

Chapter 5: Periodic Table Guided Notes

I. History of the Periodic Table

A. Dmitri Mendeleev (1869, Russian)

1. Organized the elements on the periodic table by increasing _____
_____.
2. Predicted the existence of undiscovered elements.

B. Henry Mosley (1913, British)

1. Organized elements on the periodic table by increasing _____
_____.
2. Fixed problems in Mendeleev's arrangement.

C. Periodic Law

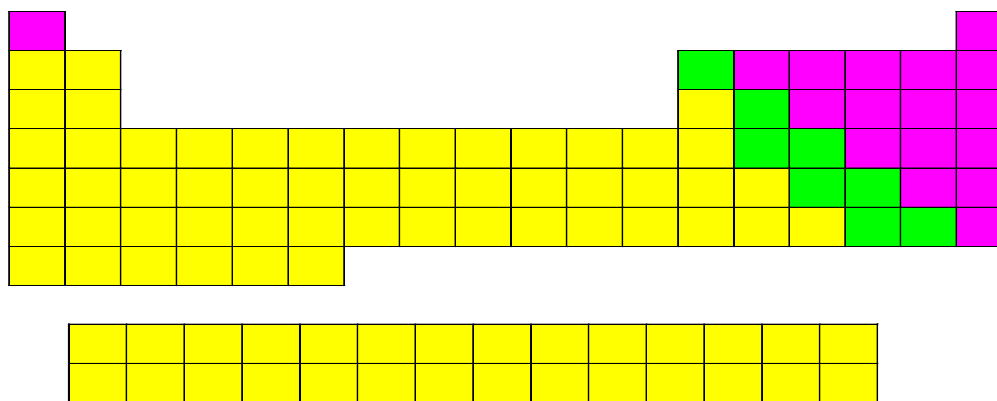
1. Properties of elements repeat in a predictable way when _____
_____ are used to arrange elements into groups.

Key Concept: How is the modern periodic table organized?

II. Organization

A. Metallic Character

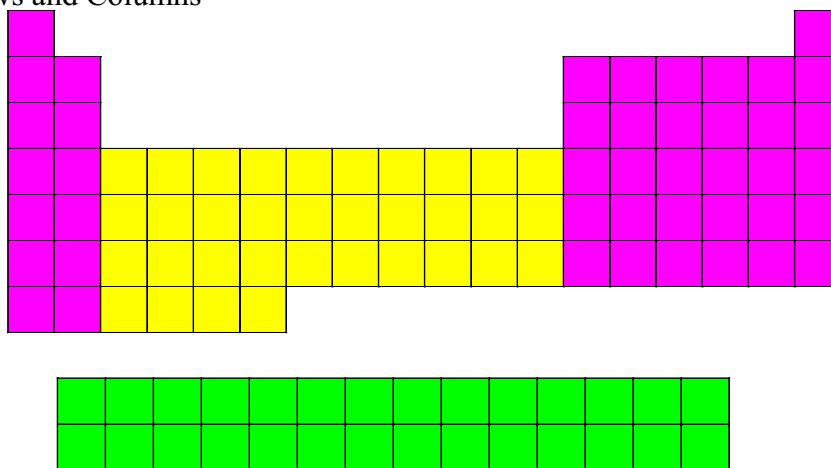
1. Periodic table consists of: _____, _____,



2. The majority of the elements on the periodic table are classified as _____.
3. _____ are elements that are good conductors of electric current and heat.
4. Except for mercury, metals are _____ at room temperature.
5. Most metals are (solid/liquid/gas).
6. _____ generally have properties opposite to those of metals.

7. _____ are elements that are poor conductors of heat and electric current.
8. Nonmetals have _____ points – many nonmetals are _____ at room temperature.
9. Nonmetals that are solids at room temperature tend to be brittle. If they are hit with a hammer, they shatter, or crumble.
10. _____ are located on the periodic table between metals and nonmetals.
11. _____ are elements with properties that fall between those of metals and nonmetals.
12. For example, a metalloid's ability to conduct electric current varies with _____. Silicon (Si) and Germanium (Ge) are good insulators at low temperatures and good conductors at high temperatures.

B. Rows and Columns



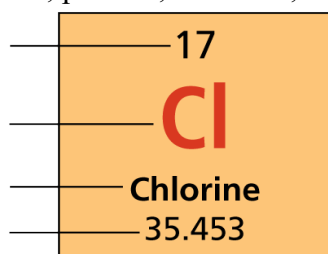
1. Each column in the periodic table is called a _____ or _____.
2. The elements in a group have the same number of valence electrons, so members of the same _____ in the periodic table have similar chemical properties.
3. This pattern of repeating properties is the _____.
4. Each column in the periodic table of elements is a _____.
 Elements in group 1 have _____ valence electron.
 Elements in group 2 have _____ valence electrons.
 Elements in group 13 have _____ valence electrons.
 Elements in group 14 have _____ valence electrons.
 Elements in group 15 have _____ valence electrons.
 Elements in group 16 have _____ valence electrons.
 Elements in group 17 have _____ valence electrons.
 Elements in group 18 have _____ valence electrons.

5. Each row in the periodic table of elements is a _____.
- Elements in period _____ have one energy level.
- Elements in period _____ have two energy levels.
- Elements in period _____ have three energy levels.
- Elements in period _____ have four energy levels.
- Elements in period _____ have five energy levels.
- Elements in period _____ have six energy levels.
- Elements in period _____ have seven energy levels.

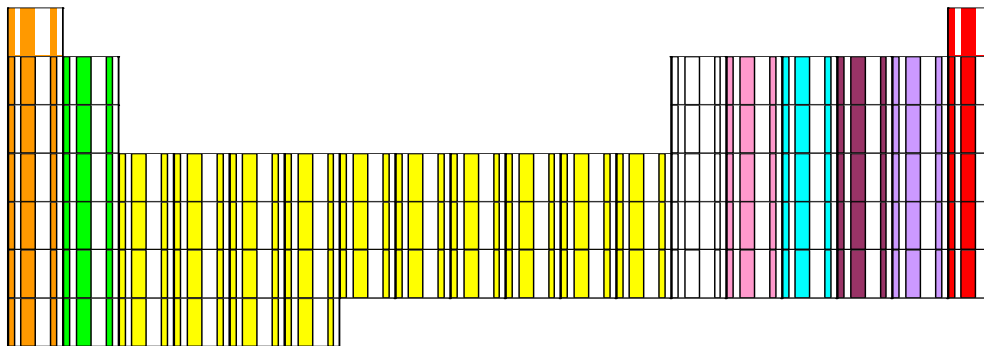
III. Periodic Trends

A. Terms

1. There are four pieces of information for each element. Atomic number, atomic mass, symbol, element name, protons, electrons, neutrons



2. Periodic Law states that properties of elements repeat periodically when the elements are arranged by increasing _____.
3. _____ are the electrons in the outermost energy levels.
4. Group # is the number of _____ (except Helium (He)).
5. Period # is the number of _____.



B. Dot Diagram

1. Dots represent the _____.

Examples:

Sodium



Chlorine

