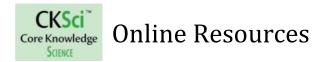


Weather Patterns

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 Acrobat Reader DC).

	About this Unit
Introduction	Introduction
Unit Opener	Unit Opener
Lesson 1	Segment 1
L esson 1	Segment 2
	Segment 3
Lesson 2	Segment 1
	Segment 2
	Segment 3
	Segment 4
Lesson 3	Segment 1
	Segment 2
	Segment 3
	Segment 4
Lesson 4	Segment 1
	Segment 2
	Segment 3
	Segment 4
Unit	Unit Capstone
Capstone	
Unit	Unit Supplement
Supplement	
<u> </u>	Teacher Resources

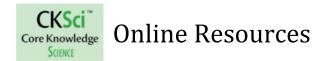




About this Unit

Page	Resource Links
2	 Note to Teachers and Curriculum Planners The learning progressions of Disciplinary Core Ideas PS1.A, PS3.B, ESS2.D, ESS3.A, ESS3.B, ETS1.A, ETS1.B, and ETS1.C offers guidance regarding the scope and sequence of learning about matter and its interactions, the conservation of energy and energy transfer, weather and climate, natural resources, and engineering design in the elementary grades and beyond. Learn more about this core idea and its related content by reading the corresponding section of A Framework for K-12 Science Education. See also the Teachers Resources section of this guide. To see an overview of the entire Core Knowledge Science program, visit this page.
3	This unit has been informed by the following Next Generation Science Standards (NGSS) Performance Expectations: Topic—Energy K-PS3-1 K-PS3-2 Topic—Earth and Human Activity K-ESS3-1 K-ESS3-1
10	Recommended Science Trade Books
13	NGSS References DCI CCC SEP
14	 Resources for Effective and Safe Classroom Activities Materials Supply List: Grade K Unit 4 Weather Patterns

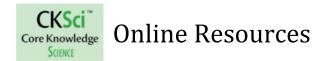
← Table of Contents Introduction →



Introductory Class Session

Page	Resource Links
19	Disciplinary Core Idea: PS3.B Conservation of Energy and Energy Transfer • From the Framework: Pages 124–126
	Science and Engineering Practices: 1 Asking Questions and Defining Problems • From the Framework: Pages 54–56 3 Planning and Carrying Out Investigations • From the Framework: Pages 59–61 6 Constructing Explanations and Designing Solutions • From the Framework: Pages 67–71 8 Obtaining, Evaluating, and Communicating Information • From the Framework: Pages 74–77
	Crosscutting Concept: 2 Cause and Effect • From the Framework: Pages 87–89 Connection to Engineering, Technology and Applications of Science
21	Interdependence of Science, Engineering, and Technology [WEBLINK]Heat Waves

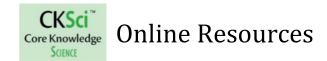
← Table of Contents Unit Opener →



Unit Opener

Page	Resource Links
28	Disciplinary Core Idea: ESS2.D Weather and Climate • From the Framework: Pages 186–189
	Science and Engineering Practice: 3 Planning and Carrying Out Investigations • From the Framework: Pages 59–61
	Crosscutting Concept: 1 Patterns • From the Framework: Pages 85–87
31	[VIDEO]A Song About Weather
36	[VIDEO]National Weather Service Balloon Launch

← Table of Contents Next Lesson →



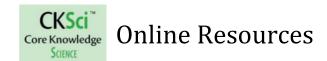
Lesson 1 Opener

Page	Resource Links
38	NGSS References
	DCICCCSEP

Lesson 1, Segment 1

Page	Resource Links
39	Disciplinary Core Ideas: PS1.A Structures and Properties of Matter • From the Framework: Pages 106–109 PS3.B Conservation of Energy and Energy Transfer • From the Framework: Pages 124–126
	Science and Engineering Practices: 1 Asking Questions and Defining Problems • From the Framework: Pages 54–56 3 Planning and Carrying Out Investigations • From the Framework: Pages 59–61
	Crosscutting Concept: 1 Patterns • From the Framework: Pages 85–87 Understanding About the Nature of Science Scientific Investigations Use a Variety of Methods

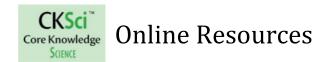
← Table of Contents Next Lesson →



Lesson 1, Segment 2

Page	Resource Links
45	Performance Expectation: • K-PS3-1 Evidence Statements for K-PS3-1
	Disciplinary Core Idea: PS3.B Conservation of Energy and Energy Transfer • From the Framework: Pages 124–126
	Science and Engineering Practice: 3 Planning and Carrying Out Investigations • From the Framework: Pages 59–61
	Crosscutting Concepts: 2 Cause and Effect • From the Framework: Pages 87–89 3 Scale, Proportion, and Quantity • From the Framework: Pages 89–91 Understanding About the Nature of Science Scientific Investigations Use a Variety of Methods

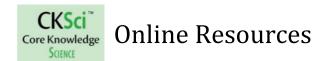
← Table of Contents Next Lesson →



Lesson 1, Segment 3

Page	Resource Links
51	Disciplinary Core Idea: PS3.B Conservation of Energy and Energy Transfer • From the Framework: Pages 124–126
	Science and Engineering Practices: 2 Developing and Using Models • From the Framework: Pages 56–59 6 Constructing Explanations and Designing Solutions • From the Framework: Pages 67–71 8 Obtaining, Evaluating, and Communicating Information • From the Framework: Pages 74–77
	Crosscutting Concepts: 1 Patterns • From the Framework: Pages 85–87 2 Cause and Effect • From the Framework: Pages 87–89 Understanding About the Nature of Science Scientific Investigations Use a Variety of Methods
53	[VIDEO]Sun and Space Song

← Table of Contents Next Lesson →



Lesson 2 Opener

Page	Resource Links
63	NGSS References
	DCICCCSEP

Lesson 2, Segment 1

Page	Resource Links
64	Performance Expectation: • K-2-ETS1-1 Evidence Statements for K-2-ETS1-1
	Disciplinary Core Ideas: PS3.B Conservation of Energy and Energy Transfer • From the Framework: Pages 124–126 ETS1.A Defining and Delimiting Engineering Problems • From the Framework: Pages 204–206 ESS3.A Natural Resources • From the Framework: Pages 191–192
	Science and Engineering Practice: 1 Asking Questions and Defining Problems • From the Framework: Pages 54–56
	Crosscutting Concepts: 2 Cause and Effect • From the Framework: Pages 87–89 6 Structure and Function • From the Framework: Pages 96–98

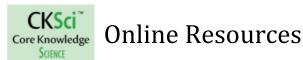
← Table of Contents Next Lesson →



Core Knowledge Online Resources

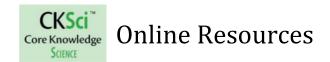
Lesson 2, Segment 2

Page	Resource Links
71	Performance Expectations:
/1	K-PS3-2
	Evidence Statements for K-PS3-2
	• K-2-ETS1-1
	Evidence Statements for K-2-ETS1-1
	Disciplinary Core Ideas:
	PS3.B Conservation of Energy and Energy Transfer
	From the Framework:
	Pages 124–126
	ETS1.B Developing Possible Solutions
	From the Framework:
	Pages 206–208
	Science and Engineering Practices:
	2 Developing and Using Models
	• From the Framework:
	Pages 56–59
	6 Constructing Explanations and Designing Solutions
	 From the Framework: Pages 67–71
	8 Obtaining, Evaluating, and Communicating
	Information
	From the Framework:
	Pages 74–77
	Crosscutting Concepts:
	2 Cause and Effect
	• From the Framework:
	Pages 87–89
	6 Structure and Function
	 From the Framework: Pages 96–98
	rugus /v /v



77	[VIDEO]
	Architecture
	Architect Song

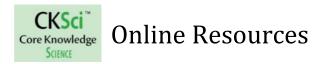
← Table of Contents Next Lesson →



Lesson 2, Segment 3

Page	Resource Links
79	
19	Performance Expectation: • K-PS3-2
	Evidence Statements for K-PS3-2
	Disciplinary Core Ideas:
	PS3.B Conservation of Energy and Energy Transfer
	From the Framework:
	Pages 124–126
	ETS1.C Optimizing the Design Solutions
	From the Framework:
	Pages 208–210
	Science and Engineering Practices:
	3 Planning and Carrying Out Investigations
	From the Framework:
	Pages 59-61
	4 Analyzing and Interpreting Data
	From the Framework:
	Pages 61–63
	6 Constructing Explanations and Designing Solutions
	• From the Framework:
	Pages 67–71
	Crosscutting Concepts:
	2 Cause and Effect
	 From the Framework:
	Pages 87–89
	6 Structure and Function
	From the Framework:
	Pages 96-98

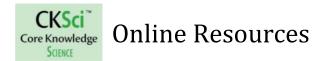
← Table of Contents Next Lesson →



Lesson 2, Segment 4

Page	Resource Links
85	Performance Expectation:
0.5	• K-2-ETS1-3
	Evidence Statements for K-2-ETS1-3
	Disciplinary Core Ideas:
	PS3.B Conservation of Energy and Energy Transfer
	From the Framework:
	Pages 124–126
	ETS1.C Optimizing the Design Solutions
	From the Framework:
	Pages 208–210
	Crosscutting Concepts:
	1 Asking Questions and Defining Problems
	From the Framework:
	Pages 54–56
	4 Analyzing and Interpreting Data
	• From the Framework:
	Pages 61–63
	Crosscutting Concepts:
	2 Cause and Effect
	• From the Framework:
	Pages 87–89
	6 Structure and FunctionFrom the Framework:
	Pages 96–98
87	[Weblink]Vocabulary Development
	[VIDEO]
	What's an Engineer? Introduction to Engineering
00	Introduction to Engineering
89	[VIDEO] <i>Umbrella</i> by Taro Yashima

← Table of Contents Next Lesson →



Lesson 3 Opener

Page	Resource Links
92	NGSS References
	• DCI • CCC
	• SEP

Lesson 3, Segment 1

Page	Resource Links
93	Disciplinary Core Idea: ESS2.D Weather and Climate • From the Framework: Pages 186–189
	Science and Engineering Practices: 2 Developing and Using Models • From the Framework: Pages 56–59 3 Planning and Carrying Out Investigations • From the Framework: Pages 59–61 4 Analyzing and Interpreting Data • From the Framework: Pages 61–63 6 Constructing Explanations and Designing Solutions • From the Framework: Pages 67–71



Online Resources

Crosscutting Concepts:

1 Patterns

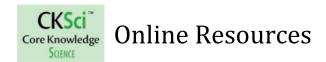
From the Framework: Pages 85–87

3 Scale, Proportion, and Quantity

• From the Framework: Pages 89–91

← Table of Contents

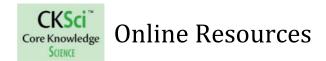
Next Lesson →



Lesson 3, Segment 2

Page	Resource Links
100	Disciplinary Core Idea: ESS2.D Weather and Climate • From the Framework: Pages 186–189
	Science and Engineering Practices: 4 Analyzing and Interpreting Data • From the Framework: Pages 61–63 6 Constructing Explanations and Designing Solutions • From the Framework: Pages 67–71
	Crosscutting Concepts: 1 Patterns • From the Framework: Pages 85–87 3 Scale, Proportion, and Quantity • From the Framework: Pages 89–91
101	[VIDEO]Investigating Weather

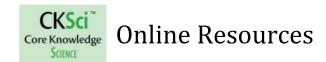
← Table of Contents Next Lesson →



Lesson 3, Segment 3

Page	Resource Links
105	Performance Expectation: • K-ESS2-1 Evidence Statements for K-ESS2-1
	Disciplinary Core Idea: ESS2.D Weather and Climate • From the Framework: Pages 186–189
	Science and Engineering Practices: 4 Analyzing and Interpreting Data • From the Framework: Pages 61–63 8 Obtaining, Evaluating, and Communicating Information • From the Framework:
	Pages 74–77 Crosscutting Concepts: 1 Patterns • From the Framework:
	Pages 85–87 3 Scale, Proportion, and Quantity • From the Framework: Pages 89–91
106	[VIDEO]Weather and Seasons
108	[WEBLINK] Comparative Climatic Data Raw Climatic Data Table

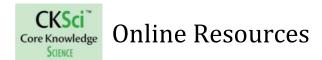
← Table of Contents Next Lesson



Lesson 3, Segment 4

Page	Resource Links
110	Disciplinary Core Idea:
	ESS2.D Weather and Climate
	From the Framework:
	Pages 186–189
	Science and Engineering Practices:
	2 Developing and Using Models
	From the Framework:
	Pages 56–59
	4 Analyzing and Interpreting Data
	• From the Framework:
	Pages 61–63
	6 Constructing Explanations and Designing Solutions
	• From the Framework:
	Pages 67–71 8 Obtaining, Evaluating, and Communicating
	Information
	From the Framework:
	Pages 74–77
	Crosscutting Concept:
	1 Patterns
	From the Framework:
	Pages 85–87
	Understanding About the Nature of Science
	Scientific Knowledge Is Based on Empirical Evidence
111	[WEBLINK]Astronomical and Meteorological Seasons

← Table of Contents Next Lesson



Lesson 4 Opener

Page	Resource Links
123	NGSS References
	• DCI
	• CCC
	• SEP

Lesson 4, Segment 1

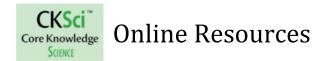
Page	Resource Links
124	Disciplinary Core Ideas: ESS3.B Natural Hazards • From the Framework: Pages 192–194 ETS1.A Defining and Delimiting Engineering Problems • From the Framework: Pages 204–206
	Science and Engineering Practices: 1 Asking Questions and Defining Problems • From the Framework: Pages 54–56 8 Obtaining, Evaluating, and Communicating Information • From the Framework: Pages 74–77
	Crosscutting Concept: 2 Cause and Effect • From the Framework: Pages 87–89 Connection to Engineering, Technology and Applications of Science Interdependence of Science, Engineering, and Technology



Online Resources

126	[VIDEO]Warning Sirens
127	[VIDEO]
	Heat Wave Safety
	What Is a Heat Wave?
	Teacher Reference: What Causes Heat Waves?
128	[VIDEO]
	Hurricanes for Kids
	What Is a Hurricane?
129	[VIDEO]Close-Up of a Tornado
130	[VIDEO]Close-Up of a Blizzard [WEBLINK]Prepare with Pedro

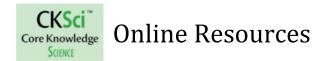
← Table of Contents Next Lesson →



Lesson 4, Segment 2

Page	Resource Links
132	Disciplinary Core Ideas: ESS3.B Natural Hazards • From the Framework: Pages 192–194 ETS1.A Defining and Delimiting Engineering Problems • From the Framework: Pages 204–206
	Science and Engineering Practice: 8 Obtaining, Evaluating, and Communicating Information • From the Framework: Pages 74–77
	Crosscutting Concepts: 1 Patterns • From the Framework: Pages 85–87 2 Cause and Effect • From the Framework: Pages 87–89
136	[VIDEO]Blizzard Preview Trailer
137	[WEBLINK]State Drought Map

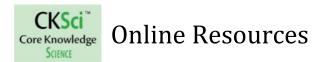
← Table of Contents Next Lesson →



Lesson 4, Segment 3

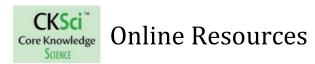
Page	Resource Links
138	Disciplinary Core Ideas:
	ESS3.B Natural Hazards
	 From the Framework:
	Pages 192–194
	ETS1.A Defining and Delimiting Engineering Problems
	 From the Framework:
	Pages 204–206
	Science and Engineering Practices:
	6 Constructing Explanations and Designing Solutions
	 From the Framework:
	Pages 67–71
	8 Obtaining, Evaluating, and Communicating Information
	 From the Framework: Pages 74–77
	Crosscutting Concepts:
	1 Patterns
	 From the Framework: Pages 85–87
	2 Cause and Effect
	 From the Framework: Pages 87–89
	Connection to Engineering, Technology and Applications of Science
	Influence of Engineering, Technology, and Science on Society and the Natural World
140	[WEBLINK]Forecast Map
141	[VIDEO]Sound of an Emergency Siren

← Table of Contents Next Lesson →



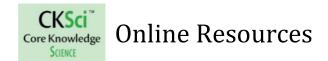
Lesson 4, Segment 4

Page	Resource Links
144	Performance Expectation: • K-ESS3-2 Evidence Statements for K-ESS3-2
	Disciplinary Core Ideas: ESS3.B Natural Hazards • From the Framework: Pages 192–194 ETS1.A Defining and Delimiting Engineering Problems • From the Framework: Pages 204–206
	Science and Engineering Practices: 1 Asking Questions and Defining Problems • From the Framework: Pages 54–56 6 Constructing Explanations and Designing Solutions • From the Framework: Pages 67–71 8 Obtaining, Evaluating, and Communicating Information • From the Framework: Pages 74–77
	Crosscutting Concept: 1 Patterns • From the Framework: Pages 85–87
	Connection to Engineering, Technology and Applications of Science Influence of Engineering, Technology, and Science on Society and the Natural World
151	[VIDEO]After a Blizzard
155	[WEBLINK]Checklist for a Go Bag for a Pet



← Table of Contents

<u>Unit Capstone</u> →



Unit Capstone

Page	Resource Links
159	Performance Expectations:
	• K-PS3-1
	Evidence Statements for K-PS3-1
	• K-ESS2-1
	Evidence Statements for K-ESS2-1
	• K-ESS3-2
	Evidence Statements for K-ESS3-2
	Disciplinary Core Ideas:
	PS3.B Conservation of Energy and Energy Transfer
	From the Framework:
	Pages 124–126
	ESS2.D Weather and Climate
	From the Framework:
	Pages 186–189
	ESS3.B Natural Hazards
	From the Framework:
	Pages 192–194
	ETS1.A Defining and Delimiting Engineering Problems
	From the Framework:
	Pages 204–206
	Science and Engineering Practices: 4 Analyzing and Interpreting Data
	From the Framework:
	Pages 61–63
	6 Constructing Explanations and Designing Solutions
	From the Framework:
	Pages 67–71
	<u> </u>
	Crosscutting Concepts: 1 Patterns
	From the Framework:
	TIOIII UIE FIAIIIEWOIK:



Online Resources

Pages 85-87

2 Cause and Effect

• From the Framework: Pages 87–89

Understanding About the Nature of Science

- Scientific Investigations Use a Variety of Methods
- Scientific Knowledge Is Based on Empirical Evidence

Connection to Engineering, Technology and Applications of Science

- Influence of Engineering, Technology, and Science on Society and the Natural World
- Interdependence of Science, Engineering, and Technology

← Table of Contents

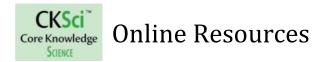
Unit Supplement →



Unit Supplement

Page	Resource Links
165	Understanding About the Nature of Science
	 Scientific Investigations Use a Variety of Methods Scientific Knowledge Assumes an Order and Consistency in Natural Systems
	Crosscutting Concept: 1 Patterns
	From the Framework:
	<u>Pages 85–87</u>
	Connection to Engineering, Technology and
	Applications of Science
	 Influence of Engineering, Technology, and Science
	on Society and the Natural World
	 Interdependence of Science, Engineering, and
	<u>Technology</u>

← Table of Contents Teacher Resources →



Teacher Resources

Page	Resource Links
14	Resources for Effective and Safe Classroom Activities Materials Supply List: Grade K Unit 4 Weather Patterns
205	Activity Pages Answer Key
209	Safety in the Science Classroom: • NSTA Safety Resources • Safety Resources for Elementary Teachers
	 Teacher Guide Appendices: Appendix A: Glossary Appendix B: Safety for Activities Appendix C: Strategies for Acquiring Materials Appendix D: Advance Preparation Appendix E: Unexpected Activity Results

← <u>Table of Contents</u>