

**RCPS Curriculum Pacing Guide
2013-2014
Subject: Anatomy and Physiology**

Week of:	SOL #	Unit	Bloom's	Objectives
Throughout the course	A+P1 Collecting, analyzing, organizing, and interpreting data from experiments	All units	Using data collecting devices, interpreting, analyzing, experimenting	1a Carrying out experiments 1b Collecting data 1c Organizing data 1d Analyzing data 1e Interpreting data from experiments
During field trip	A+P2 Utilizing available community and other resource person	During field trip to either the Armed Forces Medical Museum or University of Virginia Medical School	Recognizing, interpreting, summarizing, comparing, organizing, evaluating	2a Observing medical displays 2b Analyzing evidence to determine unknown remains 2c Observing medical treatments using simulated patient dummies with computer interfacing 2d Comparing various methods of the study of medicine
Throughout the course	A+P3 Investigating the importance of contributions to the development of biology, changing technology and careers in biology.	All units and on the field trip	Recognizing, understanding, comparing, applying	3a Recognizing contributions made by scientists to the field of biology 3b Applying technology specifically in the use of the microscope and computer probeware
Week 1	A+P4-13	Ch. 1 Organization of the Human Body	Naming, interpreting, using, organizing	a Recognizing the different types of anatomy b Distinguishing between anatomy and physiology c Analyzing the various characteristics of life d Examining the various levels of organization of life

				<p>e Understanding anatomical position, body cavities and regions, planes and sections</p> <p>f Understanding and using the directional terms in describing body locations</p> <p>g Investigating the various body form types</p> <p>h Understanding homeostasis and the various types of feedback systems used by the body</p> <p>i Investigating the various mechanisms of disease</p>
Week 2	A+P4 Basic concepts of biochemistry	Ch. 2 The Chemical Basis of Life	Remembering, understanding, applying, analyzing	<p>4a Understanding basis concepts of general chemistry</p> <p>4b Comparing and analyzing the importance of the following inorganic molecules: water, oxygen, carbon dioxide, electrolytes</p> <p>4c Understanding acids, bases, ph scale, buffers, and salts</p> <p>4d Comparing and contrasting the following organic molecules: carbohydrates, proteins, lipids, nucleic acids</p> <p>4e Analyzing metabolism and the use of energy</p>
Weeks 2-3	A+P5 Structures and functions of cells A + P12 Process of cell reproduction	Ch. 3 and 4 Anatomy and Physiology of Cells	Recognizing, labeling understanding, applying, analyzing, evaluating	<p>5a Investigating the various sizes of cells</p> <p>5b Understanding what makes up a composite cell</p> <p>5c Understanding, analyzing and comparing the following cell structures: cell membrane, cytoplasm, endoplasmic reticulum, ribosomes, Golgi apparatus, lysosomes, peroxisomes, mitochondria, nucleus , cytoskeleton, cell fibers, cell extensions, cell connections,</p> <p>5d Investigating and analyzing the movement</p>

				<p>of substances through cells including diffusion, dialysis, osmosis, facilitated diffusion, endocytosis and exocytosis.</p> <p>5e Interpreting cell metabolism and the use of enzymes</p> <p>5f Observing and understanding growth and reproductive stages of cells</p> <p>5g Investigating disorders involving cell transport, cell reproduction and protein synthesis</p>
Week 4	A+P6 Types and Uses of Tissues	Ch. 5 Tissues	Recognizing, understanding, analyzing and evaluating	<p>6a Understanding, analyzing and comparing the four types of tissues including epithelial, connective, muscle and nervous</p> <p>6b Investigate the embryonic development of tissues</p> <p>6c Comparing how various tissues repair</p> <p>6d Analyzing the various types of body membranes</p> <p>6d Investigating the various forms of tissue tumors</p>
Week 4-5	A+P7 Skin and its appendages	Ch. 6 Skin and Its Appendages	Recognizing, labeling, classifying, analyzing	<p>7a Distinguishing between the epidermis and dermis</p> <p>7b Analyzing the characteristics of the epidermis and dermis</p> <p>7c Determining what controls skin color</p> <p>7d Examining functions of the skin</p> <p>7e Distinguishing between the different degrees of burn</p> <p>7f Examining the appendages of the skin including hair, nails and glands.</p> <p>7g Examining skin disorders</p>

				7h Analyzing conditions of abnormal body temperature
Weeks 5-7.5	A+P8 Body processes of support and movement	Ch. 7 Skeletal Tissues Ch. 8 Skeletal System Ch. 9 Articulations Ch. 10 Anatomy of the Muscular System Ch. 11 Physiology of the Muscular System	Recognizing, describing, interpreting, classifying, applying, analyzing, comparing, experimenting	8a Examining bone types, parts of bone and composition of bone 8b Analyzing functions of bone 8c Investigating development of bone, bone formation and repair 8d Comparing cartilage tissue to bone 8e Examining bone and cartilage diseases 8f Examining and comparing the axial and appendicular skeletons 8g Investigating bones of the skeleton 8h Comparing skeletal differences in men and women 8i Describing fractures and abnormal spinal curvatures 8k Comparing various classifications of joints 8l Examining parts of synovial joints 8m Describing various types of movements at joints 8n Analyzing joint disorders 8o Examining muscle structure 8p Analyzing functions of muscles 8q Recognizing how muscles are named 8r Examining important skeletal muscles 8s Examining muscle cells 8t Analyzing muscle use and energy 8u Comparing the three major types of muscles: skeletal, cardiac and smooth 8v Examining muscle diseases and disorders

Weeks 7.5-9	A + P9 Body processes of communication, control and integration	Ch. 12 Nervous System Cells Ch. 13 Central Nervous System Ch. 14 Peripheral Nervous System	Identifying, labeling, recognizing, classifying, applying, organizing, evaluating	9a Recognizing divisions of the nervous system 9b Identifying nerve cell parts 9c Classifying neurons by structure and function 9d Examining reflexes 9e Analyzing repair of nerve cells 9f Analyzing how nerve impulses travel 9g Classifying neurotransmitters 9h Examining disorders of nervous system cells 9i Examining parts of the central nervous system including; meninges, cerebrospinal fluid, the spinal cord, the brain 9j Identifying an electroencephalogram and the four types of brain waves 9k Examining sensory and motor pathways 9l Analyzing diseases of the central nervous system 9m Identifying the parts of the peripheral nervous system including the 31 pairs of spinal nerves and the 12 pairs of cranial nerves 9n Examining the divisions of the peripheral nervous system including the somatic and autonomic divisions
Week 9	A + P 1-9	Mid-Course Exam		
Weeks 9.5-11.5	A + P9 Body processes of communication, control and integration	Ch. 15 Sense Organs Ch. 16 Endocrine System	Remembering, labeling, understanding interpreting, applying, comparing experimenting, evaluating	9o Classifying sensory receptors by location, stimulus detected and structure 9p Examining the special senses of touch, smell, taste, hearing, equilibrium and vision 9q Understanding disorders of the senses 9r Contrasting the nervous system and the endocrine system

				<p>9s Distinguishing between endocrine and exocrine glands</p> <p>9t Examining how hormones work</p> <p>9u Analyzing a negative feedback system of hormone function</p> <p>9v Examining the major endocrine glands of the body</p> <p>9w Contrasting hypersecretion and hyposecretion of hormones</p>
Weeks 11.5-14	<p>A + P 10 Body process of transport and</p> <p>A + P 13 Body process of defense and adaptation</p>	<p>Ch. 17 Blood</p> <p>Ch. 18 Anatomy of the Cardiovascular System</p> <p>Ch. 19 Physiology of Cardiovascular System</p> <p>Ch. 20 Lymphatic System</p>	<p>Recognizing, labeling, classifying, interpreting comparing, experimenting, evaluating</p>	<p>10a Understanding the functions of blood</p> <p>10b Analyzing how to measure blood volume</p> <p>10c Comparing the components of blood including red blood cells, white blood cells, platelets, and plasma</p> <p>10d Understanding blood typing</p> <p>10e Explaining how blood clots</p> <p>10f Interpreting the various blood disorders</p> <p>10g Examining the heart's structure and coverings</p> <p>10h Analyzing blood flow through the heart</p> <p>10i Interpreting the heart's conduction system</p> <p>10j Comparing and contrasting the various types of blood vessels including arteries, veins and capillaries</p> <p>10k Understanding fetal circulation</p> <p>10l Examining disorders of the cardiovascular system</p> <p>10m Examining the physiology of the cardiovascular system including: conduction system, electrocardiogram, cardiac cycle</p> <p>10n Analyzing heart sounds</p>

				<p>10o Understanding the principles of blood circulation including blood pressure and pulse</p> <p>10p Analyzing disorders of cardiovascular physiology</p> <p>10q Examining the components of the lymphatic system</p> <p>10r Understanding the functions of the lymphatic system</p> <p>10s Examining disorders of the lymphatic system</p>
Weeks 14-16.5	A + P 11 Body processes of respiration, nutrition and excretion	<p>Ch. 23 Anatomy of the Respiratory System</p> <p>Ch. 24 Physiology of the Respiratory System</p> <p>Ch. 25 Anatomy of the Digestive System</p> <p>Ch. 26 Physiology of the Digestive System</p> <p>Ch. 28 Urinary System</p>	Remembering, labeling, understanding, applying, analyzing, evaluating	<p>11a Examining the parts of the upper respiratory tract including the nose, sinuses, pharynx, larynx</p> <p>11b Examining the parts of the lower respiratory tract including the trachea, bronchi, lungs, alveoli, thorax</p> <p>11c Analyzing disorders of respiratory anatomy</p> <p>11d Evaluating respiratory physiology including pulmonary ventilation, pulmonary volumes, lung capacities, pulmonary gas exchange, systemic gas exchange, and regulation of breathing</p> <p>11e Analyzing disorders of respiratory function</p> <p>11f Examining parts of the digestive tract including the mouth, tongue, salivary glands, teeth, pharynx, esophagus, stomach, small intestine, large intestine</p> <p>11g Examining accessory organs of the digestive system including: appendix, peritoneum, liver, gallbladder, pancreas.</p> <p>11h Analyzing disorders of digestive structures</p>

				<p>11i Understanding the physiology of the digestive system including mechanical and chemical digestion, secretion, absorption and elimination</p> <p>11j Analyzing disorders of digestion physiology</p> <p>11k Examining parts of the urinary system including kidneys, ureters, bladder, urethra</p> <p>11j Understanding the functions of blood filtration, tubular reabsorption, tubular secretion, and regulation of urine volume</p> <p>11k Analyzing disorders of the urinary system</p>
Weeks 16.5-17.5	A + P 12 Processes of cell reproduction and human reproduction	<p>Ch. 31 Male Reproductive System</p> <p>Ch. 32 Female Reproductive System</p> <p>Ch. 33 Growth and Development</p>	Recognizing, labeling, understanding, applying, analyzing and evaluating	<p>12a Examining parts of the male and female reproductive systems</p> <p>12b Analyzing functions of the male and female reproductive systems</p> <p>12c Describing fertilization, growth and development</p> <p>12d Understanding the processes of labor and birth</p> <p>12e Comparing the development of identical versus fraternal twins</p> <p>12f Analyzing the periods of human development</p>
Week 17.5-18	All SOLs	Final Exam		

