

Periodic Table Stations Activity

Station 1 : Organization of Periodic Table

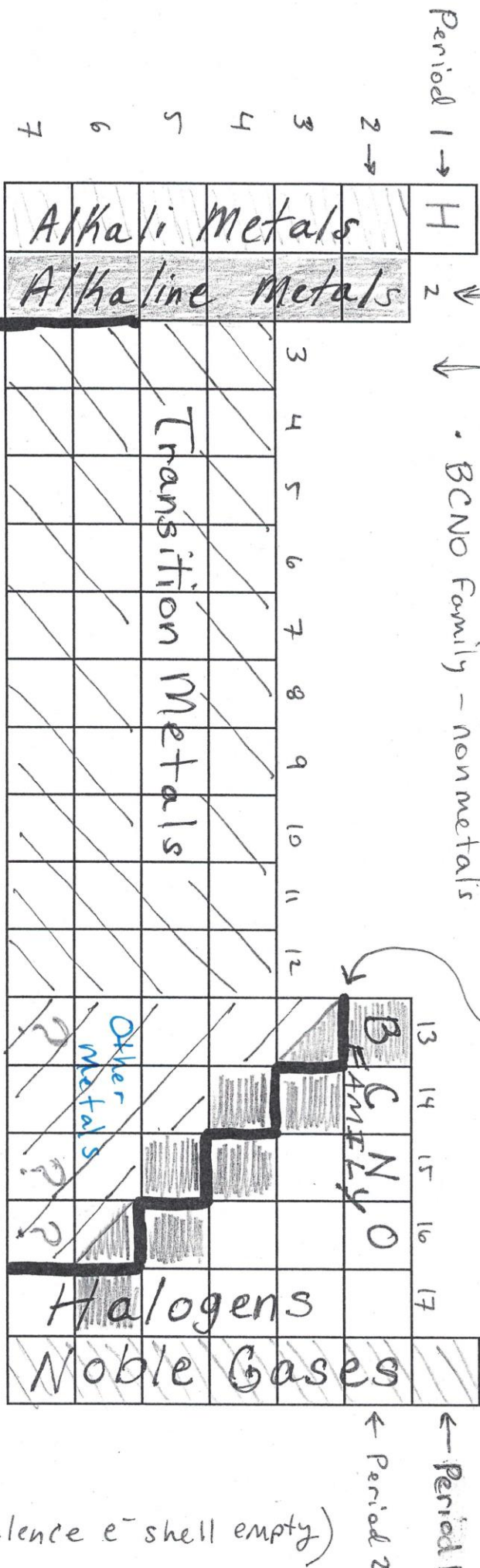
1. Atomic number is equal to the number of protons and these have a positive charge.
2. What happens to the atomic number as you move across the periodic table from left to right?
Atomic # increases
3. Each letter (symbol) corresponds to the element's name. The symbols represent a Greek or Latin origin of the element.
4. What are the vertical columns called in the periodic table? Groups
5. What do each element in the same group have in common?
Similar properties & similar characteristics
same valence e⁻ shell # (exception) transition metals
6. What are the horizontal rows called in the periodic table? Periods
7. There are 18 groups and 7 periods on the table.

Valence e^- - 1 - 2
Groups 1 Group 2
etc.

Periodic Table

3 - 4 - 5 - 6 - 7 - 8
valence e^- Groups

- Periods - increasing atomic # Left \rightarrow Right
- Groups - elements with similar properties
- Metal & non-metal boundary
- Metalloids reside along it
- BCNO Family - nonmetals



Alkali e^- shell empty
Valence highly reactive
ex: Sodium Na
Alkaline

Lanthanide Series
Actinide Series
Actinides - radioactive

Synthetic (manmade)

Halogens - highly reactive
Noble Gases - inert (non reactive)
Full valence e^- shell
ex: Helium

(valence e^- shell empty)

Station 2 :Metals and Nonmetals

1. Where are the metals located on the periodic table? Left Side

2. Describe four physical properties of metals.

- a. Malleable
- b. Shininess or luster
- c. hardness
- d. ductile or conductive

3. Where are the nonmetals located on the periodic table? Right Side

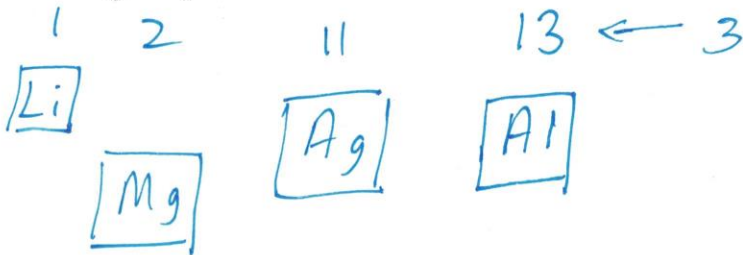
4. Describe four physical properties of nonmetals.

- a. brittle (tend to shatter)
- b. form powders
- c. dull (lack luster) earth tones
- d. poor conductors

5. List the names and symbol of four metals below.

Alkali - Li Transition - Ag
Alkaline - Mg Metalloid - Al

6. Write the group number next to each metal above.



"or 3 if talking about valence e⁻ groups"

Station 3: Properties of the Periodic Table

1. A periodic table can tell you if an element is a Solid, liquid or gas.
2. Most elements are solid at room temperature.
3. What makes mercury and bromine different than the rest of the elements?
Mercury is liquid at room temp. (Metal)
Bromine is liquid too at room temp (Halogen)
4. What effect does temperature have on an element?
Temp can cause a phase change in the state of an element
5. What does radioactive mean? an unstable nucleus which emits particles & energy
6. Where are these elements located on the periodic table? Actinide Series
7. Elements on the periodic table can either be natural or synthetic.
(man made)

Station 4: Alkali Metals and Alkaline Earth Metals

1. What group are the alkali metals found on the periodic table? Group 1

2. What elements are considered to be alkali metals?

Li, Na, K, Rb, Cs, Fr

3. Describe 3 properties of alkali metals.

a. soft white to silvery metal

b. highly reactive

c. tarnish rapidly in air

(seldom found not in)
compounds in
nature

4. What do hydrogen and alkali metals have in common?

Both are highly reactive with incomplete
valence shells

5. What group are the alkaline earth metals found on the periodic table? Group 2

6. Describe 3 properties of alkaline earth metals.

a. soft white / silver colors

b. very reactive (tarnish or oxidize)

c. higher melting points & higher density

7. List 3 properties that alkali metals and alkaline earth metals have in common.

a. very reactive

b. react with halogens

c. both metals

Station 5 : Transition Elements and BCNO Family. → Group 13-16

1. Where are the transition elements found on the periodic table? _____

Transition Metals → 3-12

2. How many elements are in this group? 40

68 if you include Lanthanide

3. List 3 properties of the transition elements.

a. Most bond w/ oxygen

Actinide
(Series)

b. most want to gain or lose (1 or 2) e^-

c. malleable, ductile, conductive

4. List some ways that the transitional metals are used everyday.

a. added to paints for color

b. construction materials : pipes, wires, alloys
steel

c. Coins, bikes, jewelry

5. How did the BCNO family get its name?

Boron, Carbon, Nitrogen, Oxygen Non-Metals

6. The members of this family are B, C, N
and O.

7. List some ways that the BCNO families are used everyday.

a. Boron is found in a variety of foods. (Peaches!)

b. Nitrogen - in the air we breath & in the ground
as fertilizers

c. Charcoal → Diamonds (Carbon)

d. Oxygen - vital to life (Bonds w/ everything)

Station 6 : Group 17 - Halogen Family and Group 18 - Noble Gases

1. Where are the halogens located on the periodic table? adjacent to Noble Gases

2. Halogen reactivity decreases as the atomic # increases moving down the group.

3. At room temperature the Halogen family

a. Fluorine and chlorine - Gas

b. Iodine and astatine - solid

c. Bromine - liquid

4. Halogens generally form salts with the alkali metals.

5. What group number is the noble gases? 18

6. Why are the noble gases considered "inert"?

They are non-reactive having full valence e⁻ shell. They seldom react w/ anything else.

7. What state of matter do all noble gases exist? Gas

8. Name the noble gases and their symbols.

He - helium

Ne - neon

Ar - argon

Kr - Krypton

Xe - xenon

Rn - Radon