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| **Cornell Notes** | **Topic/Objective:** | | **Name:** |
|  | | **Class/Period:** |
|  | | **Date:** |
| **Essential Question:** | | | |
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| **Questions:** | | **Notes:**    History of the Periodic Table  Russian chemist \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (1869) wanted to organize known elements by properties.   * When he arranged elements by increasing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, he noticed that similar elements occurred at regular intervals. * He called his chart the “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_,” table. * In order for similar elements to line up, Mendeleev \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, in his chart. * Mendeleev stated these were undiscovered elements. He made \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, about these undiscovered elements based on the other elements in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, * By 1886, these elements (scandium, gallium, and germanium) were discovered and their properties closely matched his predictions. * With the discovery of Mendeleev’s predicted elements, most chemists were persuaded to accept his table. However, there were two issues unresolved by his table. * What caused elements to have similar properties? * Why were there certain cases when a heaver element had to be placed in front of a light element so properties would line up? (Te and I)      * Henry Moseley (1911) – discovered technique to determine \_\_\_\_\_\_\_\_\_\_\_      * He called this the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. * Every element had its own unique atomic number. * When Moseley arranged elements \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the inconsistencies disappeared.   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_– when elements are arranged by increasing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, elements with similar \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ AND \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occur at regular intervals.  Today the periodic table arranges elements by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_– vertical column of elements   * + also known as families   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_– horizontal row of elements  There have been significant changes to the periodic table since Mendeleev created his chart.   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_– elements that make up group 18. Include He, Ne, Ar, Kr, Xe, and Rn.    * + Extremely unreactive gases.   Very stable elements that will not combine with other atoms in nature  b) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – elements 58-71   * + Also called rare earth elements since they are hard to identify and separate.   + These elements are part of period 6.   c) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – elements 90-103   * + Most are synthetic and all are radioactive.   + These elements are part of period 7.   Learning Check!  Answer the following questions in the space provided.   1. \_\_\_\_\_ In the modern periodic table, elements are ordered  |  |  | | --- | --- | | 1. According to decreasing atomic eight | 1. According to Mendeleev’s original design | | 1. According to increasing atomic number | 1. Based on when they were discovered |   2. \_\_\_\_\_ Mendeleev noticed that certain similarities in the chemical properties of elements appeared at regular intervals when the elements were arranged in order of increasing   |  |  | | --- | --- | | 1. Density | 1. Reactivity | | 1. Atomic number | 1. Atomic weight |   3. \_\_\_\_\_ The modern periodic law states that     |  |  | | --- | --- | | 1. No two electrons with the same spin can be found in the same place in an atom | 1. The physical and chemical properties of an element are functions of its atomic number | | 1. Electrons exhibit properties of both particles and waves | 1. The chemical properties of elements can be grouped according to periodicity, but physical properties cannot |   4. \_\_\_\_\_ The discovery of the noble gases changed Mendeleev’s periodic table by adding a new  (a) period. (c) group.  (b) series. (d) level.  5. \_\_\_\_\_ The most distinctive property of the noble gases is that they are  (a) metallic. (c) metalloid.  (b) radioactive. (d) largely unreactive.  6. \_\_\_\_\_ Lithium, the first element in Group 1, has an atomic number of 3. The second element in this group has an atomic number of  (a) 4. (c) 11.  (b) 10. (d) 18.  7. An isotope of fluorine has a mass number of 19 and an atomic number of 9.  a. How many protons are in this atom?b. How many neutrons are in this atom? | |
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