

Physical Science CP and Honors – Curriculum Pacing Guide – 2012-2013

Content Areas	Unit 1 Inquiry & Nature of Science	Unit 2 Composition & Classification of Matter	Unit 3 Solutions, Composition & Classification of Matter	Unit 4 Atomic Structure & Periodic Table
Pacing	Daily-18 days A/B- 9 days	Daily-12 days A/B- 6 days	Daily-10 days A/B- 5 days	Daily-15 days A/B- 7 days
SC Standards/ Indicators	<p>Standard PS-1 The student will demonstrate an understanding of how scientific inquiry and technological design, including mathematical analysis, can be used appropriately to pose questions, seek answers, and develop solutions.</p> <p>Indicators PS-1.1 through PS-1.9 These are reinforced throughout all of the subsequent units.</p>	<p>Standard PS-3 The student will demonstrate an understanding of various properties and classifications of matter.</p> <p>Indicators PS-3.1, PS-3.4, PS-3.6, PS-3.7</p> <p>Standard PS-4 The student will demonstrate an understanding of chemical reactions and the classifications, structures, and properties of chemical compounds.</p> <p>Indicator PS-4.6</p>	<p>Standard PS-3 The student will demonstrate an understanding of various properties and classifications of matter.</p> <p>Indicators PS-3.1, PS-3.2, PS-3.5</p>	<p>Standard PS-2 The student will demonstrate an understanding of the structure and properties of atoms.</p> <p>Indicators PS-2.1 through PS-2.7</p> <p>Standard PS-3 The student will demonstrate an understanding of various properties and classifications of matter.</p> <p>Indicator PS-3.3</p>
Content Focus	<ul style="list-style-type: none"> • Lab Safety • Scientific Method • Scientific Models • SI Measurement 	<ul style="list-style-type: none"> • Substance Differentiation • Atoms and Molecules • Mixtures • Physical Properties • Physical Changes 	<ul style="list-style-type: none"> • Solute • Solvent • Solubility 	<ul style="list-style-type: none"> • Subatomic Particles • Periodic Table • Isotopes • Chemical and Nuclear Reactions

First Nine Weeks Test

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Content Areas	Unit 1 Inquiry & Nature of Science	Unit 2 Composition & Classification of Matter	Unit 3 Solutions, Composition & Classification of Matter	Unit 4 Atomic Structure & Periodic Table
Suggested Activities	<ul style="list-style-type: none"> • Handout - Science Laboratory Report Guidelines with Rubric • Lab - Absorbency (Liquid Volumetric Measurement) • Lab - Metric Madness • Worksheet - Mass and Weight • Lab - Metric Mass and Volume • Worksheet - The Triple and Four Beam Balances • Worksheets - Measuring Devices Practice <ol style="list-style-type: none"> 1. Measuring Devices - Balances 2. Measuring Length 3. Reading Thermometers 4. Measuring Liquid 5. Measuring Temperature 6. Measuring Volume • Demo - Candle (Observations vs. Inference) • Folder - Metric Awareness <ol style="list-style-type: none"> 1. All You Will Need to Know About Metric 2. Test Your Metric Knowledge 3. Metric: The Choice is Yours 	<ul style="list-style-type: none"> • Worksheet - Elements, Compounds, and Mixtures • Lab - How Can Compounds be Classified (Honors Only) • Lab - Chemical Changes vs. Physical Changes • Lab - Observing a Chemical Reaction • Demo - Evaporation • Lab - Does Mass Change When the Form of a Substance Changes? • Worksheet - Classifying Physical and Chemical Properties an Assessment • Demo - Introduction to Chemical Properties • Lab - Classification with Nuts and Bolts • Worksheet - Properties of Matter – Physical or Chemical • Lab - Classification of Matter • Lab - Separating Mixtures • Density Labs <ol style="list-style-type: none"> 1. Density of Sand 2. How Dense Is It? 3. Determining Density • Worksheet - Density Review 	<ul style="list-style-type: none"> • Lab - Rates of Reaction (CP Only) • Lab - Alka Seltzer (Honors Only) • Home Project - Density Bottles • Lab - Polar and Non-polar Solutes and Solvents (Enrichment) • Lab - How Does Temperature Affect Solubility • Lab-Sugar Cube 	<ul style="list-style-type: none"> • Handout - Periodic Chart of the Elements • Project - Groups of Elements Research (Honors presentations) • Worksheet - Periodic Table Crossword • Worksheet - Blank Periodic Table • Worksheet - Graphing Periodic Table Trends • Worksheet - Periodic Table Trends • Worksheet - Predicting an Element's Group and Period • Worksheet - Skill sheet 2-2- Electron Cloud Models of Atoms • Worksheet - The Importance of Metals • Worksheet - Metals, Nonmetals and Metalloids • Flame Test for Metals Lab (CP- Demo; Honors-full lab) • Lab - Easter Egg Isotopes • Lab - Cadium Isotope • Worksheet – Isotopes or Different Elements • Worksheet - Isotope Notation • Worksheet - Isotope Practice

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	<ol style="list-style-type: none"> 4. Simplified Rules for Determining Number of Significant Digits (Honors Only) 5. Significant Figures – Practice Problems (Honors Only) 6. Scientific Measurement – Reading Graduated Cylinders 7. Scientific Measurement – Using the Triple Beam Balance 8. Scientific Measurement – Measuring in The Metric System 9. The International System of Units SI 10. Mass and Weight 11. Metric Volume Lab 12. The Metric System – Practice Problems 13. Accuracy and Precision 14. You Are So Dense <ul style="list-style-type: none"> • Worksheet/Notes - Volume, Time, and Temperature 	<ul style="list-style-type: none"> • Lab - Heat Curve/Phase Change Diagram Using Vernier Probeware • Activity - States of Matter Chart • Activity - States of Matter Foldable • Worksheet - Heating Curves • Gas Laws Enrichment (Honors Only) <ol style="list-style-type: none"> 1. Boyle's Law Graphing Sheet 2. Charles' Law Graphing Sheet 3. Gas Law Problems Sheet 4. Gas Laws Quiz 5. Gas Laws Review Problems for Overhead 6. Gas Laws Review Problems 		<ul style="list-style-type: none"> • Worksheet - Ion Diagram Activity • Worksheet - Atomic Math Challenge 1, 2, 3, and 4 • Worksheet – Atomic Structure and Isotopes • Group Project - The Harnessed Atom (book and questions) • Lab - Half-life simulation (Enrichment) • Worksheet - Nuclear Applications Pros and Cons T - chart • Worksheet - Writing Prompts for Nuclear Applications • Worksheet - Elements and Compounds - The Difference • Handout - Elements Note Sheet • Worksheet - Element Practice Competition Game • Worksheet - Periodic Table Practice

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	<ul style="list-style-type: none"> • Activity - No Need to Count Your Pennies • King Henry Metrics (CP Only) • Activity - Metrics Conversion Foldable • Worksheets - Metric Puzzles (three levels) • Metrics Practice Folder <ol style="list-style-type: none"> 1. Metrics and Lab Skills Quiz 2. Metrics Conversions Practice Worksheet 3. Metrics Conversion Practice 4. Metrics Practice Makeup Problems 5. Metrics Quiz Physical Science CP 6. Assessing Your Math Skills • Scientific Notation and Significant Figures Folder (Honors Only) <ol style="list-style-type: none"> 1. Adding and Subtracting Numbers in Scientific Notation 2. Exponents Practice 3. Multiplying and Dividing in Scientific Notation 4. Physical Science Honors Math Quiz 				

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	<ul style="list-style-type: none"> 5. Physical Science Honors Math Quiz (version 2) 6. Scientific Notation Practice 7. Scientific Notation Practice Problems 8. Significant Figures and Scientific Notation Practice Sheet 9. Significant Figures Quiz • Activity - Equipment Bingo Game w/cards • Lab - Accuracy and Precision (Honors Only) <ul style="list-style-type: none"> 1. Accuracy and Precision Lab 2. Accuracy and Precision Practice Problems pg. 1, 2 • Worksheet/Notes- Controlled Experiments with Variables • Worksheets-Graphing Practice • Worksheet-Graphing Word Problems (Honors Only) • Worksheet-Graphing Summits (CP Only) 				

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	<ul style="list-style-type: none"> • Worksheets-Graphing Packet Worksheets pg. 1-4 • Activity - Dimensional Analysis Game • Worksheet-Dimensional Analysis Practice • Notes-Steps for Dimensional Analysis • Worksheet-Scientific Method • Activity-Scientific Method Foldable • Worksheet-Simpson’s Scientific Method • Worksheet-Sponge Bob Bikini Bottom Scientific Methods 				
Textbook Correlations	<u>Prentice Hall Physical Science: Concepts in Action</u> Science Skills Appendix pp. 656-661	<u>Prentice Hall Physical Science: Concepts in Action</u> Chapters 2 and 3	<u>Prentice Hall Physical Science: Concepts in Action</u> Chapter 8: 8-1 and 8.2		<u>Prentice Hall Physical Science: Concepts in Action</u> Chapters 4, 5, and 10

Physical Science CP and Honors – Curriculum Pacing Guide – 2012-2013

Content Areas	Unit 5 Chemical Bonding	Unit 6 Chemical Reactions	Second Nine Weeks Test	Unit 7 Acids & Bases/Organic & Inorganic Substances	Unit 8 Motion & Forces	
Pacing	Daily-15 days A/B- 7 days	Daily-10 days A/B- 5 days			Daily-7 days A/B- 3 days	Daily-20 days A/B- 10 days
SC Standards/ Indicators	<p>Standard PS-4 The student will demonstrate an understanding of chemical reactions and the classifications, structures, and properties of chemical compounds.</p> <p>Indicator PS-4.1 through PS-4.5</p> <p>Standard PS-2 The student will demonstrate an understanding of the structure and properties of atoms.</p> <p>Indicator PS-2.5</p>	<p>Standard PS-4 The student will demonstrate an understanding of chemical reactions and the classifications, structures, and properties of chemical compounds.</p> <p>Indicator PS-4.7 through PS-4.11</p>			<p>Standard PS-3 The student will demonstrate an understanding of various properties and classifications of matter.</p> <p>Indicators PS-3.2, PS-3.8</p>	<p>Standard PS-5 The student will demonstrate an understanding of the nature of forces and motion.</p> <p>Indicators PS-5.1 through PS-5.10</p>
Content Focus	<ul style="list-style-type: none"> • Covalent Bonding • Ionic Bonding • Binary Compounds 	<ul style="list-style-type: none"> • Chemical Reactions • Catalysts • Balance Equations 			<ul style="list-style-type: none"> • Organic • Inorganic • Acids • Bases 	<ul style="list-style-type: none"> • Speed • Velocity • Acceleration • Force • Weight • Gravity

Physical Science CP and Honors – Curriculum Pacing Guide – 2012-2013

Content Areas	Unit 5 Chemical Bonding	Unit 6 Chemical Reactions	Unit 7 Acids & Bases/Organic & Inorganic Substances	Unit 8 Motion & Forces	
Suggested Activities	<ul style="list-style-type: none"> • Worksheet - Spot the Bonding (CP use as ionic vs. covalent; Honors use as enrichment) • Worksheet - Bonding Basics – Covalent Bonds • Handout – Handy Dandy Oxidation Sheet • Worksheet - Some Common Ions Word Find (Enrichment) • Worksheet - Noble Gas • Worksheet - Ionic Bonding – Formulas and Names (CP #1-4; Honors #1-10) • Activity - Ionic Bonding Puzzles • Worksheet - Writing Ionic Compounds and Naming Them (Enrichment) • Worksheet - Writing Ionic Formulas and Numbers of Atoms in a Compound • Activity - Writing Formulas with Paper Ions • Activity - Formulas For Ionic Compounds (Honors Enrichment) • Worksheet - Writing Formulas (Criss-Cross Method) (Honors Only) • Activity - Molecular Models 	<ul style="list-style-type: none"> • Lab - Endothermic Exothermic • Lab - Alka Seltzer • Lab - Conservation of Mass • Demos - Ziploc Chemistry • Activity - Reaction Cards Game • Worksheet - Balancing and Type of Reactions (mixture of essential and enrichment) • Worksheet - Balancing Act • Demo - Chemical Reactions Lab (Honors Only) • Lab – Evidence for Chemical Change – A Double Displacement Lab • Worksheet - Balancing Worksheets (mixture of essential and enrichment) <ul style="list-style-type: none"> ➤ Balancing Equations Quiz ➤ Chemical Reactions/ Balancing Equations ➤ Skill – Classifying ➤ Classifying Chemical Reactions • Demo - Easy Microscale Electrolysis of Water 		<ul style="list-style-type: none"> • Lab - Acids & Bases • Lab - Acids/Bases/ Neutralization • Quiz – Acids and Bases • Lab - Acids & Bases Using Vernier Probes • Lab - Neutralization pH • Lab - How Are Common Acids and Bases Identified? • Lab - Molecular Model • Worksheet - Organic Chemistry Practice • Worksheet - Inorganic v. Organic 	<ul style="list-style-type: none"> • Lab - Airplane Speed • Worksheet - Speed and Acceleration Problems • Lab - Golf Ball Speed and Acceleration • Lab - Bouncy Ball Acceleration • Lab – Race Car Speed • Worksheet - Distance Time Graphs • Worksheet - Speed & Acceleration • Worksheet Packet - Speed and Graphing Practice Problems <ul style="list-style-type: none"> ➤ Determining Speed (Velocity) ➤ Calculating Average Speed ➤ Acceleration Calculations ➤ Graphing Speed vs. Time ➤ Graphing Distance vs. Time • Lab - What Gives Bones Their Strength (Force Lab) • Demo - Inertia Activities • Worksheet - Newton’s Second Law of Motion Calculations • Lab - Roller Coaster • Lab - The Jet Car

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Content Areas	Unit 5 Chemical Bonding	Unit 6 Chemical Reactions		Unit 7 Acids & Bases/Organic & Inorganic Substances	Unit 8 Motion & Forces
	<ul style="list-style-type: none"> • Activity - Formulas Competition Game (Honors Only) • Lab - Bond Breakers (Enrichment) • Worksheet - Naming Ionic Compounds (Enrichment) • Worksheet - Formulas and Names Bonding Practice <ul style="list-style-type: none"> ➤ Types of Chemical Bonds ➤ Number of Atoms in a Formula ➤ Writing Binary Formulas ➤ Naming Compounds (Mixed) • Handout - Names and Formulas Reference Sheet • Handout - Writing Formulas and Counting Atoms Notes 	<ul style="list-style-type: none"> • Worksheet - Are These Single and Double Replacement Reactions Balanced? • Worksheet – Big Balancing Practice • Demo - Conservation of Mass 			<ul style="list-style-type: none"> • Lab - Finding the Acceleration Due to Gravity and Determining Percent Error • Lab - Force and Friction • Worksheet - Force and Acceleration • Worksheet - Gravity & Acceleration 1 & 2 • Lab - Force and Motion- Various Activities with Distance/Displacement/ Motion (from SDE)
Textbook Correlations	<u>Prentice Hall Physical Science: Concepts in Action</u> Chapter 6	<u>Prentice Hall Physical Science: Concepts in Action</u> Chapter 7		<u>Prentice Hall Physical Science: Concepts in Action</u> Chapter 9, 8.3, 8.4	<u>Prentice Hall Physical Science: Concepts in Action</u> Chapters 11 and 12

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Content Areas	Unit 9 Energy Transformation/Work	Unit 10 Electricity	Unit 11 Magnetism	Unit 12 Wave Characteristics & Behavior
Pacing	Daily-11 days A/B- 5 days	Daily-10 days A/B- 5 days	Daily-3 days A/B- 2 days	Daily-14 days A/B- 7 days
SC Standards/ Indicators	<p>Standard PS-6 The student will demonstrate an understanding of the nature, conservation, and transformation of energy.</p> <p>Indicators PS-6.1 through PS-6.4</p>	<p>Standard PS-6 The student will demonstrate an understanding of the nature, conservation, and transformation of energy.</p> <p>Indicators PS-6.5 through PS-6.9</p>	<p>Standard PS-6 The student will demonstrate an understanding of the nature, conservation, and transformation of energy.</p> <p>Indicators PS-6.10 through PS-6.11</p>	<p>Standard PS-7 The student will demonstrate an understanding of the nature and properties of mechanical and electromagnetic waves.</p> <p>Indicators PS-7.1 through PS-7.7</p>
Content Focus	<ul style="list-style-type: none"> • Energy Conservation • Potential Energy • Kinetic Energy • Work 	<ul style="list-style-type: none"> • Electric Current • Electric Charge • Electric Circuits • Ohm’s Law 	<ul style="list-style-type: none"> • Alternating and Direct Current • Magnetism 	<ul style="list-style-type: none"> • Mechanical Wave • Electromagnetic Wave • Wave Behavior • Doppler Effect
Suggested Activities	<ul style="list-style-type: none"> • Activity - The Unfortunate Weekend/Energy Forms & Conversions • Lab - How High Does the Ball Bounce? • Lab - Bouncy Ball Energy (<i>not on disk</i>) • Lab - The Energy of a Pendulum • Worksheet - Work Practice Problems • Worksheet - Work Problems 	<ul style="list-style-type: none"> • Worksheet - Ohm’s Law Practice Set • Demo - Your Admirer is a Balloon • Demo - What Will a Charged Balloon Attract? • Demo - Dancing Paper Bunnies • Lab - Simple Electroscope • Demo - Runaway Cola Can • Lab - Electricity Cut and Paste Circuits 	<ul style="list-style-type: none"> • Demo - Circles of Magnetism I • Demo - Circles of Magnetism IV • Project - Uses of Magnetism • Lab - Make an Electroscope • Lab - Exploring Electromagnets (<i>not on disk</i>) • Lab - How Does an Electromagnet Work (<i>not on disk</i>) 	<ul style="list-style-type: none"> • Activity - Behavior of Light Waves • Worksheet - Name That Sound • Lab - How Can the Characteristics of Waves Be Measured? • Worksheet - Wave Problems • Weblab - Sounds Amazing • Lab - Sound Activities (Enrichment)

Third Nine Weeks Test

EOC Review and Projects

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Content Areas	Unit 9 Energy Transformation/Work	Unit 10 Electricity	Unit 11 Magnetism	Unit 12 Wave Characteristics & Behavior
	<ul style="list-style-type: none"> • Lab - Human Horsepower (Enrichment) • Lab - How Powerful Am I (Enrichment) • Worksheet - Mechanical Advantage Problems (Enrichment) • Lab - Machine Lab (Enrichment) • Worksheet - Calculating Power (Enrichment) • Lab - Insulators and Conductors (Honors enrichment) • Lab - How Much Work • Worksheet - Energy and Work Problems • Lab - Arm and Leg Power • Demo - Blast Off! • Station Lab - Station Break (Energy Conversions) • Demo - Watt's a Joule 	<ul style="list-style-type: none"> • Worksheet - Electricity Problems • PowerPoint - Electricity (<i>not on disk</i>) • Lab - Build a Conductivity Tester • Activity - Electrical Cards • Folder - Electrical Calculations <ol style="list-style-type: none"> 1. Calculating Current 2. Calculating Voltage 3. Calculating Resistance 4. Ohm's Law Problems 5. Calculating Power 6. Calculating Electrical Energy and Cost 7. Series and Parallel Circuits • Worksheet - Electric Power Practice Set (Enrichment) • Worksheet - Electrical Energy Practice Set • Weblab - Blobz Guide Electric Circuits • Demo - Faraday Cage • Lab - Principles of Electrical Circuits • Lab - Circuit Circus • Activity - Energy Ball 	<ul style="list-style-type: none"> • Lab - Make an Electric Motor (<i>not on disk</i>) • Lab - Mystery Envelopes 	<ul style="list-style-type: none"> • Project - Tsunami Wave Interdisciplinary Project • Worksheet - Wave Velocity Calculations • Lab - Wave Properties • Demo - Slinky Demonstration • Demo - Interference of Waves • Station Lab - Reflection Introduction • Station Lab - Refraction Introduction • Lab - What Can Cause the Path of Light to Bend • Demo - Separating Light into Colors • Demo - Observing Interference Patterns

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Content Areas	Unit 9 Energy Transformation/Work	Unit 10 Electricity	Unit 11 Magnetism	Unit 12 Wave Characteristics & Behavior
Textbook Correlations	Prentice Hall Physical Science: Concepts in Action Chapters 14.1 and 15	Prentice Hall Physical Science: Concepts in Action Chapter 20	Prentice Hall Physical Science: Concepts in Action Chapter 21	Prentice Hall Physical Science: Concepts in Action Chapters 17, 18.1, 18.2, 18.3