



THE PERIODIC TABLE

CHEMISTRY KNIGHTS

BROWN 2018-2019

ORGANIZATION

Group/ Family

- Categorized by column
- Members of each group have the same number of electrons in their outer electron energy level or “shell”
- Most reactions involve only the outer electrons, so members of the same group generally participate in the same types of reactions
- Members of the same group usually have very similar chemical properties

Period/ Row

- Categorized by horizontal row
- Members of the same period have the same number of electron “shells,” but they differ in how they are filled

ELEMENT CLASSIFICATION

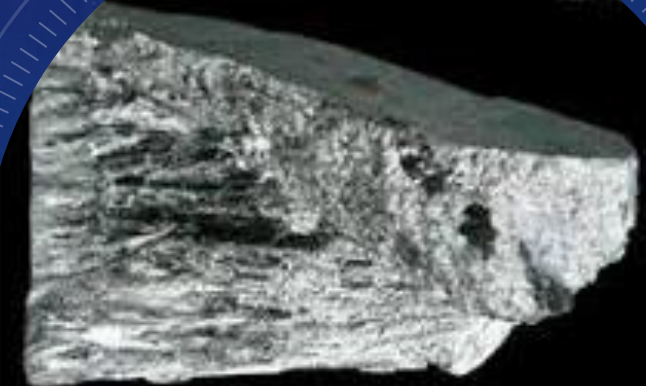
- Metals:
 - Solid at room temperature (75 degrees F)
 - Have a shiny appearance
 - Usually give up electrons in a chemical reaction
- Non-metals:
 - Gases or solids at room temperature
 - Dull and brittle
 - Normally take electrons in a chemical reaction
- Metalloids:
 - Solids at room temperature
 - Share characteristics of metals and nonmetals



Chlorine



PLATINUM



Tellurium

ELEMENTAL GROUPS

1A - Alkali metals (except H)

- Soft with low density
- Have low melting points
- Are extremely reactive
- Have 1 electron in their outer shell that they are likely to give up in a chemical reaction
- Form strong bonds with Halogens

2A – Alkaline Earth Metals

- Harder and denser than alkali metals
- Silver-colored metals with high melting points
- Have two electrons in their outer energy level, which they tend to give away
- Found in the earth's crust
- Are found in many rocks on the earth

ELEMENTAL GROUP (CONTINUED)

Group 3-12 – Transition Metals

- Have good thermal and electrical conductivity
- Are hard metals and have very high melting points
- Have low to moderate reactivity
- Mercury is liquid at room temperature because of its low melting point

Group 7A – Halogens

- Are highly reactive and are not found naturally in pure form on the earth
- Only need 1 electron to complete their outer shell
- React with metals to form salt (EX: NaCl)
- At room temperature, they can exist as a solid, liquid or gas depending on the element

ELEMENTAL GROUP (CONTINUED)

• Group 8A – Noble Gases

- Have low boiling points
- Have almost no reactivity
- Have complete outer electron energy levels (8 electrons= octet)
- Commonly used in lighting
- Gases at room temperature

Diatomic Elements - H, N, F, O, I, Cl, Br

- These elements are unstable as a single element so they are generally found in nature as a pair
- H₂, N₂, F₂, O₂, I₂, Cl₂ and Br₂

WORKS CITED

- "You be the Chemist" Study Guide
- <https://www.chemed.org/wp-content/uploads/Passport-to-Science-Exploration-The-Core-of-Chemistry-2015-2016.pdf>