



MOHAWK

Local School District

Preparing today's students for tomorrow's challenges

Mohawk Local Schools Chemistry - SCIENCE

Quarter 1 Curriculum Guide

Guiding Principles of the Scientific Inquiry/Learning Cycle:

Evaluate...Engage...Explore...Explain...Extend...Evaluate

Identify ask valid and testable questions

Research books, other resources to gather known information

Plan and Investigate

Use appropriate mathematics, technology tools to gather, interpret data.

Organize, evaluate, interpret observations, measurements, other data

Use evidence, scientific knowledge to develop explanations

Communicate results with graphs charts, tables

Critical Areas of Focus Being Addressed:

- Structure and Properties of Matter
- Scientific Inquiry

Content Statements Addressed and Whether they are Knowledge, Reasoning, Performance Skill, or Product:
 (DOK1) (DOK2) (DOK3) (DOK4)

Underpinning Targets Corresponding with Standards and Whether they are Knowledge, Reasoning, Performance Skill, or Product: "I can.....", "Students Will Be Able To....."

Atomic Structure (DOK 2)

- Demonstrate how the experimental evidence of Thompson's cathode ray experiments led to the "plum pudding" atomic model. (R)

	<ul style="list-style-type: none"> • Demonstrate how the experimental evidence of Rutherford's gold foil experiments overturned the "plum pudding" atomic model. (R) • Compare the "solar system" atomic model to the Schrödinger model of the atom. (R) • Identify when the models of Dalton, Thompson, Rutherford, Bohr, and Schrödinger are employed. (K) • Construct any ground state orbital diagram for elements up to atomic number 18 (argon). (K) • Construct any electron configuration for elements up to atomic number 18 (argon) using either extended or noble gas configuration. (K) • Given spectral lines from the Balmer's series (the visible spectral lines of hydrogen) calculate the energy transition of the electron. (K) • Compare the mathematical relationship between frequency, wavelength, and energy. (R) • Recognize the s- and p- orbitals. (K)
<p>Periodic Table (DOK 3)</p>	<ul style="list-style-type: none"> • Predict the electron configuration of an element based on its position within the periodic table. (R) • Explain the trends in atomic radii, ionic radii, first ionization energy, and electronegativity using the concepts of effective nuclear charge and shielding. (R) • Correlate the chemical properties of elements to their periodic properties. (R) • Use the periodic table to predict the charge on main group elements. (R) • Use the atomic theory and bonding to explain the trends in atomic radii, ionic radii, first ionization energy, and electronegativity. (PS) • Predict the properties of an element based on its position within the periodic table. Predict the possible interactions between atoms based on their valence electrons. (R)

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| | <ul style="list-style-type: none">• Predict the type of bond between two atoms (ionic, polar covalent, covalent) using the difference in electronegativity of two atoms. (R)• Understand that the polarity of an atomic bond is dependent on the electronegativity and bond length. (K)• Use the periodic table to predict the charge on main group elements. (R) |
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