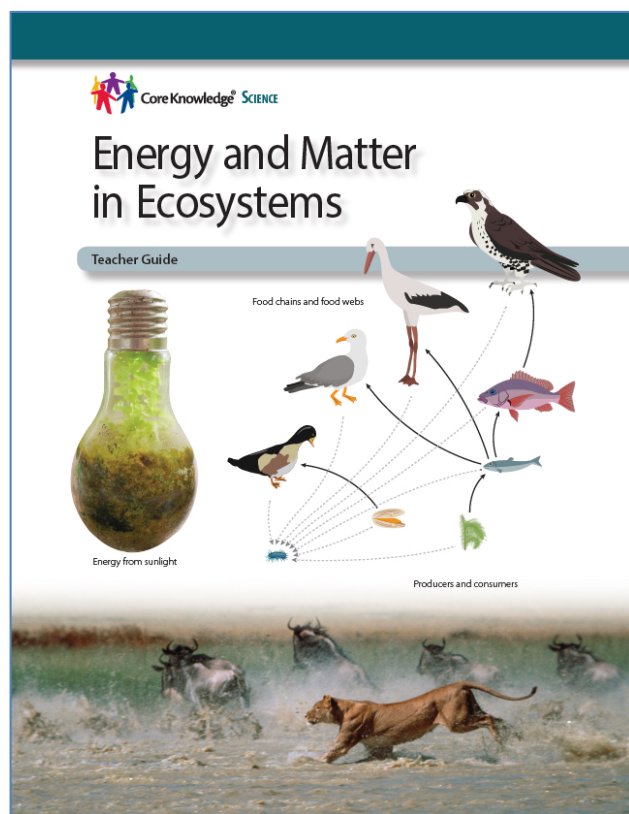


Energy and Matter in Ecosystems

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
	Lesson 4
Part B	Lesson 5
	Lesson 6
	Lesson 7
	Lesson 8
	Lesson 9
Part C	Lesson 10
	Lesson 11
	Lesson 12
	Lesson 13
	Lesson 14
	Lesson 15
Unit Review & Assessment	UR Lesson
	Culminating Assessment
	Teacher Resources



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

About This Unit

Page	Resource Links
1	<p>Note to Teachers and Curriculum Planners</p> <p>The learning progressions of Disciplinary Core Idea PS3.D Energy in Chemical Processes and Everyday Life; LS1.C: Organization for Matter and Energy Flow in Organisms; LS2.A: Interdependent Relationships in Ecosystems; and LS2.B: Cycles of Matter and Energy Transfer in Ecosystems offer guidance regarding the scope and sequence of learning about [topic] in the elementary grades and beyond.</p> <ul style="list-style-type: none"> Learn more about these core ideas and their related content by reading the corresponding section of <i>A Framework for K-12 Science Education</i>: pg. 128-130, 147-148, 150-154. <p>See also the Teachers Resources section of this guide.</p>
2	<p>Notes to Core Knowledge Teachers:</p> <p>2019 Core Knowledge Science Sequence for this unit:</p> <p>Domain—Energy and Matter in Ecosystems</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. Matter and Energy in Organisms and Ecosystems</p> <ul style="list-style-type: none"> 5-PS3-1 5-LS1-1 5-LS2-1
10	Resources for Effective and Safe Classroom Activities
11	Materials Supply List: Grade 5 Unit 2 Energy and Matter in Ecosystems
15	Pacing Guides for CKSci Grades 3–5

[← Table of Contents](#)

[Next lesson →](#)

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Part A: Organisms Need and Use Energy

Lesson 1

Page	Resource Links
19	Disciplinary Core Idea: PS3.D <i>Energy in Chemical Processes and Everyday Life</i> <ul style="list-style-type: none"> From the Framework: pg. 128-130
	Disciplinary Core Idea: LS1.C <i>Organization for Matter and Energy Flow in Organisms</i> <ul style="list-style-type: none"> From the Framework: pg. 147-148
	Crosscutting Concept: <i>Energy and Matter</i> <ul style="list-style-type: none"> From the Framework: Page 94-96
	Science and Engineering Practices: <i>Developing and Using Models</i> <ul style="list-style-type: none"> From the Framework: Page 56-59

[← Table of Contents](#)

[Next lesson →](#)

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Lesson 2

Page	Resource Links
26	Disciplinary Core Idea: PS3.D <i>Energy in Chemical Processes and Everyday Life</i> <ul style="list-style-type: none"> From the Framework: pg. 128-130
	Disciplinary Core Idea: LS1.C <i>Organization for Matter and Energy Flow in Organisms</i> <ul style="list-style-type: none"> From the Framework: pg. 147-148
	Crosscutting Concept: <i>Energy and Matter</i> <ul style="list-style-type: none"> From the Framework: Page 94-96
	Science and Engineering Practices: <i>Developing and Using Models</i> <ul style="list-style-type: none"> From the Framework: Page 56-59

[← Table of Contents](#)
[Next lesson →](#)

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Lesson 3

Page	Resource Links
34	Disciplinary Core Idea: PS3.D <i>Energy in Chemical Processes and Everyday Life</i> <ul style="list-style-type: none"> From the Framework: pg. 128-130
	Disciplinary Core Idea: LS1.C <i>Organization for Matter and Energy Flow in Organisms</i> <ul style="list-style-type: none"> From the Framework: pg. 147-148
	Crosscutting Concept: <i>Energy and Matter</i> <ul style="list-style-type: none"> From the Framework: Page 94-96
	Science and Engineering Practices: <i>Developing and Using Models</i> <ul style="list-style-type: none"> From the Framework: Page 56-59
34	<ul style="list-style-type: none"> Photosynthesis: Video

[← Table of Contents](#)
[Next lesson →](#)

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Lesson 4

Page	Resource Links
40	Disciplinary Core Idea: PS3.D <i>Energy in Chemical Processes and Everyday Life</i> <ul style="list-style-type: none"> From the Framework: pg. 128-130
	Disciplinary Core Idea: LS1.C <i>Organization for Matter and Energy Flow in Organisms</i> <ul style="list-style-type: none"> From the Framework: pg. 147-148
	Crosscutting Concept: <i>Energy and Matter</i> <ul style="list-style-type: none"> From the Framework: Page 94-96
	Science and Engineering Practices: <i>Developing and Using Models</i> <ul style="list-style-type: none"> From the Framework: Page 56-59

[← Table of Contents](#)
[Next lesson →](#)

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Part B: Plants and Animals

Lesson 5

Page	Resource Links
48	Disciplinary Core Idea: <i>LS1.C Organization for Matter and Energy Flow in Organisms</i> <ul style="list-style-type: none"> From the Framework: pg. 147-148
	Crosscutting Concept: <i>Energy and Matter</i> <ul style="list-style-type: none"> From the Framework: Page 94-96
	Science and Engineering Practices: <i>Engaging in Argument from Evidence</i> <ul style="list-style-type: none"> From the Framework: Bottom of pg. 71-74

[← Table of Contents](#)
[Next lesson →](#)

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Lesson 6

Page	Resource Links
53	Disciplinary Core Idea: LS1.C <i>Organization for Matter and Energy Flow in Organisms</i> <ul style="list-style-type: none"> From the Framework: pg. 147-148
	Crosscutting Concept: <i>Energy and Matter</i> <ul style="list-style-type: none"> From the Framework: Page 94-96
	Science and Engineering Practices: <i>Engaging in Argument from Evidence</i> <ul style="list-style-type: none"> From the Framework: Bottom of pg. 71-74

[← Table of Contents](#)
[Next lesson →](#)

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Lesson 7

Page	Resource Links
59	Disciplinary Core Idea: <i>LS1.C Organization for Matter and Energy Flow in Organisms</i> <ul style="list-style-type: none"> From the Framework: pg. 147-148
	Crosscutting Concept: <i>Energy and Matter</i> <ul style="list-style-type: none"> From the Framework: Page 94-96
	Science and Engineering Practices: <i>Engaging in Argument from Evidence</i> <ul style="list-style-type: none"> From the Framework: Bottom of pg. 71-74

[← Table of Contents](#)
[Next lesson →](#)

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Lesson 8

Page	Resource Links
64	Disciplinary Core Idea: <i>LS1.C Organization for Matter and Energy Flow in Organisms</i> <ul style="list-style-type: none"> From the Framework: pg. 147-148
	Crosscutting Concept: <i>Energy and Matter</i> <ul style="list-style-type: none"> From the Framework: Page 94-96
	Science and Engineering Practices: <i>Engaging in Argument from Evidence</i> <ul style="list-style-type: none"> From the Framework: Bottom of pg. 71-74

[← Table of Contents](#)
[Next lesson →](#)

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Lesson 9

Page	Resource Links
70	Disciplinary Core Idea: <i>LS1.C Organization for Matter and Energy Flow in Organisms</i> <ul style="list-style-type: none"> From the Framework: pg. 147-148
	Crosscutting Concept: <i>Energy and Matter</i> <ul style="list-style-type: none"> From the Framework: Page 94-96
	Science and Engineering Practices: <i>Engaging in Argument from Evidence</i> <ul style="list-style-type: none"> From the Framework: Bottom of pg. 71-74

[← Table of Contents](#)
[Next lesson →](#)

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Part C: Matter Cycles Through Ecosystems

Lesson 10

Page	Resource Links
80	Disciplinary Core Idea: LS2.A <i>Interdependent Relationships in Ecosystems</i> <ul style="list-style-type: none"> From the Framework: pg. 150-152
	Crosscutting Concept: <i>System and System Models</i> <ul style="list-style-type: none"> From the Framework: Page 91-94
	Crosscutting Concept: <i>Scale, Proportion, and Quantity</i> <ul style="list-style-type: none"> From the Framework: Page 89-91
	Science and Engineering Practices: <i>Developing and Using Models</i> <ul style="list-style-type: none"> From the Framework: Page 56-59
81	[video option] Types of Ecosystems
85	[video option] Hawaiian island ecosystem

[← Table of Contents](#)
[Next lesson →](#)

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Lesson 11

Page	Resource Links
88	Disciplinary Core Idea: LS2.A <i>Interdependent Relationships in Ecosystems</i> <ul style="list-style-type: none"> From the Framework: pg. 150-152
	Disciplinary Core Idea: LS2.B <i>Cycles of Matter and Energy Transfer in Ecosystems</i> <ul style="list-style-type: none"> From the Framework: pg. 152-154
	Science and Engineering Practices: <i>Developing and Using Models</i> <ul style="list-style-type: none"> From the Framework: Page 56-59
	Crosscutting Concept: <i>Scale, Proportion, and Quantity</i> <ul style="list-style-type: none"> From the Framework: Page 89-91
	Crosscutting Concept: <i>System and System Models</i> <ul style="list-style-type: none"> From the Framework: Page 91-94

[← Table of Contents](#)
[Next lesson →](#)

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Lesson 12

Page	Resource Links
92	Performance Expectation: <ul style="list-style-type: none"> • 5-LS2-1 • Evidence Statements for 5-LS2-1
	Disciplinary Core Idea: LS2.A <i>Interdependent Relationships in Ecosystems</i> <ul style="list-style-type: none"> • From the Framework: pg. 150-152
	Crosscutting Concept: <i>System and System Models</i> <ul style="list-style-type: none"> • From the Framework: Page 91-94
	Science and Engineering Practices: <i>Developing and Using Models</i> <ul style="list-style-type: none"> • From the Framework: Page 56-59
94	[video option] Eagles hunting
98	[video option] Food web

[← Table of Contents](#)
[Next lesson →](#)

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Lesson 13

Page	Resource Links
100	Performance Expectation: <ul style="list-style-type: none"> • 5-LS2-1 • Evidence Statements for 5-LS2-1
	Disciplinary Core Idea: LS2.A <i>Interdependent Relationships in Ecosystems</i> <ul style="list-style-type: none"> • From the Framework: pg. 150-152
	Crosscutting Concept: <i>System and System Models</i> <ul style="list-style-type: none"> • From the Framework: Page 91-94
	Science and Engineering Practices: <i>Developing and Using Models</i> <ul style="list-style-type: none"> • From the Framework: Page 56-59
101	[video option] Everglades Food Chain

[← Table of Contents](#)
[Next lesson →](#)

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Lesson 14

Page	Resource Links
107	Disciplinary Core Idea: LS2.A <i>Interdependent Relationships in Ecosystems</i> <ul style="list-style-type: none"> From the Framework: pg. 150-152
	Crosscutting Concept: <i>System and System Models</i> <ul style="list-style-type: none"> From the Framework: Page 91-94
	Science and Engineering Practices: <i>Developing and Using Models</i> <ul style="list-style-type: none"> From the Framework: Page 56-59
112	[video options] Deforestation Human effects on ecosystems

[← Table of Contents](#)
[Next lesson →](#)

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Lesson 15

Page	Resource Links
114	Disciplinary Core Idea: LS2.A <i>Interdependent Relationships in Ecosystems</i> <ul style="list-style-type: none"> From the Framework: pg. 150-152
	Disciplinary Core Idea: LS2.B <i>Cycles of Matter and Energy Transfer in Ecosystems</i> <ul style="list-style-type: none"> From the Framework: pg. 152-154
	Crosscutting Concept: <i>Scale, Proportion, and Quantity</i> <ul style="list-style-type: none"> From the Framework: Page 89-91
	Crosscutting Concept: <i>System and System Models</i> <ul style="list-style-type: none"> From the Framework: Page 91-94
	Science and Engineering Practices: <i>Developing and Using Models</i> <ul style="list-style-type: none"> From the Framework: Page 56-59

[← Table of Contents](#)
[Next lesson →](#)

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Online Resources

Unit Review and Assessment

UR Lesson

Page	Resource Links
120	NGSS Performance Expectations addressed by this unit: Topic— 5. Matter and Energy in Organisms and Ecosystems <ul style="list-style-type: none">• 5-PS3-1• 5-LS1-1• 5-LS2-1

Culminating Unit Assessment

Page	Resource Links
161	Unit Assessment Teacher Evaluation Guide

[← Table of Contents](#) [Next lesson →](#)

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Teacher Resources

Page	Resource Links
11	Resources for Effective and Safe Classroom Activities
12	Materials Supply List: Grade 5 Unit 2 Energy and Matter in Ecosystems
158	Activity Pages Answer Key
161	Unit Assessment: Teacher Evaluation Guide
	Safety in the Science Classroom: <ul style="list-style-type: none"> • NSTA Safety Resources • Safety Resources for Elementary Teachers (See also Appendix B below)
	Teacher Guide Appendices: <ul style="list-style-type: none"> • Appendix A -- Glossary • Appendix B -- Classroom Safety for Activities and Demonstrations • Appendix C -- Strategies for Acquiring Materials • Appendix D -- Advance Preparation for Activities and Demonstrations • Appendix E -- What to Do When Activities Don't Give Expected Results

← [Table of Contents](#)

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