**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. |

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| • Properties of Matter |  |
| • Phase Diagrams |  |
| • Heating Curve |  |
| • Periodic Table |  |
| • Atomic Structure |  |
| • Electron Config.  |  |
| • Trends |  |
| • Formulas |  |
| • Ions |  |
| • Moles |  |
| • Bonds |  |
| • Polarity |  |

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| • 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 |  |

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| • 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 |

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| 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. |

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| • Heat Calculations |  |
| • Energy Transfer |  |
| • Water |  |
| • Solubility |  |

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| • Heat Calculation Notes |  |
| • Heat Lab |  |
| • Polarity Activity |  |
| • Solubility Lab |  |
| • Distribution of Water Act |  |
| • Erosion Activity |  |
| • Fracking Project |  |

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| • Heat Quiz |
| • Heat/Energy Test |
| • Water Quiz |
| • Water/Solubility Test |
| • Fracking Project |

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| 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. |

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| • Balancing Equations |  |
| • Math of Reactions |  |
| • Limits |  |
| • Rates of Reactions |  |
| • Pot. Energy Diagrams |  |
| • Enthalpy |  |
| • Entropy |  |
| • Spontaneity |  |
| • Gibbs Free Energy |  |
| • Equilibirium |  |
| • Equilibrium Constants |  |
| • Stress |  |

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| • 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 |  |

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| • Equations Quiz |
| • Equations/Limits Test |
| • Rates/PED Quiz |
| • Rates/PED/H, S, G Test |
| • Equilibirium Quiz |
| • Equil/Kc/Kp/Stress Test |

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| 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. |

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| • Solution Terminology |  |
| • Solubility Curves |  |
| • Concentrations |  |
| • Colligative Properties |  |
| • Prop of Acids/Bases |  |
| • Indicators |  |
| • pH & pOH |  |
| • Strength of Acids/Bases |  |
| • Salts |  |
| • Titrations |  |

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| • 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 |  |

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| • Solution Term/Curve Quiz |
| • Concentrations Quiz |
| • Solutions Test |
| • Prop/pH/pOH Quiz |
| • Acid and Base Test |

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| 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. |

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| • Biological Compounds |  |
| • Photosynthesis |  |
| • Respiration |  |
| • Polymerization |  |
| • Energy in Biochem Rxns |  |

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| • Biochem Compounds Activity |  |
| • Photosynthesis Notes |  |
| • Cellular Respiration Notes |  |
| • Polymerization Notes |  |
| • Polymer Lab |  |
| • Biochemical Reactions Project |  |

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| • Biochem Compounds Quiz |  |
| • Photosyn/Res Quiz |  |
| • Polymerization Quiz |  |
| • Biochem Cmpds/Rxns Test  |  |
| • Biochem Rxns Project |  |
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