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## The Organization of the Periodic Table

*List*

- describe the organization of the periodic table

*Notes***Cross Classification in the Periodic Table**

- ★ The Periodic Table is arranged in order of increasing atomic number in vertical columns and horizontal rows
- ★ Vertical Columns
  - ☆ elements with the same number of outer electrons (valence electrons)
  - ☆ called Groups or Families
  - ☆ have similar properties
- ★ Horizontal rows
  - ☆ elements with the same number of shells or energy levels
  - ☆ called periods

**Divisions of the Periodic Table**

- ★ Alkali metals - Group 1 (IA)
- ★ Alkaline earth metals - Group 2 (IIA)
- ★ Halogens - Group 17 (VIIA)
- ★ Noble gases (Inert gases) - Group 18 (0 )
- ★ Transition metals - Groups 3-13 (IB - VIII)
- ★ Lanthanides - Row 6, elements 57 - 71 (f-block)
- ★ Actinides - Row 7, elements 89 - 103 (f-block)

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Answer the questions below by circling the number of the correct response

- This element 2-8-6 belongs in Period  
(1) 6 (3) 2  
(2) 3 (4) 4
- Most of the elements in the Periodic Table are classified as  
(1) metalloids (3) nonmetals  
(2) noble gases (4) metals
- Phosphorus is best classified as a  
(1) nonmetal (3) metalloid  
(2) metal (4) transition element
- The alkali metals all have the same  
(1) electronegativity (3) atomic radius  
(2) oxidation number (4) ionization energy
- The alkaline earth metals are those elements in Group  
(1) 1 (IA) (3) 2 (IIA)  
(2) 11 (IB) (4) 12 (IIB)
- The elements in Group 2 (IIA) have similar chemical properties primarily because they have the same  
(1) ionization energies  
(2) oxidation potentials  
(3) number of principal energy levels  
(4) number of electrons in the outermost shell
- Which Group in the Periodic Table contains the alkali metals?  
(1) 1 (IA) (3) 2 (IIA)  
(2) 13 (IIIA) (4) 14 (IVA)
- In which Group of the Periodic Table would this element, 2-5, most likely be found?  
(1) 1 (IA) (3) 2 (IIA)  
(2) 13 (IIIA) (4) 14 (IVA)
- As the elements in Period 3 are considered in order of increasing atomic number, the number of principal energy levels in each successive element  
(1) decreases (3) increases  
(2) remains the same
- Which is an alkaline earth metal?  
(1) Na (3) Ca  
(2) Ga (4) Ta
- A metallic element whose aqueous ions produce colorless solutions would be found in Period 4 and Group  
(1) 1 (IA) (3) 17 (VIIA)  
(2) 8 (VIII) (4) 18 (0)
- Which Group contains elements which are metalloids?  
(1) 1 (IA) (3) 11 (IB)  
(2) 14 (IVA) (4) 4 (IVB)
- Which is a transition element?  
(1) Ag (3) Mg  
(2) Sb (4) Si
- The elements with the least chemical reactivity are in Group  
(1) 1 (IA) (3) 18 (0)  
(2) 3 (IIIB) (4) 16 (VIA)
- Which element is a metalloid?  
(1) arsenic (3) neon  
(2) potassium (4) bromine
- Silicon is most similar in chemical activity to  
(1) carbon (3) lead  
(2) sulfur (4) nitrogen
- Which Group of elements exhibits all three phases of matter at room temperature?  
(1) 2 (IIA) (3) 14 (IVA)  
(2) 15 (VA) (4) 17 (VIIA)
- What are two properties of most nonmetals?  
(1) high ionization energy and poor electrical conductivity  
(2) high ionization energy and good electrical conductivity  
(3) low ionization energy and poor electrical conductivity  
(4) low ionization energy and good electrical conductivity
- Which element is classified as a noble gas at STP?  
(1) hydrogen (3) neon  
(2) oxygen (4) nitrogen
- In which shell are the valence electrons of the elements in Period 2 found?  
(1) 1 (3) 3  
(2) 2 (4) 4