**2019 PACING GUIDE**

**COURSE: Honors Chemistry** **GRADE(S): 10th**

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| **MONTH/DAYS** | **UNIT** | **STANDARDS** | **CONTENT** | **ACTIVITIES** | **ASSESSMENTS** |
| Sept/Oct (40 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/Metal/Polar Test |

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| Nov(20 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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| Dec (20 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/Stss Test |

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| Jan/Feb(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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| • Soln Term/Curve Quiz |
| • Concentrations Quiz |
| • Solutions Test |
| • Prop/pH/pOH Quiz |
| • Acid and Base Test |

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| Mar(20 days) | Weather/ Climate | **9-12.HS-ESS2-2**Earth’s surface changes. **9-12.HS-ESS2-4**Energy moves causing changes in climate.**9-12.HS-ESS2-6**Develop a model of the C cycle.**9-12.HS-ESS3-1**Explain how changes in climate influence human activity.**9-12.HS-ESS3-2**Evaluate solutions for energy. **9-12.HS-ESS3-3**Create a sim of resources, popul, and biodiversity.**9-12.HS-ESS3-4**Evaluate solutions that reduces human impacts.**9-12.HS-ESS3-5**Forecast future impacts on Earth.**9-12.HS-ESS3-6**Show how Earth is mod by human.  |

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| • Climate Definition |
| • Climate Factors |
| • Global Warming |
| • Air Pollution |

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| • Read/Ans Ques on a Cur Event Art |  |
| • Seasons Lab |  |
| • Seasons Chromebook Activity |  |
| • Rain Shadow Effect Activity Sht. |  |
| • Particulate Matter Lab |  |
| • NJ Climate Change Activity |  |
| • Milankovitch Cycles Chromebook Act. |  |
| • Latitude/Altitude Act. Sheet |  |
| • Tree Ring Activity |  |
| • Graphing Climate of Three Cities Act. |  |
| • Global Air Pollution Chromebook Activity |  |
| • Concentration of Greenhouse Gasses Activity |  |
| • Convection Currents/Coriolis Effect Act. Sht. |  |
| • Factors that Influence Climate Activity Sht. |  |
| • Acid Rain Lab |  |

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| • Climate Quiz |  |
| • Clim/Warm/AirPol Test |  |
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| Apr/May(20 days) | Universe/ Stars | **9-12.HS-ESS1-1**Develop model of the Sun and nuclear fusion. **9-12.HS-ESS1-2**Explain the big bang theory.**9-12.HS-ESS1-3**Describe ideas about stars.

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| **9-12.HS-ESS1-4**Predict motion of objects in space. |  |

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| • The Big Bang Theory | • BBT/Helio/Geo Quiz |
| • Helio vs. Geo Theory | • BBT/Hel/Geo/EMS/Star Test |
| • Electromag. Spectrum |  |
| • Doppler Effect |  |
| • Red/Blue Shift |  |
| • Star Formation |  |
| • Element Formation |  |
| • Solar System Formation |  |

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| • Asteroid Chromebook Act. | • The Big Bang Theory |  |
| • Asteroid Lab | • Helio vs. Geo Theory |  |
| • Big Bang Misconceptions Act. Sht. | • Electromag. Spectrum |  |
| • Doppler Chromebook Act. | • Doppler Effect |  |
| • Electromagnetic Chromebook Act. | • Red/Blue Shift |  |
| • Elem from Stars Chromebook Act. | • Star Formation |  |
| • Elliptical Orbit Activity | • Element Formation |  |
| • Expanding Universe Lab | • Solar System Formation |  |
| • HR Diagram Chromebook Act. |  |  |
| • HR Diagram Act. |  |  |
| • How Many Stars Lab |  |  |
| • Formation of the Solar Sys. Act. |  |  |
| • Hubble's Law Graph Act. |  |  |
| • Red/Blue Shift Act. Sht. |  |  |
| • Spectral Lines Lab |  |  |
| • Stellar Evolution Act. Sht. |  |  |

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| • BBT/Helio/Geo Quiz |
| • BBT/Hel/Geo/EMS/ Star 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 Cmpds Quiz |  |
| • Photosyn/Res Quiz |  |
| • Polymerization Quiz |  |
| • Biochem Rxns Test  |  |
| • Biochem Rxns Project |  |
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