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## Texas 2014 Proclamation:

# Anatomy and Physiology

**Introduction to Anatomy and Physiology ©2014 to Texas Essential Knowledge and Skills (TEKS)**

**Introduction to Anatomy and Physiology ©2014 to the English Language Proficiency Standards (ELPS)**

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## Goodheart-Willcox Publisher Correlation of *Introduction to Anatomy and Physiology* ©2014 to Texas Essential Knowledge and Skills (TEKS) §130.206 Anatomy and Physiology

| STANDARD | | CORRELATING PAGES |
|---|---|---|
| **Standard (1) The student conducts investigations, for at least 40% of instructional time, using safe, environmentally appropriate, and ethical practices. These investigations must involve actively obtaining and analyzing data with physical equipment, but may also involve experimentation in a simulated environment as well as field observations that extend beyond the classroom. The student is expected to:** | | |
| (A) | demonstrate safe practices during laboratory and field investigations; and | Page 22, 1st paragraph<br>Page 25, 1st column<br>Page 25, 2nd column<br>Page 25, Safety and Resources<br>Page 25, Taking It Further, #2<br>Page 107, Communicating about A&P, #49<br>Page 360, Column 1, next to last paragraph |
| (B) | demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials. | Page 25, Column 1, Safety and Resources<br>Page 25, Column 2, The Environment<br>Page 25, Taking It Further, #2 |
| **Standard (2) The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:** | | |
| (A) | know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section; | Page 22, Second new paragraph<br>Page 29, Analyze and Apply, #5 |
| (B) | know that hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories; | Page 23, Column 2, first new paragraph<br>Page 26, First new paragraph<br>Page 26, Column 1, last paragraph<br>Page 26, Column 2, first paragraph<br>Page 29, Check Your Understanding, #1<br>Page 29, Review, #4<br>Page 107, Lab Investigations, #51<br>Page 525, Lab Investigations, #49 |
| (C) | know scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed; | Page 23, Column 1, last paragraph<br>Page 24, Column 1, first new paragraph<br>Page 26, Column 1, last paragraph<br>Page 26, Column 2, first paragraph<br>Page 26, Developing Scientific Theories<br>Page 29, Mini Glossary, column 2, scientific theory<br>Page 29, Analyze and Apply, #6<br>Page 34, Review, #35 |

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| (D) | distinguish between scientific hypotheses and scientific theories; | Page 23, Step 2: Formulating One or More Hypotheses<br>Page 26, Developing Scientific Theories<br>Page 29, Check Your Understanding, #1 |
| (E) | plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology; | Page 25, Types of Research<br>Page 25, Taking It Further, #1<br>Page 107, Lab Investigations, #51<br>Page 265, Lab Investigations, #45<br>Pages 392-394, Taking Vital Signs |
| (F) | collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, data-collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures; | Page 16, In the Lab, #8<br>Page 23, Column 1, paragraph 2<br>Page 23, Column 1, paragraph 3<br>Page 23, Step 3: Planning the Organization of the Study<br>Pages 23-24, Step 4: Collecting the Data<br>Page 25, Column 2, 4th new paragraph<br>Page 28, Robert Hooke and Antonie Van Leeuwenhoek<br>Page 34, Thinking Critically, #36<br>Page 34, Thinking Critically, #38<br>Page 168, Column 2, 2nd new paragraph<br>Page 168, Column 2, 3rd new paragraph<br>Page 205, Measuring Nerve Impulses<br>Page 317, In the Lab, #9<br>Page 489, Lab Investigations, #51<br>Page 519, In the Lab, #12 |
| (G) | analyze, evaluate, make inferences, and predict trends from data; and | Page 23, Step 3: Planning the Organization of the Study<br>Page 24, Step 5: Analyzing and Evaluating the Data with Tools<br>Page 26, Column 1, 1st new paragraph<br>Page 34, Thinking Critically, #36<br>Page 34, Thinking Critically, #38<br>Page 35, Analyzing and Evaluating Data, #41<br>Page 265, Lab Investigations, #45<br>Page 396, In the Lab, #9 |
| (H) | communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports. | Pages 24, 26, Step 7: Deriving Conclusions from the Results<br>Page 34, Thinking Critically, #36<br>Page 265, Lab Investigations, #45 |

| Standard (3) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to: | | |
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| (A) | in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student; | Page 25, Taking It Further, #1<br>Page 26, First new paragraph<br>Page 34, Thinking Critically, #38<br>Page 107, Lab Investigations, #51<br>Page 166, Taking It Further, #2<br>Page 206, Analyze and Apply, #8<br>Page 206, In the Lab, #10<br>Page 381, In the Lab, #9<br>Page 387, Taking It Further, #2<br>Page 387, Taking It Further, #3<br>Pages 427-428, Fever<br>Page 434, Column 1, last paragraph<br>Page 434, Column 2, first paragraph<br>Page 449, Communicating about A&P, #39<br>Page 449, Communicating about A&P, #40 |
| (B) | communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials; | Pages 22-26, The Scientific Method<br>Page 23, Step 2: Formulating One or More Hypotheses<br>Page 24, Step 6: Interpreting and Discussing the Results<br>Pages 24, 26, Step 7: Deriving Conclusions from the Results<br>Page 73, In the Lab, #10<br>Page 107, Communicating about A&P, #50<br>Page 449, Lab Investigations |
| (C) | draw inferences based on data related to promotional materials for products and services; | Page 251, Paragraphs 2-7<br>Page 253, In the Lab, #12 |
| (D) | evaluate the impact of scientific research on society and the environment; | Page 25, Column 2, 2nd new paragraph<br>Pages 26-29, The Impact of Scientific Research: A Historic Journey<br>Pages 28-29, Looking Ahead<br>Page 29, Analyze and Apply, #9<br>Page 225, Concussions<br>Page 292, Taking It Further, #2<br>Page 563, Paragraph 2 |
| (E) | evaluate models according to their limitations in representing biological objects or events; and | Page 28, Next-to-last paragraph<br>Page 29, Check Your Understanding, #3 |
| (F) | research and describe the history of science and contributions of scientists. | Pages 26-29, The Impact of Scientific Research: A Historic Journey<br>Page 29, In the Lab, #10 |

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| **Standard (4) The student evaluates the energy needs of the human body and the processes through which these needs are fulfilled. The student is expected to:** | | |
| (A) | analyze the chemical reactions that provide energy for the body; | Page 39, First paragraph<br>Page 39, Second paragraph<br>Page 43, Memory Tip<br>Pages 47-48, ATP<br>Page 50, In the Lab, #14<br>Page 77, Thinking Critically, #12 |
| (B) | evaluate the means, including the structure and function of the digestive system, by which energy is processed and stored within the body; | Page 39, First paragraph<br>Page 40, First paragraph<br>Page 389, Hepatic Portal Circulation<br>Page 451, Introduction, paragraph 3<br>Page 452, First three paragraphs<br>Pages 459-478, Anatomy and Physiology of the Digestive System<br>Page 462, Check Your Understanding, #1<br>Page 462, Check Your Understanding, #3<br>Pages 472-475, Liver and Gallbladder<br>Page 475, Check Your Understanding, #2<br>Page 475, Check Your Understanding, #3<br>Page 475, Check Your Understanding, #4<br>Page 478, Analyze and Apply, #10 |
| (C) | analyze the effects of energy deficiencies in malabsorption disorders such as diabetes, hypothyroidism, and Crohn's disease; and | Pages 291-292, Type II Diabetes Mellitus<br>Page 481, Fourth paragraph<br>Page 483, Check Your Understanding, #3<br>Page 513, Diabetes mellitus, 2nd paragraph<br>Page 519, Analyze and Apply, #10 |
| (D) | analyze the effects of energy excess in disorders such as obesity as it relates to cardiovascular and musculoskeletal systems. | Page 185, Paragraph 2<br>Page 185, Taking It Further, #1<br>Page 299, Lab Investigations, #44<br>Page 402, Paragraph 3<br>Page 403, Analyze and Apply, #10 |
| **Standard (5) The student differentiates the responses of the human body to internal and external forces. The student is expected to:** | | |
| (A) | explain the coordination of muscles, bones, and joints that allows movement of the body; | Pages 17-18, Basic Kinetic Concepts<br>Pages 110-111, Functions of Skeletal System<br>Page 127, Check Your Understanding, #3<br>Pages 130-133, The Upper Extremity<br>Page 137, Review, #1<br>Page 137, Analyze and Apply, #5<br>Page 137, Analyze and Apply, #7<br>Pages 138-141, Lesson 4.4, Joints<br>Page 141, In the Lab, #8<br>Pages 171-174, Directional Motions<br>Page 192, Thinking Critically, #27<br>Page 193, Lab Investigations, #46, #47 |

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| (B) | investigate and report the uses of various diagnostic and therapeutic technologies; | Page 93, Third paragraph<br>Page 205, Taking It Further, #2<br>Page 205, Measuring Nerve Impulses<br>Page 210, Studying the Brain<br>Page 210, Taking It Further, #1<br>Page 230, Neurologist<br>Page 380, Defibrillators and Life-Threatening Arrhythmias<br>Page 381, Review, #5 |
| (C) | interpret normal and abnormal contractility conditions such as in edema, glaucoma, aneurysms, and hemorrhage; | Pages 376-380, The Conduction System<br>Pages 378-380, Cardiac Arrhythmias<br>Page 381, Analyze and Apply, #7 |
| (D) | analyze and describe the effects of pressure, movement, torque, tension, and elasticity on the human body; and | Page 17, First two paragraphs<br>Page 18, Pressure<br>Page 18, Torque<br>Page 18, Check Your Understanding, #2<br>Page 19, Mechanical Stress, 1st paragraph<br>Page 19, Second column, 1st paragraph<br>Page 20, Check Your Understanding, #1<br>Page 21, Review, #4<br>Page 21, In the Lab, #10<br>Page 21, In the Lab, #11<br>Page 34, Thinking Critically, #29<br>Page 35, Analyzing and Evaluating Data, #40<br>Page 35, Communicating about A&P, #43<br>Page 68, Column 2, 2nd new paragraph<br>Page 117, First paragraph<br>Page 117, Check Your Understanding, #5<br>Page 138, Third paragraph<br>Page 141, Analyze and Apply, #6<br>Page 141, In the Lab, #8<br>Page 145, First two paragraphs<br>Page 159, Column 1, Behavioral Properties<br>Page 159, Column 2, 2nd paragraph<br>Pages 159-160, Tension and Types of Skeletal Muscle Contractions<br>Page 168, Muscle Strength<br>Page 181, In the Lab, #10<br>Page 184, Rotational Injuries of the Shoulder<br>Page 187, Analyze and Apply, #10<br>Page 192, Thinking Critically, #18<br>Page 192, Thinking Critically, #27<br>Page 206, In the Lab, #10<br>Page 312, Check Your Understanding, #3 |

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| (E) | perform an investigation to determine causes and effects of force variance and communicate findings. | Pages 17-21, How Forces Affect the Body<br>Page 21, In the Lab, #11<br>Pages 118-119, Atrophy of Bones<br>Page 119, Check Your Understanding, #2<br>Page 164, 2nd paragraph |
| **Standard (6) The student examines the body processes that maintain homeostasis. The student is expected to:** | | |
| (A) | investigate and describe the integration of the chemical and physical processes, including equilibrium, temperature, pH balance, chemical reactions, passive transport, active transport, and biofeedback, that contribute to homeostasis; and | Page 12, Column 1, paragraph 1<br>Page 12, Column 1, paragraph 2<br>Pages 12-14, Homeostasis<br>Page 14, Check Your Understanding, #1-4<br>Page 53, Column 1, paragraph 1<br>Page 53, Column 1, paragraph 2<br>Page 53, Column 1, last paragraph<br>Page 53, Check Your Understanding, #3<br>Page 54, What Research Tells Us<br>Page 54, Taking It Further, #1<br>Page 78, Thinking Critically, #34<br>Page 91, Analyze and Apply, #9<br>Page 106, Thinking Critically, #32<br>Pages 272-274, Hormones and Homeostasis<br>Pages 283-284, Pancreas |
| (B) | determine the consequences of the failure to maintain homeostasis. | Page 14, Homeostatic Imbalances<br>Page 14, Check Your Understanding, #4<br>Page 516, Column 1, paragraph 1 |
| **Standard (7) The student examines the electrical conduction processes and interactions. The student is expected to:** | | |
| (A) | illustrate conduction systems such as nerve transmission or muscle stimulation; | Pages 203-205, Impulse Transmission and Transmission at Synapses<br>Page 205, What Research Tells Us<br>Page 206, In the Lab, #10<br>Page 206, Analyze and Apply, #7<br>Page 206, Analyze and Apply, #8 |
| (B) | investigate the therapeutic uses and effects of external sources of electricity on the body system; and | Page 380, Defibrillators and Life-Threatening Arrhythmias<br>Page 381, Review, #5 |
| (C) | evaluate the application of advanced technologies such as electroencephalogram, electrocardiogram, bionics, transcutaneous electrical nerve stimulation, and cardioversion. | Page 210, What Research Tells Us<br>Page 355, Taking It Further, #1<br>Page 380, Taking It Further, #1<br>Page 441, Taking It Further, #1<br>Page 563, Second paragraph |

| Standard (8) The student explores the body's transport systems. The student is expected to: | | |
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| (A) | analyze the physical, chemical, and biological properties of transport systems, including circulatory, respiratory, and excretory; | Pages 302-309, Lesson 9.1, Functions and Anatomy of the Respiratory System<br>Page 309, Analyze and Apply, #8<br>Page 309, Analyze and Apply, #11<br>Pages 310-316, Lesson 9.2, Respiration: Mechanical Control<br>Page 313, Column 1, paragraph 2<br>Page 313, Column 1, paragraph 3<br>Pages 313-315, Chemical Factors<br>Page 316, Check Your Understanding, #2<br>Page 317, Analyze and Apply, #7<br>Page 329, Thinking Critically, #14<br>Page 330, Thinking Critically, #27<br>Page 330, Thinking Critically, #28<br>Page 331, Lab Investigations, #51-53<br>Pages 334-346, Lesson 10.1, The Function and Composition of Blood<br>Pages 366-403, Chapter 11, The Cardiovascular System<br>Pages 373-374, Cardiac Output<br>Page 374, Analyze and Apply, #6<br>Page 374, In the Lab, #9<br>Pages 382-395, Lesson 11.3, Blood Vessels and Circulation<br>Page 384, Check Your Understanding, #1<br>Page 385, Column 1, paragraph 2<br>Page 387, Taking It Further, #1<br>Page 389, Check Your Understanding, #3<br>Page 396, Analyze and Apply, #5<br>Page 407, Thinking Critically, #8<br>Page 407, Thinking Critically, #9<br>Page 408, Thinking Critically, #27<br>Pages 492-497, Anatomy of the Kidney<br>Page 497, In the Lab, #11<br>Pages 498-509, Lesson 14.2, Urine Formation, Storage, and Excretion<br>Pages 499-501, Filtration<br>Page 501, Check Your Understanding, #1<br>Page 508, Check Your Understanding, #1<br>Page 510, Analyze and Apply, #9, #11<br>Page 510, Review, #7<br>Page 519, In the Lab, #12<br>Page 524, Thinking Critically, #25<br>Page 524, Thinking Critically, #26<br>Page 525, Lab Investigations, #49 |

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| (B) | determine the factors that alter the normal functions of transport systems; and | Pages 321-323, Chronic Obstructive Pulmonary Diseases<br>Page 322, Emphysema<br>Page 323, Check Your Understanding, #3<br>Pages 399-401, Coronary Artery Disease<br>Page 401, Check Your Understanding, #2<br>Page 401, Check Your Understanding, #3<br>Page 401, Check Your Understanding, #4 |
| (C) | contrast the interactions among the transport systems. | Pages 307-308, The Alveolar Capillary Membrane<br>Pages 412-415, Organization of the Lymphatic System<br>Page 420, In the Lab, #10<br>Page 510, Review, #7 |
| **Standard (9) The student investigates environmental factors that affect the human body. The student is expected to:** | | |
| (A) | identify the effects of environmental factors such as climate, pollution, radioactivity, chemicals, electromagnetic fields, pathogens, carcinogens, and drugs on body systems; and | Page 91, Analyze and Apply, #9<br>Page 170, Analyze and Apply, #7<br>Page 321, Causes of COPD<br>Page 322, Emphysema<br>Page 428, Analyze and Apply, #7 |
| (B) | explore measures to minimize harmful environmental factors on body systems. | Page 15, What Research Tells Us<br>Page 321, Causes of COPD<br>Pages 323-324, Asthma<br>Page 325, In the Lab, #13<br>Page 325, Check Your Understanding, #2 |
| **Standard (10) The student investigates structure and function of the human body. The student is expected to:** | | |
| (A) | analyze the relationships between the anatomical structures and physiological functions of systems, including the integumentary, nervous, skeletal, musculoskeletal, cardiovascular, respiratory, gastrointestinal, endocrine, and reproductive; | Pages 82-84, Lesson 3.1, Body Membranes<br>Pages 85-86, Functions of the Integumentary System<br>Pages 86-89, Anatomy of the Skin<br>Page 91, Analyze and Apply, #8<br>Page 91, Analyze and Apply, #10<br>Page 105, Thinking Critically, #12<br>Page 106, Thinking Critically, #32<br>Page 106, Thinking Critically, #34<br>Pages 110-111, Functions of the Skeletal System<br>Pages 111-115, Structures and Classifications of Bones<br>Page 117, Check Your Understanding, #4<br>Page 119, Analyze and Apply, #4<br>Page 119, Analyze and Apply, #5<br>Pages 120-128, Lesson 4.2, The Axial Skeleton<br>Page 129, Analyze and Apply, #9 |

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| | | Page 129, Analyze and Apply, #10<br>Pages 156-158, Muscle Categories<br>Page 159, Check Your Understanding, #2<br>Pages 159-161, Muscle Functions<br>Page 161, Review, #3<br>Page 161, Analyze and Apply, #6<br>Page 161, In the Lab, #9<br>Pages 171-181, Lesson 5.3, The Major Skeletal Muscles<br>Page 181, In the Lab, #10<br>Page 196, Paragraphs 1 and 2<br>Pages 202-206, Lesson 6.2, Transmission of Nerve Impulses<br>Pages 207-214, Lesson 6.3, Functional Anatomy of the Central Nervous System<br>Page 215, Analyze and Apply, #7<br>Page 215, Analyze and Apply, #9<br>Pages 216-221, Lesson 6.4, Functional Anatomy of the Peripheral Nervous System<br>Page 222, Analyze and Apply, #9<br>Pages 268-269, Anatomy of the Endocrine System<br>Pages 268-274, Lesson 8.1, Functions and Control of the Endocrine System<br>Page 270, Check Your Understanding, #2<br>Page 274, In the Lab, #9<br>Pages 275-285, Lesson 8.2, Major Endocrine Organs<br>Page 285, Analyze and Apply, #6<br>Page 298, Thinking Critically, #27<br>Pages 302-309, Lesson 9.1, Functions and Anatomy of the Respiratory System<br>Page 305, Check Your Understanding, #2<br>Page 309, Analyze and Apply, #10<br>Page 309, Analyze and Apply, #11<br>Pages 310-316, Lesson 9.2, Respiration Mechanics and Control<br>Page 315, Check Your Understanding, #5<br>Pages 313-315, Control of Breathing<br>Page 331, Communicating about A&P, #50<br>Page 368, 2nd paragraph<br>Pages 368-374, Lesson 11.1, Heart Anatomy and Function of the Cardiovascular System<br>Page 374, Analyze and Apply, #4<br>Page 381, Analyze and Apply, #7<br>Pages 382-395, Lesson 11.3, Blood Vessels and Circulation |

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| | | Pages 385-392, Circulation: Moving Blood around the Body<br>Page 408, Thinking Critically, #35<br>Page 409, Lab Investigations, #44<br>Page 459, Paragraphs 1-4<br>Pages 464-478, Digestive Organs and Their Functions<br>Page 475, Check Your Understanding, #3<br>Page 478, Analyze and Apply, #13<br>Page 478, In the Lab, #15<br>Page 488, Thinking Critically, #30<br>Pages 535-538, Male Reproductive Anatomy<br>Pages 538-539, Male Reproductive Physiology<br>Page 539, Analyze and Apply, #9<br>Pages 540-544, Female Reproductive System Anatomy<br>Pages 545-549, Female Reproductive System Physiology<br>Page 569, Thinking Critically, #7<br>Page 570, Thinking Critically, #14<br>Page 570, Thinking Critically, #24 |
| (B) | evaluate the cause and effect of disease, trauma, and congenital defects on the structure and function of cells, tissues, organs, and systems; | Pages 62-63, Cancer<br>Page 78, Thinking Critically, #51<br>Page 100, Basal Cell Carcinoma, Squamous Cell Carcinoma<br>Page 100, Check Your Understanding, #1<br>Page 126, 1st paragraph<br>Pages 223-224, Traumatic Brain Injury<br>Pages 223-229, Lesson 6.5, Injuries and Disorders of the Nervous System<br>Pages 224, 226, Cerebral Palsy<br>Page 226, Spinal Cord Injury<br>Page 226, Column 1, paragraphs 1-4<br>Page 227, Check Your Understanding, #1<br>Page 227, Check Your Understanding, #2<br>Page 234, Thinking Critically, #40<br>Page 234, Thinking Critically, #42<br>Page 234, Review, #35<br>Page 242, Eye Injuries, paragraphs 1-4<br>Page 258, Column 2, 2nd new paragraph<br>Page 287, Hypofunction of the Pituitary Gland: Dwarfism<br>Page 288, Neonatal Hypothyroidism<br>Page 354, Column 2, 2nd new paragraph<br>Pages 354-355, Sickle Cell Anemia<br>Pages 354-356, Inherited Anemias |

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| | | Page 355, What Research Tells Us<br>Page 355, Taking It Further, #1<br>Pages 357-358, Leukemia<br>Page 357, Check Your Understanding, #1<br>Page 359, Analyze and Apply, #12<br>Page 364, Thinking Critically, #31<br>Pages 397-403, Lesson 11.4, Heart Disease<br>Page 398, Heart Failure, paragraph 2<br>Page 399, Column 1, paragraph 1<br>Pages 399-401, Coronary Artery Disease<br>Page 401, Heart Attack<br>Page 408, Thinking Critically, #35<br>Page 419, Spleen, column 1, 2nd new paragraph<br>Pages 425, 427, Inflammatory Response<br>Page 447, Thinking Critically, #7<br>Pages 479-480, Gingivitis and Periodontal Disease<br>Page 483, Analyze and Apply, #8<br>Page 488, Thinking Critically, #43<br>Page 513, Diabetes Mellitus<br>Page 513, Column 2, paragraph 2<br>Page 519, Analyze and Apply, #10<br>Pages 559-560, Male Infertility<br>Page 560, Column 2, paragraphs 2 and 3<br>Page 562, Pelvic Inflammatory Disease<br>Page 565, Review, #4<br>Page 570, Thinking Critically, #44 |
| (C) | research technological advances and limitations in the treatment of system disorders; and | Pages 324-325, Lung Cancer, paragraph 4<br>Page 325, Check Your Understanding, #4<br>Page 355, What Research Tells Us<br>Page 355, Taking It Further, #1<br>Page 489, Communicating about A&P, #49<br>Page 517, What Research Tells Us<br>Page 517, Taking It Further, #1<br>Page 517, Taking It Further, #2 |
| (D) | examine characteristics of the aging process on body systems. | Page 14, Homeostatic Imbalances<br>Page 73, In the Lab, #10<br>Pages 244-245, Cataracts<br>Pages 531-533, Development and Puberty<br>Page 557, Taking It Further, #1 |

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| **Standard (11) The student describes the process of reproduction and growth and development. The student is expected to:** | | |
| (A) | explain embryological development of tissues, organs, and systems; | Page 532, Embryonic and Fetal Development<br>Page 534, Analyze and Apply, #12<br>Page 554, Column 1, last paragraph<br>Page 555, Check Your Understanding, #3 |
| (B) | identify the functions of the male and female reproductive systems; and | Pages 538-539, Male Reproductive Physiology<br>Page 539, Review, #2<br>Page 539, Review, #7<br>Page 539, Review, #8<br>Page 539, Analyze and Apply, #9<br>Page 539, Analyze and Apply, #10<br>Pages 545-549, Physiology of the Female Reproductive System<br>Page 549, Review, #7<br>Page 570, Review, #10<br>Page 570, Review, #20 |
| (C) | summarize the human growth and development cycle. | Pages 532-533, Puberty<br>Page 532, Column 2, paragraph 2<br>Page 533, Check Your Understanding, #4 |
| **Standard (12) The student recognizes emerging technological advances in science. The student is expected to:** | | |
| (A) | recognize advances in stem cell research such as cord blood utilization; and | Page 341, What Research Tells Us<br>Page 358, Paragraph before "Multiple Myeloma"<br>Page 359, Analyze and Apply, #13<br>Page 359, In the Lab, #14 |
| (B) | recognize advances in bioengineering and transplant technology. | Page 341, What Research Tells Us<br>Page 359, In the Lab, #14<br>Page 380, What Research Tells Us<br>Page 380, Taking It Further, #1<br>Page 441, What Research Tells Us<br>Page 441, Taking It Further, #1<br>Page 563, What Research Tells Us<br>Page 563, Taking It Further, #2<br>Page 563, Taking It Further, #3 |

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## Goodheart-Willcox Publisher Correlation of *Introduction to Anatomy and Physiology* ©2014 to the English Language Proficiency Standards (ELPS) for Science

| STANDARD | CORRELATING PAGES |
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| **Standard (1) Cross-curricular second language acquisition/learning strategies. The ELL uses language learning strategies to develop an awareness of his or her own learning processes in all content areas. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. The student is expected to:** | |
| use prior knowledge to understand meanings in English | Page 109, 1st paragraph<br>Page 151, #8<br>Page 193, #43<br>Page 268, 3rd paragraph |
| use prior experiences to understand meanings in English | Page 193, #43<br>Page 297, #8<br>Page 331, #49<br>Page 437, #9 |
| monitor oral language production and employ self-corrective techniques or other resources | Page T15, #1<br>Page 193, #44<br>Page 235, #48<br>Page 235, #49 |
| use strategic learning techniques such as concept mapping, drawing, memorizing, comparing, contrasting, and reviewing to acquire basic and grade-level vocabulary | Page 8, Analyze and Apply, #7<br>Page 119, #6<br>Page 129, Analyze and Apply, #8<br>Page 141, #8 |
| speak using learning strategies such as requesting assistance, employing non-verbal cues, and using synonyms and circumlocution (conveying ideas by defining or describing when exact English words are not known) | Page 193, #44<br>Page 235, #49<br>Page 235, #48<br>Page 489, #50 |
| use accessible language and learn new and essential language in the process | Page T15, #2<br>Page 151, #8<br>Page 193, #43<br>Page 268, 3rd paragraph |
| **Standard (2) Cross-curricular second language acquisition/listening. The ELL listens to a variety of speakers including teachers, peers, and electronic media to gain an increasing level of comprehension of newly acquired language in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in listening. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. The student is expected to:** | |

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| learn new language structures heard during classroom instruction and interactions | Page T15, #3<br>Page 79, #55<br>Page 193, #43<br>Page 449, #39 |
| learn new expressions heard during classroom instruction and interactions | Pages T15-T16, #4<br>Page 35, #43<br>Page 79, #55<br>Page 153, #41 |
| learn basic vocabulary heard during classroom instruction and interactions | Page 79, #55<br>Page 193, #43<br>Page 193, #45<br>Page 449, #39 |
| learn academic vocabulary heard during classroom instruction and interactions | Page 35, #43<br>Page 35, #44<br>Page 79, #55<br>Page 153, #41 |
| monitor understanding of spoken language during classroom instruction and interactions | Page T16, #5<br>Page 153, #41<br>Page 449, #40<br>Page 525, #48 |
| seek clarification [of spoken language] as needed | Page 153, #41<br>Page 235, #49<br>Page 449, #40<br>Page 525, #48 |
| use linguistic support to enhance and confirm understanding of increasingly complex and elaborated spoken language | Page 79, #55<br>Page 235, #47<br>Page 265, #44<br>Page 489, #50 |
| demonstrate listening comprehension of increasingly complex spoken English by retelling or summarizing spoken messages commensurate with content and grade-level needs | Page 193, #43<br>Page 193, #44<br>Page 265, #45<br>Page 571, #50 |
| demonstrate listening comprehension of increasingly complex spoken English by responding to questions and requests commensurate with content and grade-level needs | Page 16, #7<br>Page 147, #9<br>Page153, #41<br>Page 265, #44 |
| demonstrate listening comprehension of increasingly complex spoken English by collaborating with peers commensurate with content and grade-level needs | Page T16, #6<br>Page 16, #7<br>Page 153, #41<br>Page 265, #44 |
| demonstrate listening comprehension of increasingly complex spoken English by taking notes commensurate with content and grade-level needs | Page 153, #41<br>Page 193, #43<br>Page 299, #43<br>Page 449, #40 |

| **Standard (3) Cross-curricular second language acquisition/speaking. The ELL speaks in a variety of modes for a variety of purposes with an awareness of different language registers (formal/informal) using vocabulary with increasing fluency and accuracy in language arts and all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in speaking. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. The student is expected to:** | |
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| expand and internalize initial English vocabulary by retelling simple stories and basic information represented or supported by pictures | Page 16, #7<br>Page 193, #44<br>Page 325, #13<br>Page 525, #47 |
| expand and internalize initial English vocabulary by learning and using routine language needed for classroom communication | Page 79, #55<br>Page 193, #43<br>Page 235, #49<br>Page 265, #44 |
| speak using a variety of sentence types with increasing accuracy and ease as more English is acquired | Page 235, #49<br>Page 265, #44<br>Page 409, #42<br>Page 569, #7 |
| speak using a variety of connecting words with increasing accuracy and ease as more English is acquired | Page 79, #55<br>Page 235, #49<br>Page 265, #44<br>Page 325, #13 |
| speak using grade-level content area vocabulary in context to internalize new English words | Page 35, #43<br>Page 153, #41<br>Page 193, #44<br>Page 265, #44 |
| speak using grade-level content area vocabulary in context to build academic language proficiency | Page 79, #55<br>Page 235, #49<br>Page 449, #39<br>Page 489, #50 |
| share information in cooperative learning interactions | Page 25, Taking It Further, #1<br>Page 35, #43<br>Page 489, #49<br>Page 489, #50 |
| ask [for] information ranging from using a very limited bank of high-frequency, high-need, concrete vocabulary, including key words and expressions needed for basic communication in academic and social contexts, to using abstract and content-based vocabulary during extended speaking assignments | Page 147, #9<br>Page 187, #12<br>Page 265, #44<br>Page 525, #48 |

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| give information ranging from using a very limited bank of high-frequency, high-need, concrete vocabulary, including key words and expressions needed for basic communication in academic and social contexts, to using abstract and content-based vocabulary during extended speaking assignments | Page 21, #11<br>Page 29, #10<br>Page 147, #9<br>Page 187, #12 |
| express opinions ranging from communicating single words and short phrases to participating in extended discussions on a variety of social and grade-appropriate academic topics | Page T16, #7<br>Page 449, #39<br>Page 557, Taking It Further<br>Page 571, #51 |
| express ideas ranging from communicating single words and short phrases to participating in extended discussions on a variety of social and grade-appropriate academic topics | Page T16, #7<br>Page 235, #47<br>Page 292, Taking It Further, #2<br>Page 341, Taking It Further, #1 |
| explain with increasing specificity and detail as more English is acquired | Page 193, #43<br>Page 206, #10<br>Page 229, #6<br>Page 265, #44 |
| **Standard (4) Cross-curricular second language acquisition/reading. The ELL reads a variety of texts for a variety of purposes with an increasing level of comprehension in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in reading. In order for the ELL to meet grade-level learning expectations across the foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. For kindergarten and first grade, certain of these student expectations apply to text read aloud for students not yet at the stage of decoding written text. The student is expected to:** | |
| develop basic sight vocabulary used routinely in written classroom materials | Page 79, #55<br>Page 235, #48<br>Page 331, #50<br>Page 365, #38 |
| derive meaning of environmental print | Page 16, #7<br>Page 253, #12<br>Page 462, Memory Tip<br>Page 489, #51 |
| comprehend English vocabulary used routinely in written classroom materials | Page 79, #55<br>Page 185, Taking It Further, #2<br>Page 403, #9<br>Page 437, #6 |
| comprehend English language structures used routinely in written classroom materials | Page 40, Column 2, last line<br>Page 79, #55<br>Page 243, Memory Tip<br>Page 278, Column 1, Prolactin |

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| use prereading supports such as graphic organizers, illustrations, and pretaught topic-related vocabulary and other prereading activities to enhance comprehension of written text | Page 22, Before You Read<br>Page 109, Introduction<br>Pages 194-195, Chapter opening photo<br>Pages 194-195, Opening question<br>Pages 194-195, Introduction<br>Page 271, Figure 8.2 |
| read linguistically accommodated content area material with a decreasing need for linguistic accommodations as more English is learned | Page T16, #8<br>Page 22, Before You Read<br>Page 109, Introduction<br>Page 271, Figure 8.2 |
| use visual and contextual support to read grade-appropriate content area text | Page 5, Describing the Human Body<br>Pages 370-372, Blood Flow through the Heart<br>Pages 393-394, Measuring Blood Pressure<br>Page 499, Urine Formation |
| use visual and contextual support to enhance and confirm understanding | Page 50, #14<br>Page 235, #50<br>Page 359, #14<br>Page 437, #9 |
| use visual and contextual support to develop vocabulary needed to comprehend increasingly challenging language | Page 35, #44<br>Page 235, #47<br>Page 235, #48<br>Page 489, #50 |
| use visual and contextual support to develop background knowledge needed to comprehend increasingly challenging language | Page 63, #9<br>Pages 171-173, Directional Motions<br>Page 299, #41<br>Page 563, 1st paragraph |
| use support from peers and teachers to read grade-appropriate content area text | Page 79, #55<br>Page 153, #41<br>Page 235, #48<br>Page 489, #50 |
| use support from peers and teachers to enhance and confirm understanding | Page 79, #55<br>Page 235, #49<br>Page 449, #39<br>Page 449, #40<br>Page 489, #50 |
| use support from peers and teachers to develop vocabulary needed to comprehend increasingly challenging language | Page 35, #43<br>Page 79, #56<br>Page 153, #41<br>Page 235, #48 |
| use support from peers and teachers to develop grasp of language structures needed to comprehend increasingly challenging language | Page 79, #55<br>Page 235, #48<br>Page 373, Taking It Further, #1<br>Page 489, #50 |

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| use support from peers and teachers to develop background knowledge needed to comprehend increasingly challenging language | Page 50, #14<br>Page 79, #55<br>Page 373, Taking It Further, #1<br>Page 489, #49 |
| demonstrate comprehension of increasingly complex English by retelling or summarizing material commensurate with content area and grade level needs | Page 193, #43<br>Page 193, #44<br>Page 571, #50 |
| demonstrate comprehension of increasingly complex English by responding to questions commensurate with content area and grade level needs | Page 147, #9<br>Page 449, #40<br>Page 489, #50<br>Page 525, #48 |
| demonstrate comprehension of increasingly complex English by taking notes commensurate with content area and grade level needs | Page 153, #41<br>Page 193, #43<br>Page 299, #43<br>Page 449, #40 |
| **Standard (5) Cross-curricular second language acquisition/writing. The ELL writes in a variety of forms with increasing accuracy to effectively address a specific purpose and audience in all content areas. ELLs may be at the beginning, intermediate, advanced, or advanced high stage of English language acquisition in writing. In order for the ELL to meet grade-level learning expectations across foundation and enrichment curriculum, all instruction delivered in English must be linguistically accommodated (communicated, sequenced, and scaffolded) commensurate with the student's level of English language proficiency. For kindergarten and first grade, certain of these student expectations do not apply until the student has reached the stage of generating original written text using a standard writing system. The student is expected to: (N/A)** | |