

concept analysis for periodic table

➤ **Concept label** : Groups

➤ **Concept definition**: The vertical columns in the periodic table

➤ **Type of concept** : concrete

Attribute to :-

- **critical** : groups, vertical columns , periodic table
- **variable** : Number of sub shells, Atomic number, metallic properties , non metallic properties

- **Concept position :**

- **supper ordinate** : periodic table

- **Coordinate** : periods

- **Subordinate**: families

Examples : group I,II,III,...

Non examples: periods 1,2,3,...

Concept analysis for Blocks

- **Concept label** : blocks
- **Concept definition** : a block of the periodic table of elements is a set of adjacent groups
- **Concept type** : concrete
- Attribute to :
 - a. **Critical** : adjacent groups, periodic table, elements, blocks
 - b. **Variable** : electron configuration , atomic orbitals, valence electrons

- **Concept position :**

- a. **Supper ordinate** : periodic table

- b. **Coordinate** : representative elements,
transition elements, inner transition elements

- c. **Subordinate** : metals, non metals, metalloids
noble gases,

Example : s-block, p-block, d-blocks, f-blocks

None example: period 1, 2,3,...

Concept analysis for Metals

- **Concept label:** metals
- **Concept definition:** elements those are on the left and bottom side of the periodic table
- **Type of concept :** concrete
- **Attribute to**
 - a. **Critical :** left and bottom side, periodic table
 - b. **Variable :** conductivity, magnetic character, hardness, density, melting point, valence electrons , ionization energy, atomic size,

- **Concept position :**
 - a. **Supper ordinate :** elements
 - b. **Coordinate :** non metals
 - c. **Subordinate :** alkali metals, alkaline earth metals , transition metals , inner transition metals
- **Examples :** s-block elements with out H, d-block elements , lanthanides, actinides
- **Non examples :** noble gases, halogens, oxygen family except Po, Te,

Concept analysis for Non metals

- **Concept label** : non metals
- **Concept definition**: non metals are the upper right of the periodic table
- **Concept type**: concrete
- **Attribute to**:
 - a. **Critical** : upper right, periodic table, non metals
 - b. **Variable** : state, boiling point, melting point, reactivity, atomic size, electro negativity, electro affinity, non metallic character

- Concept position :
 - a. Supper ordinate : elements
 - b. Coordinate : metals
 - c. Subordinate : none

Examples : noble gases, halogens, oxygen family
except Po ,Te

Non examples : transition elements, Group I and
group 2 elements,

Concept analysis for Metalloids

- **Concept label** : metalloids
- **Concept definition** : metalloids have some properties of non metals and metals which are arranged in zigzag steps between the metals and non metals in the periodic table
- **Concept type**: concrete
- **Attribute to**:
 - a. **Critical** : properties of metals and non metals, zigzag steps , periodic table , metalloids
 - b. **Variable** : metallic character, groups, periods, atomic number, density, conductivity, Mp, Bp,

- Concept position :

- a. Supper ordinate: elements
- b. Coordinate : non metals and metals
- c. Sub ordinate : none

Examples :silcon, germanium, boron, gallium

Non examples : group 1 and 2 elements,
halogens, d – block elements, oxygen family
except Po, Te

- **Concept label** : atomic number
- **Concept definition** : atomic number is the number of protons in the nucleus of an atom that determine the identity of an element
- **Type of concept** : abstract

Attribute to:-

- **Concrete** : atomic number ,identity of element, number of protons in the nucleus , atom
- **Variables**: protons ,

- Concept position:

Supper ordinate: elements

Coordinate: mass number

Subordinate :none

Examples: atomic number of elements

Non examples: number of neutrons of elements
, mass number of elements

