

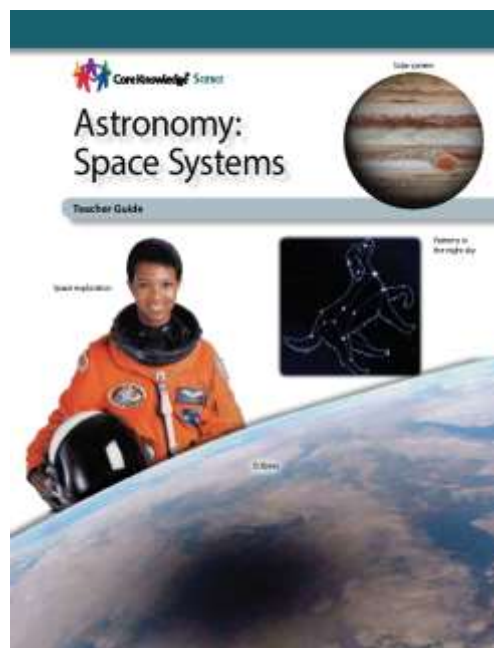


Online Resources

Astronomy: Space Systems

Click on each lesson to access its online resources. Page numbers refer to pages in the Teacher Guide. Some links provide access to files created by the Core Knowledge Foundation, including PDF documents that you can download and view with the appropriate software (such as [Adobe Reader](#)).

	About This Unit
Part A	Lesson 1
	Lesson 2
	Lesson 3
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Part C	Lesson 9
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Unit Review & Assessment	UR Lesson
	Culminating Resources
	Teacher Resources



Extend and customize this unit using the [CKSci Additional Activities](#)



Online Resources

About This Unit

Page	Resource Links
1	<p>Note to Teachers and Curriculum Planners</p> <ul style="list-style-type: none">• The learning progressions of Disciplinary Core Ideas offer guidance regarding the scope and sequence of learning about Earth's Systems in the elementary grades and beyond:<ul style="list-style-type: none">○ ESS1.A The Universe and Its Stars○ ESS1.B Earth and the Solar System○ PS2.B Types of Interactions• Learn more about these core ideas and their related content by reading the corresponding section of A Framework for K–12 Science Education. <p>See also the Teachers Resources section of this guide.</p>
2	<p>Note to Core Knowledge Teachers:</p> <p>2019 Core Knowledge Science Sequence for this unit:</p> <p>Domain—Astronomy: Space Systems</p> <p>CKSci correlations to the 2010 Core Knowledge Sequence—</p> <ul style="list-style-type: none">• GRADE 3• GRADE 4• GRADE 5• Interactive graphic of these correlations
3	<p>This unit has been informed by the following Next Generation Science Standards (NGSS) Performance Expectations:</p> <p>Topic—5. Space Systems: Stars and the Solar System</p> <ul style="list-style-type: none">• 5-ESS1-1• 5-ESS1-2• 5-PS2-1
10	Resources for Effective and Safe Classroom Activities
12	Materials Supply List: Grade 5 Unit 5 Astronomy: Space Systems
14	Pacing Guides for CKSci Grades 3–5

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Online Resources

Part A: Introduction to Astronomy

Lesson 1

Page	Resource Links
18	Disciplinary Core Idea: ESS1.B <i>Earth and the Solar System</i> <ul style="list-style-type: none">From the <i>Framework</i>: Pages 175–180
	Crosscutting Concept: <i>Patterns</i> <ul style="list-style-type: none">From the <i>Framework</i>: Pages 85–87
	Science and Engineering Practices: <i>Analyzing and Interpreting Data</i> <ul style="list-style-type: none">From the <i>Framework</i>: Pages 61–63
21	[VIDEO] Earth in context of the universe
22	[VIDEOS] Space technology Telescopes Space probes Rovers Satellites International Space Station

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Online Resources

Lesson 2

Page	Resource Links
25	Disciplinary Core Idea: ESS1.B <i>Earth and the Solar System</i> <ul style="list-style-type: none">From the <i>Framework</i>: Pages 175–180
	Crosscutting Concept: <i>Patterns</i> <ul style="list-style-type: none">From the <i>Framework</i>: Pages 85–87
	Science and Engineering Practices: <i>Analyzing and Interpreting Data</i> <ul style="list-style-type: none">From the <i>Framework</i>: Pages 61–63
26	[VIDEO] Venus transit

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Online Resources

Lesson 3

Page	Resource Links
32	Disciplinary Core Idea: ESS1.B <i>Earth and the Solar System</i> <ul style="list-style-type: none">From the <i>Framework</i>: Pages 175–180
	Crosscutting Concept: <i>Patterns</i> <ul style="list-style-type: none">From the <i>Framework</i>: Pages 85–87
	Science and Engineering Practices: <i>Analyzing and Interpreting Data</i> <ul style="list-style-type: none">From the <i>Framework</i>: Pages 61–63
36	[WEBLINK] NASA missions

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Online Resources

Part B: Evidence of Earth's Movement

Lesson 4

Page	Resource Links
40	Performance Expectation: <ul style="list-style-type: none">• 5-ESS1-2 Evidence Statements for 5-ESS1-2
	Disciplinary Core Idea: ESS1.B <i>Earth and the Solar System</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 175–180
	Crosscutting Concept: <i>Patterns</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 85–87
	Science and Engineering Practices: <i>Analyzing and Interpreting Data</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 61–63

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Online Resources

Lesson 5

Page	Resource Links
45	Performance Expectation: <ul style="list-style-type: none">• 5-ESS1-2 Evidence Statements for 5-ESS1-2
	Disciplinary Core Idea: ESS1.B <i>Earth and the Solar System</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 175–180
	Crosscutting Concept: <i>Patterns</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 85–87
	Science and Engineering Practices: <i>Analyzing and Interpreting Data</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 61–63
49	[VIDEO] Night sky time lapse

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Online Resources

Lesson 6

Page	Resource Links
52	Performance Expectation: <ul style="list-style-type: none">• 5-ESS1-2 Evidence Statements for 5-ESS1-2
	Disciplinary Core Idea: ESS1.B <i>Earth and the Solar System</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 175–180
	Crosscutting Concept: <i>Patterns</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 85–87
	Science and Engineering Practices: <i>Analyzing and Interpreting Data</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 61–63
54	[VIDEO] Shadows
56	[VIDEOS] Eclipse 1 Eclipse 2

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Lesson 7

Page	Resource Links
58	Performance Expectation: <ul style="list-style-type: none"> • 5-ESS1-2 Evidence Statements for 5-ESS1-2
	Disciplinary Core Idea: ESS1.B <i>Earth and the Solar System</i> <ul style="list-style-type: none"> • From the <i>Framework</i>: Pages 175–180
	Crosscutting Concept: <i>Patterns</i> <ul style="list-style-type: none"> • From the <i>Framework</i>: Pages 85–87
	Science and Engineering Practices: <i>Analyzing and Interpreting Data</i> <ul style="list-style-type: none"> • From the <i>Framework</i>: Pages 61–63
60	[VIDEO] Earth’s rotation
61	[VIDEO] Moon shadow on Earth
63	[VIDEO] Moon phase modeling
	[VIDEO] Teacher background

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Lesson 8

Page	Resource Links
65	Performance Expectation: <ul style="list-style-type: none"> • 5-ESS1-2 Evidence Statements for 5-ESS1-2
	Disciplinary Core Idea: ESS1.B <i>Earth and the Solar System</i> <ul style="list-style-type: none"> • From the <i>Framework</i>: Pages 175–180
	Crosscutting Concept: <i>Patterns</i> <ul style="list-style-type: none"> • From the <i>Framework</i>: Pages 85–87
	Science and Engineering Practices: <i>Analyzing and Interpreting Data</i> <ul style="list-style-type: none"> • From the <i>Framework</i>: Pages 61–63
66	[IMAGE] Long-exposure night sky

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Part C: Stars

Lesson 9

Page	Resource Links
70	Performance Expectation: <ul style="list-style-type: none"> • 5-ESS1-1 Evidence Statements for 5-ESS1-1
	Disciplinary Core Idea: ESS1.A <i>The Universe and Its Stars</i> <ul style="list-style-type: none"> • From the <i>Framework</i>: Pages 173–174
	Crosscutting Concept: <i>Scale, Proportion, and Quantity</i> <ul style="list-style-type: none"> • From the <i>Framework</i>: Pages 89–91
	Science and Engineering Practices: <i>Engaging in Argument from Evidence</i> <ul style="list-style-type: none"> • From the <i>Framework</i>: Bottom of pages 71–74
71	[IMAGE] Night sky, star brightness variation

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Lesson 10

Page	Resource Links
75	Performance Expectation: <ul style="list-style-type: none"> • 5-ESS1-1 Evidence Statements for 5-ESS1-1
	Disciplinary Core Idea: ESS1.A <i>The Universe and Its Stars</i> <ul style="list-style-type: none"> • From the <i>Framework</i>: Pages 173–174
	Crosscutting Concept: <i>Scale, Proportion, and Quantity</i> <ul style="list-style-type: none"> • From the <i>Framework</i>: Pages 89–91
	Science and Engineering Practices: <i>Engaging in Argument from Evidence</i> <ul style="list-style-type: none"> • From the <i>Framework</i>: Bottom of pages 71–74
76	[IMAGE] Hubble Space Telescope image
77	[VIDEO] Star life cycle

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Online Resources

Lesson 11

Page	Resource Links
81	Performance Expectation: <ul style="list-style-type: none">• 5-ESS1-2 Evidence Statements for 5-ESS1-2
	Disciplinary Core Idea: ESS1.B <i>Earth and the Solar System</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 175–180
	Crosscutting Concept: <i>Patterns</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 85–87
	Science and Engineering Practices: <i>Analyzing and Interpreting Data</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 61–63
84	[WEBLINK] Local night sky projections

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Online Resources

Lesson 12

Page	Resource Links
86	Performance Expectation: <ul style="list-style-type: none">• 5-ESS1-2 Evidence Statements for 5-ESS1-2
	Disciplinary Core Idea: ESS1.B <i>Earth and the Solar System</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 175–180
	Crosscutting Concept: <i>Patterns</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 85–87
	Science and Engineering Practices: <i>Engaging in Argument from Evidence</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Bottom of pages 71–74

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Online Resources

Part D: Gravity

Lesson 13

Page	Resource Links
92	Performance Expectation: <ul style="list-style-type: none">• 5-PS2-1 Evidence Statements for 5-PS2-1
	Disciplinary Core Idea: PS2.B <i>Types of Interactions</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 116–118
	Crosscutting Concept: <i>Cause and Effect</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 87–89
	Science and Engineering Practices: <i>Engaging in Argument from Evidence</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Bottom of pages 71–74 <i>Developing and Using Models</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 56–59
97	[VIDEO] Bay of Fundy tides [VIDEO] Hopewell Cape tides

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Online Resources

Lesson 14

Page	Resource Links
99	Performance Expectation: <ul style="list-style-type: none">• 5-PS2-1 Evidence Statements for 5-PS2-1
	Disciplinary Core Idea: PS2.B <i>Types of Interactions</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 116–118
	Crosscutting Concept: <i>Cause and Effect</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 87–89
	Science and Engineering Practices: <i>Engaging in Argument from Evidence</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Bottom of pages 71–74 <i>Planning and Carrying Out Investigations</i> <ul style="list-style-type: none">• From the <i>Framework</i>: Pages 59–61

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[Unit Review Lesson](#) →

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Online Resources

Unit Review and Assessment

UR Lesson

Page	Resource Links
106	Performance Expectation: <ul style="list-style-type: none">• 5-ESS1-1• Evidence Statements for 5-ESS1-1
	Performance Expectation: <ul style="list-style-type: none">• 5-ESS1-2• Evidence Statements for 5-ESS1-2
	Performance Expectation: <ul style="list-style-type: none">• 5-PS2-1• Evidence Statements for 5-PS2-1
109	[WEBLINK] Key NASA missions [WEBLINK] Astronaut requirements

Culminating Unit Assessment

Page	Resource Links
149	Unit Assessment: Teacher Evaluation Guide

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Online Resources

Teacher Resources

Page	Resource Links
10	Resources for Effective & Safe Classroom Activities (also, see below re: page 153)
12	Materials Supply List: Grade 5 Unit 5 Astronomy: Space Systems
146	Activity Pages Answer Key
149	Unit Assessment: Teacher Evaluation Guide
153	Safety in the Science Classroom: <ul style="list-style-type: none">• NSTA Safety Resources• Safety Resources for Elementary Teachers
	Teacher Guide Appendices: <ul style="list-style-type: none">• Appendix A – Glossary• Appendix B – Safety for Activities• Appendix C – Strategies for Acquiring Materials• Appendix D – Advance Preparation• Appendix E – Unexpected Activity Results

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