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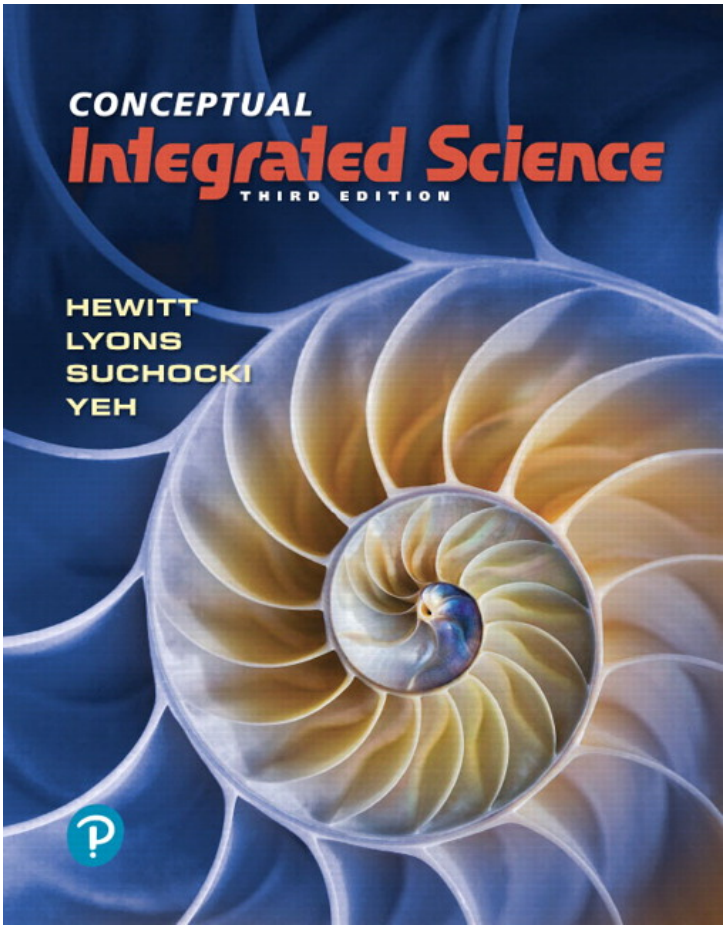

To the

Next Generation Science Standards
Physical, Life, and Earth & Space Sciences
Grades 9-12 Performance Expectations

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(HS-ESS2-4) Use a model to describe how variations in the flow of energy into and out of Earth's systems result in changes in climate.	**SE/TE:** Chapter 27 Environmental Geology, 27.4 Hurricanes, Integrated Science 27A PHYSICS, BIOLOGY, ASTRONOMY, Earth's Climate Over Time, 784–787 Chapter 27 Environmental Geology, 27.4 Hurricanes, Integrated Science 27A PHYSICS, BIOLOGY, ASTRONOMY, Earth's Current Climate, 787–788 Chapter 27 Environmental Geology, 27.4 Hurricanes, Integrated Science 27B PHYSICS, CHEMISTRY, BIOLOGY, ASTRONOMY: Why Does Climate Change? 788–792 Chapter 27 Environmental Geology, 27.4 Hurricanes, Integrated Science 27C PHYSICS, CHEMISTRY, BIOLOGY, AND ASTRONOMY: Climate Change Today, 793–796

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(HS-ESS2-5) Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes. \	**SE/TE:** Chapter 23 Rocks and Minerals, 23.9 The Rock Cycle, 675–676 Chapter 25 Surface Processes, 25.1 Processes that Sculpt Earth: Weathering, Erosion, and Deposition, Integrated Science 25A PHYSICS, CHEMISTRY, AND BIOLOGY: Weathering, 714–717 Chapter 25 Surface Processes, 25.2 Change Agent: Running Water, 719–723 Chapter 25 Surface Processes, 25.3 Change Agent: Glaciers, 725–726 Chapter 25 Surface Processes, 25.3 Change Agent: Glaciers, Integrated Science 25C Physics, Change Agent: Gravity, 727–728 Chapter 25 Surface Processes, 25.4 Change Agent: Groundwater, 728–730 Chapter 25 Surface Processes, 25.3 Change Agent: Ocean Waves, 730–731
(HS-ESS2-6) Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.	**SE/TE:** Chapter 21 Ecology, 21.4 Species Interactions, Integrated Science 21B CHEMISTRY AND EARTH SCIENCE, Materials Cycling in Ecosystems, Carbon, 612 THINK INTEGRATED SCIENCE, 21C–Energy Flow in Ecosystems. Question 27, p. 620
(HS-ESS2-7) Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.	**SE/TE:** Chapter 17 The Evolution of Life, Integrated Science 17A CHEMISTRY, EARTH SCIENCE, AND ASTRONOMY, The Origin of Life, 469–470 Chapter 17 The Evolution of Life, 17.2 How Natural Selection Works, History of Science: The Peppered Moth, 476

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(HS-ESS3) Earth and Human Activity	
(HS-ESS3-1) Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.	**SE/TE:** Chapter 21 Ecology, 21.3 Human Population Growth, Ecological Footprint, 598–599 Chapter 21 Ecology, 21.5 Change in an Ecosystem, 616–618 Chapter 27 Environmental Geology, 27.1 Earthquakes, 772 Chapter 27 Environmental Geology, 27.1 Earthquakes, Earthquake Measurement, 773–774 Chapter 27 Environmental Geology, 27.2 Tsunami, 775–777 Chapter 27 Environmental Geology, 27.3 Volcanic Eruptions, 778–780 Chapter 27 Environmental Geology, 27.4 Hurricanes, 780–783 Chapter 27 Environmental Geology, 27.4 Hurricanes, Integrated Science 27D PHYSICS, CHEMISTRY, BIOLOGY: Responding to Climate Change, Current and Future Effects of Climate Change, 796–797
(HS-ESS3-2) Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.	**SE/TE:** Chapter 27 Environmental Geology, 27.4 Hurricanes, Integrated Science 27D PHYSICS, CHEMISTRY, BIOLOGY: Responding to Climate Change, Climate Change Mitigation and Adaptation, 798–799
(HS-ESS3-3) Create a computational simulation to illustrate the relationships among the management of natural resources, the sustainability of human populations, and biodiversity.	**SE/TE:** Chapter 24 Earth's Surface–Land and Water, 24.7 Glaciers, Integrated Science 24C PHYSICS, CHEMISTRY, BIOLOGY: Water Pollution, 703–705 Chapter 24 Earth's Surface–Land and Water, 24.7 Glaciers, SCIENCE AND SOCIETY: Land-Use Planning and Urban Sprawl, 706

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(HS-ESS3-4) Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.	**SE/TE:** Chapter 27 Environmental Geology, 27.4 Hurricanes, Integrated Science 27D PHYSICS, CHEMISTRY, BIOLOGY: Responding to Climate Change, Current and Future Effects of Climate Change, 796–797 Chapter 27 Environmental Geology, 27.4 Hurricanes, Integrated Science 27D PHYSICS, CHEMISTRY, BIOLOGY: Responding to Climate Change, Climate Change Mitigation and Adaptation, 798–799 Chapter 24 Earth's Surface–Land and Water, 24.7 Glaciers, Integrated Science 24C PHYSICS, CHEMISTRY, BIOLOGY: Water Pollution, 703–705 Chapter 24 Earth's Surface–Land and Water, 24.7 Glaciers, SCIENCE AND SOCIETY: Land-Use Planning and Urban Sprawl, 706
(HS-ESS3-5) Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth's systems.	**SE/TE:** Chapter 27 Environmental Geology, 27.4 Hurricanes, Integrated Science 27C PHYSICS, CHEMISTRY, BIOLOGY, AND ASTRONOMY: Climate Change Today. 793–796 Chapter 27 Environmental Geology, 27.4 Hurricanes, Integrated Science 27D PHYSICS, CHEMISTRY, BIOLOGY: Responding to Climate Change, Current and Future Effects of Climate Change, 796–797
(HS-ESS3-6) Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.	**SE/TE:** Chapter 17 The Evolution of Life, Integrated Science 17A CHEMISTRY, EARTH SCIENCE, AND ASTRONOMY: The Origin of Life, 469–470 Chapter 27 Environmental Geology, 27.4 Hurricanes, Integrated Science 27C PHYSICS, CHEMISTRY, BIOLOGY, AND ASTRONOMY: Climate Change Today. 793–796 Chapter 27 Environmental Geology, 27.4 Hurricanes, Integrated Science 27D PHYSICS, CHEMISTRY, BIOLOGY: Responding to Climate Change, Current and Future Effects of Climate Change, 796–797