CURRICULUM DESIGN AND LEARNING EXPERIENCES

DEPARTMENT	Science	**COURSE TITLE**	Honors Anatomy & Physiology
GRADES	11-12	**PRE-REQUISITES (IF ANY)**	Biology
DRIVING ESSENTIAL QUESTION FOR THE UNIT:	Use anatomical terminology to reference body parts		

UNIT NUMBER AND TITLE	APPROXIMATE LENGTH (NUMBER OF DAYS)	DESIRED OUTCOMES (SKILLS, KNOWLEDGE, ESSENTIAL, UNDERSTANDINGS)	CONTENT	MASSACHUSETTS STATECurriculum FRAMEWORK(S) (Reference), AP STANDARDS, CROSS CURRICULUM STANDARDS (DLCS).	PROVIDE MULTIPLE MEANS OF REPRESENTATION, the "what" of learning	PROVIDE MULTIPLE MEANS OF ACTION & EXPRESSION, the "how" of Learning	PROVIDE MULTIPLE MEANS OF ENGAGEMENT, the "why" of Learning	ASSESSMENT TYPES & COLLECTIVE EVIDENCE	STANDARDS FOR PRACTICE (ESSA)
Unit 1: Language of Anatomy	6	• identify and discuss, in order of increasing complexity, the levels of organization within the human body. • define the principle directional terms, body cavities, surface anatomy, and body planes used in describing the body and the relationship of body parts to one another • locate 12 major organs on a Human Torso Model • Brain, heart, lungs, trachea, esophagus, diaphragm, liver, stomach, pancreas, small intestines, large intestines, & kidneys • define and explain the meaning of the term Homeostasis • give examples of typical homeostatic mechanisms they would find within the human body for positive and negative feedback loops. • identify the 11 major organ systems of the human body including major functions and structures	Language of Anatomy	**HS-LS1-2. Develop and use a model to illustrate the key functions of animal body systems, including (a) food digestion, nutrient uptake, and transport through the body; (b) exchange of oxygen and carbon dioxide; (c) removal of wastes; and (d) regulation of body processes.** **HS-LS1-3. Provide evidence that homeostasis maintains internal body conditions through both bodywide feedback mechanisms and small-scale cellular processes.**	**1 – Provide options for perception** _1.1 – Offer ways of customizing the display of information __1.2 – Offer alternatives for auditory information __1.3 – Offer alternatives for visual information **2 – Provide options for language,** mathematical expressions, & symbols __2.1 – Clarify vocabulary and symbols __2.2 – Clarify syntax and structure **3 – Provide options for comprehension** __3.1 – Activate or supply background knowledge __3.2 – Highlight patterns, critical features, big ideas, & relationships __3.3 – Guide information processing, visualization, & manipulation __3.4 – Maximize transfer & generalization	**4 – Provide options for physical action** __4.1 – Vary the methods for response & navigation __4.2 – Optimize access to tools and assistive technologies **5 – Provide options for expression and communication** __5.1 – Use multiple media for communication __5.3 – Build fluencies with graduated levels of support for practice & performance	**7 – Provide options for recruiting interest** __7.1 – Optimize individual choice & autonomy __7.2 – Optimize relevance, value & authenticity __7.3 – Minimize threats & distractions **8 – Provide options for sustaining effort & persistence** __8.1 – Heighten salience of goals/objectives __8.2 – Vary demands & resources to optimize challenges __8.3 – Foster collaboration & community **9 – Provide options for self-regulation** __9.1 – Promote expectations & beliefs that optimize motivation __9.2 – Facilitate personal coping skills & strategies __9.3 – Develop self-assessment & reflection	**Assessment Types** **Diagnostic-** - informal Do Now questions **Summative-** - end of unit exam **Formative-** - Organ system Overview lab - Language of Anatomy Lab - Pickle Dissection - edpuzzles - practice worksheets .	**Formally,** STUDENT PERFORMANCE STANDARD(S)- NCLB Check to make sure standards are current **Standards for Practice** -Performance standards isolate and identify skills needed for problem-solving, reasoning, communicating, and making connections with other information. They provide all constituents with the evidence that students have met the content standards, helping teachers define what level of work is satisfactory.

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DEPARTMENT	Science	**COURSE TITLE**	Honors Anatomy & Physiology
GRADES	11-12	**PRE-REQUISITES (IF ANY)**	Biology
DRIVING ESSENTIAL QUESTION FOR THE UNIT:	Differentiate between specialized cells in common tissue types		

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Unit 2: Cells & Tissues	10 days	Students will identify the basic structure and function of the three major components of a cell (plasma membrane, cytoplasm, and nucleus) The student will identify the types of epithelial, connective, muscular, and nervous tissue using a microscope. Students will explain how the shape of Epithelial tissues, determines their classification by squamous, cuboidal and columnar. Also, how the arrangement of Epithelial tissues determines classification by simple, stratified, and transitional. Students will explain how the structure of connective tissue allows for its function in the human body. (areolar, adipose, fibrous, bone, cartilage, and blood.) Students will differentiate between the 3 types of muscle tissue, which brings about movement. (skeletal, cardiac, and smooth). Students will identify the major structural parts of a typical neuron, which is the basic building unit of all nerve tissue. Typically neurons contain a cell body, an axon, and dendrites.	Cells & Tissues	**HS-LS1-2. Develop and use a model to illustrate the key functions of animal body systems, including (a) food digestion, nutrient uptake, and transport through the body; (b) exchange of oxygen and carbon dioxide; (c) removal of wastes; and (d) regulation of body processes.** **HS-LS1-3. Provide evidence that homeostasis maintains internal body conditions through both bodywide feedback mechanisms and small-scale cellular processes.**	**1 – Provide options for perception** _1.1 – Offer ways of customizing the display of information __1.2 – Offer alternatives for auditory information __1.3 – Offer alternatives for visual information **2 – Provide options for language,** mathematical expressions, & symbols __2.1 – Clarify vocabulary and symbols __2.2 – Clarify syntax and structure __2.3 – Support decoding of text, mathematical notation, & symbols __2.4 – Promote understanding across languages __2.5 – Illustrate through multiple media **3 – Provide options for comprehension** __3.1 – Activate or supply background knowledge __3.2 – Highlight patterns, critical features, big ideas, & relationships __3.3 – Guide information processing, visualization, & manipulation __3.4 – Maximize transfer & generalization	**4 – Provide options for physical action** __4.1 – Vary the methods for response & navigation __4.2 – Optimize access to tools and assistive technologies **5 – Provide options for expression and communication** __5.1 – Use multiple media for communication __5.2 – Use multiple tools for construction & composition __5.3 – Build fluencies with graduated levels of support for practice & performance **6 – Provide options for executive functions** __6.1 – Guide appropriate goal setting __6.2 – Support planning & strategy development __6.3 – Facilitate managing information & resources __6.4 – Enhance capacity for monitoring progress	**7 – Provide options for recruiting interest** __7.1 – Optimize individual choice & autonomy __7.2 – Optimize relevance, value & authenticity __7.3 – Minimize threats & distractions **8 – Provide options for sustaining effort & persistence** __8.1 – Heighten salience of goals/objectives __8.2 – Vary demands & resources to optimize challenges __8.3 – Foster collaboration & community __8.4 – Increase mastery-oriented feedback **9 – Provide options for self-regulation** __9.1 – Promote expectations & beliefs that optimize motivation __9.2 – Facilitate personal coping skills & strategies __9.3 – Develop self-assessment & reflection	**Assessment Types** **Diagnostic-** - informal Do Now questions **Summative-** - end of unit exam **Formative-** - Tissues Lab - Modeling tissues with playdoh - Drawing and labeling tissues - Cheek cell lab - edpuzzles - practice worksheets .	**Formally,** STUDENT PERFORMANCE STANDARD(S)- NCLB Check to make sure standards are current **Standards for Practice** -Performance standards isolate and identify skills needed for problem-solving, reasoning, communicating, and making connections with other information. They provide all constituents with the evidence that students have met the content standards, helping teachers define what level of work is satisfactory.

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GRADES	11-12	**PRE-REQUISITES (IF ANY)**	Biology

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DRIVING ESSENTIAL QUESTION FOR THE UNIT:	

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Unit 3: Endocrine	6	Students will explain the differences between endocrine and exocrine glands, and be able to discuss the differences between the terms hormone and prostaglandin. Students will be able to identify 10 major glands. Students will be able to describe 10 hormones and the actions Students will describe and explain the mechanisms of steroid and protein hormone action Students will identify and explain how both negative feedback and positive feedback mechanisms	Endocrine System	**HS-LS1-2. Develop and use a model to illustrate the key functions of animal body systems, including (a) food digestion, nutrient uptake, and transport through the body; (b) exchange of oxygen and carbon dioxide; (c) removal of wastes; and (d) regulation of body processes.** **HS-LS1-3. Provide evidence that homeostasis maintains internal body conditions through both bodywide feedback mechanisms and small-scale cellular processes.**	**1 – Provide options for perception** _1.1 – Offer ways of customizing the display of information __1.2 – Offer alternatives for auditory information __1.3 – Offer alternatives for visual information **2 – Provide options for language,** mathematical expressions, & symbols __2.1 – Clarify vocabulary and symbols __2.2 – Clarify syntax and structure __2.3 – Support decoding of text, mathematical notation, & symbols __2.4 – Promote understanding across languages __2.5 – Illustrate through multiple media **3 – Provide options for comprehension** __3.1 – Activate or supply background knowledge __3.2 – Highlight patterns, critical features, big ideas, & relationships __3.3 – Guide information processing, visualization, & manipulation __3.4 – Maximize transfer & generalization	**4 – Provide options for physical action** __4.1 – Vary the methods for response & navigation __4.2 – Optimize access to tools and assistive technologies **5 – Provide options for expression and communication** __5.1 – Use multiple media for communication __5.2 – Use multiple tools for construction & composition __5.3 – Build fluencies with graduated levels of support for practice & performance **6 – Provide options for executive functions** __6.1 – Guide appropriate goal setting __6.2 – Support planning & strategy development __6.3 – Facilitate managing information & resources __6.4 – Enhance capacity for monitoring progress	**7 – Provide options for recruiting interest** __7.1 – Optimize individual choice & autonomy __7.2 – Optimize relevance, value & authenticity __7.3 – Minimize threats & distractions **8 – Provide options for sustaining effort & persistence** __8.1 – Heighten salience of goals/objectives __8.2 – Vary demands & resources to optimize challenges __8.3 – Foster collaboration & community __8.4 – Increase mastery-oriented feedback **9 – Provide options for self-regulation** __9.1 – Promote expectations & beliefs that optimize motivation __9.2 – Facilitate personal coping skills & strategies __9.3 – Develop self-assessment & reflection	**Assessment Types** **Diagnostic-** - informal Do Now questions **Summative-** - end of unit exam **Formative-** - Label the glands - Hormone chart - Endocrine project - edpuzzles - practice worksheets .	**Formally,** STUDENT PERFORMANCE STANDARD(S)- NCLB Check to make sure standards are current **Standards for Practice** -Performance standards isolate and identify skills needed for problem-solving, reasoning, communicating, and making connections with other information. They provide all constituents with the evidence that students have met the content standards, helping teachers define what level of work is satisfactory.

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DEPARTMENT	Science	**COURSE TITLE**	Honors Anatomy & Physiology
GRADES	11-12	**PRE-REQUISITES (IF ANY)**	Biology
DRIVING ESSENTIAL QUESTION FOR THE UNIT:	Explain how the structures of the nervous system relate to the functions		

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Unit 4: Nervous	10	Students will identify and discuss the functioning of the two major types of cells found in the nervous system Students will identify, list, and describe the functions of the organs and divisions of the nervous system Students will compare and contrast the propagation of an action potential along the axon and across a synaptic cleft Students will discuss, using models and diagrams, the major anatomical components of the brain as well as their respective functions Students will dissect a sheep brain to identify the major parts of the brain then explain their general functions. Students will classify sense organs as "special" or "general", based upon the basic differences of each group Students will identify and discuss the functions of each major sensory organ including the type of receptor in each. Students will describe with the use of an eye dissection, the structures that make up the Eye	Nervous System	**HS-LS1-2. Develop and use a model to illustrate the key functions of animal body systems, including (a) food digestion, nutrient uptake, and transport through the body; (b) exchange of oxygen and carbon dioxide; (c) removal of wastes; and (d) regulation of body processes.** **HS-LS1-3. Provide evidence that homeostasis maintains internal body conditions through both bodywide feedback mechanisms and small-scale cellular processes.**	**1 – Provide options for perception** _1.1 – Offer ways of customizing the display of information __1.2 – Offer alternatives for auditory information __1.3 – Offer alternatives for visual information **2 – Provide options for language,** mathematical expressions, & symbols __2.1 – Clarify vocabulary and symbols __2.2 – Clarify syntax and structure __2.3 – Support decoding of text, mathematical notation, & symbols __2.4 – Promote understanding across languages __2.5 – Illustrate through multiple media **3 – Provide options for comprehension** __3.1 – Activate or supply background knowledge __3.2 – Highlight patterns, critical features, big ideas, & relationships __3.3 – Guide information processing, visualization, & manipulation __3.4 – Maximize transfer & generalization	**4 – Provide options for physical action** __4.1 – Vary the methods for response & navigation __4.2 – Optimize access to tools and assistive technologies **5 – Provide options for expression and communication** __5.1 – Use multiple media for communication __5.2 – Use multiple tools for construction & composition __5.3 – Build fluencies with graduated levels of support for practice & performance **6 – Provide options for executive functions** __6.1 – Guide appropriate goal setting __6.2 – Support planning & strategy development __6.3 – Facilitate managing information & resources __6.4 – Enhance capacity for monitoring progress	**7 – Provide options for recruiting interest** __7.1 – Optimize individual choice & autonomy __7.2 – Optimize relevance, value & authenticity __7.3 – Minimize threats & distractions **8 – Provide options for sustaining effort & persistence** __8.1 – Heighten salience of goals/objectives __8.2 – Vary demands & resources to optimize challenges __8.3 – Foster collaboration & community __8.4 – Increase mastery-oriented feedback **9 – Provide options for self-regulation** __9.1 – Promote expectations & beliefs that optimize motivation __9.2 – Facilitate personal coping skills & strategies __9.3 – Develop self-assessment & reflection	**Assessment Types** **Diagnostic-** - informal Do Now questions **Summative**- - end of unit exam **Formative**- - Model Neuron - comic strip - essay on Neuron Function - brain dissection - eye dissection - concussion case study - edpuzzles - practice worksheets .	**Formally,** STUDENT PERFORMANCE STANDARD(S)- NCLB Check to make sure standards are current **Standards for Practice** -Performance standards isolate and identify skills needed for problem-solving, reasoning, communicating, and making connections with other information. They provide all constituents with the evidence that students have met the content standards, helping teachers define what level of work is satisfactory.

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		and explain the function of each component part Students will describe, with a model and diagrams, the structures of the Ear, and be able to explain how different parts of the ear function in our sense of hearing, and our sense of equilibrium (balance) Students will explain the functions of the chemical receptors for our sense of smell and of our sense of taste							

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GRADES	11-12	**PRE-REQUISITES (IF ANY)**	Biology
DRIVING ESSENTIAL QUESTION FOR THE UNIT:	Identify how the structures of the muscular system help it to function.		

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Unit 5: Muscular	10	Students will identify and locate, with a human torso model, areas that would have the three major types of muscle tissue Students will compare and contrast the 3 types of muscle Students will discuss and draw models of, the microscopic structure of a skeletal muscle cell, sarcomere, and motor unit Students will discuss how the sliding filament theory of muscle contraction works Students will compare the microscopic structure of muscle tissue to the gross anatomy of muscles. Students will use models or diagrams, to identify and give the function of, the major muscles identified within the chapter Students will explain each common type of movement provided by skeletal muscle Students will identify the major disorders and symptoms, of the diseases found in the skeletal muscles Students will dissect chicken wings and legs, examining the skin, muscle, bones, and joints	Muscular System	**HS-LS1-2. Develop and use a model to illustrate the key functions of animal body systems, including (a) food digestion, nutrient uptake, and transport through the body; (b) exchange of oxygen and carbon dioxide; (c) removal of wastes; and (d) regulation of body processes.** **HS-LS1-3. Provide evidence that homeostasis maintains internal body conditions through both bodywide feedback mechanisms and small-scale cellular processes.**	**1 – Provide options for perception** _1.1 – Offer ways of customizing the display of information __1.2 – Offer alternatives for auditory information __1.3 – Offer alternatives for visual information **2 – Provide options for language,** mathematical expressions, & symbols __2.1 – Clarify vocabulary and symbols __2.2 – Clarify syntax and structure __2.3 – Support decoding of text, mathematical notation, & symbols __2.4 – Promote understanding across languages __2.5 – Illustrate through multiple media **3 – Provide options for comprehension** __3.1 – Activate or supply background knowledge __3.2 – Highlight patterns, critical features, big ideas, & relationships __3.3 – Guide information processing, visualization, & manipulation __3.4 – Maximize transfer & generalization	**4 – Provide options for physical action** __4.1 – Vary the methods for response & navigation __4.2 – Optimize access to tools and assistive technologies **5 – Provide options for expression and communication** __5.1 – Use multiple media for communication __5.2 – Use multiple tools for construction & composition __5.3 – Build fluencies with graduated levels of support for practice & performance **6 – Provide options for executive functions** __6.1 – Guide appropriate goal setting __6.2 – Support planning & strategy development __6.3 – Facilitate managing information & resources __6.4 – Enhance capacity for monitoring progress	**7 – Provide options for recruiting interest** __7.1 – Optimize individual choice & autonomy __7.2 – Optimize relevance, value & authenticity __7.3 – Minimize threats & distractions **8 – Provide options for sustaining effort & persistence** __8.1 – Heighten salience of goals/objectives __8.2 – Vary demands & resources to optimize challenges __8.3 – Foster collaboration & community __8.4 – Increase mastery-oriented feedback **9 – Provide options for self-regulation** __9.1 – Promote expectations & beliefs that optimize motivation __9.2 – Facilitate personal coping skills & strategies __9.3 – Develop self-assessment & reflection	**Assessment Types** **Diagnostic-** - informal Do Now questions **Summative**- - end of unit exam **Formative**- - Essay on the Sliding filament model of muscle contraction - Identify muscles of the human by coloring and on 3D model - Gross muscular anatomy lab - Microscopic muscle anatomy lab - comic strip - Joint analysis - .	**Formally,** STUDENT PERFORMANCE STANDARD(S)- NCLB Check to make sure standards are current **Standards for Practice** -Performance standards isolate and identify skills needed for problem-solving, reasoning, communicating, and making connections with other information. They provide all constituents with the evidence that students have met the content standards, helping teachers define what level of work is satisfactory.

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DRIVING ESSENTIAL QUESTION FOR THE UNIT:	Use anatomical terminology to reference body parts		

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Unit 6: Skeletal	10	Students will explain the general functions of the skeletal system Students will identify, using the articulated skeleton and other models, the two major subdivisions of the skeleton, and what bones are found in each Students will compare the microscopic anatomy of bone to the gross anatomy of the bone Students will describe and explain the microscopic structure of bone and cartilage, including specific cell types, and structural features used to classify bone and cartilage Students will explain how bones are formed, how they grow, how they are repaired, and how they are constantly being remodeled Students will identify using the articulated and disarticulated skeletons, the major anatomical structures found in typical long bone formation Students will, by comparison, identify the major types of **joints** found in the body Students will identify the symptoms that are typical of the major disorders and diseases found in the skeletal system and its joints		**HS-LS1-2. Develop and use a model to illustrate the key functions of animal body systems, including (a) food digestion, nutrient uptake, and transport through the body; (b) exchange of oxygen and carbon dioxide; (c) removal of wastes; and (d) regulation of body processes.** **HS-LS1-3. Provide evidence that homeostasis maintains internal body conditions through both bodywide feedback mechanisms and small-scale cellular processes.**	**1 – Provide options for perception** _1.1 – Offer ways of customizing the display of information __1.2 – Offer alternatives for auditory information __1.3 – Offer alternatives for visual information **2 – Provide options for language,** mathematical expressions, & symbols __2.1 – Clarify vocabulary and symbols __2.2 – Clarify syntax and structure __2.3 – Support decoding of text, mathematical notation, & symbols __2.4 – Promote understanding across languages __2.5 – Illustrate through multiple media **3 – Provide options for comprehension** __3.1 – Activate or supply background knowledge __3.2 – Highlight patterns, critical features, big ideas, & relationships __3.3 – Guide information processing, visualization, & manipulation __3.4 – Maximize transfer & generalization	**4 – Provide options for physical action** __4.1 – Vary the methods for response & navigation __4.2 – Optimize access to tools and assistive technologies **5 – Provide options for expression and communication** __5.1 – Use multiple media for communication __5.2 – Use multiple tools for construction & composition __5.3 – Build fluencies with graduated levels of support for practice & performance **6 – Provide options for executive functions** __6.1 – Guide appropriate goal setting __6.2 – Support planning & strategy development __6.3 – Facilitate managing information & resources __6.4 – Enhance capacity for monitoring progress	**7 – Provide options for recruiting interest** __7.1 – Optimize individual choice & autonomy __7.2 – Optimize relevance, value & authenticity __7.3 – Minimize threats & distractions **8 – Provide options for sustaining effort & persistence** __8.1 – Heighten salience of goals/objectives __8.2 – Vary demands & resources to optimize challenges __8.3 – Foster collaboration & community __8.4 – Increase mastery-oriented feedback **9 – Provide options for self-regulation** __9.1 – Promote expectations & beliefs that optimize motivation __9.2 – Facilitate personal coping skills & strategies __9.3 – Develop self-assessment & reflection	**Assessment Types** **Diagnostic-** - informal Do Now questions **Summative-** - end of unit exam **Formative-** - Identify 100 bones and bony landmarks - "lifesized" skeleton - long bone dissection - Bone Wanted Poster - Osteon labeling - X-ray analysis	**Formally,** STUDENT PERFORMANCE STANDARD(S)- NCLB Check to make sure standards are current **Standards for Practice** -Performance standards isolate and identify skills needed for problem-solving, reasoning, communicating, and making connections with other information. They provide all constituents with the evidence that students have met the content standards, helping teachers define what level of work is satisfactory.

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Unit 7: Skin	6	Students will identify and explain, the structure and function of the Epidermis and Dermis Students will label a cross-section of skin with the major components including epidermis, dermis, hair, follicle, sweat glands, and sense receptors Students will explain the three primary functions of the Integumentary system Students will briefly describe and identify, the accessory organs of the skin, such as the growth of our hair follicles, the functioning of our sense receptors within our skin, how nails form, and how glands within the skin function Students will describe and identify the symptoms of the major infections and skin disorders, which include skin cancers The student will use the "rule of nines" to classify, describe and estimate the extent of injury to the skin caused by burns		**HS-LS1-2. Develop and use a model to illustrate the key functions of animal body systems, including (a) food digestion, nutrient uptake, and transport through the body; (b) exchange of oxygen and carbon dioxide; (c) removal of wastes; and (d) regulation of body processes.** **HS-LS1-3. Provide evidence that homeostasis maintains internal body conditions through both bodywide feedback mechanisms and small-scale cellular processes.**	**1 – Provide options for perception** _1.1 – Offer ways of customizing the display of information __1.2 – Offer alternatives for auditory information __1.3 – Offer alternatives for visual information **2 – Provide options for language,** mathematical expressions, & symbols __2.1 – Clarify vocabulary and symbols __2.2 – Clarify syntax and structure __2.3 – Support decoding of text, mathematical notation, & symbols __2.4 – Promote understanding across languages __2.5 – Illustrate through multiple media **3 – Provide options for comprehension** __3.1 – Activate or supply background knowledge __3.2 – Highlight patterns, critical features, big ideas, & relationships __3.3 – Guide information processing, visualization, & manipulation __3.4 – Maximize transfer & generalization	**4 – Provide options for physical action** __4.1 – Vary the methods for response & navigation __4.2 – Optimize access to tools and assistive technologies **5 – Provide options for expression and communication** __5.1 – Use multiple media for communication __5.2 – Use multiple tools for construction & composition __5.3 – Build fluencies with graduated levels of support for practice & performance **6 – Provide options for executive functions** __6.1 – Guide appropriate goal setting __6.2 – Support planning & strategy development __6.3 – Facilitate managing information & resources __6.4 – Enhance capacity for monitoring progress	**7 – Provide options for recruiting interest** __7.1 – Optimize individual choice & autonomy __7.2 – Optimize relevance, value & authenticity __7.3 – Minimize threats & distractions **8 – Provide options for sustaining effort & persistence** __8.1 – Heighten salience of goals/objectives __8.2 – Vary demands & resources to optimize challenges __8.3 – Foster collaboration & community __8.4 – Increase mastery-oriented feedback **9 – Provide options for self-regulation** __9.1 – Promote expectations & beliefs that optimize motivation __9.2 – Facilitate personal coping skills & strategies __9.3 – Develop self-assessment & reflection	**Assessment Types** **Diagnostic-** - informal Do Now questions **Summative**- - end of unit exam **Formative**- - 3D model of the skin - A tissue box - Skin Lab - Wound Lab - Burn analysis - - .	**Formally,** STUDENT PERFORMANCE STANDARD(S)- NCLB Check to make sure standards are current **Standards for Practice** -Performance standards isolate and identify skills needed for problem-solving, reasoning, communicating, and making connections with other information. They provide all constituents with the evidence that students have met the content standards, helping teachers define what level of work is satisfactory.

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GRADES	11-12	**PRE-REQUISITES (IF ANY)**	Biology
DRIVING ESSENTIAL QUESTION FOR THE UNIT:		Use anatomical terminology to reference body parts	

UNIT NUMBER AND TITLE	APPROXIMATE LENGTH (NUMBER OF DAYS)	DESIRED OUTCOMES (SKILLS, KNOWLEDGE, ESSENTIAL, UNDERSTANDINGS)	CONTENT	MASSACHUSETTS STATECurriculum FRAMEWORK(S) (Reference), AP STANDARDS, CROSS CURRICULUM STANDARDS (DLCS).	PROVIDE MULTIPLE MEANS OF REPRESENTATION, the "what" of learning	PROVIDE MULTIPLE MEANS OF ACTION & EXPRESSION, the "how" of Learning	PROVIDE MULTIPLE MEANS OF ENGAGEMENT, the "why" of Learning	ASSESSMENT TYPES & COLLECTIVE EVIDENCE	STANDARDS FOR PRACTICE (ESSA)
Unit 8: Urinary & Reproductive Systems	10	Students will identify the organs of the urinary system. Students will associate ways the urinary system can be part of the excretory system. Students will locate the parts of a kidney and relate each part to the function. Students will identify the major arteries and veins associated with the kidneys Students will explain urine formation in the nephron, including filtration. Students will explain the role the kidneys have in maintaining homeostasis (electrolyte balance, water balance, acid-base balance) Students will dissect the kidneys of a cat and trace the pathway of the major urinary organs Students will identify the essential, and accessory organs of the male and female reproductive systems, and explain the functions of each Students will describe the gross and microscopic structures of the gonads in both sexes and be able to explain the	Urinary & Reproductive systems	**HS-LS1-2. Develop and use a model to illustrate the key functions of animal body systems, including (a) food digestion, nutrient uptake, and transport through the body; (b) exchange of oxygen and carbon dioxide; (c) removal of wastes; and (d) regulation of body processes.** **HS-LS1-3. Provide evidence that homeostasis maintains internal body conditions through both bodywide feedback mechanisms and small-scale cellular processes.**	**1 – Provide options for perception** _1.1 – Offer ways of customizing the display of information __1.2 – Offer alternatives for auditory information __1.3 – Offer alternatives for visual information **2 – Provide options for language,** mathematical expressions, & symbols __2.1 – Clarify vocabulary and symbols __2.2 – Clarify syntax and structure __2.3 – Support decoding of text, mathematical notation, & symbols __2.4 – Promote understanding across languages __2.5 – Illustrate through multiple media **3 – Provide options for comprehension** __3.1 – Activate or supply background knowledge __3.2 – Highlight patterns, critical features, big ideas, & relationships __3.3 – Guide information processing, visualization, & manipulation __3.4 – Maximize transfer & generalization	**4 – Provide options for physical action** __4.1 – Vary the methods for response & navigation __4.2 – Optimize access to tools and assistive technologies **5 – Provide options for expression and communication** __5.1 – Use multiple media for communication __5.2 – Use multiple tools for construction & composition __5.3 – Build fluencies with graduated levels of support for practice & performance **6 – Provide options for executive functions** __6.1 – Guide appropriate goal setting __6.2 – Support planning & strategy development __6.3 – Facilitate managing information & resources __6.4 – Enhance capacity for monitoring progress	**7 – Provide options for recruiting interest** __7.1 – Optimize individual choice & autonomy __7.2 – Optimize relevance, value & authenticity __7.3 – Minimize threats & distractions **8 – Provide options for sustaining effort & persistence** __8.1 – Heighten salience of goals/objectives __8.2 – Vary demands & resources to optimize challenges __8.3 – Foster collaboration & community __8.4 – Increase mastery-oriented feedback **9 – Provide options for self-regulation** __9.1 – Promote expectations & beliefs that optimize motivation __9.2 – Facilitate personal coping skills & strategies __9.3 – Develop self-assessment & reflection	**Assessment Types** **Diagnostic-** - informal Do Now questions **Summative-** - end of unit exam **Formative-** - Label the organs of the urinary system - Model a nephron - Urinalysis lab - label the organs of male and female reproductive systems - graph the stages of the ovarian and uterine cycles -	**Formally,** STUDENT PERFORMANCE STANDARD(S)- NCLB Check to make sure standards are current **Standards for Practice** -Performance standards isolate and identify skills needed for problem-solving, reasoning, communicating, and making connections with other information. They provide all constituents with the evidence that students have met the content standards, helping teachers define what level of work is satisfactory.

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		developmental steps in spermatogenesis and oogenesis Students will describe and identify the primary functions of the sex hormones produced by both sexes, and identify the cell type or tissue, responsible for their production Students will identify and discuss the phases of the female menstrual cycle, correlating each phase with its occurrence in a typical 28-day cycle, and how hormones regulate each phase. Students will identify the events of fertilization and conception.							

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Unit 9: Circulatory & Respiratory	10	Students will explain the functions of the respiratory system Students will discuss the structure and function of the major organs in the respiratory system Students will compare, contrast and explain the mechanisms responsible for the exchange of gases during internal and external respiration Students will explain how the mechanisms that regulate breathing are controlled Students will explain the importance of the different volumes of air exchanged during breathing Students will identify the symptoms of the major disorders of the upper and lower respiratory tract Students will describe and explain the primary functions of the blood Students will name, describe and explain the functions of each type of cell and cell structure that make up the "formed elements" of the blood. Also, be able to explain the contents and functions of the "liquid" part of the blood, the plasma	Circulatory and Respiratory systems	**HS-LS1-2. Develop and use a model to illustrate the key functions of animal body systems, including (a) food digestion, nutrient uptake, and transport through the body; (b) exchange of oxygen and carbon dioxide; (c) removal of wastes; and (d) regulation of body processes.** **HS-LS1-3. Provide evidence that homeostasis maintains internal body conditions through both bodywide feedback mechanisms and small-scale cellular processes.**	**1 – Provide options for perception** _1.1 – Offer ways of customizing the display of information __1.2 – Offer alternatives for auditory information __1.3 – Offer alternatives for visual information **2 – Provide options for language,** mathematical expressions, & symbols __2.1 – Clarify vocabulary and symbols __2.2 – Clarify syntax and structure __2.3 – Support decoding of text, mathematical notation, & symbols __2.4 – Promote understanding across languages __2.5 – Illustrate through multiple media **3 – Provide options for comprehension** __3.1 – Activate or supply background knowledge __3.2 – Highlight patterns, critical features, big ideas, & relationships __3.3 – Guide information processing, visualization, & manipulation __3.4 – Maximize transfer & generalization	**4 – Provide options for physical action** __4.1 – Vary the methods for response & navigation __4.2 – Optimize access to tools and assistive technologies **5 – Provide options for expression and communication** __5.1 – Use multiple media for communication __5.2 – Use multiple tools for construction & composition __5.3 – Build fluencies with graduated levels of support for practice & performance **6 – Provide options for executive functions** __6.1 – Guide appropriate goal setting __6.2 – Support planning & strategy development __6.3 – Facilitate managing information & resources __6.4 – Enhance capacity for monitoring progress	**7 – Provide options for recruiting interest** __7.1 – Optimize individual choice & autonomy __7.2 – Optimize relevance, value & authenticity __7.3 – Minimize threats & distractions **8 – Provide options for sustaining effort & persistence** __8.1 – Heighten salience of goals/objectives __8.2 – Vary demands & resources to optimize challenges __8.3 – Foster collaboration & community __8.4 – Increase mastery-oriented feedback **9 – Provide options for self-regulation** __9.1 – Promote expectations & beliefs that optimize motivation __9.2 – Facilitate personal coping skills & strategies __9.3 – Develop self-assessment & reflection	**Assessment Types** **Diagnostic-** - informal Do Now questions **Summative-** - end of unit exam **Formative-** - Label and color the heart - heart dissection - Blood typing lab - Vitals lab - Respiratory Lab - Label the organs of respiratory system - Model the lungs .	**Formally,** STUDENT PERFORMANCE STANDARD(S)- NCLB Check to make sure standards are current **Standards for Practice** -Performance standards isolate and identify skills needed for problem-solving, reasoning, communicating, and making connections with other information. They provide all constituents with the evidence that students have met the content standards, helping teachers define what level of work is satisfactory.

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		Students will explain the sequence of steps involved in the mechanism of blood clotting Students will explain the differences in the four major blood groups, or types. A, B. AB., and O. Also explain how and why the production of the Rh protein may be of consequence. Students will identify the major anatomical structures of the human heart using a heart model Students will trace the path a drop of blood takes through the heart, as it enters the heart from the vena cava, leaves the heart to be oxygenated in the lung tissue, and returns to the heart via the pulmonary veins, to be pumped out of the heart, into the vessels that will carry it to every part of the body Students will compare and contrast the functions of the atrial chambers, and ventricular chambers of the heart and the effect on the structure of those parts. Identify the valves between the chambers allowing for a one-way flow. Students will identify and explain the function, of the components of the hearts' conduction system, regulating the heartbeat. Students will describe and explain the major disorders of the heart and circulatory system, including cardiac arrhythmia, cardiomyopathy, and congestive heart failure Students will describe the major structures and functions of the blood vessels: arteries, veins, and capillaries Students will identify and explain the factors involved in the generation of blood pressure, and how they relate to each other							

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		by being able to use a "Blood Pressure Cuff" Students will identify and explain the major symptoms of the common disorders that affect the blood and the vessels that carry the blood to the cells of the body Students will dissect the heart and lungs from the cat. Students will also locate the major blood vessels and passageways for air.							

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Unit 11: Digestive system	10	Students will identify in sequence each of the component structures or segments that make up the alimentary canal. The student will also be able to identify the accessory organs of digestion and explain what each produces, and adds directly to the alimentary canal. Students will compare and contrast mechanical and chemical digestion Students will explain the basics of the chemical digestion of proteins, carbohydrates, and fats. Also, be able to identify the end products of these processes and where they are absorbed within the intestinal tract. Students will define the role of the large intestine, or colon, in the absorption of water. Also, within the large intestine describe the symbiotic relationship that the bacterial flora has with the human body Students will identify the symptoms of the major disorders that affect the digestive system Students will identify the components of a healthy diet. Students will dissect the alimentary canal and accessory organs from the cat.	Digestive System	**HS-LS1-2. Develop and use a model to illustrate the key functions of animal body systems, including (a) food digestion, nutrient uptake, and transport through the body; (b) exchange of oxygen and carbon dioxide; (c) removal of wastes; and (d) regulation of body processes.** **HS-LS1-3. Provide evidence that homeostasis maintains internal body conditions through both bodywide feedback mechanisms and small-scale cellular processes.**	**1 – Provide options for perception** _1.1 – Offer ways of customizing the display of information __1.2 – Offer alternatives for auditory information __1.3 – Offer alternatives for visual information **2 – Provide options for language,** mathematical expressions, & symbols __2.1 – Clarify vocabulary and symbols __2.2 – Clarify syntax and structure __2.3 – Support decoding of text, mathematical notation, & symbols __2.4 – Promote understanding across languages __2.5 – Illustrate through multiple media **3 – Provide options for comprehension** __3.1 – Activate or supply background knowledge __3.2 – Highlight patterns, critical features, big ideas, & relationships __3.3 – Guide information processing, visualization, & manipulation __3.4 – Maximize transfer & generalization	**4 – Provide options for physical action** __4.1 – Vary the methods for response & navigation __4.2 – Optimize access to tools and assistive technologies **5 – Provide options for expression and communication** __5.1 – Use multiple media for communication __5.2 – Use multiple tools for construction & composition __5.3 – Build fluencies with graduated levels of support for practice & performance **6 – Provide options for executive functions** __6.1 – Guide appropriate goal setting __6.2 – Support planning & strategy development __6.3 – Facilitate managing information & resources __6.4 – Enhance capacity for monitoring progress	**7 – Provide options for recruiting interest** __7.1 – Optimize individual choice & autonomy __7.2 – Optimize relevance, value & authenticity __7.3 – Minimize threats & distractions **8 – Provide options for sustaining effort & persistence** __8.1 – Heighten salience of goals/objectives __8.2 – Vary demands & resources to optimize challenges __8.3 – Foster collaboration & community __8.4 – Increase mastery-oriented feedback **9 – Provide options for self-regulation** __9.1 – Promote expectations & beliefs that optimize motivation __9.2 – Facilitate personal coping skills & strategies __9.3 – Develop self-assessment & reflection	**Assessment Types** **Diagnostic-** - informal Do Now questions **Summative**- - end of unit exam **Formative**- - Label the organs of the digestive system - Cat Dissection - How long is my digestive system modeling -	**Formally,** STUDENT PERFORMANCE STANDARD(S)- NCLB Check to make sure standards are current **Standards for Practice** -Performance standards isolate and identify skills needed for problem-solving, reasoning, communicating, and making connections with other information. They provide all constituents with the evidence that students have met the content standards, helping teachers define what level of work is satisfactory.

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