

Unit Title: Scientific Process	Unit # 2
Course or Grade Level: Biology	Length of Time: 1 week
Pacing	
Essential Questions	<ul style="list-style-type: none"> -How can terms be defined using root words? -Why is the scientific method important and what are the steps? -What is the importance of controls and a variable in an experiment?
Content	<ul style="list-style-type: none"> -Root Words -Steps of the scientific method -Data collection and organization methods - Inquiring, observing, and discovering as a way to build science knowledge from the known to the unknown
Skills	<ul style="list-style-type: none"> -Determine the meaning of a term based on its root words - Design and perform experiments using the scientific method
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts -Determine the meaning of a term based on its root words - Design and perform experiments using the scientific method
Assessments	<ul style="list-style-type: none"> -homework/class work -quiz -test -Inquiry lab on scientific method
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics
Lesson resources / Activities	<ul style="list-style-type: none"> - 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):	CPI # / CPI(s):

Demonstrate how to use scientific tools and instruments and knowledge of how to handle animals with respect for their safety and welfare.							
<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>21st Century Skills</u>							
	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: Characteristics of Life		Unit # 3
Course or Grade Level: Biology		Length of Time: 1 week
Pacing		
Essential Questions	<ul style="list-style-type: none"> -What are the essential characteristics that all living organisms share? -How does structure relate to function in living systems from the organismal to the cellular level? 	
Content	<ul style="list-style-type: none"> - Overview of essential life processes - Characteristics of Life - Needs of an organism -Levels of organization from biosphere to cell 	
Skills	<ul style="list-style-type: none"> - Identify the characteristics of life -Describe the needs of an organism -List levels of organization and provide an example 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> homework/class work -quiz -test -Lab on characteristics of life (Pill Bug, Mythbusters Lab) 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - 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):

<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>21st Century Skills</u>							
	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: Inorganic Chemistry		Unit # 4
Course or Grade Level: Biology		Length of Time: 1 week
Pacing		
Essential Questions	How is water important to life? -How does structure relate to function in living systems from the organismal to the cellular level?	
Content	<ul style="list-style-type: none"> -Water - Isotopes - Lewis structures (ionic/covalent bonding) - pH and buffers 	
Skills	<ul style="list-style-type: none"> - 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 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> -homework/class work -quiz -test 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - 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		
Analyze the interrelationships and interdependencies among different organisms and explain how these relationships contribute to the stability of the ecosystem.	5.3.12.C.1	

<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>21st Century Skills</u>							
	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 Chemistry		Unit # 5
Course or Grade Level: Biology		Length of Time: 12 Days
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	<ul style="list-style-type: none"> - Importance of specific elements (carbon, oxygen, hydrogen, nitrogen, phosphorus, sulfur) - Dehydrations synthesis and hydrolysis - Macromolecules (structure and function) 	
Skills	<ul style="list-style-type: none"> - Describe the structure and function of the four major types of organic molecules -Describe how polymers are built and broken down -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	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> - -homework/class work -quiz -test -Labs: Qualitative Identification of macromolecules, miscibility lab 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - 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):

<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>21st Century Skills</u>							
	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: Cellular Structure		Unit # 6
Course or Grade Level: Biology		Length of Time: 1 week
Pacing		
Essential Questions	What is the basic unit of structure and function of living things?	
Content	<ul style="list-style-type: none"> -Cell theory -Parts of the microscope -Types of microscopes and their uses -Plant vs Animal Cells 	
Skills	<ul style="list-style-type: none"> -Proficient in using microscope, locating specimens, and creating a wet mount -Observe and identify types of cells 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> -homework/class work -quiz -test -labs on the microscope, investigating cell types 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - 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: Cell Membrane and transport		Unit #7
Course or Grade Level: Biology		Length of Time: 10 days
Pacing		
Essential Questions	-How are substances transported into and out of the cell to maintain homeostasis?	
Content	<ul style="list-style-type: none"> - Describe the major structure and functions of the cell membrane - Explain how the structure of the plasma membrane makes it semi-permeable - Describe and distinguish between the processes of diffusion, facilitated diffusion, osmosis, and active transport - Compare and contrast hypertonic, hypotonic, and isotonic solutions 	
Skills	<ul style="list-style-type: none"> -Recognize that cell membranes are selectively permeable and maintain optimal internal conditions through transport -Predict a cell's response in a given set of environmental conditions 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> -Homework/Class work -quiz -test -Labs investigation osmosis and diffusion <p>Benchmark #1</p>	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - 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):

<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>21st Century Skills</u>							
	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: Photosynthesis and Respiration		Unit # 8
Course or Grade Level: Biology		Length of Time: 12 days
Pacing		
Essential Questions	How do cells obtain and use energy? How are matter and energy transformed and transferred in living things?	
Content	<ul style="list-style-type: none"> -Original source of energy for all living things is the sun - Photosynthesis and cellular respiration are dependent processes -Aerobic vs. Anaerobic -Recognize the equations for cell respiration and photosynthesis 	
Skills	<ul style="list-style-type: none"> -Link energy from the sun to the energy needs of organisms -Differentiate between aerobic and anaerobic processes -Compare and contrast the processes of cellular respiration and photosynthesis 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> --Homework/Class work -quiz -test -Cancer activity 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - 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	Civic Literacy	Health Literacy
------------------	---	----------------	-----------------

			Literacy				
<u>21st Century Skills</u>							
	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: Cell Cycle		Unit # 9
Course or Grade Level: Biology		Length of Time: 1 week
Pacing		
Essential Questions	<ul style="list-style-type: none"> - What the cell cycle? -How is cancer related to the cell cycle? -How do changes in DNA affect cells? 	
Content	<ul style="list-style-type: none"> -Cell Cycle- interphase, mitosis (prophase, metaphase, anaphase, telophase) and cytokinesis -Cancer - Limits on cell size 	
Skills	<ul style="list-style-type: none"> -Describe what occurs during the major steps of the cell cycle -State that mitosis produces genetically identical daughter cells 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> --Homework/Class work -quiz -test -Cancer activity 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access 	
2009 NJCCCS		
Strand(s): D. Heredity and Reproduction		
Content Statement(s):		
Demonstrate through modeling how the sorting and recombination of genes during sexual reproduction has an effect on variation in offspring (meiosis, fertilization).	CPI # / CPI(s):	

21st Century Themes

	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>21st Century Skills</u>							
	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: Meiosis and Heredity		Unit # 10
Course or Grade Level: Biology		Length of Time: 18 days
Pacing		
Essential Questions	<ul style="list-style-type: none"> -What are the major similarities and differences between mitosis and meiosis? -Why do organisms have their specific traits? -How is genetic information passed through generations? 	
Content	<ul style="list-style-type: none"> -Meiosis produces gametes -Mendel's experiments - Punnett squares -Dominant/recessive, genotype/phenotype -Non-mendelian inheritance patterns 	
Skills	<ul style="list-style-type: none"> -Compare and contrast meiosis and mitosis -Sorting and recombination of genes in sexual reproduction -Describe Mendel's experiments -Utilize punnett squares to predict genotypic and phenotypic outcomes (mono- and dihybrid crosses) -Utilize a test cross -Describe a genetic disorder 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> -Homework/Class work -Practice punnett squares -Quiz -Test -Labs/ activities: Predicting the outcome of mating, karyotyping lab, gene frequency lab. -Genetic disorders research activity 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access 	
2009 NJCCCS		
Standard:5.3.12		
Strand(s):D.3		

Content Statement(s): Demonstrate through modeling how the sorting and recombination of genes during sexual reproduction has an effect on variation in offspring.					CPI # / CPI(s):		
<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>21st Century Skills</u>							
	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: DNA, RNA and Protein Synthesis		Unit # 11
Course or Grade Level: Biology		Length of Time: 7days
Pacing		
Essential Questions	<ul style="list-style-type: none"> -How is genetic information passed through generations? -How does the information stored in DNA become translated into a protein? -How do changes in DNA affect cells? 	
Content	<ul style="list-style-type: none"> -Historical events and experiments that led to the discovery of DNA -DNA carries instructions for characteristics of organisms and is a large polymer formed from 4 subunits (Adenine, Thymine, Guanine, and Cytosine) - Explain how the chemical and structural properties of DNA allow for genetic information to be encoded and replicated -Genes are sections of DNA that encode instructions for making proteins. -Mutations (point and frameshift) -Trace the flow of information from DNA to RNA to amino acid sequence 	
Skills	<ul style="list-style-type: none"> -Build a model of DNA -Define replication -Trace the flow of information from DNA to proteins -Differentiate between types of mutations 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> -Homework/Class work -quiz -test -Labs/activities: DNA structure and replication lab, DNA extraction, introduction to gel electrophoresis, DNA sequencing lab 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - Hands-on activities -Laboratories related to the subject matter -Word processing systems -Computer access 	

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: Biotechnology		Unit # 12
Course or Grade Level: Biology		Length of Time: 14 days
Pacing		
Essential Questions	<ul style="list-style-type: none"> -What is biotechnology and how can it be used? -What are the risks and benefits of genetic engineering? -What are cloning and stem cells and why are these controversial topics? 	
Content	<ul style="list-style-type: none"> -Forms of genetic engineering -Uses for the human genome project -Risks and benefits of genetic engineering -Transgenic organisms -Gel electrophoresis - Stem cells and cloning -Ethical Implications 	
Skills	<ul style="list-style-type: none"> -List types of genetic engineering -List uses for the human genome project -List the steps of creating a transgenic organism -Model gel electrophoresis -Describe the process of cloning and explain why cloning is controversial -Analyze current and potential impact of genome projects on human health or special with 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> -Homework/ Class work -Quiz -Test -Online activities -GATACCA Movie 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - 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: Evolution		Unit # 13
Course or Grade Level: Biology		Length of Time: 15 days
Pacing		
Essential Questions	<ul style="list-style-type: none"> - How do natural selection and evolution explain the development of Earth's present species? -What is the major evidence for evolution? -How does natural selection encourage inter and intra specific diversity over time? -What are the various mechanisms of evolution? 	
Content	<ul style="list-style-type: none"> -Darwin's theory of natural selection -Evidence for evolution- fossils, comparative anatomy, embryological similarities, biochemistry -Evolutionary processes – reproductive isolation, adaptive radiation, divergent evolution, convergent evolution and co-evolution. -Types of natural selection 	
Skills	<ul style="list-style-type: none"> -Define evolution, species, population, speciation, and adaptation -Provide examples of adaptations in organisms -Define and model natural selection -Provide and explain examples of evolution -Recognize that evolution occurs as a result of a combination of factors and list the factors 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> -Homework/ Class work -Quiz -Test -Labs on modeling natural selection, antibiotic resistance, gene frequencies -Benchmark #3 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - 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: Ecology and Human Impacts on the Environment		Unit # 14
Course or Grade Level: Biology		Length of Time: 18 days
Pacing		
Essential Questions	<ul style="list-style-type: none"> -How are organisms dependent on each other? -How do human activities impact the environment and living systems? -How does energy flow through an ecosystem? 	
Content	<ul style="list-style-type: none"> - Abiotic and biotic factors in an ecosystem -Trophic levels - Energy flow -Habitat and Niche -Limits on populations -Human modification of ecosystems -Evidence of habitat destruction and threats on ecosystem stability 	
Skills	<ul style="list-style-type: none"> -Identify biotic and abiotic factors in an ecosystem -Trace energy flow through an ecosystem -Identify factors that limit population growth -Provide evidence of habit destruction and threats to current local and global ecosystem stability -Analyze interactions between organisms Analyze the various symbiotic relationships among plants and animals -Predict the impact of natural disasters on ecosystems 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> -Homework/ Class work -Quiz -Test - Labs/activities on biotic vs. abiotic factors, energy flow through an ecosystem, human impacts on the environment -Online activities 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - 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 among organisms, and explain how these relationships contribute to the stability of the ecosystem.					CPI # / CPI(s):		
<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>21st Century Skills</u>							
	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: Biology Competency test Review		Unit # 15
Course or Grade Level: CP Biology		Length of Time: 1 week
Pacing		
Essential Questions	<ul style="list-style-type: none"> -What is the relationship between structure and function in living systems? -How are matter and energy transformed and transferred in living systems? -How do responses to internal and external stimuli lead to the survival of an organism? -Why do organisms have their specific traits? -How do natural selection and evolution explain the development of Earth's present species? -How do human activities impact the environment and living systems? 	
Content	- Review goals A-O	
Skills	<ul style="list-style-type: none"> -Complete performance assessment -Complete benchmark assessment #4 -Utilize EOC review materials -Use rubric to interpret and correct practice written assessments 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts 	
Assessments	<ul style="list-style-type: none"> -Benchmark -Practice performance assessment 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - 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):

<u>21st Century Themes</u>					
Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy		Health Literacy
<u>21st Century Skills</u>					

**Pine Hill Public Schools
Science Curriculum**

Unit Title: Scientific Process		Unit # 1
Course or Grade Level: CP Biology		Length of Time: 1 week
Pacing		
Essential Questions	<ul style="list-style-type: none"> -How can terms be defined using root words? -Why is the scientific method important and what are the steps? -What is the importance of controls and a variable in an experiment? 	
Content	<ul style="list-style-type: none"> -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	<ul style="list-style-type: none"> -Determine the meaning of a term based on its root words - Design and perform experiments using the scientific method 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> -Use of graphs - Creation and usage of data tables - Use of Graphing Calculators -Use of graphs and charts -Determine the meaning of a term based on its root words - Design and perform experiments using the scientific method 	
Assessments	<ul style="list-style-type: none"> -homework/class work -quiz -test -Inquiry lab on scientific method 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> -Provide advanced notice of tests -Include hands-on activities -Provide material at student's level of functioning -Use multi sensory approach 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> - Mathematical connections - Connection to English - Science and society - Scientific discoveries and the link to Ethics 	
Lesson resources / Activities	<ul style="list-style-type: none"> - 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):			
<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>21st Century Skills</u>							
	Creativity and Innovation		Critical Thinking and Problem Solving		Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy		Life and Career Skills		