**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. | |  |  | | --- | --- | | • 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/Metal/Polar Test | |
| 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. | |  |  | | --- | --- | | • 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 | |
| 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. | |  |  | | --- | --- | | • 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/Stss Test | |
| 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. | |  |  | | --- | --- | | • 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 |  | | |  | | --- | | • Soln Term/Curve Quiz | | • Concentrations Quiz | | • Solutions Test | | • Prop/pH/pOH Quiz | | • Acid and Base Test | |
| 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. | |  | | --- | | • Climate Definition | | • Climate Factors | | • Global Warming | | • Air Pollution | | |  |  | | --- | --- | | • 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 |  | | |  |  | | --- | --- | | • Climate Quiz |  | | • Clim/Warm/AirPol Test |  | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | |  |  | |
| 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.   |  |  | | --- | --- | | **9-12.HS-ESS1-4**  Predict motion of objects in space. |  |  |  |  | | --- | --- | |  |  | | |  |  | | --- | --- | | • 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 |  | | |  |  |  | | --- | --- | --- | | • 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. |  |  | | |  | | --- | | • BBT/Helio/Geo Quiz | | • BBT/Hel/Geo/EMS/  Star 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 Cmpds Quiz |  | | • Photosyn/Res Quiz |  | | • Polymerization Quiz |  | | • Biochem Rxns Test |  | | • Biochem Rxns Project |  | |  |  | |