

Periodic Table : Notes/W.S.-20

The periodic table was discovered by Dmitri Mendeleev. He found that when the elements were arranged in a table according to increasing atomic mass, properties of the elements were found to occur periodically. This means that the columns (groups) of the periodic table contain elements with similar properties.

Notes on the Periodic Table

The first group contains very reactive elements. These include the gas hydrogen and several metals. The metals can be cut with a knife. These metals are called the alkali metals.

The last column contains the noble gases. These elements are all gases that are unreactive. This means that they don't normally react with other elements to form new compounds.

The second-last column contains the halogens. These are very reactive elements.

The transition metals are found in groups 3-12. (under Sc to Zn)

The States of the Elements

At room temperature, mercury and bromine are liquids. Hydrogen, nitrogen, oxygen, fluorine, chlorine, and the noble gases are all gases. The rest of the elements are solid.

Metals and Non-metals

The two major classes of elements are; metals and non-metals.

The metals are to the left of the staircase in the periodic table, between boron and astatine. The non-metals are to the right.

Properties of Metals and Non-metals

Metals

conduct electricity (and heat)
malleable (can be hammered)

Non-metals

not good conductors

into thin sheets)
ductile (can be made into wires)
shiny

not malleable
not ductile
not shiny

Answer the following questions:

- 1) Who discovered the periodic table?
- 2) What is a group?
- 3) What is true about the properties of the elements in a group?
- 4) Give four differences between metals and non-metals.
- 5) Which of the following is a non-metal?
a) niobium b) radium c) iodine b) cesium
- 6) Which of the following **not** a gas?
a) hydrogen b) neon c) nitrogen d) bromine
- 7) Which of the following is a liquid?
a) mercury b) krypton c) lithium d) boron
- 8) Which of the following is an alkali metal?
a) nickel b) rubidium c) lead d) zinc
- 9) Which of the following is a halogen?
a) iron b) magnesium c) fluorine d) neon
- 10) Which of the following is a noble gas?
a) argon b) silver c) oxygen d) carbon
- 11) Which of the following is a transition metal?
a) calcium b) gold c) aluminum d) sodium

Answers: 1) Mendeleev, 2) It is a column of elements in the periodic table., 3) They are similar., 4) Metals are; conductors, malleable, ductile, and shiny. Non-metals have none of these four properties., 5) c, 6) d, 7) a, 8) b, 9) c, 10) a, 11) b.