

Pine Hill Public Schools Curriculum

Content Area:	Science		
Course Title/ Grade Level:	Anatomy and Physiology		
Unit 1:	Introduction to Course	Month:	Sept.
Unit 2:	Basic Chemistry of Life	Month:	Sept.
Unit 3:	Cells and Tissues	Month:	Sept/Oct.
Unit 4:	Integumentary System	Month:	Oct.
Unit 5:	Skeletal System	Month:	Oct.
Unit 6:	Muscular System	Month:	Nov.
Unit 7:	Nervous System	Month:	Dec.
Unit 8:	Special Senses	Month:	Jan.
Unit 9:	Endocrine System	Month:	Feb.
Unit 10:	Blood	Month:	March
Unit 11:	Cardiovascular System	Month:	April
Unit 12:	Lymphatic System	Month:	April
Unit 13:	Respiratory System	Month:	May
Unit 14:	Digestive System	Month:	May
Unit 15:	Urinary System	Month:	June
Unit 16:	Reproductive System	Month:	June
BOE Approval Date:	07/17/2011		

**Pine Hill Public Schools
Curriculum**

Unit Title: Introduction to Course and Lab Techniques		Unit #: 1
Course or Grade Level: Anatomy and Physiology		Length of Time:
Pacing	3 Days	
Essential Questions	<ul style="list-style-type: none"> • What is the scope and sequence of the course? • What are the safety concerns within the course? • What is the procedure for maintaining a lab notebook ? • How are biological drawings made? 	
Content	<ul style="list-style-type: none"> • Course outline • Book Introduction • Description of Course <ul style="list-style-type: none"> - Grading policy - Safety - Classroom rules - Laboratory rules - Laboratory safety - Lab notebook instructions - Lab report format - Histology lab format 	
Skills	<ul style="list-style-type: none"> • Understand course objectives • Understand course sequence. • Understand the classroom rules and procedures. • Demonstrate proper safety procedures in the laboratory • Identify the lengths and widths of prepared specimens 	
Math Skills/ Science Processes	<input type="checkbox"/> Data analysis, graphing, decimals and percentages <input type="checkbox"/> <input type="checkbox"/>	
Assessments	<ul style="list-style-type: none"> • <input type="checkbox"/> Laboratory safety quiz • Advanced Microscopy lab • <input type="checkbox"/> Prepared Laboratory notebook with lab report instructions 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Word banks provided • Review sheets • Teacher assistance when needed 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages 	
Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts 	
2009 NJCCCS		

Standard: 5.1.12A-C

Strand(s):

Content Statement(s):	CPI # / CPI(s):

21st Century Themes

	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
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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
Curriculum**

Unit Title: Orientation to the Human Body		Unit #: 2
Course or Grade Level: Anatomy and Physiology		Length of Time:
Pacing	1.5-2 Weeks	
Essential Questions	<ul style="list-style-type: none"> • What is anatomy and physiology? • What are some careers in the health profession? • What is the universal language of Anatomy and Physiology and why is it necessary? • What are the systems of the body and in what cavities are they found? • What are the anatomical terms that describe the relative positions of the body parts, the regions of the body, and the planes by which the body can be sectioned? 	
Content	<ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> Anatomy and Physiology <ul style="list-style-type: none"> - Definition - Major body systems - Maintenance of homeostasis <input type="checkbox"/> <input type="checkbox"/> Analysis of professions in health field <ul style="list-style-type: none"> - Schooling requirements - School availability and cost - Job requirement - Average salary <input type="checkbox"/> <input type="checkbox"/> Anatomical position - Definition and purpose <input type="checkbox"/> <input type="checkbox"/> Body cavities <ul style="list-style-type: none"> - ventral and dorsal cavities - organs included within each cavity <input type="checkbox"/> <input type="checkbox"/> Medical terminology <ul style="list-style-type: none"> - common terms in medicine - Latin roots and derivatives 	
Skills	<ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> Differentiate terms anatomy and physiology and how they are interdependent <input type="checkbox"/> <input type="checkbox"/> Explain the requirements and availability of various careers. <input type="checkbox"/> <input type="checkbox"/> Demonstrate the anatomical position and explain its universality. <input type="checkbox"/> <input type="checkbox"/> Identify organs within each body cavity. <input type="checkbox"/> <input type="checkbox"/> Use proper anatomical terms 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> • Data analysis, graphing, decimals and percentages 	
Assessments	<ul style="list-style-type: none"> • Chapter tests • Chapter questions • Worksheets • Labs • Anatomy coloring book pages 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Word banks provided • Review sheets • Teacher assistance when needed 	

Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages
Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts Text- Chapter 1

2009 NJCCCS

Standard: 5.1.12A-C

Strand(s):

Content Statement(s):

CPI # / CPI(s):

21st Century Themes

Global Awareness	Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy	Health Literacy
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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
Curriculum**

Unit Title: Basic Chemistry of Life		Unit #: 3
Course or Grade Level:		Length of Time:
Pacing	1.5-2 Weeks	
Essential Questions	<ul style="list-style-type: none"> • What are the primary types of energy transfer in the human body? • How does atomic structure promote bonding? • What are 3 three major types of chemical bonds found in the molecules of the human body? • How is pH measured and how does the body maintain various pH levels within the body? • How is water important in homeostatic balance? • How are proteins, carbohydrates, lipids, and nucleic acids essential to the functioning of human body? 	
Content	<ul style="list-style-type: none"> • Chemical reactions <ul style="list-style-type: none"> -decomposition -synthesis • Electron configuration • Covalent, ionic, and hydrogen bonding • Acids, bases, pH scale and buffer systems within the human body • Properties and chemical composition of water • Monomer, polymers, examples of each proteins, carbohydrates, lipids and nucleic acids <ul style="list-style-type: none"> - Function of each macromolecule in the human body 	
Skills	<ul style="list-style-type: none"> • Investigate different types of reactions and explain the role of enzymes in these reactions. • Predict type of chemical bonds which will form based on the electron configuration of each element within a reaction. • Investigate the pH of various substances and correlate to the pH within living systems • Compare and contrast how the body uses each of the macromolecules. 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> • Catalase or cheese making lab report • Assigned questions from text • pH of living systems lab report • Latin vocabulary quiz • Unit test • Nutrition journal 	
Assessments	<input type="checkbox"/> Data analysis, graphing, decimals and percentages <input type="checkbox"/> <input type="checkbox"/>	
Interventions / differentiated instruction	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook with lab <ul style="list-style-type: none"> • report instructions 	

Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages
Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts

2009 NJCCCS

Standard: 5.1.12A-C. 5.2.12A-B

Strand(s):

Content Statement(s):

CPI # / CPI(s):

21st Century Themes

	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
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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
Curriculum**

Unit Title: Cells and Tissues		Unit #: 4
Course or Grade Level:		Length of Time:
Pacing	2-2.5 Weeks	
Essential Questions	<ul style="list-style-type: none"> • What are the levels of structural organization within the human body? • What are the major organelles and their functions? • How does the plasma membrane's characteristic enable the cell to maintain homeostasis? • What are the stages of the cell cycle ? • How does mitosis relate to cancer? • What are the four major tissues types found in the human body and how can they be distinguished? 	
Content	<ul style="list-style-type: none"> • Levels of organization from a cell to organism • Structure and function of each organelle in a typical animal cell • Diffusion, osmosis and the selective permeability of the plasma membrane • Major events of each phase of the cell cycle (Interphase, Mitosis, and Cytokinesis) • Define cancer and terminology associated with cancer • Structure and function of each type of tissue <ul style="list-style-type: none"> - Epithelial - Connective - Muscle - Nervous 	
Skills	<ul style="list-style-type: none"> • Create and explain assigned organelle • Compare and contrast the processes of diffusion, osmosis, active and passive transport • Describe the stages of the cell cycle • Differentiate between benign and malignant • Identify various types of tissue samples • Compare and contrast the structure and functions of each tissue type 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> • Class cell • Assigned questions from text • Cell & diffusion quiz • Mitosis model • Cancer web site activity • Unknown tissues lab • Latin vocabulary quiz • Unit test 	
Assessments	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook with lab <ul style="list-style-type: none"> • report instructions 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Word banks provided • Review sheets • Teacher assistance when needed 	

Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages
Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts

2009 NJCCCS

Standard: 5.1.12A-C, 5.3.12A , 5.3.12B 1-2

Strand(s):

Content Statement(s):

CPI # / CPI(s):

21st Century Themes

	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
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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
Curriculum**

Unit Title: Integumentary System		Unit #: 5
Course or Grade Level:		Length of Time:
Pacing	2-2.5 Weeks	
Essential Questions	How do the structures which comprise the integumentary system aid in maintaining homeostasis within the human body?	
Content	<ul style="list-style-type: none"> • Functions of the integumentary system • Layers of the skin • Appendages of the skin • Diseases and disorders affecting the skin 	
Skills	<ul style="list-style-type: none"> • Describe how the functions of the skin aid in maintaining homeostasis • Explain what is meant by appendages of the skin and how these structures grow • Identify various skin disorders and how they are indicative of homeostatic imbalance 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> • Assigned questions from text • Skin advertisement • “Fingerprinting “lab • Hair, skin histology • Diagrams • Latin vocabulary quiz • Unit test 	
Assessments	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook with lab <ul style="list-style-type: none"> • report instructions 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Word banks provided • Review sheets • Teacher assistance when needed 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages 	
Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts 	

Standard: 5.1.12A-C, 5.3.12A

Strand(s):

Content Statement(s):	CPI # / CPI(s):

21st Century Themes

	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
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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
Curriculum**

Unit Title: Skeletal System		Unit #: 6
Course or Grade Level:		Length of Time:
Pacing	2.5-3 Weeks	
Essential Questions	<ul style="list-style-type: none"> • How do the structures of the skeletal system aid in maintaining homeostasis within the human body? • How do the structures of the skeletal system provide the body with support and movement of joints? 	
Content	<ul style="list-style-type: none"> • Functions of skeletal system • Classification of bones • Anatomy of a long bone • Major bones which comprise the axial and appendicular skeleton • Names of the bones which comprise the skull, vertebrae, pelvis, hands, and feet • Different joints or articulations within the body • Microscopic anatomy of bone • Types of fractures and bone growth/repair • Diseases and disorders affecting the skeletal system 	
Skills	<ul style="list-style-type: none"> • Describe how the functions of the skeletal system aid in maintaining homeostasis • Describe and give examples of the different types of bones • Identify the structures which comprise a long bone • Differentiate the bones of the axial and appendicular skeleton • Identify the bones of the human body • Explain the types of joints and how they aid the body in various movements • Understand and identify various fractures which can occur in the skeletal system • Identify various disorders of the skeletal system and how they are treated 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> • Assigned questions from text • “Unknown bones” lab • Latin vocabulary quiz • Quiz on axial & appendicular skeleton • Quiz on hands, feet, skull • Unit test 	
Assessments	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook with lab <ul style="list-style-type: none"> • report instructions 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Word banks provided • Review sheets • Teacher assistance when needed 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages 	

Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts 						
2009 NJCCCS							
Standard: 5.1.12A-C, 5.3.12A							
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
Curriculum**

Unit Title: Muscular System		Unit #: 6
Course or Grade Level:		Length of Time:
Pacing	2.5-3 Weeks	
Essential Questions	<ul style="list-style-type: none"> • How do the different types of muscle aid the body in maintaining homeostasis? • How do muscles move on a microscopic and macroscopic level? 	
Content	<ul style="list-style-type: none"> • Muscle types • Microscopic anatomy of skeletal muscle • Stimulation and contraction of skeletal muscle • Muscle movements, types, and names • Major superficial muscles of the human body • Diseases and disorders affecting the skeletal system 	
Skills	<ul style="list-style-type: none"> • Describe how the functions of the muscular system aid in maintaining homeostasis • Compare and contrast the 3 types of muscle • Explain the structure of a sarcomere and how it allows for the mechanism of muscle contraction (sliding filament theory) • Compare and contrast the types of body movements • Identify major superficial muscles in the human body • Explain how disorders of the muscular system can lead to homeostatic imbalance 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> • Assigned questions from text • Muscle histology • “Work of muscles lab “report • Gross anatomy of superficial muscles quiz • Latin vocabulary quiz • Unit test 	
Assessments	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook with lab	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Word banks provided • Review sheets • Teacher assistance when needed 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages 	
Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts 	

2009 NJCCCS							
Standard: 5.1.12A-C, 5.3.12A							
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
Curriculum**

Unit Title: Nervous System		Unit #: 7
Course or Grade Level:		Length of Time:
Pacing	3-3.5 Weeks	
Essential Questions	<ul style="list-style-type: none"> • How do the structures of the nervous system aid in maintaining homeostasis within the human body? • How does the body respond to stimuli by the central nervous system and the peripheral nervous system? 	
Content	<ul style="list-style-type: none"> • Organization and classification of the nervous system • Structure and function of nervous tissue • Physiology of a nerve impulse • Pathway of a reflex • Structures , functions of and protection of the central nervous system • Structures, functions and protection of the peripheral nervous system • Effects of sympathetic and parasympathetic divisions of the autonomic nervous system • Diseases, disorders, and drugs effect on the nervous system 	
Skills	<ul style="list-style-type: none"> • Understand how the nervous system is organized based on structural and functional characteristics • Describe the events of a nerve impulse • Explain the steps in a reflex arc • Identify the structures, location and functions of each region of the brain • Explain how the meninges, cerebrospinal fluid and blood-brain barrier protect the nervous system • Understand the functions of the 12 pairs of cranial nerves • Compare and contrast the effects of the sympathetic and parasympathetic nervous system on different target organs • Describe the mechanism and effects of drugs and alcohol on the nervous system • Explain how disease and disorders of the nervous system lead to homeostatic imbalance 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> • Assigned question from text • Brain catalog • “Reflex lab” report • “Effects of Drugs” lab report • Website activity: learn genetics utah “Science of Addiction” • Latin vocabulary quiz • Unit test 	
Assessments	<ul style="list-style-type: none"> <input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook with lab <ul style="list-style-type: none"> • report instructions 	

Interventions / differentiated instruction	<ul style="list-style-type: none"> • Word banks provided • Review sheets • Teacher assistance when needed
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages
Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts

2009 NJCCCS

Standard: 5.1.12A-C, 5.3.12A

Strand(s):

Content Statement(s):

CPI # / CPI(s):

21st Century Themes

Global Awareness	Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy	Health Literacy
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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
Curriculum**

Unit Title: Special Senses		Unit #: 8
Course or Grade Level:		Length of Time:
Pacing	1.5-2 Weeks	
Essential Questions	<ul style="list-style-type: none"> How does the body respond to different types of energetic stimuli involved in vision, hearing, balance, smell and taste in order to maintain homeostasis? 	
Content	<ul style="list-style-type: none"> Gross anatomy of the eye Pathway of light through the eye and the mechanism of vision Gross anatomy of the ear Mechanism of hearing & balance Mechanism of taste and smell Diseases and disorders of the special senses 	
Skills	<ul style="list-style-type: none"> Identify the structures which comprise the human eye Explain how the body converts light energy into images perceived by the brain Identify the structures which comprise the ear Understand how sound waves are converted into impulses perceived by the brain Explain how dynamic and static equilibrium are achieved by structures within the ear Explain how chemoreceptors process and relay information to the brain Understand how various diseases and disorders can lead to homeostatic imbalance 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> Assigned questions from text “Taste and smell” lab report Latin vocabulary quiz Labeled diagrams Cow eye dissection Unit test 	
Assessments	<ul style="list-style-type: none"> Word banks provided Review sheets Teacher assistance when needed 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> Connections to medicine and various related fields Written essay of lab conclusion Graphs Decimals Percentages 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. Microscope Prepared slides Models, Charts 	
Lesson resources / Activities	<ul style="list-style-type: none"> TBD 	

Standard: 5.1.12A-C, 5.3.12A

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
Curriculum**

Unit Title: Endocrine System		Unit #: 9
Course or Grade Level:		Length of Time:
Pacing		
Essential Questions	<ul style="list-style-type: none"> How do the hormones secreted by the endocrine system work to maintain homeostasis ? 	
Content	<ul style="list-style-type: none"> Mechanism of hormone action Control of hormone release Major endocrine glands and their hormones <ul style="list-style-type: none"> Pineal gland Hypothalamus Pituitary gland Thyroid gland Parathyroid gland Thymus Adrenal glands Pancreas Diseases and disorders of the endocrine system 	
Skills	<ul style="list-style-type: none"> Compare and contrast amine based hormones and sterol based hormones Understand the concept of a negative feedback system in the regulation of hormones Identify the major glands of the endocrine system Explain the functions of each hormone Describe the effects of hormonal imbalances on the human body 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> Assigned questions form text Labeled diagrams Cut and paste activity Endocrine histology Latin vocabulary quiz Diabetes activity Unit test 	
Assessments	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory Note book report instructions	
Interventions / differentiated instruction	<ul style="list-style-type: none"> Word banks provided Review sheets Teacher assistance when needed 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> Connections to medicine and various related fields Written essay of lab conclusion Graphs Decimals Percentages 	

Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts 		
2009 NJCCCS			
Standard: 5.1.12A-C, 5.3.12A			
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
Curriculum**

Unit Title: Blood		Unit #: 10
Course or Grade Level:		Length of Time:
Date Created: 5/25/12		BOE Approval Date:
Pacing	1.5-2 Weeks	
Essential Questions	<ul style="list-style-type: none"> How does the circulation of blood maintain necessary life functions such as transporting nutrients & gases, regulating body temperature, and fight infections? 	
Content	<ul style="list-style-type: none"> Components and functions of blood Hematopoiesis Hemostasis Blood typing Diseases and disorders affecting the blood 	
Skills	<ul style="list-style-type: none"> Understand the various components of blood and the function of each Compare and contrast the different types of white blood cells Explain how the body regulates blood cell formation Identify the main steps in the process of hemostasis Investigate how blood typing is performed and its importance in the medical field Understand how various diseases and disorders can lead to homeostatic imbalance 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> Assigned questions form text Labeled diagrams Latin vocabulary quiz Blood histology Blood typing lab report Unit test 	
Assessments	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook with lab report instructions	
Interventions / differentiated instruction	<ul style="list-style-type: none"> Word banks provided Review sheets Teacher assistance when needed 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> Connections to medicine and various related fields Written essay of lab conclusion Graphs Decimals Percentages 	
Lesson resources / Activities	<ul style="list-style-type: none"> Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. Microscope Prepared slides Models,Charts 	

2009 NJCCCS

Standard: 5.1.12A-C , 5.3.12A

Strand(s):

Content Statement(s):

CPI # / CPI(s):

21st Century Themes

	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
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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
Curriculum**

Unit Title: Cardiovascular System		Unit #: 11
Course or Grade Level:		Length of Time:
Pacing	3-3.5 Weeks	
Essential Questions	<ul style="list-style-type: none"> ● How does the structure of the heart enable the body to circulate blood through out the body? 	
Content	<ul style="list-style-type: none"> ● Gross anatomy of the heart ● Functions of heart valves ● Double pump system ● Physiology and electrical conduction of the heart ● Cardiac cycle and heart sounds ● Major veins and arteries of the circulatory system ● Disease and disorders of the cardiovascular system 	
Skills	<ul style="list-style-type: none"> ● Investigate and identify structures which comprise the heart ● Analyze EKG readings ● Explain electrical conduction system of the heart ● Distinguish normal vs. abnormal heart sounds ● Use blood pressure equipments ● Compare and contrast major veins and arteries within body ● Identify major risk factors for cardiovascular disease ● Explain how various diseases and disorders of the cardiovascular system can lead to homeostatic imbalance 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> ● Assigned questions form text ● Latin vocabulary quiz ● Labeled diagrams and worksheets ● Sheep heart dissection ● Heart flip book ● Blood pressure lab ● Virtual cardiology lab (HHMI) ● Unit test 	
Assessments	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook report instructions	
Interventions / differentiated instruction	<ul style="list-style-type: none"> ● Word banks provided ● Review sheets ● Teacher assistance when needed 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> ● Connections to medicine and various related fields ● Written essay of lab conclusion ● Graphs ● Decimals ● Percentages 	

Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts 						
2009 NJCCCS							
Standard: 5.1.12A-C, 5.3.12A							
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
Curriculum**

Unit Title: Lymphatic System and Body Defenses		Unit #: 12
Course or Grade Level:		Length of Time:
Pacing	2-2.5 Weeks	
Essential Questions	<ul style="list-style-type: none"> • How does the human body cleanse the blood and protect itself from “foreign” invaders in order to maintain homeostasis? 	
Content	<ul style="list-style-type: none"> • Major lymphatic vessels, nodes, and lymph organs. • Non specific body defenses <ul style="list-style-type: none"> -inflammatory response - surface membrane barriers, chemicals, & cells • Specific body defenses <ul style="list-style-type: none"> - cells - humoral mediated - antibody mediated - passive vs. active immunity • Diseases and disorders of the immune system 	
Skills	<ul style="list-style-type: none"> • Identify location and function of the thoracic and right lymphatic duct • Identify the location and function of major lymph nodes and organs • Explain how the body defends itself against invaders using non specific means • Compare and contrast the action of B cells and T cells • Understand the basis of vaccines • Demonstrate proper sterile techniques • Understand how diseases and disorders of the lymphatic system can lead to homeostatic imbalance 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> • Assigned questions from text • Latin vocabulary quiz • Labeled diagrams • Culturing Bacteria lab report • HHMI: Immunoassay virtual lab report • How does a Dr test for AIDS lab report • Unit test 	
Assessments	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook with lab report instructions	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Word banks provided • Review sheets • Teacher assistance when needed 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages 	

Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts 		
2009 NJCCCS			
Standard: 5.1.12A-C,5.3.12A			
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
Curriculum**

Unit Title: Respiratory System		Unit #: 13
Course or Grade Level:		Length of Time:
Pacing	1.5-2 Weeks	
Essential Questions	<ul style="list-style-type: none"> • What are the structures and functions of the respiratory system? • How does gas exchange occur on a cellular level in order to maintain homeostasis? 	
Content	<ul style="list-style-type: none"> • Gross anatomy of the respiratory system <ul style="list-style-type: none"> - nose - larynx - pharynx - trachea - primary bronchi - bronchioles - alveoli • Mechanics of breathing • External and internal respiration • Control of respiration • Diseases and disorders of respiratory system 	
Skills	<ul style="list-style-type: none"> • Explain how the respiratory organs serve to warm and filter the air • Identify the structures of the respiratory system • Compare and contrast internal and external respiration • Understand that gases are exchanged based on the laws of diffusion • Understand how diseases and disorders of the respiratory system can lead to homeostatic imbalance 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> • Assigned questions from text • Latin vocabulary quiz • Labeled diagrams • Spirometry lab report • Unit test 	
Assessments	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook with lab	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Word banks provided • Review sheets • Teacher assistance when needed 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages 	

Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts 		
2009 NJCCCS			
Standard: 5.1.12A-C, 5.3.12A			
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
Curriculum**

Unit Title: Digestive System		Unit #: 14
Course or Grade Level:		Length of Time:
Pacing	1.5-2 Weeks	
Essential Questions	<ul style="list-style-type: none"> • How does the body breakdown and process food into usable energy for the body? 	
Content	<ul style="list-style-type: none"> • Organs of the alimentary canal • Accessory digestive organs • Gastrointestinal processes and controls • Nutrition and metabolism • Diseases and disorders of the digestive system 	
Skills	<ul style="list-style-type: none"> • Identify structures of the digestive system • Explain the role of enzymes in the process of carbohydrate, lipid and protein digestion • Compare and contrast mechanical and chemical digestion • Explain the role of accessory organs in the breakdown of food • Understand how diseases and disorders of the digestive system can lead to homeostatic imbalance 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> • Assigned questions • Latin vocabulary quiz • Labeled diagrams • “Cheeseburger” digestion project • Nutrition log • Unit test 	
Assessments	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook with lab <ul style="list-style-type: none"> • report instructions 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Word banks provided • Review sheets • Teacher assistance when needed 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages 	
Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models, Charts 	

Standard: 5.1/12A-C,5.3.12A, 5.3.12B1-2

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
Curriculum**

Unit Title:		Unit #: 15
Course or Grade Level:		Length of Time:
Pacing		
Essential Questions	<ul style="list-style-type: none"> • How does the body breakdown and process food into usable energy for the body? 	
Content	<ul style="list-style-type: none"> • Organs of the alimentary canal • Accessory digestive organs • Gastrointestinal processes and controls • Nutrition and metabolism • Diseases and disorders of the digestive system 	
Skills	<ul style="list-style-type: none"> • Identify structures of the digestive system • Explain the role of enzymes in the process of carbohydrate, lipid and protein digestion • Compare and contrast mechanical and chemical digestion • Explain the role of accessory organs in the breakdown of food • Understand how diseases and disorders of the digestive system can lead to homeostatic imbalance 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> • Assigned questions • Latin vocabulary quiz • Labeled diagrams • “Cheeseburger” digestion project • Nutrition log • Unit test 	
Assessments	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook with lab <ul style="list-style-type: none"> • report instructions 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Word banks provided • Review sheets • Teacher assistance when needed 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages 	
Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models, Charts 	

Standard:

Strand(s):

Content Statement(s):	CPI # / CPI(s):

21st Century Themes

	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
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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
Curriculum**

Unit Title: Urinary System		Unit #: 16
Course or Grade Level:		Length of Time:
Pacing	1-1.5 Weeks	
Essential Questions	<ul style="list-style-type: none"> • How does the body excrete wastes in order to maintain homeostasis? 	
Content	<ul style="list-style-type: none"> • Structure of kidney • 3 main steps in urine formation • Maintaining water, pH, and electrolyte balance of the blood • Structure of ureters, bladder and urethra • Diseases and disorders of the urinary system 	
Skills	<ul style="list-style-type: none"> • Identify the structural and functional units of the kidney • Identify major organs of the urinary system • Explain the mechanism of filtration, re-absorption, and secretion • Relate the regulation of urine formation to blood composition and the endocrine system • Describe normal components of urine\ • Understand how diseases and disorders of the urinary system can lead to homeostatic imbalance 	
Math Skills/ Science Processes	<ul style="list-style-type: none"> • Assigned questions from text • Latin vocabulary quiz • Labeled diagrams • Simulated urinalysis lab • Unit test 	
Assessments	<input type="checkbox"/> <input type="checkbox"/> Laboratory safety quiz <input type="checkbox"/> <input type="checkbox"/> Advanced Microscopy lab <input type="checkbox"/> <input type="checkbox"/> Prepared Laboratory notebook with lab <ul style="list-style-type: none"> • report instructions 	
Interventions / differentiated instruction	<ul style="list-style-type: none"> • Word banks provided • Review sheets • Teacher assistance when needed 	
Inter-disciplinary Connections	<ul style="list-style-type: none"> • Connections to medicine and various related fields • Written essay of lab conclusion • Graphs • Decimals • Percentages 	
Lesson resources / Activities	<ul style="list-style-type: none"> • Text- Understanding Human Anatomy-2008 edition-Mcgraw Hill Publ. • Microscope • Prepared slides • Models,Charts 	

Standard: 5.1.12A-C,5.3.12A

Strand(s):

Content Statement(s):	CPI # / CPI(s):

21st Century Themes

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

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

Revised: August 28,2012