**2019 PACING GUIDE**

**COURSE: Chemistry** **GRADE(S): 11th**

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| **MONTH/DAYS** | **UNIT** | **STANDARDS** | **CONTENT** | **ACTIVITIES** | **ASSESSMENTS** |
| Sept/Oct (60 days) | Structure/ Properties of Matter | **9-12.HS-ETS1-3** Evaluate solutions.  **9-12.HS-ETS1-4**  Use computer models.  **9-12.HS-PS1-1**  Use the periodic table.  **9-12.HS-PS1-2**  Construct a chemical reaction.  **9-12.HS-PS1-3**  Conduct an investigation.  **9-12.HS-PS2-6**  Communicate information. | |  |  | | --- | --- | | • Properties of Matter |  | | • Phase Diagrams |  | | • Heating Curve |  | | • Periodic Table |  | | • Atomic Structure |  | | • Electron Config. |  | | • Trends |  | | • Formulas |  | | • Ions |  | | • Moles |  | | • Bonds |  | | • Polarity |  | | |  |  | | --- | --- | | • Density Activity |  | | • Copper Lab |  | | • Phase Lab |  | | • Phase Diagram Notes |  | | • Heating Curve Notes |  | | • Basics of the PT Activity |  | | • Atomic Structure Simulation |  | | • Isotopes Simulation |  | | • History of the Atom Reading Excpt |  | | • Electron Configuration Notes |  | | • Spectra Lab |  | | • Trends Activity |  | | • Periodic Table Puzzle |  | | • Nomenclature Notes |  | | • Nomenclature Game |  | | • Ion Activity |  | | • Mole Notes |  | | • Hydrate Lab |  | | • Equations Demonstrations |  | | • Types of Equations Activity |  | | • Bonding Notes |  | | • Building Lab |  | | • Polarity Activity |  | | |  | | --- | | • Skills Quiz | | • Phases Quiz | | • Skills/Phases Test | | • Element Quiz | | • Atomic Structure Quiz | | • Electron Config. Quiz | | • Atom/EConfig Test | | • Ion Quiz | | • Formula Quiz | | • Formulas/Moles Test | | • Bonding Quiz | | • Bond/Metals/Polarity Test | |
| Nov/Dec (30 days) | Abiotic Chemistry | **9-12.HS-ETS2-5** Investigate water.  **9-12.HS-ETS1-4**  Evaluate competing solutions.  **9-12.HS-ETS1-3**  Evaluate conservation solutions.  **9-12.HS-PS1-4.5.1**  Conduct energy investigations. | |  |  | | --- | --- | | • Heat Calculations |  | | • Energy Transfer |  | | • Water |  | | • Solubility |  | | |  |  | | --- | --- | | • Heat Calculation Notes |  | | • Heat Lab |  | | • Polarity Activity |  | | • Solubility Lab |  | | • Distribution of Water Act |  | | • Erosion Activity |  | | • Fracking Project |  | | |  | | --- | | • Heat Quiz | | • Heat/Energy Test | | • Water Quiz | | • Water/Solubility Test | | • Fracking Project | |
| Jan  (30 days) | Bonding/ Reactions | **9-12.HS-ETS1-3**  Design engineering solution.  **9-12.HS-PS1-8**  Develop a model showing changes in energy.  **9-12.HS-PS1-5**  Explain how factors affect the rate of reaction.  **9-12.HS-PS1-6**  Specify conditions that increase products of equilibrium.  **9-12.HS-PS1-7**  Use math to show conservation of atoms and mass. | |  |  | | --- | --- | | • Balancing Equations |  | | • Math of Reactions |  | | • Limits |  | | • Rates of Reactions |  | | • Pot. Energy Diagrams |  | | • Enthalpy |  | | • Entropy |  | | • Spontaneity |  | | • Gibbs Free Energy |  | | • Equilibirium |  | | • Equilibrium Constants |  | | • Stress |  | | |  |  | | --- | --- | | • Balancing Notes |  | | • Balancing Game |  | | • Math of Reactions Notes |  | | • Al/Cu Lab |  | | • Limit Activity |  | | • Rates of Reactions Lab |  | | • Rates of Rxns Demonstrations |  | | • Potential Energy Diagram Notes |  | | • Enthalpy Notes |  | | • Entropy Notes |  | | • Spontaneity Notes |  | | • Entropy Lab |  | | • Gibbs Free Energy Notes |  | | • Equilibrium Activity |  | | • Equilibrium Constants Notes |  | | • Stress Lab |  | | • Stress Notes |  | | |  | | --- | | • Equations Quiz | | • Equations/Limits Test | | • Rates/PED Quiz | | • Rates/PED/H, S, G Test | | • Equilibirium Quiz | | • Equil/Kc/Kp/Stress Test | |
| Mar/Apr (40 days) | Solution Chemistry | **9-12.HS-PS1-1**  Use the periodic table.  **9-12.HS-PS1-2**  Construct a chemical reaction.  **9-12.HS-PS1-7**  Use math to show conservation of atoms and mass. | |  |  | | --- | --- | | • Solution Terminology |  | | • Solubility Curves |  | | • Concentrations |  | | • Colligative Properties |  | | • Prop of Acids/Bases |  | | • Indicators |  | | • pH & pOH |  | | • Strength of Acids/Bases |  | | • Salts |  | | • Titrations |  | | |  |  | | --- | --- | | • Solution Notes |  | | • Solubility Curve Notes |  | | • Solubility Lab |  | | • Dilute Solutions Notes |  | | • Percent by Mass Notes |  | | • Kool Aid Activity |  | | • Salt Lab |  | | • Molarity/Molality Notes |  | | • Colligative Lab |  | | • Properties Notes |  | | • pH & pOH Activity |  | | • pH & pOH Lab |  | | • Indicators Activity |  | | • Strong vs Weak Activity |  | | • Salt Activity |  | | • Titrations Notes |  | | • Titration Lab |  | | |  | | --- | | • Solution Term/Curve Quiz | | • Concentrations Quiz | | • Solutions Test | | • Prop/pH/pOH Quiz | | • Acid and Base Test | |
| May/Jun (20 days) | Living Matter | **9-12.HS-LS1-5**  Illustrate photosynthesis.  **9-12.HS-LS1-6**  Construct reactions involving biological compounds.  **9-12.HS-LS1-7**  Illustrate cellular respiration. | |  |  | | --- | --- | | • Biological Compounds |  | | • Photosynthesis |  | | • Respiration |  | | • Polymerization |  | | • Energy in Biochem Rxns |  | | |  |  | | --- | --- | | • Biochem Compounds Activity |  | | • Photosynthesis Notes |  | | • Cellular Respiration Notes |  | | • Polymerization Notes |  | | • Polymer Lab |  | | • Biochemical Reactions Project |  | | |  |  | | --- | --- | | • Biochem Compounds Quiz |  | | • Photosyn/Res Quiz |  | | • Polymerization Quiz |  | | • Biochem Cmpds/Rxns Test |  | | • Biochem Rxns Project |  | |  |  | |