

Prentice Hall Anatomy and Physiology Coloring Workbook, 8th Edition © 2006 (Marieb)

Correlated to:

Arkansas Anatomy and Physiology Science Curriculum Framework
(Grades 9-12)

ARKANSAS ANATOMY AND PHYSIOLOGY SCIENCE CURRICULUM FRAMEWORK	PAGE (S) WHERE TAUGHT (If submission is not a text, cite appropriate resource(s))
Strand: Organization of the Human Body	
Standard 1: Students shall explore the organizational structures of the body from the molecular to the organism level.	
OHB.1.AP.1 Infer the relationship between anatomy and physiology	SE/TE: 1-2
OHB.1.AP.2 Sequence the levels of organization of the human body	SE/TE: 2
OHB.1.AP.3 Identify the major body systems	SE/TE: 2-6
OHB.1.AP.4 Describe relative positions, body planes, body regions and body quadrants	SE/TE: 8, 10-13
OHB.1.AP.5 Identify the major body cavities and the subdivisions of each cavity	SE/TE: 9, 13
OHB.1.AP.6 Investigate homeostatic control mechanisms and their importance to health and diseases	SE/TE: 8, 14, 258
OHB.1.AP.7 Predict the effect of positive and negative feedback mechanisms on homeostasis	SE/TE: 8, 258
OHB.1.AP.8 Identify the major characteristics of life:	
• metabolism	SE/TE: 7, 254-257
• responsiveness	SE/TE: 7
• movement	SE/TE: 7
• growth	SE/TE: 7
• reproduction	SE/TE: 7
• differentiation	SE/TE: 7
Strand: Cellular Chemistry	
Standard 2: Students shall understand the role of chemistry in body processes.	
CC.2.AP.1 Distinguish between matter and energy	SE/TE: 15-17
CC.2.AP.2 Explain the basic assumptions and conclusions of the atomic theory	SE/TE: 18-20
CC.2.AP.3 Distinguish between compounds and mixtures	SE/TE: 21-26

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CC.2.AP.4 Explain the role of ionic, covalent, and hydrogen bonds in the human body	SE/TE: 20
CC.2.AP.5 Write simple formulas and chemical word equations for the four basic types of reactions:	
• synthesis	SE/TE: 26
• decomposition	SE/TE: 26
• single replacement	N / A
• double replacement	N / A
CC.2.AP.6 Analyze the role of water in the human body	N / A
CC.2.AP.7 Explain the relationship among acids, bases, and salts	SE/TE: 21
CC.2.AP.8 Relate the concept of pH to homeostasis	SE/TE: 28
CC.2.AP.9 Compare the structure and function of carbohydrates, lipids, proteins, and nucleic acids	SE/TE: 23
CC.2.AP.10 Describe the characteristics and importance of enzymes	N / A
Strand: Anatomy and Physiology of the Cell	
Standard 3: Students shall understand that cells are the basic, structural, and functional units of life.	
APC.3.AP.1 Explain the structure and function of the plasma membrane	SE/TE: 32
APC.3.AP.2 Compare and contrast the different ways in which substances cross the plasma membrane:	
• diffusion and osmosis	SE/TE: 33
• facilitated diffusion	SE/TE: 33
• active transport	SE/TE: 33
• filtration	SE/TE: 33
• endocytosis	SE/TE: 33
• exocytosis	SE/TE: 33

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APC.3.AP.3 Describe the structure and function of organelles and cell parts	SE/TE: 29-31
APC.3.AP.4 Identify chemical substances produced by cells	N / A
APC.3.AP.5 Differentiate among replication, transcription, and translation	SE/TE: 34-37
APC.3.AP.6 Differentiate between mitosis and meiosis	N / A
APC.3.AP.7 Explain the consequences of abnormal cell division	N / A
Strand: Tissues	
Standard 4: Students shall understand the histology of the human body	
T.4.AP.1 Describe the structure, location, and function of each tissue category:	
• epithelial	SE/TE: 38-41, 43-44
• connective	SE/TE: 38-40, 43-44
• nervous	SE/TE: 39, 43-44
• muscle	SE/TE: 38-39, 42, 43-44
Strand: Body Systems	
Standard 5: Students shall describe the anatomy and physiology of the integumentary system.	
BS.5.AP.1 Identify the components of the integumentary system	SE/TE: 49-53
BS.5.AP.2 Discuss the physiological mechanisms of the skin	N / A
BS.5.AP.3 Identify the macroscopic and microscopic structure of the integumentary system	SE/TE: 51-52
BS.5.AP.4 Describe disorders associated with the integumentary system	SE/TE: 55-56
Standard 6: Students shall describe the anatomy and physiology of the skeletal system.	
BS.6.AP.1 Identify the components the skeletal system	SE/TE: 61
BS.6.AP.2 Discuss the physiological mechanisms of the skeletal system	N / A

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BS.6.AP.3 Identify the macroscopic and microscopic structure of bone	SE/TE: 62-81, 83-84
BS.6.AP.4 Describe disorders associated with the skeletal system	SE/TE: 82, 85-86
Standard 7: Students shall describe the anatomy and physiology of the muscular system.	
BS.7.AP.1 Identify the components the muscular system	SE/TE: 89
BS.7.AP.2 Discuss the physiological mechanisms of the muscular system	SE/TE: 93-98
BS.7.AP.3 Identify the macroscopic, microscopic, and molecular structure of muscle	SE/TE: 90-92, 98-111
BS.7.AP.4 Describe disorders associated with the muscular system	SE/TE: 112
Standard 8: Students shall describe the anatomy and physiology of the nervous system.	
BS.8.AP.1 Identify the components the nervous system	SE/TE: 116
BS.8.AP.2 Discuss the physiological mechanisms of the nervous system	SE/TE: 115, 116-126, 128, 134-135, 144-146, 147-149, 150-153
BS.8.AP.3 Identify the macroscopic, microscopic, and molecular structure of the nervous system	SE/TE: 116-126, 128-134, 141-142, 144-146, 147-149, 150-153
BS.8.AP.4 Describe disorders associated with the nervous system	SE/TE: 126-127, 136, 143, 149-150, 153
Standard 9: Students shall describe the anatomy and physiology of the endocrine system.	
BS.9.AP.1 Identify the components of the endocrine system	SE/TE: 157
BS.9.AP.2 Discuss the physiological mechanisms of the endocrine system	SE/TE: 158-161, 163
BS.9.AP.3 Identify the macroscopic, microscopic, and molecular structure of the endocrine system	SE/TE: 159-160, 164
BS.9.AP.4 Describe disorders associated with the endocrine system	SE/TE: 162, 164

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Standard 10: Students shall describe the anatomy and physiology of the cardiovascular system.	
BS.10.AP.1 Identify the components of the cardiovascular system	SE/TE: 167, 177
BS.10.AP.2 Discuss the physiological mechanisms of the cardiovascular system	SE/TE: 167-169, 171-173, 182-183, 194
BS.10.AP.3 Identify the macroscopic, microscopic, and molecular structure of the cardiovascular system	SE/TE: 168, 170-171, 178-181, 184-193
BS.10.AP.4 Describe disorders associated with the cardiovascular system	SE/TE: 173-174, 182-183, 195-197
Standard 11: Students shall describe the anatomy and physiology of the immune and lymphatic systems.	
BS.11.AP.1 Identify the components of the immune and lymphatic systems	SE/TE: 201
BS.11.AP.2 Discuss the physiological mechanisms of the immune and lymphatic systems	SE/TE: 205-211, 214, 216-217
BS.11.AP.3 Identify the macroscopic, microscopic, and molecular structure of the immune and lymphatic systems	SE/TE: 201-204, 213
BS.11.AP.4 Describe disorders associated with the immune and lymphatic systems	SE/TE: 215, 218-219
Standard 12: Students shall describe the anatomy and physiology of the respiratory system.	
BS.12.AP.1 Identify the components of the respiratory system	SE/TE: 223-224
BS.12.AP.2 Discuss the physiological mechanisms of the respiratory system	SE/TE: 224, 227, 230-234
BS.12.AP.3 Identify the macroscopic, microscopic, and molecular structure of the respiratory system	SE/TE: 223-229
BS.12.AP.4 Describe disorders associated with the respiratory system	SE/TE: 234-235
Standard 13: Students shall describe the anatomy and physiology of the digestive system.	
BS.13.AP.1 Identify the components the digestive system	SE/TE: 239

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BS.13.AP.2 Discuss the physiological mechanisms of the digestive system	SE/TE: 241, 250-253
BS.13.AP.3 Identify the macroscopic, microscopic, and molecular structure of the digestive system	SE/TE: 239-240, 242-249
BS.13.AP.4 Describe disorders associated with the digestive system	SE/TE: 258-259
Standard 14: Students shall describe the anatomy and physiology of the urinary system.	
BS.14.AP.1 Identify the components the urinary system	SE/TE: 263
BS.14.AP.2 Discuss the physiological mechanisms of the urinary system	SE/TE: 268-271
BS.14.AP.3 Identify the macroscopic, microscopic, and molecular structure of the urinary system	SE/TE: 263-268, 271
BS.14.AP.4 Describe disorders associated with the urinary system	SE/TE: 273
Standard 15: Students shall describe the anatomy and physiology of the reproductive system	
BS.15.AP.1 Describe the components and the organization of the reproductive system	SE/TE: 277, 283
BS.15.AP.2 Discuss the physiological mechanisms of the reproductive system	SE/TE: 277, 280-283, 285-290
BS.15.AP.3 Identify the macroscopic, microscopic, and molecular structure of the reproductive system	SE/TE: 278-280, 283-285
BS.15.AP.4 Describe disorders associated with the reproductive system	SE/TE: 292-295
Strand: Nature of Science	
Standard 16: Students shall demonstrate an understanding that science is a way of knowing.	
NS.16.AP.1 Explain why science is limited to natural explanations of how the world works	N / A
NS.16.AP.2 Compare and contrast hypotheses, theories, and laws	N / A

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NS.16.AP.3 Distinguish between a scientific theory and the term "theory" used in general conversation	N / A
NS.16.AP.4 Summarize the guidelines of science:	
• explanations are based on observations, evidence, and testing	N / A
• hypotheses must be testable	N / A
• understandings and/or conclusions may change with additional empirical data	N / A
• scientific knowledge must have peer review and verification before acceptance	N / A
Standard 17: Students shall design and safely conduct scientific inquiry.	
NS.17.AP.1 Develop and explain the appropriate procedure, controls, and variables (dependent and independent) in scientific experimentation	N / A
NS.17.AP.2 Research and apply appropriate safety precautions (refer to ADE Guidelines) when designing and/or conducting scientific investigations	N / A
NS.17.AP.3 Identify sources of bias that could affect experimental outcome	N / A
NS.17.AP.4 Gather and analyze data using appropriate summary statistics	N / A
NS.17.AP.5 Formulate valid conclusions without bias	SE/TE: 14, 28, 46-47, 58-59, 87-88, 113-114, 138, 140, 155-156, 166, 175-176, 198, 200, 221-222, 237-238, 261-262, 275-276, 298-299
NS.17.AP.6 Communicate experimental results using appropriate reports, figures, and tables	SE/TE: 26-27, 45, 56-57, 86, 112, 136-137, 154, 165, 174, 197, 219-220, 236, 259-260, 274, 296-297
Standard 18: Students shall demonstrate an understanding of current life science theories.	
NS.18.AP.1 Understand that scientific theories may be modified or expanded based on additional empirical data, verification, and peer review	N / A
NS.18.AP.2 Relate the development of the cell theory to current trends in cellular biology	N / A

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NS.18.AP.3 Describe the relationship between the germ theory of disease and our current knowledge of immunology and control of infectious diseases	N / A
NS.18.AP.4 Relate the chromosome theory of heredity to recent findings in genetic research (e.g., Human Genome Project-HGP, chromosome therapy)	N / A
NS.18.AP.5 Research current events and topics in human biology	N / A
Standard 19: Students shall use mathematics, science equipment, and technology as tools to communicate and solve life science problems.	
NS.19.AP.1 Collect and analyze scientific data using appropriate mathematical calculations, figures, and tables	N / A
NS.19.AP.2 Use appropriate equipment and technology as tools for solving problems (e.g., microscopes, centrifuges, flexible arm cameras, computer software and hardware)	N / A
NS.19.AP.3 Utilize technology to communicate research findings	N / A
Standard 20: Students shall describe the connections between pure and applied science.	
NS.20.AP.1 Compare and contrast human biology concepts in pure science and applied science	N / A
NS.20.AP.2 Discuss why scientists should work within ethical parameters	N / A
NS.20.AP.3 Explain how the cyclical relationship between science and technology results in reciprocal advancements in science and technology	N / A
Standard 21: Students shall describe various health science careers and the training required for the selected career.	
NS.21.AP.1 Research and evaluate health science careers using the following criteria:	
• educational requirements	N / A
• salary	N / A
• availability of jobs	N / A
• working conditions	N / A