

The Periodic Table

I. States of Matter

- A. Majority are solids (colored black)
- B. Hydrogen plus many on the right side are gases (colored red)
- C. Two liquids – mercury and bromine (colored blue)
- D. Manmade elements – everything larger than uranium (colored white)

II. Metals, Metalloids, and Nonmetals

A. Metalloids

1. exhibit properties of metals and nonmetals
2. all are solids at room temperature

3. B, Si, Ge, As, Sb, Te, Po

B. Nonmetals

1. Brittle
2. Do not conduct heat and electricity
3. Dull appearance
4. Right of metalloids plus hydrogen
5. Low boiling and melting points

C. Metals

1. Shiny appearance
2. Conductors of heat and electricity
3. Malleable and ductile
4. All elements remaining (including the manmade ones which are assumed metals)
5. High melting and boiling points

III. Special Groups and Periods

A. Alkali Metals

1. Group 1 except H
2. Softest metals
3. Most reactive
4. Common in ocean water
5. one valence electron

B. Alkali Earth Metals

1. Group 2 elements
2. Highly reactive
3. Abundant in the earth's crust
4. two valence electrons

C. Transition Metals

1. Groups 3 through 12
2. Bottom middle are densest (Os),

hardest (Os/W), and most malleable elements (Au/Ag)

3. two valence electrons

D. Chalcogens

1. Group 16

2. Highly reactive nonmetals at the top of the group

3. six valence electrons

E. Halogens

1. Group 17

2. Most reactive nonmetals

3. Violent reactions with alkali metals

4. seven valence electrons

F. Noble Gases

1. Group 18

2. Stable elements – octet – eight
valence electrons