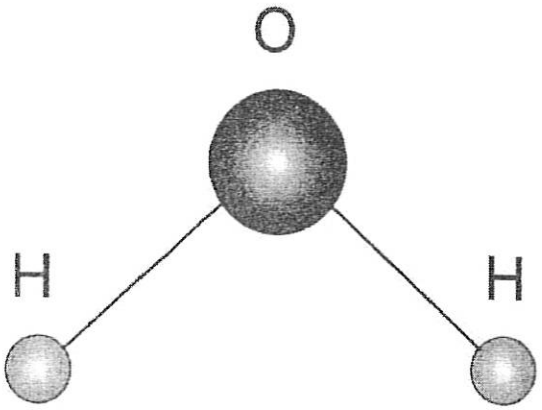
Atoms bond with each other because of the electrons in their outer shells.

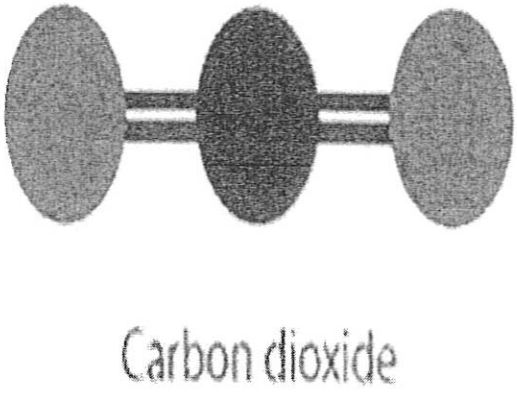
Every molecule of salt contains one sodium atom and one chlorine atom.

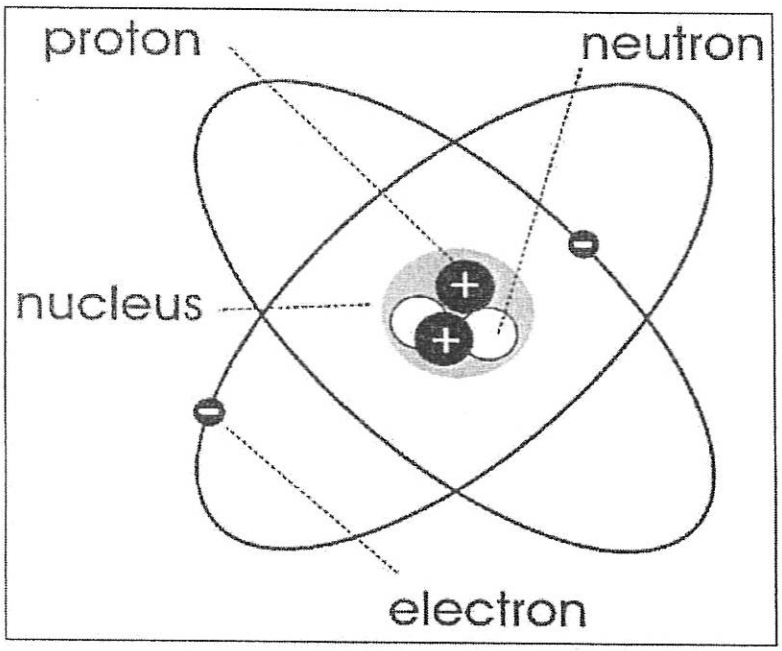
Every molecule of carbon dioxide contains one carbon atom and two oxygen atoms.

Every molecule of water contains one oxygen atom and two hydrogen atoms.

Water Molecule







A proton is positively charged.

A neutron is neutral or no charge.

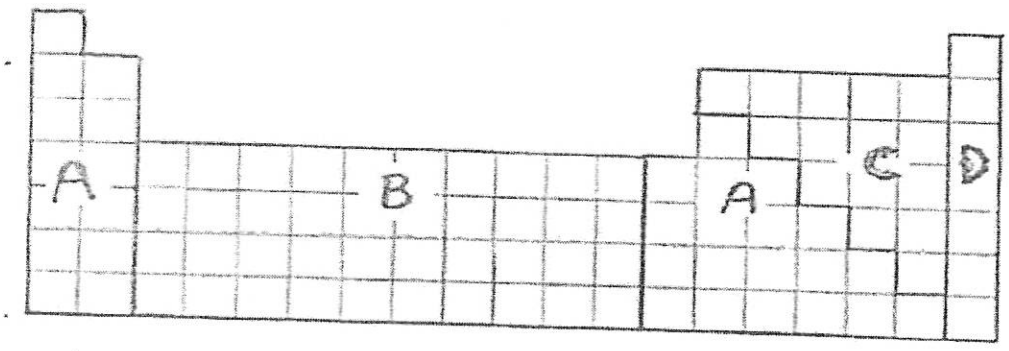
A electron is negatively charged.

The number of protons and neutrons added together are the atomic mass of an atom.

1. An element is made of only one kind of _____.
2. A _____ cannot be broken down into a simpler substance.
3. An atom is the smallest part of an _____ that still has the properties of that element.
4. The difference between elements and compounds is that _____ contain only one kind of atom and _____ contain more than one kind of atom.
5. Every element in the periodic table has a set of unique _____.
6. Figure out which one is a compound and which one is an element.

   CO H Pb H_2O Mn Au NaCl He O CO_2 N
7. The elements are arranged in the periodic table in order of _____ atomic number.
8. The _____ columns in the periodic table are known as rows or periods.
9. The _____ columns in the periodic table are known as families or groups.
10. _____ are to the left of the stair like line on the periodic table.
11. _____ are to the right of the stair like line on the periodic table.

Use the picture to answer 12 through 15. (next page)



12. Least reactive nonmetals (Noble Gases) are found at which letter? _____

13. Highly reactive metals are found at which letter? _____

14. Least reactive metals are found at which letter? _____

15. Highly reactive metals are found at which letter? _____

16. _____ form when different element atoms bond chemically.

17. Every molecule of salt contains _____ sodium atom and _____ chlorine atom.

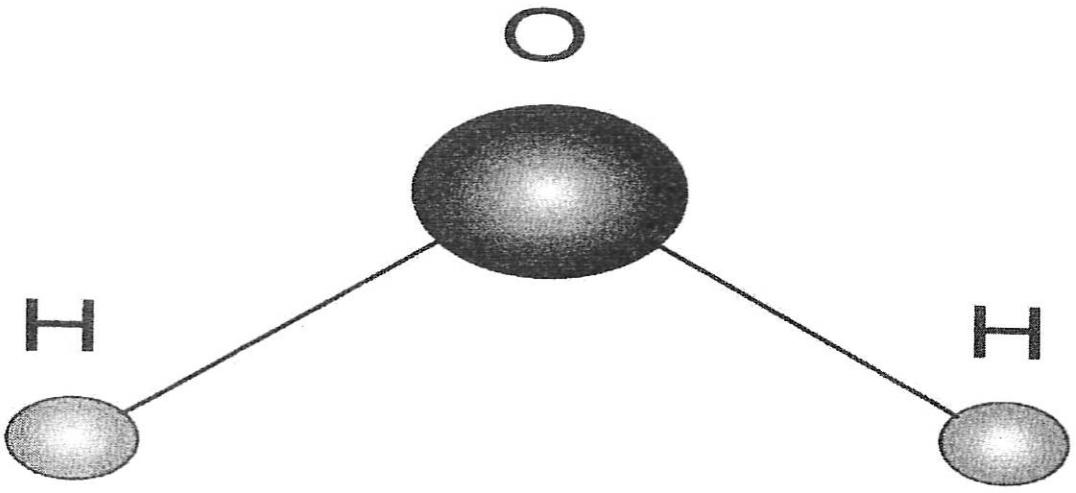
18. Every molecule of carbon dioxide contains _____ carbon atom and _____ oxygen atom.

19. Every molecule of water contains _____ hydrogen atom and _____ oxygen atom.

20. _____ has more than one element in it.

21. Atoms bond with each other because of the _____ in their outer shells.

22. What is the name of the compound in the picture below? _____



23. _____ is the area at the center of an atom.

24. _____ circles the nucleus in shells.

25. _____ and _____ are subatomic particles in the nucleus.

26. _____ is a subatomic particle that is negatively charged.

27. _____ is a subatomic particle that has no charge or is neutral.

28. _____ is a subatomic particle that is positively charged.

29. Protons plus neutrons are equal to an atom's _____.