

**Standards Map for Kindergarten Through Grade Eight
Kindergarten – California Next Generation Science Standards**

K-LS1 From Molecules to Organisms: Structures and Processes

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts	Publisher Citations	Meets Standard		Reviewer Comments, Citations, and Questions	Performance Expectation	Publisher Citations	Meets Standard		Reviewer Comments, Citations, and Questions
		Y	N				Y	N	
SEP Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations. <ul style="list-style-type: none"> Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-LS1-1) 	FOSS Animals Two by Two IG: pp. 75, 94, 106 (Step 11), 109, 139 (Step 1), 165, 240 SRB: pp. 9, 36, 47-54, 56 DOR: <i>Seashore Surprise</i> (Link) FOSS Trees and Weather IG: pp. 77, 102 (Step 4), 104 (Step 6), 108, 134, 149 (Step 7), 150, 214, 227 (Step 4), 255, 266 SRB: pp. 58-59 TR: pp. C17-C19, C34-C37				K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive. [Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of	FOSS Animals Two by Two IG: pp. 37, 39, 41 FOSS Assessment System <u>Embedded Assessment Performance Assessment</u> IG p. 87 (Step 6) IG p. 90 (Step 11) IG p. 189 (Step 14) AC: pp. 1-5 FOSS Trees and Weather IG: pp. 41, 43, 45			
	Connections to Nature of Science Scientific Knowledge is Based on Empirical Evidence Scientists look for patterns and order	FOSS Animals Two by Two IG: pp. 200 and 213						FOSS Assessment System	

	<p>when making observations about the world. (K-LS1-1)</p>	<p>FOSS Trees and Weather IG: p.139 (Step 1), 140 (Step 9), 145-147, 162 (Step 8) DOR: <i>Once There Was a Tree</i> (Link)</p>				<p>plants to have light; and that all living things need water.]</p>	<p><u>Embedded Assessment</u> <i>Performance Assessment</i> IG p. 116 (Step 11) IG p. 121 (Step 9) AC: pp. 1, 3-6</p>			
<p>DCI</p>	<p>LS1.C: Organization for Matter and Energy Flow in Organisms</p> <ul style="list-style-type: none"> All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow. (K-LS1-1) 	<p>FOSS Animals Two by Two IG: pp. 37, 75, 88 (Step 1), 87, 90, 106 (Step 11), 151, 165, 167, 183, 189, 199, 201, 226, 240 SRB: pp. 5, 22, 38, 65-66, 68</p> <p>FOSS Trees and Weather IG: pp. 41, 77, 79, 133, 159 (Step 6), 162, 213, 215, 220 (Step 6), 228 (Step 6), 242 (Step 7), 255, 257 (Step 10) SRB: pp. 14-19, 50, 53 DOR: “Who Lives Here?” (Link) <i>Summer</i> (Link)</p>								
<p>CCC</p>	<p>Patterns</p> <ul style="list-style-type: none"> Patterns in the natural and human designed world can be observed and used as evidence. (K-LS1-1) 	<p>FOSS Animals Two by Two IG: pp. 76, 97, 98, 102, 111, 113, 150, 166, 183 (Step 5), 184 (Step 3), 187, 200, 203, 221, 240</p>								

	<p>SRB: pp. 10-19, 20-26, 37-47, 55-63</p> <p>FOSS Trees and Weather</p> <p>IG: pp. 78, 98 (Step 4), 100, 109, 116 (Step 11), 123, 134, 144 (Step 8), 146, 150, 214, 231, 243, 255, 257, 266</p> <p>SRB: p. 59</p> <p>TR: pp. D5-D8, D24-D25</p>								
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California Department of Education

K-ESS2 Earth's Systems

Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts	Publisher Citations	Meets Standard		Reviewer Comments, Citations, and Questions	Performance Expectation	Publisher Citations	Meets Standard		Reviewer Comments, Citations, and Questions
		Y	N				Y	N	

<p>SEP</p>	<p>Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (K-ESS2-1) 	<p>FOSS Trees and Weather IG: pp. 174, 181, 185 (Step 7), 187, 195, 201, 202, 214, 227, 241, 254, 266 SRB: pp. 32-37 TR: pp. C17-C19, C34-C37</p>				<p>K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time. [Clarification Statement: Examples of qualitative observations could include descriptions of the weather (Such as sunny, cloudy, rainy, and warm); examples of quantitative observations could include numbers of sunny, windy, and rainy days</p>	<p>FOSS Trees and Weather IG: pp. 41, 43, 45</p> <p>FOSS Assessment System</p> <p><u>Embedded Assessment</u> <i>Performance Assessment</i></p>			
<p>SEP</p>	<p>Connections to Nature of Science Science Knowledge is Based on Empirical Evidence</p> <ul style="list-style-type: none"> Scientists look for patterns and order when making observations about the world. (K-ESS2-1) 	<p>FOSS Trees and Weather IG: pp. 180 (Step 6) and 256 (Step 9) SRB: p. 29</p>					<p>IG p. 178 (Step 9) IG pp. 180-181 (Steps 8-9) IG p. 202 (Steps 20-21) IG p. 222 (Step 8)</p>			
<p>DCI</p>	<p>ESS2.D: Weather and Climate</p> <ul style="list-style-type: none"> Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time. (K-ESS2-1) 	<p>FOSS Trees and Weather IG: pp. 39, 44-45, 167, 173, 175, 178 (Step 9), 202 (Steps 20-21), 205, 213, 226, 234, 253, 255, 266 SRB: pp. 38-40, 42-44, 59</p>					<p>AC: pp. 2-6</p>			

CCC	<p>Patterns</p> <ul style="list-style-type: none"> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (K-ESS2-1) 	<p>FOSS Trees and Weather</p> <p>IG: pp. 174, 188, 214, 215, 240, 243, 257, 266</p> <p>SRB: pp. 29 and 59</p> <p>TR: pp. D5-D8, D24-D25</p>				<p>in a month. Examples of patterns could include that it is usually cooler in the morning than in the afternoon and the number of sunny days versus cloudy days in different months.]</p> <p><i>[Assessment Boundary: Assessment of quantitative observations is limited to whole numbers and relative measures such as warmer/cooler.]</i></p>			

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<p>SEP</p>	<p>EngAMing in Argument from Evidence EngAMing in argument from evidence in K–2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(S). <ul style="list-style-type: none"> Construct an argument with evidence to support a claim. (K-ESS2-2) </p>	<p>FOSS Animals Two by Two IG: pp. 127, 151, 165, 181 (Step 19), 183 (Step 5), 189, 240 FOSS Trees and Weather IG: pp. 78, 85 (Step 14), 91, 134, 144, 266 TR: pp. C25-C27, C40-C41</p>				<p>K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. [Clarification Statement: Examples of plants and animals changing their environment could include how a squirrel digs in the ground to hide its food and tree roots can break concrete.]</p>	<p>FOSS Animals Two by Two IG: pp. 37, 39, 41 FOSS Assessment System <u>Embedded Assessment</u> <i>Performance Assessment</i> IG p. 87 (Step 6) IG p. 144 (Step 12) IG p. 151 (Steps 22-23) IG p. 183 (Step 5) IG p. 189 (Step 14) AC: pp. 1-5 FOSS Trees and Weather IG: pp. 41, 43, 45 FOSS Assessment System <u>Embedded Assessment</u> <i>Performance Assessment</i> IG p. 85 (Step 14) IG p. 91 (Step 16)</p>			
<p>DCI</p>	<p>ESS2.E: Biogeology <ul style="list-style-type: none"> Plants and animals can change their environment. (K-ESS2-2) </p>	<p>FOSS Animals Two by Two IG: pp. 37, 38-40, 41-42, 75, 87, 126, 144 (Step 12), 151, 165, 167, 176 (Step 7), 189, 228, 240 FOSS Trees and Weather IG: pp. 41, 42-43, 69, 77, 89 (Step 8), 127, 133, 159, 162 (Step 8), 266 DOR: <i>Once There Was a Tree</i> (Link)</p>								
<p>DCI</p>	<p>ESS3.C: Human Impacts on Earth Systems <ul style="list-style-type: none"> Things that people do to live </p>	<p>FOSS Materials and Motion IG: pp. 137, 140</p>					<p>AC: pp. 1, 3-6</p>			

	comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (Secondary to K-ESS2-2)	(Step 13), 141 (Step 14), 190 (Step 8), 191 (Step 1), 195, 247 (Step 2), 249 (Step 10) SRB: pp. 41-46 DOR: <i>What is Agriculture?</i> (Link) "Recycling Center" (Link)								
CCC	Systems and System Models <ul style="list-style-type: none"> Systems in the natural and designed world have parts that work together. (K-ESS2-2) 	FOSS Animals Two by Two IG: pp. 76, 85, 128, 166, 176 (Step 7), 228, 230, 266 FOSS Trees and Weather IG: pp. 78, 85 (Step 14), 94, 98 (Step 4) TR: pp. D14-D15, D28-D29								

K-ESS3 Earth and Human Activity

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		Y	N				Y	N	

<p>SEP</p>	<p>Developing and Using Models Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diAMram, drawing, physical replica, diorama, dramatization, storyboard) that represent concrete events or design solutions.</p> <ul style="list-style-type: none"> Use a model to represent relationships in the natural world. (K-ESS3-1) 	<p>FOSS Animals Two by Two IG: pp. 75, 92 (Step 4), 165, 176 (Step 7), 181 (Step 19), 240, 266</p> <p>FOSS Trees and Weather IG: pp.78, 94, 98 (Step 4)</p> <p>TR: pp. C11-C13, C30-C31</p>				<p>K-ESS3-1. Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live. [Clarification Statement: Examples of</p>	<p>FOSS Animals Two by Two IG: pp. 37, 39, 41</p> <p>FOSS Assessment System</p> <p><u>Embedded Assessment</u> <i>Performance Assessment</i> IG p. 92 (Step 4) IG p. 95 (Step 8) IG p. 97 (Step 5) IG p. 103 (Step 14)</p>			
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<p>DCI</p>	<p>ESS3.A: Natural Resources</p> <ul style="list-style-type: none"> Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1) 	<p>FOSS Animals Two by Two IG: pp. 37, 38-39, 40-41, 74, 77, 126, 129, 151, 164, 167, 176 (Step 7), 178, 183 (Step 5), 227, 240 SRB: pp. 19, 38, 65</p> <p>FOSS Trees and Weather IG: pp. 77, 79, 107 (Step 8), 116 (Step 11), 123, 213, 240, 255, 266 SRB: pp. 4-12, 14-19</p>				<p>relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.]</p>	<p>IG p. 176 (Step 7) IG p. 180 (Step 18)</p> <p>AC: pp. 1-5</p> <p>FOSS Trees and Weather IG: pp. 41, 43, 45</p> <p>FOSS Assessment System</p> <p><u>Embedded Assessment Performance Assessment</u> IG p. 107 (Step 8) IG p. 116 (Step 11) IG p. 121 (Step 9) IG p. 240 (Step 5) IG p. 243 (Step 8)</p> <p>AC: pp. 1, 3-6</p>			

CCC	Systems and System Models <ul style="list-style-type: none">Systems in the natural and designed world have parts that work together. (K-ESS3-1)	FOSS Animals Two by Two IG: pp. 75, 92 (Step 4), 106 (Step 11), 109, 128, 166, 172, 179, 240 FOSS Trees and Weather IG: pp. 78, 100, 103, 266 TR: pp. D14-D15, D28-D29								
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			Y	N				Y	N	
SEP	<p>Asking Questions and Defining Problems</p> <p>Asking questions and defining problems in grades K–2 builds on prior experiences and progresses to simple descriptive questions that can be tested.</p> <ul style="list-style-type: none"> Ask questions based on observations to find more information about the designed world. (K-ESS3-2) 	<p>FOSS Trees and Weather</p> <p>IG: pp. 179, 199 (Step 12), 266</p> <p>SRB: pp. 33-37</p> <p>TR: pp. C7-C10, C30-C31</p>				<p>K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.*</p> <p>[Clarification Statement: Emphasis is on local forms of severe weather.]</p>	<p>FOSS Trees and Weather</p> <p>IG: pp. 41, 43, 45</p> <p>FOSS Assessment System Embedded Assessment Performance Assessment</p> <p>IG p. 198 (Step 10)</p> <p>IG p. 200 (Step 14)</p> <p>IG p. 202 (Steps 20-21)</p> <p>AC: pp. 2-6</p>			
SEP	<p>Obtaining, Evaluating, and Communicating Information</p> <p>Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</p> <ul style="list-style-type: none"> Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world. (K-ESS3-2) 	<p>FOSS Trees and Weather</p> <p>IG: pp. 174, 182, 198</p> <p>SRB: pp. 44-45</p> <p>TR: pp. C28-C29, C40-C41</p>								
DCI	<p>ESS3.B: Natural Hazards</p> <ul style="list-style-type: none"> Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. (K-ESS3-2) 	<p>FOSS Trees and Weather</p> <p>IG: pp. 44-45, 167, 173, 200 (Steps 13-14), 202 (Step 20), 266</p> <p>SRB: pp. 42-44</p> <p>DOR: <i>Come a Tide</i></p>								

		(Link)							
DCI	ETS1.A: Defining and Delimiting an Engineering Problem <ul style="list-style-type: none"> Asking questions, making observations, and gathering information are helpful in thinking about problems. (Secondary to K-ESS3-2) 	FOSS Trees and Weather IG: pp. 44-45, 173, 200 (Steps 13-14)							
CCC	Cause and Effect <ul style="list-style-type: none"> Events have causes that generate observable patterns. (K-ESS3-2) 	FOSS Trees and Weather IG: pp. 188, 195, 266 SRB: pp. 39-40 TR: pp. D9-D11, D24-D27							
CCC	Connections to Engineering, Technology, and Applications of Science Interdependence of Science, Engineering, and Technology <ul style="list-style-type: none"> People encounter questions about the natural world every day. (K-ESS3-2) 	FOSS Trees and Weather IG: pp. 175, 198, 199 SRB: pp. 41 and 44 TR: pp. D9-D11, D24-D27							
CCC	Connections to Engineering, Technology, and Applications of Science Influence of Engineering, Technology, and Science on Society and the Natural World <ul style="list-style-type: none"> People depend on various technologies in their lives; human life would be very different without technology. (K-ESS3-2) 	FOSS Trees and Weather IG: pp. 198 and 200 (Steps 13-14) SRB: pp. 38-40							

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Disciplinary Core Ideas Crosscutting Concepts			Standard		Citations, and Questions	Expectation		Standard		Citations, and Questions
			Y	N				Y	N	
SEP	<p>Obtaining, Evaluating, and Communicating Information</p> <p>Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information.</p> <ul style="list-style-type: none"> Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. (K-ESS3-3) 	<p>FOSS Materials and Motion</p> <p>IG: pp. 86, 162, 212-213, 218, 248-249, 317</p> <p>SRB: pp. 41-46</p> <p>TR: pp. C28-C29, C40-C41</p>				<p>K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment. *</p> <p>[Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.]</p>	<p>FOSS Materials and Motion</p> <p>IG: pp. 45, 49</p> <p>FOSS Assessment System</p> <p><u>Embedded Assessment Performance Assessment</u></p> <p>IG p. 93 (Step 17)</p> <p>IG p. 103 (Step 23)</p> <p>IG p. 137 (Step 7)</p> <p>IG p. 141 (Steps 15-16)</p> <p>IG p. 171 (Step 13)</p> <p>IG p. 190 (Step 8)</p> <p>IG p. 195 (Step 11)</p> <p>IG p. 250 (Step 14)</p> <p>AC: pp. 1, 3-6</p>			
DCI	<p>ESS3.C: Human Impacts on Earth Systems</p> <ul style="list-style-type: none"> Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. (K-ESS3-3) 	<p>FOSS Materials and Motion</p> <p>IG: pp. 93, 97, 137, 141 (Step 14), 167, 190, 239, 246, 247-248, 249-250 (Step 10), 316</p> <p>SRB: pp. 41 and 45</p> <p>DOR: <i>What is Agriculture?</i> (Link)</p> <p><i>Environmental Health</i> (Link)</p>								
	<p>ETS1.B: Developing Possible Solutions</p> <ul style="list-style-type: none"> Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people. (Secondary to K-ESS3-3) 	<p>FOSS Materials and Motion</p> <p>IG: pp. 31, 46-47, 48-49, 85, 143, 161, 195, 198, 249 (Step 10), 250 (Step 14), 316</p> <p>DOR: “Recycling Center” (Link)</p>								

CCC	Cause and Effect <ul style="list-style-type: none"> Events have causes that generate observable patterns. (K-ESS3-3) 	FOSS Materials and Motion IG: pp. 86, 137, 162, 201, 218, 317 SRB: p. 46 TR: pp. D9-D11, D24-D27								

K-PS2 Motion and Stability: Forces and Interactions

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			Y	N				Y	N	
SEP	Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations,	FOSS Materials and Motion IG: pp. 265, 266, 271, 278, 286, 287, 289, 297, 304, 317 SRB: p. 58				K-PS2-1. Plan and conduct an investigation to compare the effects of different	FOSS Materials and Motion IG: pp. 45 and 49 FOSS Assessment System			online roller coaster pp. 299

	<p>based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> With guidance, plan and conduct an investigation in collaboration with peers. (K-PS2-1) 	<p>TR: pp. C14-C16, C32-C33</p>				<p>strengths or different directions of pushes and pulls on the motion of an object.</p> <p>[Clarification Statement: Examples of pushes or pulls could include a string attached to an object being pulled, a person pushing an object, a person stopping a rolling ball, and two objects colliding and pushing on each other.]</p> <p>[Assessment Boundary: Assessment is limited to different relative strengths or different directions, but not both at the same time. Assessment</p>	<p><u>Embedded Assessment</u></p> <p><i>Performance Assessment</i></p> <p>IG pp. 275-276 (Step 7)</p> <p>IG p. 278 (Step 8)</p> <p>IG p. 280 (Step 15)</p> <p>IG p. 285 (Step 8)</p> <p>IG p. 286-287 (Step 5)</p> <p>IG p. 290 (Step 15)</p> <p>IG p. 295 (Step 11)</p> <p>IG p. 298 (Step 7)</p> <p><i>Notebook Entry</i></p> <p>IG p. 280 (Step 15)</p> <p>IG p. 290 (Step 15)</p> <p>IG: p. 299 (Step 11)</p> <p>IG p. 305 (Steps 11-12)</p> <p>AC: pp. 2, 4-7</p>			
SEP	<p>Connections to the Nature of Science</p> <p>Scientific Investigations Use a Variety of Methods</p> <ul style="list-style-type: none"> Scientists use different ways to study the world. (K-PS2-1) 	<p>FOSS Materials and Motion</p> <p>IG: pp. 272 and 296 (Steps 1 and 3)</p>								
DCI	<p>PS2.A: Forces and Motion</p> <ul style="list-style-type: none"> Pushes and pulls can have different strengths and directions. (K-PS2-1) Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (K-PS2-1) 	<p>FOSS Materials and Motion</p> <p>IG: pp. 43, 265, 268, 270, 273, 277-280, 296-299, 313, 316</p> <p>SRB: pp. 47-57</p>								
DCI	<p>PS2.B: Types of Interactions</p> <ul style="list-style-type: none"> When objects touch or collide, they push on one another and can change motion. (K-PS2-1) 	<p>FOSS Materials and Motion</p> <p>IG: pp. 43, 265, 268, 270, 273, 286-290, 304-305, 313, 316</p> <p>SRB: pp. 60-68</p>								
DCI	<p>PS3.C: Relationship Between Energy and Forces</p> <ul style="list-style-type: none"> A bigger push or pull makes things speed up or slow down more quickly. (Secondary to K-PS2-1) 	<p>FOSS Materials and Motion</p> <p>IG: pp. 43, 265, 268, 270, 273, 277-280, 298 (Step 7), 299 (Step 10), 313, 316</p>								

		<p>SRB: p. 58</p> <p>DOR: “Roller Coaster Builder” (Link)</p>				<p><i>does not include non-contact pushes or pulls such as those produced by mAMnets.]</i></p>			
CCC	<p>Cause and Effect</p> <ul style="list-style-type: none"> Simple tests can be designed to gather evidence to support or refute student ideas about causes. (K-PS2-1) 	<p>FOSS Materials and Motion</p> <p>IG: pp. 265, 272, 278, 282, 286, 287, 288, 297, 204, 304, 313, 317</p> <p>TR: pp. D9-D11, D24-D27</p>							

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SEP	<p>Analyzing and Interpreting Data</p> <p>Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> Analyze data from tests of an object or tool to determine if it works as intended. (K-PS2-2) 	<p>FOSS Materials and Motion</p> <p>IG: pp. 271, 278, 285, 295, 297-298, 304, 317</p> <p>TR: pp. C17-C19, C34-C37</p>				<p>K-PS2-2. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.*</p> <p><i>[Clarification Statement: Examples of problems</i></p>	<p>FOSS Materials and Motion</p> <p>IG: pp. 45 and 49</p> <p>FOSS Assessment System</p> <p><u>Embedded Assessment</u> <u>Performance Assessment</u></p> <p>IG p. 285 (Step 8). IG p. 289 (Step 12) IG p. 290 (Step 15) IG p. 299 (Step 10) IG p. 295 (Step 11)</p>			
DCI	<p>PS2.A: Forces and Motion</p> <ul style="list-style-type: none"> Pushes and pulls can have different strengths and directions. (K-PS2-2) Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. (K-PS2-2) 	<p>FOSS Materials and Motion</p> <p>IG: pp. 48-49, 270, 273, 276, 295, 297 (Step 6), 299 (Step 10), 302, 316</p> <p>SRB: pp. 47-59</p> <p>DOR: “Roller Coaster Builder”</p>								

<p>DCI</p>	<p>ETS1.A: Defining Engineering Problems</p> <ul style="list-style-type: none"> A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. (Secondary to K-PS2-2) 	<p>(Link)</p> <p>FOSS Materials and Motion IG: pp. 48-49, 270, 285, 289-290 (Steps 12-13), 316 SRB: pp. 9-12, 66-67</p>				<p>requiring a solution could include having a marble or other object move a certain distance, follow a particular path, and knock down other objects. Examples of solutions could include tools such as a ramp to increase the speed of the object and a structure that would cause an object such as a marble or ball to turn.] <i>[Assessment Boundary: Assessment does not include friction as a mechanism for change in speed.]</i></p>	<p>IG p. 298 (Step 7) IG p. 302 (Step 5) IG p. 304 (Step 5) IG p. 305 (Steps 11-12)</p> <p>AC: pp. 2-7</p>			
<p>CCC</p>	<p>Cause and Effect</p> <ul style="list-style-type: none"> Simple tests can be designed to gather evidence to support or refute student ideas about causes. (K-PS2-2) 	<p>FOSS Materials and Motion IG: pp. 272, 278, 297, 304, 317</p> <p>TR: pp. D9-D11, D24-D27</p>								

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K-PS3 Energy

	Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts	Publisher Citations	Meets Standard		Reviewer Comments, Citations, and Questions	Performance Expectation	Publisher Citations	Meets Standard		Reviewer Comments, Citations, and Questions
			Y	N				Y	N	
SEP	Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. <ul style="list-style-type: none"> Make observations (firsthand or from media) to collect data that can be used to make comparisons. (K-PS3-1) 	FOSS Materials and Motion IG: pp. 217, 255, 256, 258, 317 FOSS Trees and Weather IG: pp. 174, 178 (Step 9), 179, 266 TR: pp. C14-C16, C32-C33				K-PS3-1. Make observations to determine the effect of sunlight on Earth’s surface. [Clarification Statement: Examples of Earth’s surface could include sand, soil, rocks, and water.] [Assessment Boundary: Assessment of temperature is limited to relative measures such as warmer/cooler.]	FOSS Materials and Motion IG: pp. 45 and 49 FOSS Assessment System <u>Embedded Assessment</u> Performance Assessment IG p. 256 (Steps 10-12) AC: pp.1, 3-7			
SEP	Connections to Nature of Science Scientific Investigations Use a Variety of Methods <ul style="list-style-type: none"> Scientists use different ways to study the world. (K-PS3-1) 	FOSS Materials and Motion IG: pp. 218, 254 (Steps 2-3), 256 (Step 10) FOSS Trees and Weather IG: pp. 175, 179, 189 (Step 11) SRB: pp. 38-40				[Assessment Boundary: Assessment of temperature is limited to relative measures such as warmer/cooler.]	FOSS Trees and Weather IG: pp. 41, 43, 45 FOSS Assessment System <u>Embedded Assessment</u>			

DCI	<p>PS3.B: Conservation of Energy and Energy Transfer</p> <ul style="list-style-type: none"> Sunlight warms Earth’s surface. (K-PS3-1) 	<p>FOSS Materials and Motion IG: pp. 43, 48-49, 209, 217, 219, 254-256, 259 (Step 24), 316</p> <p>FOSS Trees and Weather IG: pp. 39, 44-45, 167, 173, 185 (Step 7), 188, 266 SRB: pp. 20-21, 30-31</p>				<p><i>Performance Assessment</i> IG p. 185 (Step 7) IG p. 188 (Steps 9-11)</p> <p>AC: pp. 2-6</p>			
CCC	<p>Cause and Effect</p> <ul style="list-style-type: none"> Events have causes that generate observable patterns. (K-PS3-1) 	<p>FOSS Materials and Motion IG: pp. 218, 255, 317 SRB: pp. 60-67</p> <p>FOSS Trees and Weather IG: pp. 174, 187, 266 SRB: pp. 28-31</p> <p>TR: pp. D9-D11, D24-D27</p>							

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SEP			Y	N				Y	N	
	Constructing Explanations and	FOSS Materials and				K-PS3-2.	FOSS Materials			

	<p>Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.</p> <ul style="list-style-type: none"> Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem. (K-PS3-2) 	<p>Motion IG: pp. 217, 253, 257, 317 SRB: pp. 9-12 TR: pp. C22-C24, C38-C39</p>				<p>Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.* <i>[Clarification Statement: Examples of structures could include umbrellas, canopies, and tents that minimize the warming effect of the sun.]</i></p>	<p>and Motion IG: pp. 45 and 49 FOSS Assessment System <u>Embedded Assessment</u> <i>Performance Assessment</i> IG p. 253 (Step 9) IG p. 257 (Steps 17-18) IG p. 260 (Step 26) AC: pp. 1, 4-7</p>			
DCI	<p>PS3.B: Conservation of Energy and Energy Transfer</p> <ul style="list-style-type: none"> Sunlight warms Earth’s surface. (K-PS3-2) 	<p>FOSS Materials and Motion IG: pp. 43, 48-49, 209, 212-213, 217, 219, 316</p>								
CCC	<p>Cause and Effect</p> <ul style="list-style-type: none"> Events have causes that generate observable patterns. (K-PS3-2) 	<p>FOSS Materials and Motion IG: pp. 218, 255, 256 (Steps 9-10), 259, 317 TR: pp. D9-D11, D24-D27</p>								

K–2 Engineering Design

	Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts	Publisher Citations	Meets Standard		Reviewer Comments, Citations, and Questions	Performance Expectation	Publisher Citations	Meets Standard		Reviewer Comments, Citations, and Questions
			Y	N				Y	N	
SEP	Asking Questions and Defining Problems	FOSS Materials and Motion				K–2-ETS1-1. Ask	FOSS Materials and Motion			

	<p>Asking questions and defining problems in K–2 builds on prior experiences and progresses to simple descriptive questions.</p> <ul style="list-style-type: none"> Ask questions based on observations to find more information about the natural and/or designed world(S). (K–2-ETS1-1) Define a simple problem that can be solved through the development of a new or improved object or tool. (K–2-ETS1-1) 	<p>IG: pp. 85, 162, 175, 177, 191, 217, 247 (Step 2), 259 (Step 24), 271, 317 SRB: p. 9</p> <p>TR: pp. C7-C10, C30-C31</p>				<p>questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</p>	<p>IG: pp. 45, 47, 49</p> <p>FOSS Assessment System</p> <p><u>Embedded Assessment</u> <i>Performance Assessment</i> IG p. 143 (Step 6) IG p. 147 (Step 12) IG p. 175 (Step 6) IG p. 176 (Steps 1 and 5)</p> <p>AC: pp. 3-7</p>			
DCI	<p>ETS1.A: Defining and Delimiting Engineering Problems</p> <ul style="list-style-type: none"> A situation that people want to change or create can be approached as a problem to be solved through engineering. (K–2-ETS1-1) Asking questions, making observations, and gathering information are helpful in thinking about problems. (K–2-ETS1-1) Before beginning to design a solution, it is important to clearly understand the problem. (K–2-ETS1-1) 	<p>FOSS Materials and Motion</p> <p>IG: pp. 85, 161, 175, 217, 219, 250 (Step 14), 253 (Step 9), 257, 270, 285, 289 (Step 11), 316 SRB: pp. 9-12, 41-42</p>								

SEP	Science and Engineering Practices Disciplinary Core Ideas Crosscutting Concepts	Publisher Citations	Meets Standard		Reviewer Comments, Citations, and Questions	Performance Expectation	Publisher Citations	Meets Standard		Reviewer Comments, Citations, and Questions
			Y	N				Y	N	
	Developing and Using Models	FOSS Materials and				K–2-ETS1-2.	FOSS Materials			

	<p>Modeling in K–2 builds on prior experiences and progresses to include using and developing models (i.e., diAMram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.</p> <ul style="list-style-type: none"> Develop a simple model based on evidence to represent a proposed object or tool. (K–2-ETS1-2) 	<p>Motion IG: pp. 85, 144, 162, 190, 194, 202 (Step 13), 217, 228, 230, 260 (Step 26), 290 (Step 15), 317 FOSS Trees and Weather IG: pp. 197 and 266 TR: pp. C11-C13, C30-C31</p>				<p>Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</p>	<p>and Motion IG: pp. 45, 47, 49 FOSS Assessment System <u>Embedded Assessment</u> <i>Performance Assessment</i> IG p. 198 (Step 8) IG p. 200 (Steps 5-6) IG p. 201 (Step 11) IG p. 202 (Step 14) IG p. 253 (Step 9) IG p. 257 (Step 13)</p>			
<p>DCI</p>	<p>ETS1.B: Developing Possible Solutions</p> <ul style="list-style-type: none"> Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people. (K–2-ETS1-2) 	<p>FOSS Materials and Motion IG: pp. 46-47, 48-49, 85, 114 (Step 7), 119, 130, 147 (Step 12), 161,198, 217, 253 (Step 9), 270, 285, 316 FOSS Trees and Weather IG: pp. 173, 193 (Step 13), 197, 266 SRB: p. 40</p>					<p>AC: pp. 3-7 FOSS Trees and Weather IG: pp. 41, 43, 45 FOSS Assessment System</p>			
<p>CCC</p>	<p>Structure and Function</p> <ul style="list-style-type: none"> The shape and stability of structures of natural and designed objects are related to their function(S). (K–2-ETS1-2) 	<p>FOSS Materials and Motion IG: pp. 86, 139, 141 (Step 14), 145, 162, 167 (Step 10), 201, 218, 231, 239 (Step 6), 241, 317 SRB: pp. 19-31, 32-40</p>					<p><u>Embedded Assessment</u> <i>Performance Assessment</i> IG p. 193 (Step 13) IG p. 197 (Step 8) AC: pp. 2-6</p>			

		<p>FOSS Trees and Weather IG: pp. 197 and 266 SRB: p. 40</p> <p>TR: pp. D18-D19, D30-D31</p>							
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			Y	N				Y	N	
SEP	<p>Analyzing and Interpreting Data Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> Analyze data from tests of an object or tool to determine if it works as intended. (K–2-ETS1-3) 	<p>FOSS Materials and Motion IG: pp. 217, 222 (Step 8), 240 (Step 5), 256, 317</p> <p>FOSS Trees and Weather IG: pp. 197 and 266</p> <p>TR: pp. C17-C19, C34-C37</p>				<p>K–2-ETS1-3. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>	<p>FOSS Materials and Motion IG: pp. 45, 49</p> <p>FOSS Assessment System</p> <p><u>Embedded Assessment</u> Performance Assessment IG p. 253 (Step 9) IG p. 259 (Steps 23-24)</p>			
DCI	<p>ETS1.C: Optimizing the Design Solution</p>	<p>FOSS Materials and Motion</p>								

	<ul style="list-style-type: none">Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K–2-ETS1-3)	IG: pp. 217, 253 (Step 9), 316 SRB: pp. 10-11					IG p. 260 (Step 26) AC: pp. 3-4, 6-7			
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