Mohawk Local Schools Chemistry - SCIENCE

Quarter 3 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
- Interactions 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……."
Stoichiometry (DOK 2)	• Use stoichiometric calculations to convert moles into mass, volume of a gas, volume of a solution, number of

	particles. (R) • Infer if a reaction has a limiting reagent from the initial amount of reactants. (R) • Compare experimental yield to theoretical yield and determine the percent yield. (R) • Use molarity in stoichiometric calculations (R)
Phases of Matter (DOK 3)	• Compare the relationship to the spacing of the particles, motion of the particles, and strength of attraction between particles in solids, liquids, gases, plasmas, and Bose-Einstein condensates. (PS)
Intermolecular Forces (DOK 2)	• Compare the melting and boiling points of substances with different intermolecular forces. (R) • Compare the vapor pressure of different substances based on their intermolecular forces. (R) • Compare intermolecular attractions and intramolecular attractions. (R) • Compare the strength of intermolecular attractions between molecules based on their shape, composition, and polarity. (R) • Compare water's properties to similar molecules (H_2S, H_2Se) based on their intermolecular forces. (R) • Predict the solubility of a substance based on its intermolecular forces. (R) • Use the atomic theory and bonding to predict whether an element is solid or gas at room temperature. (R)
Gas Laws (DOK 2)	• Describe real-world phenomena involving pressure, temperature, and volume using the kinetic molecular theory. (R) • Derive the relationships between pressure, temperature, and volume (keeping one property constant) using the kinetic-molecular theory. (R) • Describe real-world phenomena involving (pressure, temperature, and volume) using the kinetic molecular theory. (R)

	• Derive the relationships between pressure, temperature, and volume (keeping one property constant) using the kinetic-molecular theory. (R) • Use the combined gas law to solve gas law problems. (K) • Explain why Kelvin temperature scale is used when working with gas and not the Celsius scale. (R) • Derive Avogadro's law from the kinetic molecular theory. (R) • Solve problems using the ideal gas law with varying forms of the gas constant R (e.g., $R=8.31 J/(mol \cdot K)$; $R=0.0821 (L \cdot atm)/(mol \cdot K)$; $R=62.4 (L \cdot mmHg)/(mol \cdot K)$) (K)