

**Kansas Health Science Education
14102 Human Body Systems Competency Profile**

CIP Code: 51.9999

- Rating Scale:**
- 3 Skilled- Works Independently**
 - 2 Limited Skills- Requires Assistance**
 - 1 Skill Undeveloped**
 - 0 No exposure- No instruction or training**

Student:	Grade:	
Teacher:	School:	
Enrolled Date:	Completion Date:	Graduation Date:
_____	_____	_____
_____	_____	_____
Student Signature	Teacher Signature	

Directions: The following competencies are required for the full approval of a Human Body Systems course. Check the appropriate number to indicate the level of competency reached for student evaluation.

Course Description:	The Human Body Systems course provides students with the knowledge and skills necessary for employment in health care-related laboratories. Topics include basic principles of anatomy and physiology, relevant concepts in microbiology and chemistry, and laboratory techniques (including preparation and analysis of various cultures and specimens). The course may also cover such components as venipuncture, EKG, and CPR procedures.	3	2	1	0
1.1	Explain the functions of the different human body systems and list the major organs within each system.				
1.2	Describe how multiple body systems are interconnected and how those interconnections and interactions are necessary for life.				
1.3	Describe the differences in the appearance of epithelial and connective tissue.				
1.4	Explain the basic structure and function of the skeletal system.				
1.5	Describe how bone markings, bone landmarks and bone measurements can provide information about gender, race, ethnicity and height of a missing person.				
1.6	Describe how the structure of DNA is linked to function in the body.				
1.7	Explain how restriction enzymes cut DNA.				
1.8	Define Biometrics.				
1.9	Identifies how gel electrophoresis results can help solve a missing persons' case.				
1.10	Outline the structure and function of the central nervous system.				
1.11	Summarize the techniques scientists use to map brain function.				
1.12	Correctly predicts how electrical signals are created and transmitted in the human body.				
1.13	Summarize the roles of ions in creating electrical impulses in the human body.				
1.14	Explain how neurotransmitters help propagate electrical impulses.				
1.15	Describe the way in which hormones interact with target cells.				
1.16	Differentiate between endocrine and exocrine glands as well as protein/peptide and steroid hormones.				
1.17	Illustrate how the structure of the eye focuses light on the retina.				
1.18	Describe how the eye and the brain work together to allow a person to see.				
1.19	Explain visual perception, including visual acuity, depth perception, peripheral vision, color vision, and the interpretation of optical illusions.				

		3	2	1	0
1.20	Predict how long the body can function in the absence of water, food or oxygen.				
1.21	List and describe the human body systems that create, process and distribute food, water and oxygen.				
1.22	Deduce the factors, both environmental and personal that can impact the body's ability to survive with limited fuel.				
1.23	Describe the structure and function of the organs in the digestive system.				
1.24	Explain how energy is stored in ATP and how energy is released from ATP.				
1.25	Infers how the calories consumed in daily diets versus the calories expended in daily activities affect overall health.				
1.26	Describe the structure of the respiratory system, especially the lungs, and the basic mechanics of breathing.				
1.27	Illustrates how the structure of the lungs facilitates the exchange of oxygen and carbon dioxide between air and the body.				
1.28	Analyzes the process through which the respiratory and cardiovascular systems facilitates the transport of oxygen to all cells in the body.				
1.29	Describe the structure and function of the human urinary system.				
1.30	Describe how the structure of the kidney relates to its function in the body.				
1.31	Illustrate the composition of normal blood and normal urine.				
1.32	Explain how the body uses hormones to maintain a water balance.				
1.33	Describe how the types of joints found in the human body differ in both structure and function.				
1.34	Demonstrate the meaning of terms that describe the motion at joints, such as flexion and extension.				
1.35	Describe how the three types of muscle tissue differ in structure and function.				
1.36	Describe the requirements for muscle contraction.				
1.37	Illustrate the connection between nerves and muscles.				
1.38	Explain the relationship between the heart and the lungs and trace the path of major circulatory routes.				
1.39	Define pulse and blood pressure and name and locate several pulse points on the body.				
1.40	Identify the body's major arteries and veins and name the body region supplied by each.				
1.41	Describe the ways in which the human body can generate ATP as well as how long the energy will last in each case.				
1.42	Describe the structure and function of human skin.				
1.43	Explain how different degrees of burns damage layers of the skin				
1.44	Describe how the human body senses and processes signals of pain.				
1.45	Compare the structure and function of compact and spongy bone.				
1.46	Describe the types of bone fractures.				
1.47	Outline what happens to bone structure as we age.				
1.48	Describe the structure and function of the lymphatic and immune system.				
1.49	Describe the interaction between antigens and antibodies.				
1.50	Explain how the systems work together to maintain homeostasis in the body and to complete basic functions such as movement and communication .				