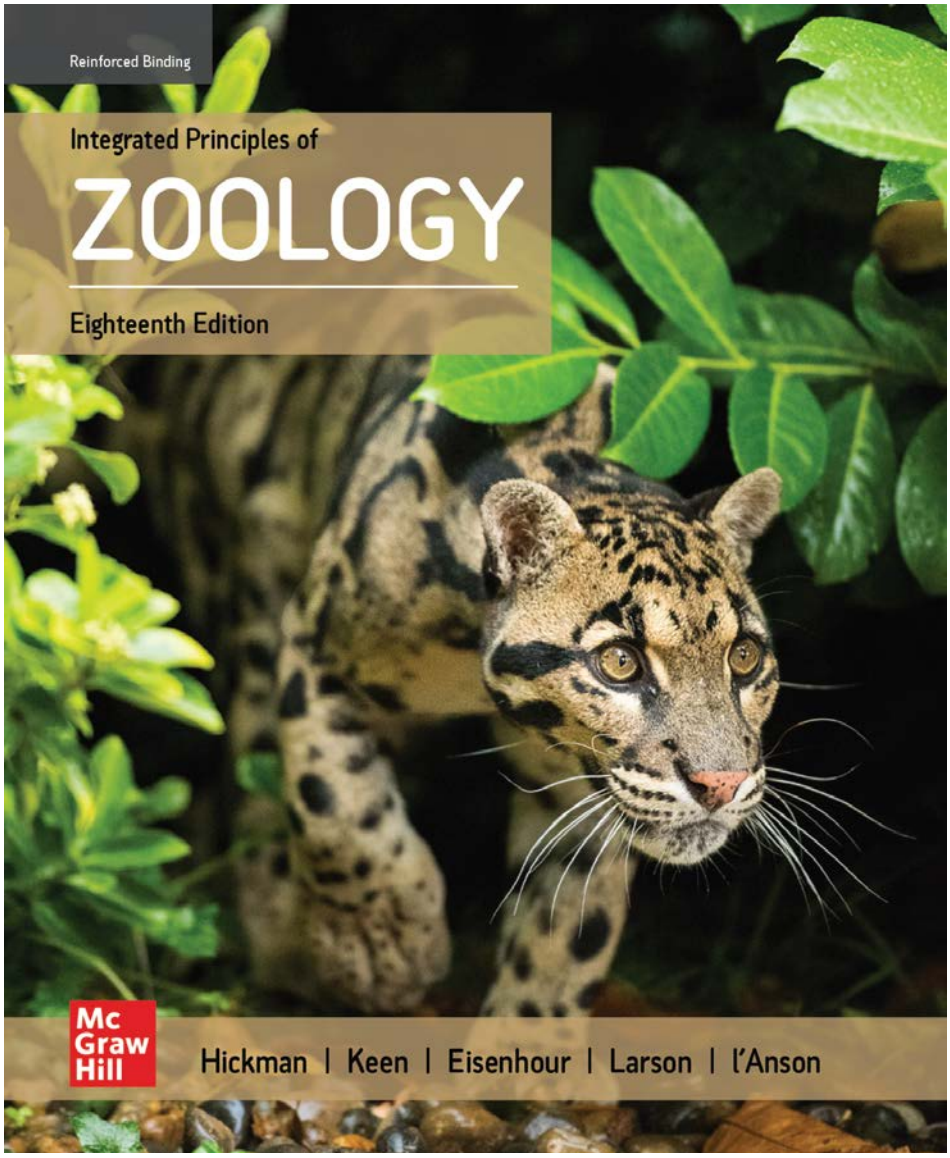
NGSS Correlation Guide

Integrated Principles of Zoology



By Cleveland P. Hickman, Jr.
18th Edition, © 2020
ISBN: 978-0-076-90595-9

NGSS Correlation
***Integrated Principles of Zoology*, (18e)**
by Cleveland P. Hickman, Jr.

Next Generation Science Standards Life Science Performance Expectations	***Integrated Principles of Zoology*, 18th Edition, ©2020**
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.	6, 26, 88-94 *Review Questions* 102 (#15, #17-#19)
HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms.	3-5, 188-199 *Review Questions* 18 (#3), 199 (#1, #3), 200 (#5-#9)
HS-LS1-3. Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.	670, 758 *Review Questions* 687 (#1), 772 (#4)
HS-LS1-4. Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.	7, 51-54, 159-160 *Review Questions* 56 (#12)
HS-LS1-5. Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy.	30-31, 837 *Review Questions* 35 (#12), 844 (#15)
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.	23-26, 30-31 *Review Questions* 35 (#7-#10)
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.	63-69, 701 *Review Questions* 72 (#10-#13)

Next Generation Science Standards Life Science Performance Expectations	*Integrated Principles of Zoology*, 18th Edition, ©2020
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.	830-831
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.	840-843 *Review Questions* 844 (#20)
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.	837, 838-839, 840 *Key Theme* 65
HS-LS2-4. Use mathematical representations to support claims for the cycling of matter and flow of energy among organisms in an ecosystem.	838, 839 *Review Questions* 844 (#15)
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.	837, 838-839, 840 *Key Theme* 65
HS-LS2-6. Evaluate the 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.	NA
HS-LS2-7. Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.*	842-843 *For Further Thought* 844
HS-LS2-8. Evaluate the evidence for the role of group behavior on individual and species' chances to survive and reproduce.	788-789, 794-800 *Key Theme* 36.1 *Review Questions* 805 (#6, #7, #8, #11-#13)

Next Generation Science Standards Life Science Performance Expectations	*Integrated Principles of Zoology*, 18th Edition, ©2020
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.	6, 26, 73, 74, 77 *For Further Thought* 102 *Review Questions* 101 (#1)
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.	86-87, 95, 98-99, 122, 124 *Key Theme* 77, 99 *Review Questions* 102 (#22)
HS-LS3-3. Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.	126-132 *Hardy-Weinberg Equilibrium* 129 *Review Questions* 136 (#16, #17, #19)
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.	107-113, 115-117 *Review Questions* 136 (#5) *The Power of a Theory* 114
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	123-125, 128 *Review Questions* 136 (#13, #14)
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.	126-127, 128-132 *Review Questions* 136 (#16-#18)

Next Generation Science Standards Life Science Performance Expectations	***Integrated Principles of Zoology*, 18th Edition, ©2020**
HS-LS4-4. Construct an explanation based on evidence for how natural selection leads to adaptation of populations.	121-124, 129-130 *Review Questions* 136 (#10)
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.	117, 132-134, 840-843 *Review Questions* 136 (#22)
HS-LS4-6. Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.*	840-843