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Correlation

Introduction to Anatomy and Physiology ©2014 to Next Generation Science Standards

The chart below lists the current Next Generation Science Standards (left column). For each standard, the corresponding pages in the textbook ***Introduction to Anatomy and Physiology*** (right column) are listed.

Standard	Textbook Pages
HS-PS1. Matter and Its Interactions	
HS-PS-2. Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.	14, 40, 42, 50 (#5), 77 (#12), 78 (#34), 452, 457, 470
HS-PS1-4. Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.	14–16, 39, 40, 42, 43, 47–48, 49, 50 (#10 & 14), 56, 77 (#12), 111, 163, 285, 402, 478 (#10), 503
HS-PS1-5. Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.	12–13, 15, 49, 203, 206 (#5), 233 (#11), 235 (#45), 427, 476, 512, 535–536, 570 (#9)
HS-PS1-6. Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium.	78 (#34)
HS-PS3 Energy	
HS-PS3-1. Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.	53, 163, 376–377, 501
HS-PS3-4. Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).	273
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.	46–47, 50 (#8), 58-60

HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.	9, 13 (#1), 35 (#43)
HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.	13–14, 14 (#1), 16 (#4 & 8), 272, 338
HS-LS1-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.	60–62, 529–531, 534 (#7 & 11), 569 (#7)
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.	38–42, 50 (#3, #4)
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.	47-48 (Fig 2.12), 56
HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.	25 (#2)
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.	46–47, 48 (#2), 50 (#13), 58-60, 62, 63 (#5), 528–531
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. [	40, 47, 62–63, 97, 126, 354, 357, 429, 437 (#1 & 10), 440, 529, 530–531, 534 (#7, #10, #11), 563
HS-LS3-3. Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.	531, 534 (#13)