Skeletal Systems and Articulation

Missouri Grade-Level Expectations (or other standards)

HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

Learning Goal	Proficiency Scales
Students will be able to describe how the skeleton is arranged to facilitate support, protection of vital organs, and movement via articulations.	4: Student demonstrates an in-depth inference or advanced application or innovates with the learning goal. 3: The student demonstrates mastery of the learning goal as evidences by ● formulating the functions of the skeletal system. ● comparing and contrasting the structure of compact and cancellous bone. ● investigating skeletal disorders and diseases, including causes, effects and treatment. ● describing the processes of bone formation, growth, and repair. ● identifying and naming all bones and markings of the skeletal system. ● describing the characteristics of the three major type of joints. ● comparing and contrasting the movements allowed by each type of joint. ● demonstrating and naming the different types of movements. 2: The student demonstrates he/she is nearing proficiency by ● recognizing or recalling specific vocabulary, such as major bones of skeletal system (ulna, humerus, etc..), osteoporosis, osteomalacia,

	osteomyelitis, scoliosis, kyphosis, lordosis, flexion, extension, abduction, adduction, supination, pronation, rotation, circumduction, inversion, eversion, dorsiflexion, plantarflexion, protraction, retraction, transverse fraction, segmented fracture, comminuted fracture, oblique angle fracture, spiral curvature fracture, open fracture vs. closed, incomplete fracture, synovial joint, fibrous joint, cartilaginous joint. ● performing specific processes, such as ○ identifying major bones of the skeletal system. ○ matching bone disorders with general descriptions. ○ listing the three basic type of joints. ○ matching movements with general descriptions. ○ identifying the three types of vertebrae and the function of each. 1: Student demonstrates a limited understanding or skill with the learning goal.

Muscular Systems

Missouri Grade-Level Expectations (or other standards)
HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

Learning Goal	Proficiency Scales

Students will be able to deduce why muscles are essential for movement and posture and the structure and function of muscles.	4: Student demonstrates an in-depth inference or advanced application or innovates with the learning goal. 3. The student demonstrates mastery of the learning goal as evidenced by ● formulating the functions of the muscular system. ● comparing and contrasting the three types of muscle tissue. ● researching and presenting muscular disorders and diseases, including causes, effects and treatment. ● connecting the names of the muscles of the muscular system to their origins and insertion points. ● describing how action potential is initiated in a muscle cell and the events leading up to muscle contraction. ● describing the gross and microscopic anatomy of skeletal muscle and muscle fiber. ● describing the similarities and differences in the structure and function of muscles. 2. The student demonstrates he/she is nearing proficiency by ● recognizing or recalling specific vocabulary, such as motor neuron, motor unit, muscle fiber nucleus, neuromuscular junctions, skeletal muscle fibers, atrophy, myosin filaments, isotonic, isometric, muscle tone, antagonist, adenosinetriphosphate, glycogen, lactate, threshold, refractory period, relaxation period, cerebral palsy, muscular dystrophy, anabolic steroids. ● performing specific processes, such as ○ identifying the major muscles of the muscular system. ○ matching muscular disorders with general descriptions. ○ listing the three types of muscular tissue. ○ explaining the main difference between skeletal muscle and muscle fiber. ○ summarizing why muscles contract.

	1: Student demonstrates a limited understanding or skill with the learning goal.

Levels of Organization

Missouri Grade-Level Expectations (or other standards)

HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.
HS-LSI-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.

Learning Goal	Proficiency Scales
Students will be able to summarize how homeostasis influences the human body.	4: Student demonstrates an in-depth inference or advanced application or innovates with the learning goal. 3. The student demonstrates mastery of the learning goal by ● identifying and describing the function of organs included within each organ system. ● determining the relationship between Anatomy & Physiology. ● distinguishing among the epidermis, dermis, and the ● subcutaneous layers of the skin. ● contrasting the structure and function of the four major major tissue types (Epithelial, Connective, Nervous, Muscular). ● identifying the importance of homeostasis to health and describe homeostatic mechanisms.

	● determining the organizational levels in the human body and describe the ways in which they are related. ● determining characteristics and functions of the skin and describe how each is accomplished. 2. The student demonstrates he/she is nearing proficiency by ● recognizing or recalling specific vocabulary, such as anatomical position, homeostasis, epidermis, dermis, subcutaneous, sagittal, transverse, axial, appendicular, anterior, medial, distal, superior, lateral, inferior, superficial, posterior, cavity, receptor, effector, equilibrium, anatomy, and physiology. ● performing specific processes, such as ● identifying the organ systems and their primary functions. ● listing the three layers and functions of the skin. ● listing the four major tissue types. ● labeling the levels of organization on a diagram. 1: Student demonstrates a limited understanding or skill with the learning goal.

Body Systems

Missouri Grade-Level Expectations (or other standards)
HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.

Learning Goal	Proficiency Scales
Students will be able to distinguish the principal functions of each body system: nervous, endocrine, cardiovascular, lymphatic, urinary, digestive, respiratory and reproductive.	4: Student demonstrates an in-depth inference or advanced application or innovates with the learning goal. 3: The student demonstrates mastery of the learning goal as evidenced by ● deducing the functions of each body system. ● recognizing disorders and diseases, including causes, effects and treatments of of each body system. ● describing the path of action throughout each body system. ● diagramming and describing the gross anatomy of each body system. ● describing the lifespan changes that occur within of each body system. 2: The student demonstrates he/she is nearing proficiency by ● recognizing or recalling specific vocabulary, such as systemic, cardiac, pulmonary, steroid, hyposecretion, hypersecretion, negative feedback, positive feedback, hypothalamus, neuron, somatic, autonomic, sympathetic, parasympathetic, and nephron. ● performing specific processes, such as ○ identifying the major anatomy and organs of the nervous, ○ endocrine, cardiovascular, lymphatic, urinary, digestive, ○ respiratory and reproductive systems. ○ matching nervous, endocrine, cardiovascular, lymphatic, ○ urinary, digestive, respiratory and reproductive system disorders with general descriptions. ● 1: Student demonstrates a limited understanding or skill with the learning goal.
