

**Randolph Township Schools
Randolph High School**

**Anatomy and Physiology Honors
Curriculum**

“Anatomy is to physiology what geography is to history; just as it is not enough to know the topography of a country to understand its history, so also it is not enough to know the anatomy of organs to understand their functions.”

~ Claude Bernard

**Department of
Science, Technology, Engineering, and Math**
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Curriculum Developed
July 2014

Date of Board Approval
September 16, 2014

**Randolph Township Schools
Department of STEM
Anatomy and Physiology Honors
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Randolph Township Schools

Mission Statement

We commit to inspiring and empowering all students in Randolph schools to reach their full potential as unique, responsible and educated members of a global society.

Randolph Township Schools Affirmative Action Statement

Equality and Equity in Curriculum

The Randolph Township School district ensures that the district's curriculum and instruction are aligned to the state's standards. The curriculum provides equity in instruction, educational programs and provides all students the opportunity to interact positively with others regardless of race, creed, color, national origin, ancestry, age, marital status, affectional or sexual orientation, gender, religion, disability or socioeconomic status.

N.J.A.C. 6A:7-1.7(b): Section 504, Rehabilitation Act of 1973; N.J.S.A. 10:5; Title IX, Education Amendments of 1972

RANDOLPH TOWNSHIP BOARD OF EDUCATION

EDUCATIONAL GOALS

VALUES IN EDUCATION

The statements represent the beliefs and values regarding our educational system. Education is the key to self-actualization, which is realized through achievement and self-respect. We believe our entire system must not only represent these values, but also demonstrate them in all that we do as a school system.

We believe:

- The needs of the child come first
- Mutual respect and trust are the cornerstones of a learning community
- The learning community consists of students, educators, parents, administrators, educational support personnel, the community and Board of Education members
- A successful learning community communicates honestly and openly in a non-threatening environment
- Members of our learning community have different needs at different times. There is openness to the challenge of meeting those needs in professional and supportive ways
- Assessment of professionals (i.e., educators, administrators and educational support personnel) is a dynamic process that requires review and revision based on evolving research, practices and experiences
- Development of desired capabilities comes in stages and is achieved through hard work, reflection and ongoing growth

Randolph Township Schools
STEM Department
Anatomy and Physiology Honors

Introduction

Anatomy and Physiology Honors is a semester elective course in the STEM department for students who have completed Honors Biology. It introduces students to the structures and functions of the human body and provides a solid foundation for students pursuing careers in the allied health fields. Laboratory investigations include comprehensive dissections of each system, histology, model construction, and the measuring and analysis of a variety of physiological variables.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Anatomy and Physiology Honors

SUGGESTED TIME ALLOTMENT	UNIT NUMBER	CONTENT - UNIT OF STUDY
1 weeks	I	Introduction to Anatomy and Physiology
3 weeks	II	Skeletal System
3 weeks	III	Muscular System
3 weeks	IV	Digestive System
3 weeks	V	Cardiovascular System
3 weeks	VI	Respiratory System
2 weeks	VII	Urinary System

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Anatomy and Physiology Honors
UNIT I: Introduction to Anatomy and Physiology

ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS	
Proper anatomical terminology is required for accurate and universal communication.	<ul style="list-style-type: none"> • How can directional terms, body planes, body cavities, and regional terms allow for correct anatomical orientation? 	
Living things can be described, organized and classified based on levels of structural organization.	<ul style="list-style-type: none"> • How do levels of structural complexity assist with organizing and classifying living things? 	
Living things depend on maintaining homeostasis and necessary life functions.	<ul style="list-style-type: none"> • Why do living things require a state of dynamic equilibrium? • What mechanisms allow living things to maintain homeostasis? • What are the consequences of a deficiency of one of the necessary life functions and/or survival needs? 	
KNOWLEDGE	SKILLS	CC/NJCCCS
<p>Students will know:</p> <p>The relationship between anatomy and physiology.</p> <p>Major levels of structural organization in living organisms.</p> <p>The major organ systems and their components.</p> <p>The importance of homeostasis, survival needs, and necessary life functions to living things.</p> <p>The language of anatomy.</p>	<p>Students will be able to:</p> <p>Explain how anatomy and physiology are related.</p> <p>Describe and give examples of structural organization.</p> <p>Classify structures, tissues, organs, and systems.</p> <p>Identify and describe the function and components of the major organ systems.</p> <p>Evaluate negative and positive feedback loops.</p> <p>Explain the need for nutrients, oxygen, water, body temperature, and atmospheric pressure.</p> <p>Justify the need for maintaining boundaries, movement, responsiveness, digestion, metabolism, excretion, reproduction, and growth.</p> <p>Use proper anatomical terminology to describe body directions, surfaces, regional landmarks, and body planes.</p>	<p>5.1.A.12.1 5.1.A.12.2 5.1.A.12.3 5.1.12.B.1 5.1.12.B.2 5.1.12.B.3 5.1.12.B.4 5.1.12.C.1 5.1.12.C.2 5.1.12.C.3 5.1.12.D.1 5.1.12.D.2 5.1.12.D.3 5.2.12.A.6 5.3.12.A.1 5.3.12.A.2 5.3.12.A.4 5.3.12.A.3 5.3.12.A.5 5.3.12.A.6 HSS-ID.A.1 HSS-ID.A.3 HSS-ID.B.6</p>

	Locate the major body cavities and list the organs in each.	HSS-IC.B.6 RST.11-12.1 RST.11-12.2 RST.11-12.3 RST.11-12.4 RST.11-12.5 RST.11-12.6 RST.11-12.7 RST.11-12.8 RST.11-12.9 RST.11-12.10
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Unit I - Curriculum Pacing Chart
Anatomy and Physiology Honors

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
1 week	Unit I – Introduction to Anatomy and Physiology <ul style="list-style-type: none"> ○ Overview of Anatomy and Physiology ○ Levels of Structural Organization ○ Homeostasis ○ Language of Anatomy 	Textbook: Marieb, <i>Essentials of Human Anatomy and Physiology</i> , 7 th ed. 2003. Dissection Resources: Binkley, <i>Dissection of the Cat</i> , 2006. Gilbert, <i>Pictorial Anatomy of the Cat</i> , 1987.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Anatomy and Physiology Honors
Unit II: Skeletal System

ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS	
The skeletal system is instrumental in the support, movement, and protection of the body.	<ul style="list-style-type: none"> • What are the functions of the skeletal system? 	
Bones are dynamic organs that interact and support other systems of the body.	<ul style="list-style-type: none"> • What is the composition of bones and how does this relate to their function? • What is the relationship of bones with other systems in the body? 	
Bone identification and classification is based on size, function, composition, and location.	<ul style="list-style-type: none"> • How are bones identified and classified as long, short, flat, or irregular? • What are the characteristics of bones of the axial and the appendicular skeletons? 	
Articulation identification and classification is based on function and structure.	<ul style="list-style-type: none"> • What are characteristics used to classify joints? • How does the structure of joints relate to their function? 	
KNOWLEDGE	SKILLS	CC/NJCCCS
<p>Students will know:</p> <p>The functions of the skeletal system.</p> <p>Gross long bone anatomy and physiology.</p> <p>Bone histology and physiology.</p> <p>The names, locations, and functions of all of the bones of the human body.</p> <p>The criteria utilized to classify bones.</p> <p>Articulations vary based on function and structure.</p>	<p>Students will be able to:</p> <p>Evaluate skeletal functions as providing or assisting with support, movement, and/or protection.</p> <p>Identify and relate the structures of long bones to their functions.</p> <p>Identify and relate the microscopic structures of bones to their functions.</p> <p>Identify all of the bones and describe their function.</p> <p>Classify bones as long, flat, short, or irregular and as belonging to the axial or appendicular skeleton.</p> <p>Classify and identify joints based on their structure and function.</p>	<p>5.1.A.12.1</p> <p>5.1.A.12.2</p> <p>5.1.A.12.3</p> <p>5.1.12.B.1</p> <p>5.1.12.B.2</p> <p>5.1.12.B.3</p> <p>5.1.12.B.4</p> <p>5.1.12.C.1</p> <p>5.1.12.C.2</p> <p>5.1.12.C.3</p> <p>5.1.12.D.1</p> <p>5.1.12.D.2</p> <p>5.1.12.D.3</p> <p>5.2.12.A.6</p> <p>5.3.12.A.1</p> <p>5.3.12.A.2</p> <p>5.3.12.A.4</p> <p>5.3.12.A.3</p> <p>5.3.12.A.5</p> <p>5.3.12.A.6</p>

		HSS-ID.A.1 HSS-ID.A.3 HSS-ID.B.6 HSS-IC.B.6 RST.11-12.1 RST.11-12.2 RST.11-12.3 RST.11-12.4 RST.11-12.5 RST.11-12.6 RST.11-12.7 RST.11-12.8 RST.11-12.9 RST.11-12.10
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Unit II: Skeletal System

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 weeks	Unit II – Skeletal System <ul style="list-style-type: none"> ○ Function of skeletal system ○ Gross bone anatomy and physiology ○ Bone histology ○ Bone identification and classification ○ Articulations 	Textbook: Marieb, <i>Essentials of Human Anatomy and Physiology</i> , 7 th ed. 2003. Dissection Resources: Binkley, <i>Dissection of the Cat</i> , 2006. Gilbert, <i>Pictorial Anatomy of the Cat</i> , 1987.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Anatomy and Physiology Honors
Unit III: Muscular System

ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS	
The muscular system plays a major role in movement, support, and homeostasis of the human body.	<ul style="list-style-type: none"> • What are the functions of the muscular system? • How does the muscular system help to maintain homeostasis? 	
Muscle types vary in structure to support their specific function.	<ul style="list-style-type: none"> • What are the 3 different muscle types and how do they vary? • How do muscles allow for movement? 	
Muscles are named based on their location and action performed.	<ul style="list-style-type: none"> • What movements do muscles allow? 	
KNOWLEDGE	SKILLS	CC/NJCCCS
<p>Students will know:</p> <p>The functions of muscles in the human body.</p> <p>The structure of the 3 muscle types.</p> <p>The mechanism for muscle contraction and relaxation.</p> <p>The different types of muscle movement.</p> <p>The names, location, and movement allowed by given muscles.</p>	<p>Students will be able to:</p> <p>Explain how muscles aid in supporting the body.</p> <p>Analyze muscles' role in homeostasis of the human body.</p> <p>Diagram how a muscle contraction allows for movement.</p> <p>Compare skeletal, cardiac, and smooth muscle structures.</p> <p>Analyze the need for different muscle types supporting different body structures.</p> <p>Illustrate the effects of an action potential in a muscle cell.</p> <p>Compare the functions of actin and myosin in muscle function referencing the sliding filament theory.</p> <p>Classify the body movements allowed for by skeletal muscle and provide an example of muscle allowing each type of movement.</p> <p>Identify the name, location, and movement allowed by all superficial anterior and posterior muscles.</p> <p>Classify muscles as prime movers, antagonists, synergists, and fixators.</p>	<p>5.1.A.12.1</p> <p>5.1.A.12.2</p> <p>5.1.A.12.3</p> <p>5.1.12.B.1</p> <p>5.1.12.B.2</p> <p>5.1.12.B.3</p> <p>5.1.12.B.4</p> <p>5.1.12.C.1</p> <p>5.1.12.C.2</p> <p>5.1.12.C.3</p> <p>5.1.12.D.1</p> <p>5.1.12.D.2</p> <p>5.1.12.D.3</p> <p>5.2.12.A.6</p> <p>5.3.12.A.1</p> <p>5.3.12.A.2</p> <p>5.3.12.A.4</p> <p>5.3.12.A.3</p> <p>5.3.12.A.5</p> <p>5.3.12.A.6</p> <p>HSS-ID.A.1</p> <p>HSS-ID.A.3</p> <p>HSS-ID.B.6</p> <p>HSS-IC.B.6</p> <p>RST.11-12.1</p>

		RST.11-12.2 RST.11-12.3 RST.11-12.4 RST.11-12.5 RST.11-12.6 RST.11-12.7 RST.11-12.8 RST.11-12.9 RST.11-12.10
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Curriculum Pacing Chart
Unit III: Muscular System

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 weeks	Unit III – Muscular System <ul style="list-style-type: none"> ○ Anatomy of the muscular system ○ Physiology of the muscular system ○ Muscle movements and types ○ Skeletal muscle activity 	Textbook: Marieb, <i>Essentials of Human Anatomy and Physiology</i> , 7 th ed. 2003. Dissection Resources: Binkley, <i>Dissection of the Cat</i> , 2006. Gilbert, <i>Pictorial Anatomy of the Cat</i> , 1987.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Anatomy and Physiology Honors
UNIT IV: Digestive System

ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS	
The digestive system breaks down ingested food to particles small enough to be absorbed into the blood.	<ul style="list-style-type: none"> What are the roles of the various organs and structures of the digestive system and how have they adapted in these roles? 	
The anatomy of organs and structures of the digestive system are directly related to their physiology.	<ul style="list-style-type: none"> What are the adaptations that have allowed digestive organs and structures to increase surface area? How and where are various components of food isolated and absorbed by the body? 	
KNOWLEDGE	SKILLS	CC/NJCCCS
<p>Students will know:</p> <p>The anatomy and physiology of the organs and structures that compose and are accessory to the alimentary canal.</p> <p>The physiology of the digestive system.</p> <p>Where and how lipids, carbohydrates, and proteins in food are isolated and absorbed by the body.</p> <p>The relationship between nutrition and metabolism.</p>	<p>Students will be able to:</p> <p>Identify the organs and structures that compose and are accessory to the alimentary canal.</p> <p>Describe the general activities of each digestive system organ.</p> <p>Identify the overall function of the digestive system.</p> <p>Identify the location of digestion and absorption of foodstuffs.</p> <p>Identify the enzyme or secretions responsible for specific digestive processes.</p> <p>Differentiate between chemical and mechanical digestion.</p> <p>Recognize the sources of carbohydrates, lipids, and proteins.</p> <p>Explain the importance of energy balance in the body and indicate consequences of energy imbalance.</p> <p>Identify several factors that influence metabolic rate and indicate the effect of each.</p>	<p>5.1.A.12.1 5.1.A.12.2 5.1.A.12.3 5.1.12.B.1 5.1.12.B.2 5.1.12.B.3 5.1.12.B.4 5.1.12.C.1 5.1.12.C.2 5.1.12.C.3 5.1.12.D.1 5.1.12.D.2 5.1.12.D.3 5.2.12.A.6 5.3.12.A.1 5.3.12.A.2 5.3.12.A.4 5.3.12.A.3 5.3.12.A.5 5.3.12.A.6</p> <p>HSS-ID.A.1 HSS-ID.A.3 HSS-ID.B.6 HSS-IC.B.6</p> <p>RST.11-12.1</p>

		RST.11-12.2 RST.11-12.3 RST.11-12.4 RST.11-12.5 RST.11-12.6 RST.11-12.7 RST.11-12.8 RST.11-12.9 RST.11-12.10
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Unit IV - Curriculum Pacing Chart
Anatomy and Physiology Honors

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 weeks	Unit IV – Digestive System <ul style="list-style-type: none"> ○ Anatomy of the digestive system ○ Physiology of the digestive system ○ Nutrition and metabolism 	Textbook: Marieb, <i>Essentials of Human Anatomy and Physiology</i> , 7 th ed. 2003. Dissection Resources: Binkley, <i>Dissection of the Cat</i> , 2006. Gilbert, <i>Pictorial Anatomy of the Cat</i> , 1987.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Honors Anatomy and Physiology
UNIT V: Cardiovascular System

ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS	
The heart pumps blood throughout the body which allows for the transfer of oxygen and nutrients to cells, and waste products away from cells.	<ul style="list-style-type: none"> • What are the functions of the cardiovascular system and how has it adapted in this role? • What function does blood have in maintaining homeostasis? 	
The anatomy of organs and structures of the cardiovascular system are directly related to their physiology.	<ul style="list-style-type: none"> • Why is the heart composed of four chambers? • What are the adaptations and structures that allow blood to flow in only one direction? 	
KNOWLEDGE	SKILLS	CC/NJCCCS
<p>Students will know:</p> <p>The path of blood throughout the body.</p> <p>The structure of the heart.</p> <p>The types of blood vessels and their role in blood circulation.</p> <p>How to take blood pressure, pulse, and listen to heart sounds.</p>	<p>Students will be able to:</p> <p>Trace the flow of blood throughout the body.</p> <p>Compare the pulmonary and systemic circuits and explain the need for both.</p> <p>Label the chambers and valves of a human heart.</p> <p>Trace the flow of blood through the heart.</p> <p>Compare the structure and function of arteries, veins, and capillaries.</p> <p>Analyze their own blood pressure and pulse and compare to averages.</p> <p>Identify the various heart sounds and explain their cause.</p>	<p>5.1.A.12.1 5.1.A.12.2 5.1.A.12.3 5.1.12.B.1 5.1.12.B.2 5.1.12.B.3 5.1.12.B.4 5.1.12.C.1 5.1.12.C.2 5.1.12.C.3 5.1.12.D.1 5.1.12.D.2 5.1.12.D.3 5.2.12.A.6 5.3.12.A.1 5.3.12.A.2 5.3.12.A.4 5.3.12.A.3 5.3.12.A.5 5.3.12.A.6</p> <p>HSS-ID.A.1 HSS-ID.A.3 HSS-ID.B.6 HSS-IC.B.6</p>

		RST.11-12.1 RST.11-12.2 RST.11-12.3 RST.11-12.4 RST.11-12.5 RST.11-12.6 RST.11-12.7 RST.11-12.8 RST.11-12.9 RST.11-12.10
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Unit V - Curriculum Pacing Chart
Anatomy and Physiology Honors

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 weeks	Unit V – Cardiovascular System <ul style="list-style-type: none"> ○ Anatomy of the cardiovascular system ○ Physiology of the cardiovascular system ○ Systemic and pulmonary circulations 	Textbook: Marieb, <i>Essentials of Human Anatomy and Physiology</i> , 7 th ed. 2003. Dissection Resources: Binkley, <i>Dissection of the Cat</i> , 2006. Gilbert, <i>Pictorial Anatomy of the Cat</i> , 1987.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Anatomy and Physiology Honors
UNIT VI: Respiratory System

ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS	
The respiratory system supplies oxygen to the blood while removing carbon dioxide.	<ul style="list-style-type: none"> • What are the roles of the various organs and structures of the respiratory system and how have they adapted in these roles? 	
The anatomy of organs and structures of the respiratory system are directly related to their physiology.	<ul style="list-style-type: none"> • What are the adaptations of the respiratory system that increase surface area and provide protection? • How does the respiratory system interact with other body systems? 	
KNOWLEDGE	SKILLS	CC/NJCCCS
<p>Students will know:</p> <p>The anatomy and physiology of the organs and structures that compose the respiratory system.</p> <p>The four distinct events of respiratory physiology.</p> <p>How respiratory muscles cause volume changes that lead to air flow into and out of the lungs.</p> <p>The relationship among the respiratory volumes.</p> <p>The general distinguishing characteristics and specific types of non-respiratory air movements.</p>	<p>Students will be able to:</p> <p>Identify the organs and structures that compose the respiratory system.</p> <p>Describe and relate external respiration, internal respiration, pulmonary ventilation, and respiratory gas transport.</p> <p>Explain how changes in volume caused by respiratory muscles, leads to pressure changes relative to atmospheric pressure, which results in air flow into and out of the lungs.</p> <p>Measure and distinguish among the various lung capacities.</p> <p>Relate lung capacity to fitness and disease.</p> <p>Identify, describe, and compare hiccupping, laughing, crying, coughing, and sneezing.</p>	<p>5.1.A.12.1 5.1.A.12.2 5.1.A.12.3 5.1.12.B.1 5.1.12.B.2 5.1.12.B.3 5.1.12.B.4 5.1.12.C.1 5.1.12.C.2 5.1.12.C.3 5.1.12.D.1 5.1.12.D.2 5.1.12.D.3 5.2.12.A.6 5.3.12.A.1 5.3.12.A.2 5.3.12.A.4 5.3.12.A.3 5.3.12.A.5 5.3.12.A.6</p> <p>HSS-ID.A.1 HSS-ID.A.3 HSS-ID.B.6 HSS-IC.B.6</p>

		RST.11-12.1 RST.11-12.2 RST.11-12.3 RST.11-12.4 RST.11-12.5 RST.11-12.6 RST.11-12.7 RST.11-12.8 RST.11-12.9 RST.11-12.10
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Unit VI - Curriculum Pacing Chart
Anatomy and Physiology Honors

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
3 weeks	Unit VI – Respiratory System <ul style="list-style-type: none"> ○ Anatomy of the respiratory system ○ Physiology of the respiratory system ○ Respiratory physiology ○ Mechanics of breathing ○ Respiratory volumes ○ Nonrespiratory air movements 	Textbook: Marieb, <i>Essentials of Human Anatomy and Physiology</i> , 7 th ed. 2003. Dissection Resources: Binkley, <i>Dissection of the Cat</i> , 2006. Gilbert, <i>Pictorial Anatomy of the Cat</i> , 1987.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Anatomy and Physiology Honors
UNIT VII: Urinary System

ENDURING UNDERSTANDINGS		ESSENTIAL QUESTIONS	
The urinary system rids the body of nitrogenous wastes while regulating water, electrolyte, and acid-base balance of the blood.		<ul style="list-style-type: none"> • How does the urinary system contribute to maintaining homeostasis in a human body? • How does the urinary system contribute to the nitrogen cycle? 	
The anatomy of organs and structures of the urinary system are directly related to their physiology.		<ul style="list-style-type: none"> • How does the structure of kidneys allow them to clean the blood? 	
KNOWLEDGE	SKILLS	CC/NJCCCS	
<p>Students will know:</p> <p>The location and structure of the major components of the urinary system.</p> <p>The function of the kidneys for homeostatic balance.</p> <p>The path of blood through the kidneys.</p> <p>The path of urine from the kidneys to urination.</p>	<p>Students will be able to:</p> <p>Identify and label the major structures of the kidney.</p> <p>Explain how the kidney filters out nitrogen containing waste.</p> <p>Explain the kidneys role in water and electrolyte balance of blood.</p> <p>Explain the cause and danger of kidney stones.</p> <p>Diagram blood flow through the major structures of the kidney.</p> <p>Explain the role of the kidney structures in filtering blood.</p> <p>Diagram the flow of urine through the major structures of the urinary system.</p>	<p>5.1.A.12.1 5.1.A.12.2 5.1.A.12.3 5.1.12.B.1 5.1.12.B.2 5.1.12.B.3 5.1.12.B.4 5.1.12.C.1 5.1.12.C.2 5.1.12.C.3 5.1.12.D.1 5.1.12.D.2 5.1.12.D.3 5.2.12.A.6 5.3.12.A.1 5.3.12.A.2 5.3.12.A.4 5.3.12.A.3 5.3.12.A.5 5.3.12.A.6</p> <p>HSS-ID.A.1 HSS-ID.A.3 HSS-ID.B.6 HSS-IC.B.6</p>	

		RST.11-12.1 RST.11-12.2 RST.11-12.3 RST.11-12.4 RST.11-12.5 RST.11-12.6 RST.11-12.7 RST.11-12.8 RST.11-12.9 RST.11-12.10
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RANDOLPH TOWNSHIP SCHOOL DISTRICT
Unit VII - Curriculum Pacing Chart
Anatomy and Physiology Honors

SUGGESTED TIME ALLOTMENT	CONTENT-UNIT OF STUDY	SUPPLEMENTAL UNIT RESOURCES
2 weeks	Unit VII – Urinary System <ul style="list-style-type: none"> ○ Anatomy of the urinary system ○ Physiology of the urinary system ○ Urine formation 	Textbook: Marieb, <i>Essentials of Human Anatomy and Physiology</i> , 7 th ed. 2003. Dissection Resources: Binkley, <i>Dissection of the Cat</i> , 2006. Gilbert, <i>Pictorial Anatomy of the Cat</i> , 1987.

RANDOLPH TOWNSHIP SCHOOL DISTRICT
Anatomy and Physiology Honors

APPENDIX A

RESOURCES:

Textbook:

Essentials of Human Anatomy and Physiology, 7th ed.
Author: Marieb, E.N.
ISBN: 0-8053-5385-2
Copyright 2003 Pearson

Dissection Resources:

Dissection of the Cat
Author: Binkley, S.W.
ISBN: N/A
Copyright 2006 Carolina Biological Supply

Pictorial Anatomy of the Cat
Author: Gilbert, S.G.
ISBN: 0-295-954554-X
Copyright 1987 University of Washington Press

Technology:

- Spreadsheet software such as Excel
- Word processor software such as Word
- Presentation software such as Powerpoint

Web addresses:

Online atlases of human anatomy:
<http://www.visiblebody.com/index.html>
<http://www.anatomyatlases.org/>

VO2 Max:
<http://www.brianmac.co.uk/vo2max.htm>

BMI, BMR, and RMR:

http://www.caloriesperhour.com/index_burn.php

Textbook: Marieb, *Essentials of Human Anatomy and Physiology*, 7th ed. 2003.

Discovery Video Series: Human Body Pushing the Limits

Suggested Lab Exercises:

Perspiration Lab

Long Bone Anatomy

Comparative Skeletal Anatomy and Physiology

Knee Construction Lab

Skeleton Lab

Cow Articulation Dissection

Cat Muscle Dissections

Muscle Histology

Digestive System Map

Digestive System Dissections

BMI, BMR, RMR, Calories, and Calories Burned Lab

Respiratory System Dissections

Respiratory System Model Lab

Lung Capacity Lab

VO₂ Max Lab

Respiratory Rate and Asthma Lab

Cardiovascular System Dissections

Heart Rate and Physical Fitness Labs

Urinary System Dissections

Kidney Dissection

Ovariohysterectomy Surgery Lab

Kidney Transplant Surgery Lab

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APPENDIX B

ASSESSMENT:

- Pre-assessment
- Quizzes
- Tests
- Individual Projects
- Group Projects
- Lab Reports
- Homework

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APPENDIX C

Opportunities exist for interdisciplinary units with courses such as Statistics, Animal Behavior, Environmental Science, and Genetics.

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APPENDIX D

It is assumed that the student has successfully completed Honors Biology.

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APPENDIX E

Lesson plans to follow as curriculum is implemented.