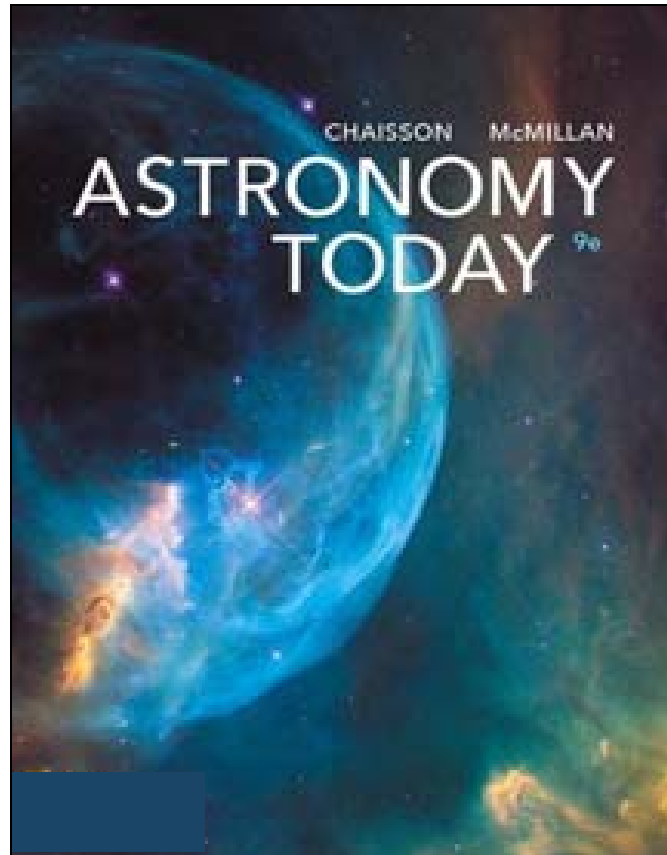


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To the

Next Generation Science Standards Earth and Space Science Performance Expectations

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Next Generation Science Standards Earth and Space Science Performance Expectations	Astronomy Today 9th Edition, ©2018
HS-ESS1 Earth's Place in the Universe	
HS-ESS1-1. Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun's core to release energy that eventually reaches Earth in the form of radiation.	<p>SE: Chapter 16, Collaborative Activity 2, 416 Chapter 20, Collaborative Activity 2, 515</p> <p>Supporting Content: Lesson 16.6, The Heart of the Sun, 407-409 More Precisely 16.2, Energy Generation in the Proton-Proton Chain, 412 Lesson 20.2, Evolution of a Sun-like Star, 492-497 Lesson 20.3, The Death of a Low-Mass Star, 497-504</p>
HS-ESS1-2. Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.	<p>SE: Chapter 26, Collaborative Activity 2, 680 Chapter 27, Collaborative Activity 2, 705</p> <p>Supporting Content: Lesson 26.2, The Expanding Universe, 662-665 Lesson 26.7, The Cosmic Microwave Background, 675-677 Lesson 27.3, Formation of Nuclei and Atoms, 689-692</p>
HS-ESS1-3. Communicate scientific ideas about the way stars, over their life cycle, produce elements.	<p>SE: Lesson 21.2, Lesson Check, 521 Lesson 21.4, Lesson Check, 533 Lesson 21.5, Lesson Check, 534 Chapter 21, Collaborative Activity 2, 536</p> <p>Supporting Content: Lesson 21.2, The End of a High-Mass Star, 519-521 Lesson 21.4, Formation of the Elements, 525-533 Lesson 21.5, The Cycle of Stellar Evolution, 533-534</p>

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<p style="text-align: center;">Next Generation Science Standards Earth and Space Science Performance Expectations</p>	<p style="text-align: center;">Astronomy Today 9th Edition, ©2018</p>
<p>HS-ESS1-4. Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.</p>	<p>SE: More Precisely 2-1, 46 Chapter 6, Problem 4, 158 Chapter 6, Problem 8, 158 Supporting Content: Lesson 2.5, The Laws of Planetary Motion, 44-48 Lesson 2.7, Newton’s Laws, 49-52 Lesson 2.8, Newtonian Mechanics, 52-56</p>
<p>HS-ESS1-5. Evaluate evidence of the past and current movements of continental and oceanic crust and the theory of plate tectonics to explain the ages of crustal rocks.</p>	<p>Supporting Content: Lesson 7.4, Surface Activity, 172-178</p>
<p>HS-ESS1-6. Apply scientific reasoning and evidence from ancient Earth materials, meteorites, and other planetary surfaces to construct an account of Earth’s formation and early history.</p>	<p>SE: Lesson 6.6, Lesson Check, 152 Supporting Content: Lesson 6.5, Interplanetary Matter, 141, 143-144 Lesson 6.6, How Did the Solar System Form?, 144-152 Lesson 7.2, Earth’s Interior, Differentiation, 169-172</p>

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<p>HS-ESS2 Earth's Systems</p>	
<p>HS-ESS2-1. Develop a model to illustrate how Earth's internal and surface processes operate at different spatial and temporal scales to form continental and ocean-floor features.</p>	<p>SE: Chapter 7, Individual Activities 2, 186 Supporting Content: Lesson 7.4, Surface Activity, Effects of Plate Motion, 174-176</p>
<p>HS-ESS2-2. Analyze geoscience data to make the claim that one change to Earth's surface can create feedbacks that cause changes to other Earth systems.</p>	<p>Supporting Content: Figure 7.5, Greenhouse Effect, 165 Discovery 7-1, The Greenhouse Effect and Global Warming, 166</p>
<p>HS-ESS2-3. Develop a model based on evidence of Earth's interior to describe the cycling of matter by thermal convection.</p>	<p>SE: Lesson 7.4, Lesson Check, 178 Supporting Content: Lesson 7.1, Earth's Overall Structure, 161 Lesson 7.3, Earth's Interior, 167-171 Lesson 7.4, Surface Activity, What Drives the Plates? , 176-177</p>
<p>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.</p>	<p>SE: Lesson 7.2, Earth's Atmosphere, Surface Heating, 165-166 Discovery 14-1, What Killed the Dinosaurs?, 346-347</p>
<p>HS-ESS2-5. Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.</p>	<p><i>Astronomy Today</i> presents the important concepts of the rapidly evolving field of astronomy, This standard falls outside of the curriculum.</p>
<p>HS-ESS2-6. Develop a quantitative model to describe the cycling of carbon among the hydrosphere, atmosphere, geosphere, and biosphere.</p>	<p><i>Astronomy Today</i> presents the important concepts of the rapidly evolving field of astronomy, This standard falls outside of the curriculum.</p>
<p>HS-ESS2-7. Construct an argument based on evidence about the simultaneous coevolution of Earth's systems and life on Earth.</p>	<p><i>Astronomy Today</i> presents the important concepts of the rapidly evolving field of astronomy, This standard falls outside of the curriculum.</p>

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Next Generation Science Standards Earth and Space Science Performance Expectations	Astronomy Today 9th Edition, ©2018
HS-ESS3 Earth and Human Activity	
<p>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.</p> <p>HS-ESS3-2. Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.*</p> <p>HS-ESS3-3. Create a computational simulation to illustrate the relationships among management of natural resources, the sustainability of human populations, and biodiversity.</p> <p>HS-ESS3-4. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.*</p> <p>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 systems.</p> <p>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.</p>	<p><i>Astronomy Today</i> presents the important concepts of the rapidly evolving field of astronomy, Earth and Human Activity standards fall outside of the curriculum.</p>