**Chemistry** Name: _____

Section _____ PERIODIC TABLE KEY Date: _____

## Chapter 6: The Periodic Table and the Periodic Law

Brief History of the Periodic Table

1817 Johann Wolfgang Döbereiner Triads

1860 Stanislao Cannizzaro Better atomic weights (atomic mass)

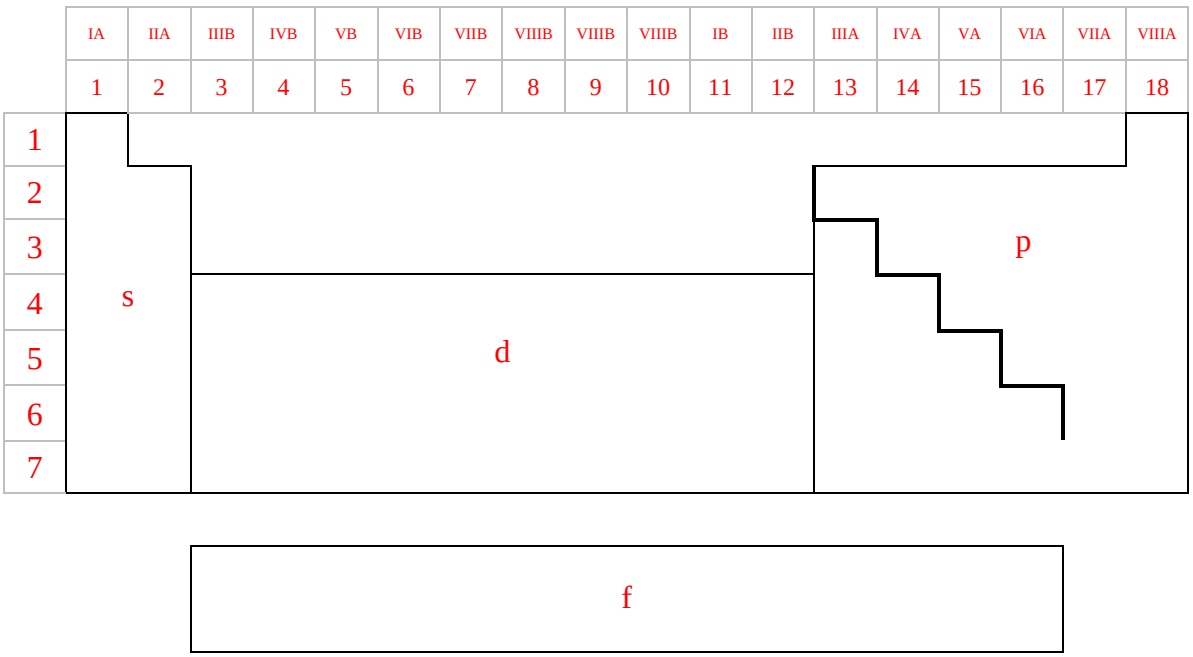
1865 John A. Newlands Law of Octaves

1864-70 J. Lothar Meyer Periodicity

1869 Dmitri Mendeleev Periodic Law

1911 Henry Gwyn Jeffreys Moseley Modern Periodic Law

Parts of the Periodic Table




Blocks show the sublevels of electrons when writing certain electron notations

On the Periodic Table above, mark the s-block, p-block, d-block, and f-block.

Groups (or families ) are vertical columns on the Periodic Table

Write both the physics and the American chemical group numbers on the Table above.

Go on to the next page.

Write the names of the following groups.

1 Alkali Metals 2 Alkaline Earth Metals 13 Icosagens

14 Crystallogens 15 Pnictogens 16 Chalcogens

17 Halogens 18 Noble Gases

The f block does not have group numbers

The d block elements are often called the transition metals

The f block elements are often called the inner transition metals

Periods (or series ) are horizontal rows on the Periodic Table

Write the period numbers on the left side of the Periodic Table on the previous page.

The period numbers show the highest electron shell electrons occupy

Metals comprise 77% of the elements on the Periodic Table

Explain where metals are found on the Periodic Table on the previous page.

The s-block (except H), the d-block, the f-block, and elements below the zig-zag line including aluminum (Al)

Nonmetals comprise 17% of the elements on the Periodic Table

Explain where nonmetals are found on the Periodic Table on the previous page.

Elements above the zig-zag line in the p-block plus H

Metalloids comprise 6% of the elements on the Periodic Table

Explain where metalloids are found on the Periodic Table on the previous page.

Elements that touch two of the zig-zag lines on the Periodic Table excluding Al

Go on to the next page.

Trends on the Periodic Table

The following properties show trends on the Periodic Table

Atomic Radius : the size of an atom

Ionic Radius : the size of a charged atom

Electronegativity : how strongly an atom attracts electrons in a chemical bond

First Ionization Energy : The amount of energy required to remove one electron from a neutral gaseous atom in the ground state

Metallic and Nonmetallic Properties

Group trends occur because the number of electron shells increases going down a group

Adding more electrons causes the size of an atom to increase

because as electrons fill higher shells they are farther from the nucleus

Adding more electron shells causes attraction toward the nucleus to decrease

because electrons in higher shells are farther from the nucleus

Period trends occur because moving left to right across a period, the number of protons in the nucleus is increasing

Adding more protons in the nucleus causes the size of an atom to decrease

because the larger attractive force pulls the electron shells closer to the nucleus

Explain why Ne is larger than F Both atoms are very small but Ne has 8 valence electrons and F only has 7 valence electrons; 7 electrons have less repulsion than 8 electrons

This is the last page.