

UNIT 4: PERIODIC TABLE REVIEW

The following topics you should expect to see on the Periodic Table Assessment:

- Learning Target I. History of the Periodic Table.
- a. Döberiner.
 - i. Triads.
 - b. Newlands.
 - i. Law of Octaves.
 - c. Mendeleev.
 - i. Atomic mass periodic table.
 - d. Moseley.
 - i. Atomic number periodic table.
 - ii. Periodic Law.
 - e. Seaborg.
 - i. Actinide series (f-block).
- Learning Target II. Groups on the Periodic Table.
- a. Periodic table groups.
 - i. Alkali metals.
 - ii. Alkaline earth metals.
 - iii. Transition metals.
 - iv. Halogens.
 - v. Noble gases.
 - vi. Semiconductors.
- Learning Target III. Metals vs. Nonmetals
- a. Metals.
 - i. Location on the periodic table.
 - ii. Physical characteristics.
 - iii. How many valence electrons?
 - b. Nonmetals.
 - i. Location on the periodic table.
 - ii. Physical characteristics.
 - iii. How many valence electrons?
 - c. Metalloids
 - i. Physical characteristics.
 - ii. Examples [easiest is silicon (Si)].
- Learning Target IV. Periodic Trends.
- a. Atomic radius.
 - b. Ionization energy.
 - c. Electron affinity.

UNIT 4: PERIODIC TABLE REVIEW

Answer the following questions, based on the information learned in unit 4.

1. Identify each of the following elements as metal, nonmetal, or metalloid.
 - a. Fluorine (F) _____
 - b. Germanium (Ge) _____
 - c. Zinc (Zn) _____
 - d. Phosphorus (P) _____
 - e. Lithium (Li) _____

2. Give two examples of elements in each of the following categories (symbols are fine).
 - a. Noble Gases _____
 - b. Halogens _____
 - c. Alkali Metals _____
 - d. Alkaline Earth Metals _____

3. Circle the following elements that are NOT found in the main group elements (Group 1A – 8A).

Hg	C	Rb	Te	Mn
Co	He	Nb	Sb	F
Pb	Rn	Cs	Y	Ra

4. *Henry Moseley modified Mendeleev's Periodic Table by arranging the elements based on their increasing atomic number. When he did this, he noticed that elements within each column shared similar physical and chemical properties. For example, Group 1A (Alkali Metals) Sodium (Na) looks and behaves similarly to its group members Lithium (Li), Potassium (K), and Rubidium (Rb).*

Based on this information, list two elements that should look and behavior similarly to...

- a. Magnesium (Mg).
 - b. Chlorine (Cl).
 - c. Krypton (Kr).
5. Helium (He) is found in Group 8A (Noble Gases) rather than Group 2A (Alkaline Earth Metals), even though it only has two valence electrons. Why isn't helium considered an Alkaline Earth Metal?

Periodic Trends: *The predictable change of a property in a certain direction.*

6. What causes the INCREASE in *Atomic Radius* (the size of the atom)...
 - a. Within a Group?
 - b. Across the Period?

7. What causes the INCREASE in *Ionization Energy* (the energy needed to remove an electron)...
 - a. Within a Group?
 - b. Across the Period?

8. What causes the INCREASE in *Electron Affinity* (the ability for an atom to gain an electron)...
 - a. Within a Group?
 - b. Across the Period?

9. Compare each pair listed below and complete the following table.

Element Pairs	Which element has the LARGEST ...		
	Atomic Radius?	Ionization Energy?	Electron Affinity?
Example: Aluminum vs. Boron	Aluminum	Boron	Boron
1. Sulfur vs. Oxygen			
2. Bromine vs. Chlorine			
3. Sodium vs. Aluminum			
4. Oxygen vs. Fluorine			
5. Magnesium vs. Calcium			
6. Chlorine vs. Silicon			
7. Calcium vs. Barium			
8. Phosphorous vs. Argon			
9. Bromine vs. Arsenic			
10. Aluminum vs. Gallium			