Course and Grade Level: Human Anatomy 11/12
Standard: LS 4 – Humans are similar to other species in many ways, and yet are unique among earth's life forms. LS 5 – The growth of scientific knowledge in Life Science has been advanced through the development of technology and is used to identify, understand, and solve local and global issues.

Content	Knowledge & Skills	Activities	Resources & Materials	Assessments
Introduction Vocabulary Career Journals 1. Intro Anatomy a. Anatomy-distinguish gross and microscopic-terminology b. Physiology- distinguish gross and microscopic-terminology c. Gross division of the body d. Levels of organization e. Homeostasis-regulation-positive and negative feedback f. Directional terms and anatomical landmarks-terminology g. Divisions of abdomen h. Sectional Anatomy i. Body cavities j. Clinical technology-X rays, CT Scans, MRI's and ultrasound	Describe ways in which technology has increased our understanding of the life sciences. Recognize that biotechnology is used in many areas. Explain the kinds of applications of knowledge and skills necessary for jobs/careers specific to the life sciences. Describe how the functions of the human body systems are interrelated at the chemical level and how they maintain homeostasis.	Lab: anatomical orientation Career Journal	Text: Fundamentals of Anatomy & Physiology, 5th edition, c. 2001, Martini, Prentice Hall Study Guide for Text Digital Microscopes Internet "Health Careers": VT's statewide area health centers program	Vocabulary Quiz Lab Exercise-Anatomical Orientation and terminology Homework Study Guide Test Career Journal-due the last school day of each month Charts and diagrams-crossword puzzle for chapter 1

Course and Grade Level: Human Anatomy 11/12

Standard: LS 1 – All living organisms have identifiable structures and characteristics that allow for survival.

Content	Knowledge & Skills	Activities	Resources & Materials	Assessments
2. Cells, Tissues, and Organs Vocabulary a. Parts of a typical cell b. DNA, RNA, transcription, replication, and protein synthesis c. Organelles and Inclusion-difference d. Membrane permeability-how things cross the membrane: diffusion, active transport e. Cell division-mitosis and meiosis f. Histology: four types of tissues-distinguishing features and examples; types of connective tissue-types of fibers and locations g. Tissue transplants	Use data and observation to make connections between, to explain , or to justify how specific sell organelles produce/regulate what the cell needs or what a unicellular or multi-cellular organism needs for survival. Explain or justify how the alteration of the DNA sequence may produce new gene combinations that make little difference, enhance capabilities, or can be harmful to the organism.	Lab: Tissues Career Journal	Text Digital Microscopes Internet	Vocabulary Quiz Homework Study Guide Lab: view different tissues using digital microscope-label and give distinguishing features Charts and Diagrams Test Career Journal

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Content	Knowledge & Skills	Activities	Resources & Materials	Assessments
3. Integumentary System a. Functions of the system b. Layers of the skin: epidermis, epithelial layers, abnormalities on keratin production, skin color c. Dermis- two layers, conditions of the skin and skin disorders, how dermis performs its functions d. Subcutaneous layer e. Derivatives of the skin-hair follicles, sebaceous glands, sudoriferous glands, mammary and ceruminous glands, nails f. Injury and repair to the skin g. Aging of the skin	Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis. Use evidence to make and support conclusions about the ways that humans are affected by environmental factors or heredity.	Lab: Layers of the skin. Career Journal	Text Digital Microscopes Internet	Vocabulary Quiz Lab-Digital microscope- layers of the skin Study Guide Homework Charts, diagram and crossword puzzle Test Career Journal

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Content	Knowledge & Skills	Activities	Resources & Materials	Assessments
4. Skeletal System I a. Functions of skeletal system b. Typical long bone c. Microscopic anatomy of a bone d. Ossification and calcification-differences and types e. Nutritional requirements for normal bone growth f. Change in the skeleton with age g. Cartilage h. Bone shapes i. Bone markings-types and examples found around the body j. Articulations-typical joint k. Diseases of the joints l. Body movements-terminology m. Classification of joints Introduce teaching reports for unit 5	Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis. Use evidence to make and support conclusions about the ways that humans are affected by environmental factors or heredity.	Lab: Bone tissue Career Journal	Skeleton Model Text Digital Microscopes Internet	Vocabulary Quiz Lab-Digital microscope picture and typical bone-label Study Guide Homework Charts, diagram and crossword puzzle Test Career Journal

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Content	Knowledge & Skills	Activities	Resources & Materials	Assessments
5. Skeletal System II a. Axial division of the skeleton-number, markings and location: Skull-sutures and fontanels, sexual differences; Vertebral column-divisions, abnormal curvatures, typical vertebrae; Thorax-ribs and sternum b. Appendicular skeleton bones and markings: Pectoral girdle: scapula and clavicle;Upper limb bones; Pelvic girdle: sexual difference; Lower limb-bones c. Bone Specialists d. Teeth-# and location, tooth and gum disorders Teaching Units	Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis. Use evidence to make and support conclusions about the ways that humans are affected by environmental factors or heredity.	Teaching Reports Career Journal	Skeleton Model Text Other texts: Anatomy & Physiology, Evans, c 1983 Digital Microscopes Internet	Vocabulary Quiz Homework Study Guide Charts, diagram and crossword puzzle Test Teaching Reports Career Journal

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Content	Knowledge & Skills	Activities	Resources & Materials	Assessments
6. Muscular System I a. Function of the muscular system b. Gross anatomy of a typical skeletal muscle c. Microscopic anatomy of a typical skeletal muscle d. Sliding filament theory of a muscle e. Neural control of muscle fiber contraction f. Chemistry of muscle contraction g. Energy source for muscle contraction h. Aging of muscular system	Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis. Use evidence to make and support conclusions about the ways that humans are affected by environmental factors or heredity.	Career Journal Lab: Histology of Muscles	Skeleton Text Digital Microscopes Internet	Vocabulary Quiz Muscle Quizzes Homework Study Guide Lab Charts, diagram and crossword puzzle Test Career Journal First Semester Exam

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Content	Knowledge & Skills	Activities	Resources & Materials	Assessments
7. Muscular System II a. Parts of a typical skeletal muscle b. Muscle actions-agonist, antagonist and synergist c. Muscles of the axial skeleton: Head, lower jaw, facial expression, Vertebral column, Abdominal wall d. Muscles of the appendicular skeleton: shoulder girdle, upper limbs-brachium, ante brachium and hand; pelvic girdle, lower limbs-thigh, leg and foot e. Sports injuries Fetal Pig dissection	Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis. Use evidence to make and support conclusions about the ways that humans are affected by environmental factors or heredity.	Teaching Reports Career Journal Lab: Fetal Pig Dissection Career Day at Brattleboro Memorial Hospital	Skeleton Internet Lab Manual: "Lab Anatomy of the Fetal Pig", 11th edition, Chausson, Odlaug & Radke, c. 1997 Materials distributed by Brattleboro Memorial Hospital Staff	Vocabulary Quiz Muscle Quizzes Homework Study Guide Charts, diagram and crossword puzzle Test Teaching Reports Career Journal Write up of Career Day Fetal Pig dissection lab results

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Content	Knowledge & Skills	Activities	Resources & Materials	Assessments
8. Nervous System a. Function of nervous system b. Overview of nervous system c. Anatomy of a typical neuron d. Neurophysiology: Charges on neurons, Steps of transmission of nerve impulse, Neurotransmitters e. Central nervous system: Brain-anatomy and physiology of cerebrum, cerebellum and brain stem; Spinal Cord f. Peripheral Nervous system: Spinal and cranial nerves; Pain; Reflexes g. Autonomic nervous system h. Cerebral spinal fluid i. Conscious and unconscious states j. Disorders of the nervous system	Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis. Use evidence to make and support conclusions about the ways that humans are affected by environmental factors or heredity.	Teaching Reports Career Journal Lab: Histology of nervous tissues Job Shadowing at Brattleboro Memorial Hospital	Text Internet Digital Microscopes	Vocabulary Quiz Homework Study Guide Charts, diagram and crossword puzzle Test Teaching Reports Career Journal Lab Job Shadowing write up

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Content	Knowledge & Skills	Activities	Resources & Materials	Assessments
9. Special Senses a. Distinguish special and general senses b. Vision- anatomy of eye, physiology of vision, visual defects c. Audition- anatomy of ear, physiology of ear, hearing disorders d. Equilibrium 10. Endocrine System a. Function of endocrine system b. Contrast nervous and endocrine control c. Endocrine glands: hormones produced, functions of those hormones, hormone disorders d. Glands and organs with endocrine tissues-e.g. kidneys, heart	Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis. Use evidence to make and support conclusions about the ways that humans are affected by environmental factors or heredity.	Lab: Special Senses Teaching Reports Career Journal	Ward's – "Human Senses" Lab Materials for lab, e.g. Snellen Chart	Vocabulary Quiz Quizzes Homework Study Guide Lab on special senses Charts, diagram and crossword puzzle Test Teaching Reports for special senses and endocrine glands/hormones Career Journal

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Content	Knowledge & Skills	Activities	Resources & Materials	Assessments
11. Circulatory System I a. Functions of the circulatory/cardiovascular system b. Blood vessels- arteries, veins and capillaries: anatomy and physiology of these vessels c. The heart: chambers, septa, directions of flow, heart valves d. Systemic arteries e. Systemic veins f. Electrical activity of the heart g. Cardiac cycle h. Abnormal conditions of the blood vessels and heart	Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis. Use evidence to make and support conclusions about the ways that humans are affected by environmental factors or heredity.	Teaching Reports Career Journal Lab: Blood cells, blood vessels, and circulatory tissues	Text Internet Digital microscope and slides	Vocabulary Quiz Quizzes Homework Study Guide Charts, diagram and crossword puzzle Test Teaching Reports Career Journal Lab

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Content	Knowledge & Skills	Activities	Resources & Materials	Assessments
12. Circulatory System II a. Blood Pressure: how it is determined, factors which result in different readings throughout life b. Blood-components, differences in red and white blood cells and platelets, blood plasma c. Body defenses-antigen and antibodies and immunity d. Blood typing e. Lymphatics f. Circulatory diseases	Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis. Use evidence to make and support conclusions about the ways that humans are affected by environmental factors or heredity.	Teaching Reports Career Journal Lab: Blood pressure, Blood typing	"Dynapulse" Lab-computer Internet Text Sphygmomanometers and stethoscopes	Vocabulary Quiz Quizzes Homework Study Guide Charts, diagram and crossword puzzle Test Teaching Reports Career Journal Lab

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Content	Knowledge & Skills	Activities	Resources & Materials	Assessments
13. Digestive System a. Functions of this system b. Organs of alimentary canal c. Digestive enzymes d. Food and food nutrients e. Secondary organs and their functions: liver, gall bladder, pancreas 14. Excretory and Respiratory Systems a. Functions of each system Primary organs of these systems	Describe how the functions of all the human body systems are interrelated at a chemical level and how they maintain homeostasis. Use evidence to make and support conclusions about the ways that humans are affected by environmental factors or heredity.	Teaching Report Career Journal Lab: Histology of digestive organs, e.g. liver, stomach Lab: Histology of Excretory and Respiratory Tissues	Internet Text Digital Microscopes and slides	Vocabulary Quiz Quizzes Homework Study Guide Charts, diagram and crossword puzzle Test Teaching Reports Career Journal Labs