Pine Hill Public Schools Curriculum			
Content Area:	**Science**		
Course Title/ Grade Level:	Inquiry Into the Sciences & Science III / Grade 9 & 11		
Unit 1:	**The Nature of Science**	Duration:	**1 week**
Unit 2:	**The Way Science Works**	Duration:	**1 week**
Unit 3:	**Chemistry: Matter**	Duration:	**2 weeks**
Unit 4:	**Chemistry: Atoms and Interactions**	Duration:	**12 days**
Unit 5:	**The Periodic Table of Elements**	Duration:	**1 week**
Unit 6:	**The Structure of Matter**	Duration:	**10 days**
Unit 7:	**Chemistry: Chemical Reactions**	Duration:	**2 weeks**
Unit 8:	**Organic and Biochemical Compounds**	Duration:	**1 week**
Unit 9:	**Solutions and Mixtures**	Duration:	**1 week**
Unit 10:	**Acids, Bases and Salts**	Duration:	**7 days**
Unit 11:	**Nuclear Changes**	Duration:	**14 days**
Unit 12:	**Physics: Motion**	Duration:	**15 days**
Unit 13:	**Forces**	Duration:	**18 days**
Unit 14:	**Work and Energy**	Duration:	**1 week**
Unit 15:	**Heat and Temperature**	Duration:	**1 week**
Unit 16:	**Waves**	Duration:	**1 week**
Unit 17:	**Sound and Light**	Duration:	**1 week**
Unit 18:	**Electricity and Magnetism**	Duration:	**3 weeks**
BOE Approval Date:	August 28, 2012		

Pine Hill Public Schools Science Curriculum		
Unit Title: The Nature of Science		**Unit # 1**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 1 week**	
Pacing		
Essential Questions	-How do Scientists explore the world? -How are the many types of science organized? -What are scientific theories, and how are they different from scientific laws? -How can I think and act like a scientist ? -How do scientists measure things?	
Content	-Root Words -Steps of the scientific method -Controls vs. Variables -Data collection and organization methods - Inquiring, observing, and discovering as a way to build science knowledge from the known to the unknown	
Skills	- List the branches of science - Differentiate between scientific laws and theories - Use the Scientific Method to solve problems - Determine the meaning of a term based on its root words - Design and perform experiments using the scientific method	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	-homework/class work -quiz -test -Inquiry lab on scientific method	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections -Connection to English -Science and society -Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		
Standard: 5.1		
Strand(s): D		

Content Statement(s):							
Demonstrate how to use scientific tools and instruments and knowledge of how to handle animals with respect for their safety and welfare.							
21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: The Way Science Works		**Unit # 2**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 1 week**	
Pacing		
Essential Questions	What are the Units of Measurement? What are the tools scientists use? Why is organizing data an important science skill? How do scientists handle very small or very large numbers? How can you tell the precision of a measurement?	
Content	-Data collection and organization methods - Inquiring, observing, and discovering as a way to build science knowledge from the known to the unknown - Presenting scientific data -Writing numbers in scientific notation -Using significant figures	
Skills	-List the tools scientists use to perform experiments -Using correct significant figures when recording numerical data -Creating and using Line, Bar, and Pie Graphs	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	homework/class work -quiz -test -Laboratories	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		
Standard: 5.1		
Strand(s): A,B,C,D		
Content Statement(s):	**CPI # / CPI(s):**	

21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: Chemistry: Matter		**Unit # 3**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 2 weeks**	
Pacing		
Essential Questions	-How can matter be classified? -Why are Carbon and Copper classified as elements? -How are elements related to compounds? -What is the difference between a pure substance and a mixture? -Why are color, volume and density classified as physical properties? -Why are flammability and reactivity classified as chemical properties?	
Content	-Elements and symbols -Compounds -Substance and mixtures -Water -Physical properties -Chemical properties	
Skills	- Classifying matter - List the properties of an element - Differentiate between compounds and mixtures - List the three phases of matter - Energy and changes of state - Properties of gas	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	-homework/class work -quiz -test -Labs on using pH (biological buffers, antacids), building molecular models	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		
Standard: 5.3		5.3.12.C

Strand(s): A							
			5.3.12.C.1				
21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: Chemistry: Atoms and Interactions		**Unit # 4**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 12 Days**	
Pacing		
Essential Questions	-What is and atom? Who came up with the first atomic theory? -What is the difference between protons, neutrons, and electrons? -What do all atoms have in common? -What is the modern model of an atom?	
Content	- Modern models of an atom - Electron energy levels - Atomic number and Mass number - Importance of specific elements (carbon, oxygen, hydrogen, nitrogen, phosphorus, sulfur) - Isotopes	
Skills	- Describe the structure and function of the parts of an atom -Describe how atoms interact -Describe the unique properties of atoms -Model (using physical or digital tools) the major categories of inorganic molecules -Conduct experiments to demonstrate the impact of various conditions on atoms	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	- -homework/class work -quiz -test -Laboratories	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		
Standard:		

Strand(s):							
Content Statement(s):				**CPI # / CPI(s):**			
21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: The Periodic Table of Elements		**Unit # 5**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 1 week**	
Pacing		
Essential Questions	-How are the elements arranged in the modern periodic table? -Why do the elements within a group on the periodic table have the same properties? -What happens to an atom when it gains or loses electrons? -What are the main categories of elements?	
Content	-Arrangement of the periodic table -The role of electrons -Ion formation -Classifying elements -Metals, Non-metals, Noble gases, Halogens -Semiconductors	
Skills	-Identifying patterns of elemental properties related to positioning on the periodic table -Identify the role of electrons in chemical reactions -List the properties of Metals, Non-metals, Noble gases, Halogens	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	-homework/class work -quiz -test -labs on the microscope, investigating cell types	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		
Standard: 5.3		
Strand(s): A. Organization and Development		

Content Statement(s):	**CPI # / CPI(s):**
Predict a cells response in a given set of environmental conditions.	

21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: The Structure of Matter		**Unit #6**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 10 days**	
Pacing		
Essential Questions	-What holds a compound together? -What determines the properties of a compound? -Why do atoms form bonds? -How do ionic compounds form? -What gives metals their distinct properties? -How are compounds named?	
Content	-Compounds and Molecules -Ionic and Covalent Bonding -Compound names and formulas -Organic and Bio-chemical compounds	
Skills	- -Review ionic, covalent, and hydrogen bonding - Use Lewis structures to show the difference between ionic and covalent bonding - Define isotopes and explain how they are used in biological research and medicine - Differentiate between acids and bases - Describe the importance of pH to maintain homeostasis in living things - Explain how structure affects chemical properties	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	-Homework/Class work -quiz -test -Labs investigation osmosis and diffusion Benchmark #1	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		

Standard:							
Strand(s):							
Content Statement(s):				**CPI # / CPI(s):**			
21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: Chemistry: Chemical Reactions		**Unit # 7**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 2 weeks**	
Pacing		
Essential Questions	-When do chemical reactions take place? -What is the role of oxygen in chemical reactions? -How do you balance a chemical equation? -What does a catalyst do? -What are the factors affecting reaction rates?	
Content	-The nature of chemical reactions -Chemical equations -Balanced equations a mole ratios -Reaction types -Electrons and chemical reaction -Reaction rates and equilibrium	
Skills	-Describe the reactants and products of a chemical reaction - List the properties of Endothermic and exothermic reactions -Balance chemical equations as to show conservation of mass -Use patterns to identify types of chemical reactions and predict the products - Use the elemental mass of a compound to determine it's empirical formula	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	--Homework/Class work -quiz -test -Cancer activity	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		
Standard: 5.3		

Strand(s): B. Matter and Energy Transformations	
Content Statement(s):	**CPI # / CPI(s):**
Investigate and describe the complementary relationship between photosynthesis and cellular respiration.	

21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: Organic and Biochemical Compounds		**Unit # 8**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 1 week**	
Pacing		
Essential Questions	-How does structure relate to function in living systems from the cellular level to the level of the organism as a whole?	
Content	- Importance of specific elements (carbon, oxygen, hydrogen, nitrogen, phosphorus, sulfur) - Dehydrations synthesis and hydrolysis - Macromolecules (structure and function) - Enzymes (function)	
Skills	- Describe the structure and function of the four major types of organic molecules -Describe how polymers are built and broken down -Describe the unique properties of enzymes -Model (using physical or digital tools) the four major categories of organic molecules -Conduct experiments to demonstrate the impact of various conditions on enzymes	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	- -homework/class work -quiz -test -Labs: Qualitative Identification of macromolecules, miscibility lab	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		
Strand(s):		
Content Statement(s):		
	CPI # / CPI(s):	

21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: Solutions and Mixtures		**Unit #9**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 1 week**	
Pacing		
Essential Questions	What is a homogeneous solution? What is a heterogeneous solution? What is solubility? Why is water called the universal solvent?	
Content	-Heterogeneous mixture -Homogeneous mixture -Water: A common solvent -The dissolving process -Solubility -Saturated solutions -Concentration of solutions	
Skills	-Compare and contrast heterogeneous and homogeneous solutions -Describe water's ability to be a solvent -Utilize the molarity equation to model concentration of solutions -Interpret the molarity equation to predict concentration -Describe a saturated solution -Identify types of solutions	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	-Homework/Class work -Quiz -Test -Labs/ activities -Performance Assessment	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		

Standard:5.3.12							
Strand(s):D.3							
			CPI # / CPI(s):				
21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: **Acids, Bases and Salts**		**Unit # 10**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 7days**	
Pacing		
Essential Questions	-What are the properties of acids and bases -How is pH related to hydronium and hydroxide ion concentrations -What is a salt? -What are some household products that contain: acids, bases & salts	
Content	-Acids -Bases -pH -Acid-Base reactions -Salts -Cleaning Products -Acids, Bases and salts in food	
Skills	-Differentiate between an acid and base - Use the pH scale to predict if a liquid is an: acid or base - List the characteristics of a salt - Describe an acid base reaction - Identify acids. Bases and salts in the home	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	-Homework/Class work -quiz -test -Labs/activities	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		

Standard:5.3.12							
Strand(s):E.3							
Content Statement(s): Provide a scientific explanation for the history of life on Earth using scientific evidence.				**CPI # / CPI(s):**			
21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: Nuclear Changes		**Unit # 11**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 14 days**	
Pacing		
Essential Questions	-What is Radioactivity? -What happens when an isotope undergoes radioactive decay? -What holds the nuclei of an atom together? -What is released when the nuclei of a heavy element is released?	
Content	- Nuclear radiation - Nuclear decay - Radioactive decay rates - Nuclear forces - Nuclear Fission and Fusion - Beneficial uses of Nuclear radiation - Risks of Nuclear radiation - Nuclear power	
Skills	-List types of Radiation -Describe and debate risks and benefits of Nuclear radiation -List the steps of Nuclear Fission and Nuclear Fusion -Model Radioactive decay -Define Radioactive decay -Describe the process of Nuclear power	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	-Homework/ Class work -Quiz -Test -Online activities	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	

2009 NJCCCS							
Standard:5.3.12							
Strand(s):E.3							
Content Statement(s): Provide a scientific explanation for the Radiation on Earth using scientific evidence.				**CPI # / CPI(s):**			
21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: Physics: Motion		**Unit # 12**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 15 days**	
Pacing		
Essential Questions	-What is Motion? -What is the difference between speed and velocity? -What changes when an object accelerates? -What are the interactions between force and motion?	
Content	- Observing Motion - Speed and Velocity - Calculating speed - Graphing motion, and acceleration - Fundamental forces - Balanced and unbalanced forces - The force of friction - Friction and motion	
Skills	-Define motion, speed, velocity and acceleration. -Provide examples of motion, speed, velocity and acceleration -Define and model motion, speed, velocity and acceleration -Provide and explain examples of friction -Recognize that motion, speed, velocity and acceleration are all related forces	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	-Homework/ Class work -Quiz -Test -Laboratories -Benchmark #3	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		
Standard:5.3.12		

Strand(s):E.1							
Content Statement(s): Account for the appearance of a novel trait that arose in a given population.				**CPI # / CPI(s):**			
21st Century Themes							
	Global Awa-reness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum	
Unit Title: Forces	**Unit # 13**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 18 days**
Pacing	
Essential Questions	-What is Gravity? -What makes an object speed-up, slow-down or change direction? -How are mass and weight measured? -Why do fall to the ground when dropped? -How do you calculate the momentum of an object?
Content	-Newton's first and second laws -Weight and Mass -Law of universal gravitation -Free fall -Projectile motion -Action and Reaction -Momentum -Conservation of Momentum
Skills	-Describe Newton's first and second law of motion -Compare and contrast weight and mass -Ulitilize the Law of universal gravitation -Explain Free fall -Perform the momentum equations to solve for momentum -Interpret the Law of Momentum
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts
Assessments	-Homework/ Class work -Quiz -Test - Labs/activities -Online activities -Performance Assessment
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access

2009 NJCCCS	
Standard:5.3.12	
Strand(s):C.1	
Content Statement(s): Analyze the interrelationships and interdependencies the forces on Earth	**CPI # / CPI(s):**

21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy

21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: Work and Energy		**Unit # 14**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 1 week**	
Pacing		
Essential Questions	-How is work calculated? - What is the relationship between work and power? -What are the six types of simple machine? -What is energy? -How does energy change? -What is the Law of Conservation of Energy?	
Content	-Power -Machines and Mechanical advantage -The six simple machines -Types of energy -Energy transformations -Law of Conservation of Energy -Efficiency of machines	
Skills	-Describe how work and power are related -List the six types of simple machines -Compare and contrast potential and kinetic energy -Describe the main types of energy -Interpret the Law of conservation of Energy - Describe Machines and Mechanical advantage	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	-Benchmark -Practice performance assessment	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		

Standard:							
Strand(s):							
Content Statement(s):				**CPI # / CPI(s):**			
21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools **Science Curriculum**							
21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: Heat and Temperature		**Unit # 15**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 1 week**	
Pacing		
Essential Questions	-What does temperature have to do with energy? -What three temperature scales are used? -How does energy transfer happen? -What is a conductor and an insulator? -What happens to heat energy when it is transferred?	
Content	- Temperature and Energy - Temperature scales - Relating temperature to energy scales - Methods of energy transfer - Conductors and Insulators - Specific heat - Laws of Thermodynamics - Heat Engines	
Skills	- Perform experiments using Conductors and Insulators - Relate temperature and energy - Define the Laws of Thermodynamics - Define Specific heat - Describe methods of energy transfer - Describe Specific heat	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	-homework/class work -lab safety quiz -performance during lab experiments	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	

2009 NJCCCS							
Standard:							
Strand(s):							
Content Statement(s):				**CPI # / CPI(s):**			
21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: Waves		**Unit # 16**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 1 week**	
Pacing		
Essential Questions	-What does a wave carry? -How are waves generated? -What are the ways to measure and compare waves? -How do waves behave when they hit a boundary, when they pass around an edge or opening, and when they pass from one medium to another?	
Content	-Waves -Vibrations and waves -Transverse and longitudinal waves -Surface waves -Wave properties -Reflection, Diffraction and Refraction -Interface -Standing waves	
Skills	-Define a wave -Describe the Doppler Effect -Perform frequency and wave-length equations -Compare Transverse and longitudinal waves - Compare Reflection, Diffraction and Refraction -Interpret the interactions of various waves	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts Determine the meaning of a term based on its root words - Design and perform experiments using the scientific method	
Assessments	--homework/class work -quiz -test -Inquiry lab on scientific method	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	

2009 NJCCCS							
Standard:							
Strand(s):							
Content Statement(s):				**CPI # / CPI(s):**			
21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: Sound and Light		**Unit # 17**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 1 week**	
Pacing		
Essential Questions	-What are the characteristics of sound? -How do ears help humans hear sound waves? -How do scientific models describe light? -What is the Electromagnetic spectrum? -Why do we see colors?	
Content	-Properties of sound -Hearing and the ear -Ultrasound and Sonar -Waves and Particles -The Electromagnetic spectrum -Reflection of Light -Seeing colors -Refraction of light -Lenses	
Skills	-Describe the properties of sound -Describe the properties of light -Interpret the Electromagnetic spectrum -List the properties of waves and Particles -Describe the refraction of light -List the functions of Lenses	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	homework/class work -quiz -test -Laboratories	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	
Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access	
2009 NJCCCS		

Standard:							
Strand(s):							
Content Statement(s):				**CPI # / CPI(s):**			
21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		

Pine Hill Public Schools Science Curriculum		
Unit Title: Electricity and Magnetism		**Unit # 18**
Course or Grade Level: Inquiry into the Sciences	**Length of Time: 3 weeks**	
Pacing		
Essential Questions	-What are the different kinds of electrical charge? -How are electrical potential energy and gravitational potential energy similar? - What is Voltage and Current? -What is magnetism? -How is Earth's magnetic field oriented? -How are magnetism and electrical currents related?	
Content	-Electric charge and force -Voltage and Current -Electrical energy and Electric power -Types of electrical circuits -Fuses and circuit breakers -Magnets and magnetic fields -Electromagnetism - Types of electrical circuits -Transformers	
Skills	-Relate Electric charge and force -Describe Voltage and Current -List Types of electrical circuits -Describe Types of electrical circuits -Interpret Types of electrical circuits -Describe magnets and magnetic fields -List the principles of Electrmagnetism -Describe the types of electrical circuits -List the function of a transformer	
Math Skills/ Science Processes	-Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -graph of graphs and charts	
Assessments	homework/class work -quiz -test -Laboratories	
Interventions / differentiated instruction	-Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach	
Inter-disciplinary Connections	- Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics	

Lesson resources / Activities	- Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access

2009 NJCCCS	
Standard:	
Strand(s):	
Content Statement(s):	**CPI # / CPI(s):**

21st Century Themes							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy

21st Century Skills							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		