Honors Anatomy & Physiology 2012 Michael Harshaw , Melissa Castone Month	Essential Question	Content	Skills	Assessment	Standards
Introduction September- 1.5 weeks	How do Anatomy and Physiology relate to the human body as a system?	Anatomical terms Homeostatic mechanisms Characteristics of Life Requirements for life Levels of Organization Locations of major body cavities List the organs in each body cavity Name the membranes for each cavity Describe body positions, body sections and body regions	Apply anatomical terms in context Differentiate between positive and negative feedback loops List levels from cell, tissue, organs, organ systems, and organism Know location of dorsal and ventral body cavities Know and apply various anatomy terminology	Test Quizzes Lab Activity- DaVinci Man	NJCCCS: 5.1.12A-C

			Apply anatomical terms in context Differentiate between positive and negative feedback loops List levels from cell, tissue, organs, organ systems, and organism Know location of dorsal and ventral body cavities Know and apply various anatomy terminology		
		Describe the general characteristics, functions and	Know the location and function of		

Histology September 1.5 weeks	How are cells and tissues related and how do they relate to body systems? How do multi-cellular body cells specialize to perform specific functions that help maintain homeostasis and benefit the body as a whole?	locations for each tissue type- epithelial, glandular epithelial, connective, muscular and nervous List the major cell types and fibers in connective tissue	each type of tissue discussed in class Know the location and function of mast cells, fibrocytes, chondrocytes, osteocytes, globlet cells etc. Identify the cells and tissue structures of each tissue type in the lab practical	Test Quizzes Lab Activity- Slides and/or photos- identify tissue type	NJCCCS: 5.1.12A-C 5.3.12A

Integumentary System October Three weeks	How do the skin and its components make up a complex organ that protects and interacts with other body systems?	List and describe the tissue types that compose the hypodermis, dermis and epidermis Compare and contrast sweat and oil glands Compare and contrast the structure and function of hair follicles and nails Describe the functions of skin Summarize the three types of skin cancer Compare and contrast 1st, 2nd, and 3rd degree burns Effects of aging on the skin	Label a diagram of the cross section of skin List the layers of the epidermis in order from deepest to most superficial List the two layers of the dermis and their accessory structures	Test Quizzes Lab Activity- Skin diagram	NJCCCS: 5.1.12A-C 5.3.12A

Skeletal System October-November Four weeks	What are the physiologic mechanisms of the skeletal system? How do bones provide support, protection and movement for the body?	Identify the components of the skeletal system Compare and contrast the structure of the four classes of bones List the important functions of bone Analyze the structure of a long bone Explain the functional importance of bone markings Describe the process of bone growth at epiphyseal plates	Label the structure of a long bone Discriminate between different bones in a lab practical Identify the markings on a bone	Test Lab Practical Quizzes Lab Activity- Long bone diagram Lab Activity- Osteon diagram Lab Activity- Articulated and disarticulated lab	NJCCCS: 5.1.12A-C 5.3.12A

Joints November Three weeks	How do the bones, joints and ligaments function to permit movement and mobility in the skeleton?	Describe the two ways to classify joints- structural and functional Describe how bones of fibrous joints, cartilaginous joint and synovial joints are held together List and describe the six types of synovial joints Describe several types of joint movements Describe joint disorders emphasizing osteoarthritis.	Describe the location and function of each of the synovial joints- ball and socket, hinge, pivot, saddle, condyloid etc. Observing various joints in the human body identify the type of joint. Label a synovial joint and describe the functions of each part.	Test Quizzes Joint Diagrams- identify joint type. Diagram of synovial joint- label main structures	NJCCCS: 5.1.12A-C 5.3.12A

Muscle December Three weeks	How does the muscle structure permit movement? How do the components of a skeletal muscle contribute to muscular movements?	Describe the major parts of a skeletal muscle fiber Explain the major events that occur during a muscle fiber contraction Explain the sliding filament theory Explain the motor unit and how muscle fibers are stimulated to contract Describe three ways ATP is regenerated during muscle contraction Define oxygen debt and muscle fatigue Distinguish between fast and slow twitch fibers Differentiate between isotonic and isometric contraction	Accurately label the gross anatomy of a muscle. Correctly identify the microscopic anatomy of a skeletal muscle. Distinguish between the three types of muscle- skeletal, smooth, and cardiac.	Test Quizzes Diagram of gross anatomy of skeletal muscle- label main features Diagram of three muscle types- identify main characteristics and identify muscle type Diagram of microscopic anatomy of skeletal muscle- locate and identify main features	NJCCCS: 5.1.12A-C 5.3.12A

Nervous System-Basic Anatomy & Physiology January 3.5 weeks	How does the nervous system act as the master system in controlling and communicating within the body?	Name and identify the major muscles of the skeletal system List the basic functions of the nervous system Describe the histology of the nervous system, including the types of neuroglia, structure of the neuron, and myelin sheath Compare and contrast neuron structurally and functionally Explain the electrochemical basis of resting membrane potential Neurophysiology and neuron transmission Differentiate between the autonomic and peripheral nervous	Use diagrams to identify the parts of a neuron Use diagrams to illustrate the reflex arc Use diagrams to identify the conduction of an impulse	Test Quizzes Diagram- label and identify the parts of a neuron Diagram and label a reflex arc Diagram and label the transmission of a nerve impulse	NJCCCS: 5.1.12A-C 5.3.12A

		systems Compare the stretch reflex to the withdraw reflex			
Nervous System –Brain January-February 3.5 weeks	What is the structure of the central nervous system and the functions associated with its various regions?	Describe the major regions of the brain List the major lobes, fissures and functional areas of the cerebral cortex Identify the major regions in the brainstem and the functions of each area Describe the function and structure of the cerebellum Compare and contrast meninges and cerebral spinal fluid and their functions Compare and contrast	Use Anatomy coloring diagrams to illustrate areas of the brain Sheep brain dissection	Test Quizzes Sheep Brain Lab Practical	NJCCCS: 5.1.12A-C 5.3.12A

		parasympathetic and sympathetic divisions Name the components of the reflex Arc			
Digestive System February-March Three weeks	How does the digestive system take in food, break down food into nutrient molecules, absorb the molecules into the bloodstream, and rid the body of indigestible remains?	Describe the structure and function of the digestive system List and describe the accessory digestive organs Analyze the effect of enzymes on the digestive tract List the anatomy and physiology of the stomach, small and large intestines Describe how the oral cavity relates to the digestive system	Cat dissection illustrating the parts of the digestive tract Students will label diagrams of the digestive tract Identify source and function of the enzymes of the digestive system Explain the role of intestinal surface area in the digestive system	Test Quizzes Cat dissection lab practical	NJCCCS: 5.1.12A-C 5.3.12A 5.3.12B1-2

Excretory System March Three weeks	How does the body rid itself of wastes to maintain homeostasis? Why are the kidneys an essential part of the urinary system?	Name the organs of the urinary system and their functions Describe the location and structure of the kidneys List the functions of the kidney Trace the blood supply through the kidney Describe the anatomy and physiology of a nephron- as it relates to filtration, reabsorption and the counter current mechanism Explain the role of hormones in maintaining sodium and water balance Describe the properties of urine	Cat dissection- to illustrate the organs of the urinary system Label a diagram of the kidney Describe the physiology of the major structures of the excretory system	Test Quizzes Diagram quiz- label the parts of the kidney Cat dissection lab practical	NJCCCS: 5.1.12A-C 5.3.12A

Cardiovascular System March-April Three weeks	How are the components of blood important to maintain life? Why is the heart an essential part of the cardiovascular system? How do the various types of blood vessels function in the cardiovascular system?	List the functions of blood Discuss the composition and functions of plasma List the formed elements in blood Describe the structure and function of whole blood including: erythrocytes, plasma, leukocytes, and platelets Describe the ABO blood types and Rh factor Discuss the problems associated with Rh factor and pregnancy Describe the shape, size and location of the heart Name the three tissue layers of the heart Compare and contrast the structure and function of the right and left chambers of the heart as they relate	Observe different blood cells and determine their functions Dissection of the sheep heart to identify the chambers, valves, major heart blood vessels and nodes Label a diagram of the human heart On a diagram, show the flow of deoxygenated and oxygenated blood through a human heart Describe the conduction system of the heart Explain how the various types of blood vessels function within the	Test Quizzes Label the structures of the human heart on a diagram On a diagram of the human heart identify the movement of oxygenated and deoxygenated blood Sheep heart dissection	NJCCCS: 5.1.12A-C 5.3.12A

		to the flow of blood, including heart valves Trace the pathway of blood through the heart Explain the relationship between blood flow and blood pressure Describe the electrophysiology of the heart- EKG wave, arrhythmias Describe the coronary artery system, heart disease, methods to correct heart problems Describe the anatomy and function of the various blood vessels	cardiovascular system		

Respiratory System April Three weeks	Why do we breathe? How can the lungs keep the body supplied with a continuous supply of oxygen?	List the general functions of the respiratory system Compare and contrast internal and external respiration Explain the role of the diaphragm in human respiration Explain the mechanics of breathing Describe how oxygen and carbon dioxide is transported in the blood and factors that affect transport of respiratory gases Name and describe the locations of the organs of the respiratory system List the respiratory center in the brain and describe its role in respiration	Label a diagram of respiratory system In cat dissection observe and identify the structures of the respiratory system	Test Quizzes Diagram quiz- label the parts of the respiratory system	NJCCCS: 5.1.12A-C 5.3.12A

Reproductive System May-June 4.5 weeks	How does the anatomy of the female reproductive system contribute to its physiology? How does the anatomy of the male reproductive system contribute to its physiology? What are the mechanisms of sexual reproduction that lead to the perpetuation of the species?	Identify the structures of the male reproductive system Identify the structures of the female reproductive system Compare and contrast asexual and sexual reproduction Describe the process of menstruation and its role in reproduction Describe the changes that occur from zygote to embryo to fetus	On a diagram, identify the parts of the male reproductive system On a diagram, identify the parts of the female reproductive system Describe the changes that occur in a follicle through ovulation Describe the major changes that occur with the zygote through embryo and fetus	Test Quizzes Label a diagram of the male reproductive system Label a diagram of the female reproductive system Dissection lab practical	NJCCCS: 5.1.12A-C 5.3.12A

