Huntsville City Schools

2017-2018 Pacing Guide – First Nine Weeks

Course: Human Anatomy and Physiology

Grades 10-12

First Nine Weeks Key Terms:

Standard 1: Anatomy, physiology
Regional Terms: know all terms listed on Figure 1.7 & Figure 1.12
Directional Terms: know all terms listed on Table 1.1, including anatomical position
Planes: know all terms listed on Figure 1.8, including parasagittal, and cross section
Cavities: know all terms listed on Figure 1.9, including viscera, serosa, parietal serosa, visceral serosa, serous fluid

Standard 2: Tissue, histology
Epithelial Tissue: refer to Figure 4.2, 4.3, 4.4, 4.6, including epithelial tissue, apical surface, basal surface, microvilli, avascular, innervated, simple epithelia, stratified epithelia, squamous cells, cuboidal cells, columnar cells, pseudostratified columnar epithelium, transitional epithelium, gland, secretion, goblet cell, mucin, merocrine glands, holocrine glands
Connective Tissue: refer to Table 4.1, Figure 4.8, including connective tissue, ground substance, matrix, collagen fibers, elastic fibers, reticular fibers, white blood cells, mast cells, macrophages, connective tissue proper, loose connective tissue, dense connective tissue (regular), dense connective tissue (irregular), dense connective tissue (elastic), areolar connective tissue, adipose tissue, brown adipose tissue, reticular connective tissue, stroma, elastic connective tissue, cartilage, hyaline, elastic, fibrocartilage, bone, blood
Muscle Tissue: refer to Figure 4.9, including skeletal muscle, cardiac muscle, smooth muscle, muscle fibers, intercalated disc, voluntary, involuntary
Nervous Tissue: Neurons, dendrites, axons

Standard 3: refer to Figure 5.1, 5.2, 5.3, 5.5, 5.6, including integumentary system, epidermis, dermis, hypodermis, callus, keratinocytes, keratin, melanocytes, melanin, dendritic cells, tactile cells, stratum basale, stratum spinosum, stratum granulosum, stratum corneum, papillary layer, dermal papillae, friction ridges, Meissner's corpuscles, reticular layer, carotene, hemoglobin, hair shaft, arrector pili muscle, sebaceous gland, cuticle, hair follicle, hair bulb, hair follicle root, nail matrix, nail bed, hyponychium, nail folds, sweat glands, eccrine sweat glands, apocrine sweat glands, ceruminous glands, mammary glands, sebum

Standard 3a: refer to Figure 5.8, 5.9, 5.10, including basal cell carcinoma, squamous cell carcinoma, melanoma, ABDC rule, burn, rule of nines, first-degree burn, second-degree burn, third degree burn, cold sores, contact dermatitis, dermatology, Imgetigo

First Nine Weeks Key Terms (Continued):

Standard 4: refer to Figure 6.1, 6.2, 6.3, 6.4, 6.7, including axial skeleton, appendicular skeleton, long bones, short bones, flat bones, irregular bones, hematopoiesis, compact bone, spongy bone, trabeculae, diaphysis, medullary cavity, yellow marrow cavity, epiphyses, epiphyseal plate, periosteum, endosteum, red marrow, bone markings, central canal, lamellae, lacuna,

Refer to Figure 7.1, 7.4, 7.5, 7.16, 7.23, 7.30, including skull, cranium, scapula, sternum, humerus, radius, ulna, carpals, metacarpals, phalanges, femur, patella, tibia, fibula, tarsals, metatarsals, sutures, coronal suture, lambdoid suture, squamous suture, frontal bone, parietal bone, occipital bone, temporal bone, ethmoid bone, mandible, maxillary bones, zygomatic bones, nasal bone, palatine bone, vomer, sphenoid bone, vertebral column, cervical vertebrae, thoracic vertebrae, lumbar vertebrae, axis, atlas, sacrum, coccyx, true ribs, false ribs, floating ribs, sternum, manubrium, body, xiphoid process, clavicle, scapula, pelvic girdle, illium, pubis, ischium

Refer to Figure 8.1, 8.2, 8.3, 8.5, 8.6, 8.7, Table 8.1, including joints, articulations, fibrous joints, cartilaginous joints, synovial joints, suture, syndesmosis, gomphosis, synarthroses, amphiarthroses, diarthroses, synchondroses, symphyses, articular cartilage, joint cavity, ligament, synovial fluid, articular capsule, plane, hinge, pivot, condylar, saddle, ball and socket, gliding, flexion, extension, hyperextension, abduction, adduction, rotation, circumduction, pronation, supination, dorsiflexion, plantar flexion, inversion, eversion, protraction, retraction, elevation, depression, opposition, nonaxial movement, uniaxial movement, biaxial movement, multiaxial movement

Standard 4a: refer to Figure 6.8, 6.9, 6.10, 6.11, 6.12, 6.15, including Osteogenesis, endochondral ossification, mesenchymal cell, osteoblast, osteocytes, osteons, intramembranous ossification, resting zone, proliferation zone, hypertrophic zone, calcification zone, ossification zone, hyaline cartilage, articular cartilage, bone remodeling, osteoclast, bone resorption, lysosomal enzymes, negative feedback loop, homeostasis, parathyroid hormone, fractures, hematoma, fibrocartilaginous callus, boney callus,

Standard 4b: refer to Table 6.2, Figure 6.16, including comminuted, spiral, depressed, compression, epiphyseal, greenstick osteomalacia, rickets, osteoporosis, Paget's disease, Rheumatoid Arthritis, Lyme disease

Huntsville City Schools

Pacing Guide – First Nine Weeks (21 Days)

Course: Human Anatomy and Physiology Grades: 10-12

2015 Standard	Resources † ‡	Approximate Number of Alternating Block Days*
1.) Develop and use models and appropriate terminology to identify regions, directions, planes, and cavities in the human body to locate organs and systems	Marieb: Chapter 1 pg. 2, 6-7,11-15, 18-20 Lab: Autopsy of a Dill Pickle: **http://www.theforensicteacher.com/Free_articles_files/picklelabsheets.pdf** **ASIM Lab R4HumBod**	4
2.) Analyze characteristics of tissue types (e.g., epithelial tissue) and construct an explanation of how the chemical and structural organizations of the cells that form these tissues are specialized to conduct the function of that tissue (e.g., lining, protecting).	Marieb: Chapter 4 pg.116-140 Microscopy slides Tissue Drawing Lab	**4**
3.) Obtain and communicate information to explain the integumentary system's structure and function, including layers and accessories of skin and types of membranes.	Marieb: Chapter 5 pg.150-154, 156-158, 160-163 Cutaneous Receptor Lab:	**3**
3.a.) Analyze the effects of pathological conditions (e.g., burns, skin cancer, bacterial and viral infections, chemical dermatitis) to determine the body's attempt to maintain homeostasis	Marieb: Chapter 5 pg.164-166 Skin Disorder Project Case Studies – Melanoma and Burn Sun Safety Quiz – Cancer.org Guest Speaker - Dermatologist	**2**
4.) Use models to identify the structure and function of the skeletal system (e.g., classification of bones by shape, classification of joints and the appendicular and axial skeletons).	Marieb: Chapter 6 pg. 174-179, 181-182. Chapter 7 pg. 199-204, 218, 225, 235. Chapter 8 pg. 249-253, 256-261 **ASIM Lab R1Bones** Skeleton model Gross Bone Anatomy Lab Innerbody.com: http://www.innerbody.com/image/skelfov.html Whack-A-Bone: http://www.innerbody.com/image/skelfov.html	**4**

4a). Obtain and communicate information to demonstrate understanding of the growth and development of the skeletal system (e.g., bone growth and remodeling).	Marieb: Chapter 6 pg.183-188 Cutting edge business http://epibone.com/	**2**
4b.) Obtain and communicate information to demonstrate understanding of the pathology of the skeletal system (e.g., types of bone fractures and their treatment, osteoporosis, rickets, other bone diseases).	Marieb: Chapter 6 pg.190-193. Chapter 8 pg.270,272 Bone Mass Graphing Activity (Fractures) Bone Fracture Lab: https://www.teachengineering.org/activities/view/cub_biomed_lesson01_activity2	**2**

Huntsville City Schools

Pacing Guide – Second Nine Weeks

Course: Anatomy and Physiology Grades: 10-12

Second Nine Weeks Key Terms:

Standard 5: Refer to Figure 9.1, 9.2, 9.3, 9.5, Table 9.1, Muscle fibers, epimysium, perimysium, fascicles, endomysium, insertion, origin, tendon, sarcolemma, sarcoplasm, myofibrils, A bands, I bands, H zone, M line, Z disc, sarcomere, myofilaments, thick filament, thin filament, myosin, actin, tropomyosin, troponin, sarcoplasmic reticulum, T tubule

*know the name, location, action, origin, and insertion of the superficial muscles listed in Figure 10.5 & 10.6

Standard 5a: Refer to Figure 9.6, 9.7, 9.8, 9.9, 9.10, 9.11, 9.12, 9.14 including contraction, sliding filament model of contraction, action potential, neuromuscular junction, synaptic cleft, synaptic vesicles, acetylcholine, ACh receptors, acetylcholinesterase, threshold, depolarization, repolarization, refractory period, Na+/K+ pump, cross bridges, excitation-contraction coupling, ATP, ADP, Ca^{2+}, muscle tension, load, motor unit, myogram, muscle twitch, latent period, muscle tone, muscle fatigue, lactic acid, muscular dystrophy

Standard 6: Refer to Figure 11.2, 11.4, 11.8, 11.11, 11.17, 11.24, including nervous system, sensory (afferent), motor (efferent), somatic, autonomic, sympathetic, parasympathetic, neuron, dendrites, axon, cell body, Schwann cell, myelin sheath, node of Ranvier, axon terminals, interneurons, sodium-potassium pump, action potential, resting potential, depolarization, repolarization, hyperpolarization, synapse, synaptic vesicle, synaptic cleft, reflexes,

Refer to Figure 12.2c, 12.4, 12.6, 12.29, Table 12.1, including central nervous system, cerebrum, brain stem, cerebral hemispheres, diencephalon, cerebellum, brain stem, midbrain, pons, medulla oblongata, frontal lobe, parietal lobe, occipital lobe, temporal lobe, gyrus, sulcus, white matter, cortex (gray matter), fissure, spinal cord, dorsal root ganglion, spinal nerve, dorsal horn, ventral horn, ventral root, somatic sensory neuron, visceral sensory neuron, visceral motor neuron, somatic motor neuron

Refer to Figure 13.15, including peripheral nervous system, sensory receptors, stimuli, mechanoreceptors, thermoreceptors, photoreceptors, chemoreceptors, nociceptors, exteroceptors, interoceptors, proprioceptors, special senses, reflex arc, integration center, effector

Refer to Figure 15.4, 15.14, 15.20, 15.22, 15.24, including ciliary body, ciliary process, iris, pupil, lens, cornea, vitreous humor, retina, choroid, sclera, optic disc, optic nerve, rods, cones, blind spot, aqueous humor, focal point, myopia, hyperopia, olfactory tract, olfactory bulb, olfactory sensory neuron, nasal conchae, taste buds, papillae, fungiform papillae, external ear, middle ear, internal ear, tympanic membrane, hammer, anvil, stirrup, semicircular canals, vestibule, vestibular nerve, cochlea, auditory tube

Second Nine Weeks Key Terms (Continued):

Standard 6a: polio, rabies, herpes simplex virus, tetanus, multiple sclerosis, concussion, contusion, subdural hemorrhage, Alzheimer's disease, Parkinson's disease, Huntington's disease, cerebral palsy

Standard 6b: Refer to Table 11.3, 14.2, including neurologist, neuropharmacology

Standard 13: Refer to Figure 16.1, 16.4, 16.5, 16.6, 16.8, 16.13, 16.17, 16.19, Table 16.1, 16.2 including endocrine system, pineal gland, hypothalamus, pituitary gland, thyroid gland, parathyroid gland, thymus, adrenal glands, pancreas, ovary, testis, amino acid based, steroids, target cells, humoral stimulus, neural stimulus, hormonal stimulus, oxytocin, antidiuretic hormone (ADH), negative feedback mechanism, parathyroid hormone (PTH), growth hormone (GH), Thyroid-stimulating hormone (TSH), insulin-like growth factors (IGFs), growth hormone-inhibiting hormone (GHIH), T_3, T_4, melatonin, islets of Langerhans, alpha cells, beta cells, glucagon, insulin

Standard 13a: Refer to Figure 16.7, 16.11, Table 16.4, including diabetes insipidus, gigantism, pituitary dwarfism, myxedema, goiter, Graves' disease, hyperparathyroidism, hypoparathyroidism, Cushing's disease, Addison's disease, diabetes mellitus, ketones, ketoacidosis, polyuria, polydipsia, polyphagia, hypoglycemia

Huntsville City Schools

Pacing Guide – Second Nine Weeks (19 days)

Course: Human Anatomy and Physiology Grades: 10-12

Standard	Resources † ‡	Approximate Pacing Number of Days*
5.) Develop and use models to illustrate the anatomy of the muscular system, including muscle locations and groups, actions, origins and insertions.	Marieb: Chapter 9 pg.277-284. Chapter 10 pg. 326-327 Muscle ID Project **LTF lab: Chicken Wing Dissection** Muscle Review Game: http://www.anatomyarcade.com/games/gamesMuscular.html	2
5a.) Plan and conduct investigations to explain the physiology of the muscular system (e.g., muscle contraction/relaxation, muscle fatigue, muscle tone), including pathological conditions (e.g., muscular dystrophy).	Marieb: Chapter 9 pg. 285-287, 290-292, 298, 300, 312	**3**
6.) Obtain, evaluate, and communicate information regarding how the central nervous system and peripheral nervous system interrelate, including how these systems affect all other body systems to maintain homeostasis.	Marieb: Chapter 11 pg. 386-388, 390-403, 407-410, 422. Chapter 12 pg. 428-432, 434, 450-451, 466-468. Chapter 13 pg. 484-485, 513, 540 Chapter 15 pg.548-557 Cow Eye Dissection **LTF lab: Making Sense of it All** **LTF lab: Popcorn and Dice and Everything Nice** Virtual Brain Dissection: http://www.indiana.edu/~anat215/virtuallab/	**4**
6.a.) Use scientific evidence to evaluate the effects of pathology on the nervous system (e.g., Parkinson's disease, Alzheimer's disease, cerebral palsy, head trauma) and argue possible prevention and treatment options.	Marieb: Chapter 11 pg.392, 405. Chapter 12 pg.462-464, 476	**2**

6.b.) Design a medication to treat a disorder associated with neurotransmission, including mode of entry into the body, form of medication, and desired effects.	Marieb: Chapter 11 pg. 415-416, 427. Chapter 14 pg.534-535	**2**
13.) Obtain, evaluate, and communicate information to support the claim that the endocrine glands secrete hormones that help the body maintain homeostasis through feedback loops.	Marieb: Chapter 16 pg. 591-593, 596-597, 599-607, 610, 617-620, 626 **LFT lab: It's a Balancing Act**	**3**
13.a.) Analyze the effects of pathological conditions (e.g., pituitary dwarfism, Addison's disease, diabetes mellitus) caused by imbalance of the hormones of the endocrine glands.	Marieb: Chapter 16 pg. 600-601, 604-605, 609-611, 614-615, 620-621	**2**
MIDTERM EXAMS	**Monday-Friday 1/2 Days**	

Huntsville City Schools

Pacing Guide – Third Nine Weeks

Course: Human Anatomy and Physiology Grades: 10-12

Third Nine Weeks Key Terms:

Standard 7: Refer to Figure 17.1, 17.2, 17.9, 17.10, 17.16, Table 17.2, 17.3, including plasma, buffy coat, albumin, formed elements, erythrocytes, hemoglobin, leukocytes, platelets, granulocytes, neutrophils, eosinophils, basophils, agranulocytes, lymphocytes, monocytes, antigen, agglutinogens (RBC antigens), ABO blood groups, agglutinins (plasma antibodies), Rh factor, universal donor, universal recipient

Refer to Figure 18.1, 18.2, 18.5, 18.6, 18.7, 18.8, 18.9, 18.11, including heart, pulmonary circuit, systemic circuit, mediastinum, base, apex, apical impulse, pericardium, parietal layer, visceral layer, epicardium, pericardial cavity, myocardium, endocardium, atria, ventricle, interatrial septum, interventricular septum, superior vena cava, inferior vena cava, coronary sinus, pulmonary veins, pulmonary trunk, aorta, atrioventricular valves, tricuspid valve, mitral valve, papillary muscles, chordae tendineae, aortic valve, pulmonary valve, coronary circulation, left coronary artery, anterior interventricular artery, circumflex artery, right coronary artery, right marginal artery, posterior interventricular artery

Refer to Figure 19.1, 19.4, Table 19.1, including blood vessels, arteries, veins, lumen, tunica intima, endothelium, tunica media, vasoconstriction, vasodilation, tunica externa, vasa vasorum, elastic artery, muscular artery, arteriole, capillary, venule, vein

Standard 7a: anemia, hemorrhagic anemia, iron-deficiency anemia, pernicious anemia, renal anemia, aplastic anemia, hemolytic anemia, sickle-cell anemia, myocardial infarction, mitral valve prolapse, varicose veins, atherosclerosis, plaque, high-density lipoprotein (HDL), angioplasty, hypertension

Standard 7b: Refer to Figure 18.17, 18.18, 18.19, 18.22, including electrocardiograph (ECG), P wave, QRS complex, T wave, P-R interval, P-Q interval, S-T segment, Q-T interval cardiac output, stroke volume

Refer to Figure 19.6, 19.8, 19.8 including blood pressure, resistance, viscosity, diastolic pressure, systolic pressure, pulse pressure, mean arterial pressure

Third Nine Weeks Key Terms (continued):

Standard 12: Refer to Figure 20.1, 20.2, 20.4, 20.5, 20.6, 20.7, 20.8, 20.9, including lymphatic system, lymphatic vessels, lymph, lymphatic capillaries, collecting lymphatic vessels, lymphatic trunk, lymphatic duct, lymphocytes, T cells, B cells, plasma cells, macrophages, lymphoid tissue, lymph nodes, cortex, medulla, capsule, afferent lymphatic vessel, efferent lymphatic vessel, lymphoid follicle, germinal center, subcapsular sinus, trabeculae, tonsils, thymus, spleen, Peyer's patches, Appendix, capsule, red pulp, white pulp, splenic artery, splenic vein, thymic corpuscles, mucosa-associated lymphoid tissue (MALT), palatine tonsils, lingual tonsils, pharyngeal tonsil, tubal tonsil, tonsillar crypt, lymphoid follicles

Standard 12a: Refer to Figure 21.1, 21.2, 21.3, 21.4, 21.13, 21.15, Table 21.2, 21.3, 21.7, including immunity, innate defense system, adaptive defense system, immune system, pathogens, lysozyme, mucin, phagocytes, neutrophils, macrophages, monocytes, phagosome, natural killer cell, inflammatory response, mast cells, histamine, fever, humoral immunity, antibody, cellular immunity, antigens, antigen-presenting cells, dendritic cells, B Lymphocytes, primary immune response, secondary immune response, immunological memory, active humoral immunity, passive humoral immunity, vaccines, cytokines, helper T cells, regulatory T cells

Standard 12b: immunodeficiency, severe combined immunodeficiency (SCID) syndromes, acquired immune deficiency syndrome (AIDS), human immunodeficiency virus (HIV), autoimmune disease

Standard 9: Refer to Figure 22.1, 22.3, 22.8, 22.9, 22.10, 22.13, Table 22.1, including respiratory system, respiration, pulmonary ventilation, external respiration, transport of respiratory gases, internal respiration, nasal cavity, oral cavity, pharynx, larynx, epiglottis, trachea, bronchi, lung, diaphragm, vibrissae, respiratory zone, conducting zone, respiratory mucosa, bronchial tree, alveoli, pleurae, paranasal sinuses, defensins, respiratory bronchioles, alveolar ducts, alveolar sac, lungs, apex, base, cardiac notch, lobes, pulmonary arteries, pulmonary capillary networks, pulmonary veins, pleurae, breathing, inspiration, expiration

Huntsville City Schools

Pacing Guide – Third Nine Weeks (20 Days)

Course: Human Anatomy and Physiology Grades: 10-12

Standard	Resources † ‡	Approximate Pacing Number of Days*
7.) Use models to determine the relationship between the structures in and functions of the cardiovascular system (e.g., components of blood, blood circulation through the heart and systems of the body, ABO blood groups, anatomy of the heart, types of blood vessels).	Marieb: Chapter 17 pg. 632-634, 640-642, 644, 651-653. Chapter 18 pg. 659-670. Chapter 19 pg. 692-697 **ASIM Lab R3Blood** Blood Cell Identification website: http://www.purposegames.com/game/white-blood-cell-identification-quiz Blood Typing Lab **LTF lab: It's a Matter of the Heart** (sheep heart dissection)	5
7.a.) Engage in argument from evidence regarding possible prevention and treatment options related to the pathology of the cardiovascular system (e.g., myocardial infarction, mitral valve prolapse, varicose veins, arteriosclerosis, anemia, high blood pressure).	Marieb: Chapter 17 pg. 638-640. Chapter 18 pg. 671, 690-691. Chapter 19 pg. 699-701, 710-711	2
7.b.) Design and carry out an experiment to test various conditions that affect the heart (e.g., heart rate, blood pressure, electrocardiogram [ECG] output).	Marieb: Chapter 18 pg. 677-678, 681-682. Chapter 19 pg. 701-706 Blood Pressure and Pulse Lab Heart Rate and Physical Fitness Lab Monitoring EKG lab	2
12) Obtain and communicate information to explain the lymphatic organs and their structure and function.	Marieb: Chapter 20 pg. 751-760	**3**
12.a.) Develop and use a model to explain the body's lines of defense and immunity.	Marieb: Chapter 21 pg. 764-770, 773, 777-782, 787-789, 792 **LTF lab: Specific Immune Response** Virtual Lab: http://www.hhmi.org/biointeractive/immunology-virtual-lab	**3**

	Immunology resources: http://immunelymphatic.weebly.com/	
12.b.) Obtain and communicate information to demonstrate an understanding of the disorders of the immune system (e.g., acquired immunodeficiency syndrome [AIDS], severe combined immunodeficiency [SCID]).	Marieb: Chapter 21 pg.793-794 AIDS Reading	**2**
9.) Develop and use a model to explain how the organs of the respiratory system function	Marieb: Chapter 22 pg. 802-805, 810-816, 818 Measuring Lung Capacity lab Respiration WebQuest **LTF: A Litter a Lung**	**3**

Huntsville City Schools

Pacing Guide – Forth Nine Weeks

Course: Human Anatomy and Physiology Grades: 10-12

Fourth Nine Weeks Key Terms:

Standard 9a: cilia, chronic obstructive pulmonary disease (COPD), asthma, tuberculosis (TB), lung cancer, cystic fibrosis, neoplasm, benign, malignant, metastasis, onocgenes, biopsy, stage

Standard 8: Refer to Figure 23.1, 23.2, 23.3, 23.13, 23.14, 23.15, 23.17, 23.21, 23.22, 23.24, 23.25, 23.29, 23.32, Table 23.2, 23.3 , including digestive system, oral cavity, tongue, salivary glands, parotid gland, sublingual gland, submandibular gland, pharynx, esophagus, liver, gallbladder, stomach, pancreas, small intestine, duodenum, jejunum, Ileum, large intestine, colon, cecum, appendix, rectum, anal canal, anus, gastrointestinal tract, digest, absorbs, accessory digestive organs, ingestion, propulsion, peristalsis, mechanical breakdown, segmentation, digestion, absorption, defecation, saliva, serous cells, mucous cells, mucus, teeth, mastication, deglutition, sphincter, stomach, chyme, cardia, fundus, lesser curvature, greater curvature, lumen, body, pyloric antrum, pyloric sphincter, gastric pits, gastric glands, gastric juice, parietal cells, hydrochloric acid, pepsin, chief cells, lipase, mucosal barrier, cephalic phase, gastric phase, intestinal phase, circular folds, villi, microvilli, brush border, brush border enzymes, goblet cells, hepatic artery, hepatic portal vein, common hepatic duct, cystic duct, bile duct, bile, bile salts, pancreatic juice, main pancreatic duct, protease, amylase

Standard 8a: Refer to Figure 23.16, including heartburn, gastroesophageal reflux disease (GERD), hiatal hernia, gastritis, gastric ulcers, *Helicobacter pylori*, bilirubin, gallstones, jaundiced, appendicitis, diverticulitis, irritable bowel syndrome (IBS), inflammatory bowel disease (IBD), Crohn's disease

Standard 11: Refer to Figure 25.1, 25.3, 25.5, 25.9, 25.15, Table 25.1, including urinary system, erythropoietin, renin, ureters, urinary bladder, urethra, kidney, osmolality, renal artery, renal vein, renal cortex, renal medulla, renal pyramids, renal column, major calyx, minor calyx, fibrous capsule, renal pelvis, nephron, renal corpuscle, glomerulus, Bowman's capsule, filtrate, proximal convoluted tubule, distal convoluted tubule, nephron loop, descending limb, ascending limb, collecting duct, urine, glomerular filtration, tubular reabsorption, tubular secretion, antidiuretic hormone (ADH), aldosterone, urea

Fourth Nine Weeks Key Terms (continued):

Standard 11a: Refer to Table 25.2, Figure 26.12, including blood pH, acid, base, renal tubule cell, H^+, HCO_3^-, homeostasis, Cl^-, chronic renal disease, GFR, renal failure, uremia, hemodialysis, renal calculi, kidney stones, acid-base balance, alkalosis, acidosis, chemical buffer, volatile acid, nonvolatile acids, bicarbonate

Standard 10: Refer to Figure 27.1, 27.2, 27.3, 27.8, 27.12, 27.13, 27.14, 27.20, 27.22, including reproductive system, gonads, gametes, sex hormones, accessory reproductive organs, sperm, ova, zygote,

MALE: peritoneum, seminal gland, ductus (vas) deferens, ejaculatory duct, prostate, bulbo-urethral gland, bulb of penis, epididymis, testis, scrotum, prostate urethra, intermediate part of the urethra, corpus cavernosum, corpus spongiosum, spongy urethra, glans penis, prepuce, external urethral orifice, spermatic cord, septum of scrotum, cremaster muscle, dartos muscle, tunica vaginalis, tunica albuginea, seminiferous tubules, myoid cells, rete testis, semen, spermatogenesis, hypothalamic-pituitary-gonadal (HPG) axis, gonadotropin-releasing hormone (GnRH), follicle-stimulating hormone (FSH), luteinizing hormone (LH), androgen-binding protein (ABP), testosterone, inhibin

FEMALE: ovaries, estrogen, progesterone, internal genitalia, external genitalia, germinal epithelium, tunica albuginea, cortex, medulla, primary follicle, secondary follicle, ovarian follicle, oocyte, follicle cell, granulosa cell, antrum, fallopian tubes, isthmus, ampulla, infundibulum, fimbriae, endometrium, myometrium, perimetrium, cervical canal, internal os, external os, cervix, lumen, body, broad ligaments, oogenesis, ovarian cycle, ovulation, menstrual cycle

STDs: sexually transmitted infections (STIs), sexually transmitted diseases (STDs), venereal diseases (VDs), gonorrhea, *Neisseria gonorrhoeae*, urethritis, syphilis, *Treponema pallidum*, latent period, chlamydia, *Chlamydia trachomatis*, Trichomoniasis, Genital warts, human papillomavirus (HPV), genital herpes, herpes simplex virus 2, HIV

Standard 10a: refer to Figure 28.10, 28.11, 28.12, 28.13, Table 28.1, including pregnancy, gestation, embryo, fetus, fertilization, gastrula, amnion, amniotic fluid, umbilical cord, yolk sac, ectoderm, endoderm, mesoderm, primary germ layer, gastrulation, notochord, organogenesis, primitive gut, neurulation, neural tube, limb buds, coelom, somite, intermediate mesoderm, lateral plate mesoderm, somatic mesoderm, splanchnic mesoderm

Huntsville City Schools

Pacing Guide – Fourth Nine Weeks (22 days)

Course: Human Anatomy and Physiology Grades: 10-12

Standard	Resources † ‡	Approximate Pacing Number of Days*
9.a.) Engage in argument from evidence describing how environmental (e.g., cigarette smoke, polluted air) and genetic factors may affect the respiratory system, possibly leading to pathological conditions (e.g., cystic fibrosis).	Marieb: Chapter 22 pg.809, 839-842. Chapter 4 pg.145-146	**3**
8.) Communicate scientific information to explain the relationship between the structures and functions, both mechanical (e.g., chewing, churning in stomach) and chemical (e.g., enzymes, hydrochloric acid [HCl] in stomach), of the digestive system, including the accessory organs (e.g., salivary glands, pancreas).	Marieb: Chapter 23 pg.849-852, 858-859, 863-867, 870-871, 875-882, 885-888, 893 **LTF lab: Yeast Cells and the Digestion of Nutrients** **LTF lab: Chew on This**	**4**
8a.) Obtain and communicate information to demonstrate an understanding of the disorders of the digestive system (e.g., ulcers, Crohn's disease, diverticulitis).	Marieb: Chapter 23 pg. 862-863, 869, 881-882, 887, 890-891, 905	**2**
11.) Use models to differentiate the structures of the urinary system and to describe their functions.	Marieb: Chapter 25 pg. 955-961, 963, 971, 973 **LTF lab: Urinalysis Lab** **ASIM Lab R5Urine**	4
11.a.) Analyze and interpret data related to the urinary system to show the relationship between homeostatic imbalances and disease (e.g., kidney stones, effects of pH imbalances).	Marieb: Chapter 25 pg. 972, 978-979. Chapter pg. 1004, 1006-1007, 1010, 1012	2

10.) Obtain, evaluate, and communicate information to differentiate between the male and female reproductive systems, including pathological conditions that affect each.	Marieb: Chapter 27 pg. 1018-1021, 1024-1025, 1031, 1033, 1035-1037, 1043, 1053-1054 **LTF Lab – "Sperm Race"**	4
10.a.) Use models to demonstrate what occurs in fetal development at each stage of pregnancy.	Marieb: Chapter 28 pg. 1065, 1074-1081, 1084 Fetus models **ASIM Lab R2RepDev**	3
FINAL EXAMS	**MONDAY-FRIDAY 1/2 Days**	

***The pacing guide has been devised to allow time for testing or individual adjustment.**

†The resources in this pacing guide are suggested resources. Resources can be found at Huntsville City Schools Human A & P Dropbox. Teachers may use their own resources.

‡Textbook references in this pacing guide refer to the adopted Human Anatomy and Physiology textbook, Marieb & Hoehn *Human Anatomy and Physiology*, 9th edition and associated supplemental materials.

Listed below are the technology standards for grades nine through twelve. You are to make every effort to incorporate the applicable standards into your daily classroom lessons. These standards should be noted in your lesson plans.

Alabama Technology Standards Ninth – Twelfth Grade

Operations and Concepts

Students will:

2. Diagnose hardware and software problems.
   Examples: viruses, error messages
   Applying strategies to correct malfunctioning hardware and software
   Performing routine hardware maintenance
   Describing the importance of antivirus and security software

3. Demonstrate advanced technology skills, including compressing, converting, importing, exporting, and backing up files.
   Transferring data among applications
   Demonstrating digital file transfer
   Examples: attaching, uploading, downloading

4. Utilize advanced features of word processing software, including outlining, tracking changes, hyperlinking, and mail merging.

5. Utilize advanced features of spreadsheet software, including creating charts and graphs, sorting and filtering data, creating formulas, and applying functions.

6. Utilize advanced features of multimedia software, including image, video, and audio editing.

Digital Citizenship

9. Practice ethical and legal use of technology systems and digital content.
   Explaining consequences of illegal and unethical use of technology systems and digital content
   Examples: cyberbullying, plagiarism
   Interpreting copyright laws and policies with regard to ownership and use of digital content
   Citing sources of digital content using a style manual
   Examples: Modern Language Association (MLA), American Psychological Association (APA)

Research and Information Fluency

11. Critique digital content for validity, accuracy, bias, currency, and relevance.

Communication and Collaboration

12. Use digital tools to publish curriculum-related content.
    Examples: Web page authoring software, coding software, wikis, blogs, podcasts

13. Demonstrate collaborative skills using curriculum-related content in digital environments.

Examples: completing assignments online; interacting with experts and peers in a structured, online learning environment

Critical Thinking, Problem Solving, and Decision Making

14. Use digital tools to defend solutions to authentic problems.
    Example: disaggregating data electronically

Creativity and Innovation

15. Create a product that integrates information from multiple software applications.
    Example: pasting spreadsheet-generated charts into a presentation