Correlation of

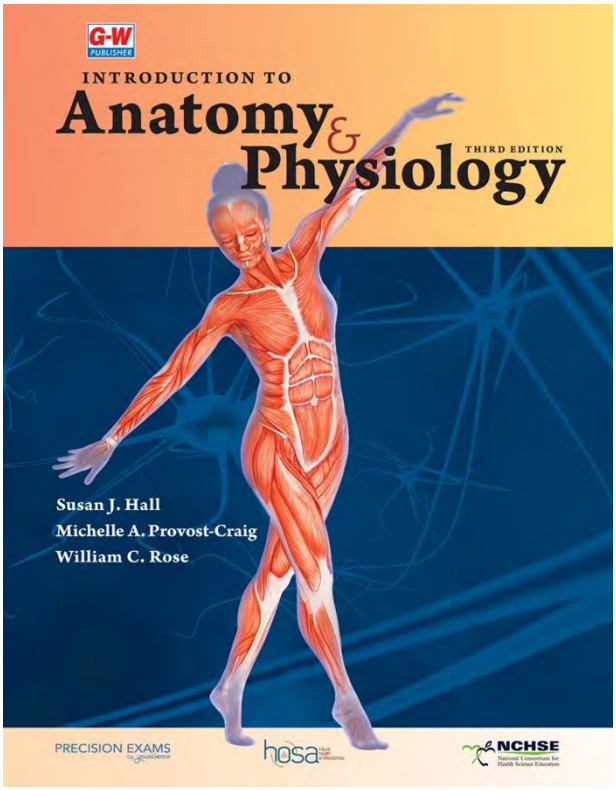
Introduction to Anatomy and Physiology

(Goodheart-Willcox Publisher ©2024)

to

Next Generation Science Standards:
Life Science Performance Expectations

Introduction to Anatomy and Physiology covers all body systems using a student-friendly writing style that makes complex subjects easier to understand. Written specifically for the high school market, the chapters in this textbook are divided into lessons, providing content in a manageable format for the student. To add realism, clinical case studies and real-world applications enhance student interest and involvement. An abundance of study aids, such as learning objectives, lesson summaries, and extensive assessment opportunities increase students' ability to succeed in this challenging course.



Standards / Objectives / Indicators	Textbook Pages
HS.-LS1: From Molecules to Organisms: Structures and Processes	
HS-LS1-1. Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins, which carry out the essential functions of life through systems of specialized cells.	Chapter 2: *In the Lab* #2, 60; *Thinking Critically*, 91 Supporting content: *Proteins*, 51-52; *DNA*, 56-57; DNA, RNA, and Proteins, 68-71
HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.	Chapter 1 Supporting content: *Engineering Practices*, 24; *Step 5: Analyzing and Evaluating the Data with Statistical Tools*, 28-29
HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.	Chapter 1: *Check Your Understanding* #1-4, 18; In the Lab #2-3, 19 Chapter 11: In the Lab #1, 461 Supporting content: *Homeostasis*, 15-18

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HS-LS1-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.	Chapter 15: In the Lab #1, 617 Supporting content: *Embryonic and Fetal Development*, 615-616 *Life Span Development* features, 85, 105, 137–138, 208, 259, 286, 313, 303, 307, 335, 372, 406, 438, 491, 555, 591, 621, 631
HS-LS1-5. Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.	This standard is beyond the scope of the program.
HS-LS1-6. Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and/or other large carbon-based molecules.	Chapter 2 Supporting content: *Molecules of Life*, 48-59
HS-LS1-7. Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules and oxygen molecules are broken and the bonds in new compounds are formed, resulting in a net transfer of energy.	Supporting content: Chapter 2: *ATP*, 57-58
HS.-LS2: Ecosystems: Interactions, Energy, and Dynamics	
HS-LS2-1. Use mathematical and/or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales.	This standard is beyond the scope of the program.
HS-LS2-2. Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales	This standard is beyond the scope of the program.
HS-LS2-3. Construct and revise an explanation based on evidence for the cycling of matter and flow of energy in aerobic and anaerobic conditions.	This standard is beyond the scope of the program.
HS-LS2-4. Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.	This standard is beyond the scope of the program.
HS-LS2-5. Develop a model to illustrate the role of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere.	This standard is beyond the scope of the program.
HS-LS2-6. Evaluate claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem	This standard is beyond the scope of the program.
HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.	Chapter 1: *What Research Tells Us about Research*, Taking it Further #1-2, 30
HS-LS2-8. Evaluate evidence for the role of group behavior on individual and species' chances to survive and reproduce.	This standard is beyond the scope of the program.
HS.-LS3: Heredity: Inheritance and Variation of Traits	
HS-LS3-1. Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.	Chapter 2: *Check Your Understanding* #2-3, 58 Supporting content: Chapter 2: *DNA*, 56-57 Chapter 15: *Types of Reproduction*, 612; Mitosis versus Meiosis, 613-615

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HS-LS3-2. Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.	Chapter 15 Supporting content: *Meiosis*, 614-615; *What Research Tells Us about Genetic Research and Cancer Treatment Breakthroughs*, 650
HS-LS3-3. Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.	Chapter 15: *In the Lab* #1, 617
HS.-LS4: Biological Evolution: Unity and Diversity	
HS-LS4-1. Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence.	This standard is beyond the scope of the program.
HS-LS4-2. Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment.	This standard is beyond the scope of the program.
HS-LS4-3. Apply concepts of statistics and probability to support explanations that organisms with an advantageous heritable trait tend to increase in proportion to organisms lacking this trait.	This standard is beyond the scope of the program.
HS-LS4-4. Construct an explanation based on evidence for how natural selection leads to adaptation of populations.	This standard is beyond the scope of the program.
HS-LS4-5. Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.	This standard is beyond the scope of the program.
HS-LS4-6. Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.	Supporting content: Chapter 1: *What Research Tells Us about Research*