



OER for Interactive Flat Panel in Schools

Grade:	10	
Subject:	Physical Science	
Chapter:	7. Classification of Elements- The Periodic Table	
Concepts:	Modern periodic table and features	
Learning Outcomes:	<p>Students will be able to:</p> <ul style="list-style-type: none"> ● Identify characteristics of elements as per their position in the periodic table. ● Develop their prior knowledge such as the characteristics of metals and non-metal, and electronic configuration of elements. 	
Total Time Required:	30 minutes	
Resource	Activity	Suggested Time
<p>R1: (Online resource) 3D Periodic table of elements</p> <p>https://graphoverflow.com/graphs/3d-periodic-table.html</p> <p>3D Periodic table by Sarath Saleem is licensed under GPLv3</p>	<ul style="list-style-type: none"> ● The vertical columns on the periodic table are called groups or families because of their similar chemical behavior. ● All the members of a family of elements have the same number of valence electrons and similar chemical properties. ● The horizontal rows on the periodic table are called periods. ● Alkali metals: Group IA of the periodic table. ● Alkaline earth metals: Group IIA of the periodic table. ● Halogens: Group VIIA of the periodic table. ● Noble gases: Group VIIIA of the periodic table. ● Transition elements: Groups 3 to 12 of the periodic table. 	30 minutes

- All of the IA elements have one valence electron. This is what causes these elements to react in the same ways as the other members of the family. The elements in IA are all very reactive and form compounds in the same ratios with similar properties to other elements. Because of their similarities in their chemical properties, Mendeleev put these elements into the same group. Group IA is also known as the **alkali metals**. Although most metals tend to be very hard, these metals are actually soft and can be easily cut.
- Group IIA is also called the **alkaline earth metals**. Once again, because of their similarities in electron configurations, these elements have similar properties to each other. The same pattern is true of other groups on the periodic table. Remember, Mendeleev arranged the table so that elements with the most similar properties were in the same group on the periodic table.
- The **noble gases** are in group VIIIA. These elements also have similar properties to each other, the most significant property being that they are extremely unreactive, rarely forming compounds. We will learn the reason for this later when we discuss how compounds form. The elements in this group are also gases at room temperature.

Assessment:


R2:

[Assessment Periodic Table](#)

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Offline:

- Answer assessment questions in interactive R2.

Assessment_Periodic Table	
Teacher Notes:	Ask students to write the electronic configuration of some elements. On clicking 'explore atom', we will be able to see the representation of the electrons rotating in a 2D plane, unlike the Bohr model which suggests the electrons move in a 3D path around the nucleus. The 2D <u>Bohr model</u> of the atom is not completely correct but has many features that are sufficient for a general understanding.
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