**Unit 4 - LEARNING GOALS for ATOMIC STRUCTURE**

**and THE PERIODIC TABLE**

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| Guiding Question: How does the structure of the atom determine placement on the periodic table *and* predict patterns in the physical and chemical properties of elements? |
| Content GoalsStudents will be able to:* Identify periods, families, and groups (by number and name) on the periodic table
* Identify elements as metals or nonmetals
* Predict the number of valence electrons for an element based on the periodic table
* Predict atomic structure and electron arrangement based on placement on the periodic table
* Use the placement of elements in periods and groups on the periodic table to predict characteristics or properties such as:

Atomic radiusIonization energyElectronegativityLusterTextureConductivity* Compare atoms of different elements based on atomic radius, ionization energy, and electronegativity
* Explain comparison of elements using nuclear charge and electronic structure in argument
* Predict the ionic charge for elements
* Explain the role of valence electrons in physical and chemical properties and ion formation
 | Skills GoalsStudents will be able to:* Properly present data in a graph
* Interpret and analyze information presented in graphs and tables
* Identify topic and summarize main idea and supporting statements for a scientific text
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| Organizing Ideas (Big Ideas and Links between Big Ideas)Students will:* Understand how atoms of different elements are similar and different
* Understand how the Periodic Table is arranged based on atomic structure, as well as chemical and physical properties of elements
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| Assessment – How will I know if students have mastered content, skills, and big ideas?Students will:* Prepare data tables, graphs, and calculations using experimental data
* Complete tests and quizzes on atomic structure and the organization of the periodic table
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| Key Vocabulary: |
| Valence electrons Alkaline Earth Metals Noble gasesPeriod Transition metals Atomic radiusGroup Inner Transition metals Ionization energyFamily Metalloids ElectronegativityAlkali Metals Halogens Ionic Radius |

