



CORRELATION TO

Texas Essential Knowledge and Skills *for*
SCIENCE

FOSS Texas • Grade 4

FOSS Grade 4 Correlation to the Texas Essential Knowledge and Skills (TEKS)

Publisher	Delta Education LLC
Program Title	Grade 4 FOSS (Full Option Science System) Texas Edition, English Print
Program Components	FOSS Energy and Electromagnetism Investigations Guide FOSS Water and Landforms Investigations Guide FOSS Environments Investigations Guide

Knowledge and Skills Statement

4.1.Scientific Investigation and Reasoning.

The student conducts classroom and outdoor investigations following home and school safety procedures and environmentally appropriate and ethical practices.
The student is expected to:

4.1.A: demonstrate safe practices and the use of safety equipment as described in the Texas Safety Standards during classroom and outdoor investigations; and

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FOSS Energy and Electromagnetism	Inv. 1: Energy and Circuits, Part 1: Lighting a Bulb	Active Investigation Home/School Connection	29, 56-70	29: all; 62: step 1 70: step 22
	Inv. 1: Energy and Circuits, Part 2: Energy on the Move	Active Investigation	29, 71-81	29: all; 77: step 11
	Inv. 1: Energy and Circuits, Part 3: Conductors and Insulators	Active Investigation	29, 82-90	29: all; 85: steps 1-3; 88: step 12
	Inv. 1: Energy and Circuits, Part 4: Forms of Energy	Active Investigation	29, 91-100	29: all; 94: step 4
	Inv. 2: Series and Parallel, Part 2: Building Parallel Circuits	Home/School Connection	29, 120-126	29: all; 126: step 17
	Inv. 2: Series and Parallel, Part 3: Solving the String of Lights Problem	Active Investigation	29, 127-134	29: all; 130: steps 1-3
	Inv. 2: Series and Parallel, Part 4: Solar Cells in Series and Parallel	Active Investigation	29, 135-141	29: all; 139: step 5
	Inv. 3: The Forces of Magnetism, Part 3: Magnetic Fields	Active Investigation	29, 172-180	29: all; 175: steps 5-6
	Inv. 3: The Forces of Magnetism, Part 4: Magnetic Force	Active Investigation	29, 181-189	29: all; 183: steps 3-10
	Inv. 4: Electromagnets, Part 3: Reinventing the Telegraph	Active Investigation	29, 229-237	29: all; 235: step 15
	Inv. 4: Electromagnets, Part 4: Design Your Own Investigation	Active Investigation	29, 238-244	29: all; 241: steps 1-6

		Science Safety Poster Science Resources Book	29 SRB 284	29: all <i>Science Safety Rules</i> All Grade 4 IGs: Inv. 1: Part 1, Step 1
		Outdoor Safety Poster Science Resources Book	29 SRB 285	29: all <i>Outdoor Safety Rules</i> Energy and Electromag.: Inv. 1: Part 2, Step 11 Water and Landforms: Inv. 1: Part 4, Step 3 Environments: Inv. 1, Part 3, Step 3
		Poster set, <i>Conservation</i> (4/set)		All Grade 4 IGs: Energy and Electromag.: Inv. 1: Part 1, Step 1 Water and Landforms: Inv. 1: Part 1, Step 1 Environments: Inv. 1, Part 1, Step 1
FOSS Water and Landforms	Inv. 1: Hot Water, Cold Water, Part 1: Build a Thermometer Inv. 1: Hot Water, Cold Water, Part 4: Ice Outdoors	Active Investigation Active Investigation	29, 55-68 29, 88-94	29: all; 62: step 1; 64: step 9 29: all; 92: step 3
	Inv. 2: Water Vapor, Part 3: Surface Area	Active Investigation	29, 119-125	29: all; 121: steps 1-3
	Inv. 3: Landforms, Part 1: Erosion and Deposition Inv. 3: Landforms, Part 2: Stream-Table Investigations Inv. 3: Landforms, Part 3: Schoolyard Erosion and Deposition	Active Investigation Active Investigation Active Investigation	29, 148-159 29, 160-171 29, 172-179	29: all; 153: step 5 29: all; 168: steps 17-20 29: all; 176: step 5
	Inv. 4: Water and Resources, Part 2: Waterwheels Inv. 4: Water and Resources, Part 3: Water in Soil	Active Investigation Active Investigation	29, 199-205 29, 206-214	29: all; 201: steps 2-8 29: all; 210: step 5
	Inv. 5: Patterns of Change, Part 1: Shadow Shifting Inv. 5: Patterns of Change, Part 2: Night-Sky Observations Inv. 5: Patterns of Change, Part 4: Local Weather Inv. 5: Patterns of Change, Part 6: Weather Maps	Active Investigation Active Investigation Active Investigation Active Investigation	29, 242-249 29, 250-257 29, 270-284 29, 291-302	29: all; 244: step 5 29: all; 253: step 2 29: all; 280: step 8 29: all; 295: steps 10-11
		I-Check 2 Performance Assessment	348 378 379	Item 5 Performance Assessment, Station 2 Performance Assessment, Station 3
FOSS Environments	Inv. 1: Environmental Factors, Part 1: Observing Mealworms Inv. 1: Environmental Factors, Part 3: Leaf-Litter Critters	Active Investigation Active Investigation Home/School Connection	27-28, 58-75 27-28, 86-96	27-28: all; 66: step 1 27-28: all; 90: step 3 96: step 15
	Inv. 2: Ecosystems, Part 3: Population Simulation Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web	Active Investigation Active Investigation	27-28, 130-139 27-28, 140-148	27-28: all; 133: step 5 27-28: all; 143: steps 1-8

	Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment Inv. 3: Brine Shrimp Hatching, Part 2: Determining the Range of Tolerance Inv. 3: Brine Shrimp Hatching, Part 4: Variation in a Population	Active Investigation Active Investigation Active Investigation	27-28, 164-171 27-28, 172-180 27-28, 189-199	27-28: all; 167: steps 2-8 27-28: all; 174: step 2 27-28: all; 193: step 7
	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants Inv. 4: Range of Tolerance, Part 2: Plant Patterns	Active Investigation Active Investigation	27-28, 216-231 27-28, 232-240	27-28: all; 221: steps 1-10 27-28: all; 236: step 3
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4.1.B: make informed choices in the use and conservation of natural resources and reusing or recycling of materials such as paper, aluminum, glass, cans, and plastics.				
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	Inv. 2: Series and Parallel, Part 3: Solving the String of Lights Problem	Active Investigation Science Resources Book	127-134 SRB 35-40	130: steps 1-3 <i>Alternative Sources of Electricity</i> IG 133: steps 12-13
	Inv. 2: Series and Parallel, Part 4: Solar Cells in Series and Parallel	Active Investigation	135-141	139: step 7
	Inv. 3: The Forces of Magnetism, Part 4: Magnetic Force	Active Investigation	181-189	183: steps 3-10
	Inv. 4: Electromagnets, Part 1: Building and Electromagnet Inv. 4: Electromagnets, Part 3: Reinventing the Telegraph Inv. 4: Electromagnets, Part 4: Design Your Own Investigation	Active Investigation Active Investigation Active Investigation	212-221 229-237 238-244	217: step 11 235: step 15 241: steps 1-6
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FOSS Water and Landforms	Inv. 1: Hot Water, Cold Water, Part 1: Build a Thermometer	Active Investigation	55-68	62: step 1; 66: step 16
	Inv. 1: Hot Water, Cold Water, Part 2: Sinking and Floating Water	Active Investigation	69-76	73: step 9
	Inv. 1: Hot Water, Cold Water, Part 4: Ice Outdoors	Active Investigation	88-94	93: step 8
	Inv. 2: Water Vapor, Part 1: Evaporation Inv. 2: Water Vapor, Part 2: Evaporation Locations Inv. 2: Water Vapor, Part 3: Surface Area Inv. 2: Water Vapor, Part 4: Condensation	Active Investigation Active Investigation Active Investigation Media/Video	106-111 112-118 119-125 FOSSweb	109: step 8 117: step 14 121: steps 1-3; 122: step 6; 123: step 9 <i>Water Cycle (Chapters 2, 3)</i> IG 133: step 14

	Inv. 3: Landforms, Part 1: Erosion and Deposition Inv. 3: Landforms, Part 2: Stream-Table Investigations	Active Investigation Active Investigation	148-159 160-171	157: step 16 168: steps 17-20
	Inv. 4: Water and Resources, Part 1: Water in Earth Materials Inv. 4: Water and Resources, Part 2: Waterwheels Inv. 4: Water and Resources, Part 3: Water in Soil	Active Investigation Media/Video Student Resources Book Student Resources Book Media/Multimedia Activity Math Extension Active Investigation Active Investigation	190-198 FOSSweb SRB 120-124 SRB 125-128 FOSSweb 199-205 206-214	194: step 7 <i>All about Natural Resources</i> IG 195: step 11 <i>Water: A Vital Resource</i> IG 197: steps 13-14 <i>Natural Resources</i> IG 197: steps 15-16 <i>Resource ID</i> IG 197: step 17 198: step 19 201: steps 2-8; 203: step 11 211: step 11
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	Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web	Active Investigation	140-148	143: steps 1-8
	Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment Inv. 3: Brine Shrimp Hatching, Part 3: Determining Viability	Active Investigation Active Investigation Student Resources Book	164-171 181-188 SRB 239-246	167: steps 2-8 185: step 11 <i>The Shrimp Club</i> IG 187: steps 14-15
	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants	Active Investigation	216-231	221: steps 1-10; 223: step 13; 228: step 40

4.2.Scientific Investigation and Reasoning.

The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:

4.2.A: plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her question.

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FOSS Water and Landforms	Inv. 1: Hot Water, Cold Water, Part 4: Ice Outdoors	Active Investigation	88-94	91: step 1
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	I-Check 3	312	Item 11
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4.2.B: collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps;

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	Inv. 3: The Forces of Magnetism, Part 2: Magnets Interact	Active Investigation	163-171	167: step 6; 169: step 11
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	Inv. 2: Water Vapor, Part 2: Evaporation Locations	Active Investigation	112-118	115: steps 8-9; 116: step 11
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	Inv. 3: Landforms, Part 1: Erosion and Deposition	Active Investigation	148-159	153: step 5; 154: step 7
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4.2.C: construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data;				
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4.2.D: analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured;				
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	<p>Inv. 2: Ecosystems, Part 1: Designing an Aquarium Inv. 2: Ecosystems, Part 2: Food Chains and Food Webs Inv. 2: Ecosystems, Part 3: Population Simulation</p> <p>Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web</p>	<p>Active Investigation Active Investigation Active Investigation Math Extension Active Investigation</p>	<p>112-120 121-129 130-139 140-148</p>	<p>116: step 9; 117: step 12; 118: step 17 125: step 12 136: step 19 139: step 24 145: step 12</p>
	<p>Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment Inv. 3: Brine Shrimp Hatching, Part 2: Determining the Range of Tolerance Inv. 3: Brine Shrimp Hatching, Part 3: Determining Viability</p> <p>Inv. 3: Brine Shrimp Hatching, Part 4: Variation in a Population</p>	<p>Active Investigation Active Investigation Active Investigation Math Extension Active Investigation</p>	<p>164-171 172-180 181-188 189-199</p>	<p>170: step 13 179: step 19 184: steps 8, 9 188: step 18 194: step 12; 195: step 16</p>
	<p>Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants Inv. 4: Range of Tolerance, Part 2: Plant Patterns</p> <p>Inv. 4: Range of Tolerance, Part 3: Plant Adaptations</p>	<p>Active Investigation Active Investigation Math Extension Active Investigation</p>	<p>216-231 232-240 241-247</p>	<p>229: step 45 238: step 11; 239: step 14 240: step 19 245: step 7</p>
		<p>Survey/Posttest I-Check 1 I-Check 2 I-Check 3 Performance Assessment</p>	<p>272 288 300 312 327 331</p>	<p>Items 4a, 9ab Items 2, 6 Items 7, 10b Items 1ab, 4ab Performance Assessment, Station 1 Performance Assessment, Station 4</p>
4.2.E: perform repeated investigations to increase the reliability of results; and				
FOSS Energy and Electromagnetism	<p>Inv. 1: Energy and Circuits, Part 3: Conductors and Insulators Inv. 1: Energy and Circuits, Part 4: Forms of Energy</p>	<p>Active Investigation Active Investigation</p>	<p>82-90 91-100</p>	<p>85: steps 1-3 95: step 8</p>
	<p>Inv. 2: Series and Parallel, Part 3: Solving the String of Lights Problem</p>	<p>Active Investigation</p>	<p>127-134</p>	<p>130: steps 1-3</p>
	<p>Inv. 3: The Forces of Magnetism, Part 4: Magnetic Force</p>	<p>Active Investigation</p>	<p>181-189</p>	<p>183: steps 3-10; 184: step 4</p>
	<p>Inv. 4: Electromagnets, Part 2: Changing the Strength Inv. 4: Electromagnets, Part 3: Reinventing the Telegraph Inv. 4: Electromagnets, Part 4: Design Your Own Investigation</p>	<p>Active Investigation Active Investigation</p>	<p>222-228 229-237 238-244</p>	<p>225: step 6 235: step 15 241: steps 1-6; 242: step 8</p>
		<p>Performance Assessment</p>	<p>336</p>	<p>Performance Assessment, Station 2</p>
FOSS Water and Landforms	<p>Inv. 1: Hot Water, Cold Water, Part 3: Water as Ice</p>	<p>Active Investigation</p>	<p>77-87</p>	<p>80: step 5</p>

	Inv. 2: Water Vapor, Part 3: Surface Area Inv. 2: Water Vapor, Part 4: Condensation	Active Investigation Active Investigation	119-125 126-136	121: steps 1-3; 122: step 7 129: step 4; 132: steps 10, 12
	Inv. 3: Landforms, Part 1: Erosion and Deposition Inv. 3: Landforms, Part 2: Stream-Table Investigations	Active Investigation Active Investigation	148-159 160-171	156: step 12 168: steps 17-20
	Inv. 4: Water and Resources, Part 2: Waterwheels	Active Investigation	199-205	201: steps 2-8
	Inv. 5: Patterns of Change, Part 6: Weather Maps	Active Investigation	291-302	298: steps 10-11
FOSS Environments	Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web	Active Investigation	140-148	143: steps 1-8
	Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment Inv. 3: Brine Shrimp Hatching, Part 2: Determining the Range of Tolerance	Active Investigation Active Investigation	164-171 172-180	168: step 7 178: step 15; 179: step 19
	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants	Active Investigation	216-231	221: step 5; 225: step 22
		Performance Assessment	327	Performance Assessment, Station 1
4.2.F: communicate valid, oral, and written results supported by data.				
FOSS Energy and Electromagnetism	Inv. 1: Energy and Circuits, Part 1: Lighting a Bulb Inv. 1: Energy and Circuits, Part 2: Energy on the Move Inv. 1: Energy and Circuits, Part 3: Conductors and Insulators Inv. 1: Energy and Circuits, Part 4: Forms of Energy	Active Investigation Active Investigation Active Investigation Active Investigation	56-70 71-81 82-90 91-100	70: step 21 81: step 23 86: step 5; 90: step 19 99: step 18
	Inv. 2: Series and Parallel, Part 1: Building Series Circuits Inv. 2: Series and Parallel, Part 2: Building Parallel Circuits Inv. 2: Series and Parallel, Part 3: Solving the String of Lights Problem Inv. 2: Series and Parallel, Part 4: Solar Cells in Series and Parallel	Active Investigation Active Investigation Active Investigation Active Investigation	114-119 120-126 127-134 135-141	119: step 16 126: step 16 134: step 14 141: step 12
	Inv. 3: The Forces of Magnetism, Part 1: Magnets and Materials Inv. 3: The Forces of Magnetism, Part 2: Magnets Interact Inv. 3: The Forces of Magnetism, Part 3: Magnetic Fields Inv. 3: The Forces of Magnetism, Part 4: Magnetic Force Inv. 3: The Forces of Magnetism, Part 5: Magnets Outdoors (optional)	Active Investigation Active Investigation Active Investigation Active Investigation Active Investigation	156-162 163-171 172-180 181-189 190-196	162: step 20 171: step 19 180: step 19 189: step 21 196: step 13
	Inv. 4: Electromagnets, Part 1: Building and Electromagnet Inv. 4: Electromagnets, Part 2: Changing the Strength Inv. 4: Electromagnets, Part 3: Reinventing the Telegraph Inv. 4: Electromagnets, Part 4: Design Your Own Investigation	Active Investigation Active Investigation Active Investigation Active Investigation	212-221 222-228 229-237 238-244	221: step 21 228: step 15 234: step 12 241: steps 1-6; 243: step 10
		Performance Assessment	336	Performance Assessment, Station 2

FOSS Water and Landforms	Inv. 1: Hot Water, Cold Water, Part 1: Build a Thermometer	Active Investigation	55-68	68: step 25
	Inv. 1: Hot Water, Cold Water, Part 2: Sinking and Floating Water	Active Investigation	69-76	75: step 16
	Inv. 1: Hot Water, Cold Water, Part 3: Water as Ice	Active Investigation	77-87	87: step 30
	Inv. 1: Hot Water, Cold Water, Part 4: Ice Outdoors	Active Investigation	88-94	94: step 10
	Inv. 2: Water Vapor, Part 1: Evaporation	Active Investigation	106-111	111: step 11
	Inv. 2: Water Vapor, Part 2: Evaporation Locations	Active Investigation	112-118	118: step 19
	Inv. 2: Water Vapor, Part 3: Surface Area	Active Investigation	119-125	125: step 15
	Inv. 2: Water Vapor, Part 4: Condensation	Active Investigation	126-136	136: step 20
	Inv. 3: Landforms, Part 1: Erosion and Deposition	Active Investigation	148-159	159: step 20
	Inv. 3: Landforms, Part 2: Stream-Table Investigations	Active Investigation	160-171	171: step 27
	Inv. 3: Landforms, Part 3: Schoolyard Erosion and Deposition	Active Investigation	172-179	179: step 13
	Inv. 4: Water and Resources, Part 1: Water in Earth Materials	Active Investigation	190-198	198: step 18
	Inv. 4: Water and Resources, Part 2: Waterwheels	Active Investigation	199-205	205: step 16
	Inv. 4: Water and Resources, Part 3: Water in Soil	Active Investigation	206-214	214: step 21
	Inv. 5: Patterns of Change, Part 1: Shadow Shifting	Active Investigation	242-249	249: step 19
	Inv. 5: Patterns of Change, Part 2: Night-Sky Observations	Active Investigation	250-257	257: step 15
	Inv. 5: Patterns of Change, Part 3: Phases of the Moon	Active Investigation	258-269	269: step 20
	Inv. 5: Patterns of Change, Part 4: Local Weather	Active Investigation	270-284	284: step 24
	Inv. 5: Patterns of Change, Part 5: Severe Weather	Active Investigation	285-290	290: step 11
	Inv. 5: Patterns of Change, Part 6: Weather Maps	Active Investigation	291-302	301: step 17
		Performance Assessment	377	Performance Assessment, Station 1
FOSS Environments	Inv. 1: Environmental Factors, Part 1: Observing Mealworms	Active Investigation	58-75	75: step 31
	Inv. 1: Environmental Factors, Part 2: Designing an Isopod Experiment	Active Investigation	76-85	85: step 32
	Inv. 1: Environmental Factors, Part 3: Leaf-Litter Critters	Active Investigation	86-96	96: step 14
	Inv. 2: Ecosystems, Part 1: Designing an Aquarium	Active Investigation	112-120	120: step 22
	Inv. 2: Ecosystems, Part 2: Food Chains and Food Webs	Active Investigation	121-129	129: step 22
	Inv. 2: Ecosystems, Part 3: Population Simulation	Active Investigation	130-139	139: step 23
	Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web	Active Investigation	140-148	148: step 18
	Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment	Active Investigation	164-171	171: step 16
	Inv. 3: Brine Shrimp Hatching, Part 2: Determining the Range of Tolerance	Active Investigation	172-180	180: step 23
	Inv. 3: Brine Shrimp Hatching, Part 3: Determining Viability	Active Investigation	181-188	188: step 17
		Math Extension		188: step 18
	Inv. 3: Brine Shrimp Hatching, Part 4: Variation in a Population	Active Investigation	189-199	199: step 20

	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants Inv. 4: Range of Tolerance, Part 2: Plant Patterns Inv. 4: Range of Tolerance, Part 3: Plant Adaptations	Active Investigation Active Investigation Active Investigation	216-231 232-240 241-247	231: step 52 240: step 18 247: step 10
		Performance Assessment	327 330 331	Performance Assessment, Station 1 Performance Assessment, Station 3 Performance Assessment, Station 4

4.3.Scientific Investigation and Reasoning.

The student uses critical thinking and scientific problem solving to make informed decisions. The student is expected to:

4.3A: in all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student;

FOSS Energy and Electromagnetism	Inv. 1: Energy and Circuits, Part 2: Energy on the Move Inv. 1: Energy and Circuits, Part 3: Conductors and Insulators	Active Investigation Active Investigation	71-81 82-90	80: step 20 85: steps 1-3
	Inv. 2: Series and Parallel, Part 2: Building Parallel Circuits Inv. 2: Series and Parallel, Part 3: Solving the String of Lights Problem	Active Investigation Active Investigation	120-126 127-134	125: step 13 130: step 1; 132: step 7
	Inv. 3: The Forces of Magnetism, Part 3: Magnetic Fields Inv. 3: The Forces of Magnetism, Part 4: Magnetic Force	Active Investigation Active Investigation	172-180 181-189	178: step 15 183: steps 3-10
	Inv. 4: Electromagnets, Part 2: Changing the Strength Inv. 4: Electromagnets, Part 3: Reinventing the Telegraph Inv. 4: Electromagnets, Part 4: Design Your Own Investigation	Active Investigation Active Investigation Active Investigation	222-228 229-237 238-244	226: step 11 235: step 15 243: step 10
		Performance Assessment	335 336	Performance Assessment, Station 1 Performance Assessment, Station 2
FOSS Water and Landforms	Inv. 1: Hot Water, Cold Water, Part 3: Water as Ice	Active Investigation	77-87	85: step 26
	Inv. 2: Water Vapor, Part 2: Evaporation Locations Inv. 2: Water Vapor, Part 3: Surface Area	Active Investigation Active Investigation Math Extension	112-118 119-125	117: step 18 121: steps 1-3 124: step 14
	Inv. 3: Landforms, Part 2: Stream-Table Investigations Inv. 3: Landforms, Part 3: Schoolyard Erosion and Deposition	Active Investigation Math Extension Active Investigation	160-171 172-179	168: steps 17-20; 170: step 23 171: step 26 178: step 11
	Inv. 4: Water and Resources, Part 1: Water in Earth Materials Inv. 4: Water and Resources, Part 2: Waterwheels	Active Investigation Active Investigation	190-198 199-205	196: step 12 201: steps 2-8

	Inv. 5: Patterns of Change, Part 6: Weather Maps	Active Investigation	291-302	298: steps 10-11
		Survey/Posttest Performance Assessment	322 377	Items 14, 15b Performance Assessment, Station 1
FOSS Environments	Inv. 1: Environmental Factors, Part 2: Designing an Isopod Experiment	Active Investigation	76-85	85: step 31
	Inv. 2: Ecosystems, Part 2: Food Chains and Food Webs Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web	Active Investigation Active Investigation	121-129 140-148	128: step 21 143: steps 1-8
	Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment Inv. 3: Brine Shrimp Hatching, Part 3: Determining Viability	Active Investigation Active Investigation	164-171 181-188	167: steps 2-8 184: step 9
	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants Inv. 4: Range of Tolerance, Part 2: Plant Patterns	Active Investigation Active Investigation	216-231 232-240	221: steps 1-10; 231: step 52 239: step 15
		Performance Assessment	327	Performance Assessment, Station 1
4.3.B: draw inferences and evaluate accuracy of services and product claims found in advertisements and labels such as for toys, food, and sunscreen;				
FOSS Energy and Electromagnetism	Inv. 1: Energy and Circuits, Part 3: Conductors and Insulators Inv. 1: Energy and Circuits, Part 4: Forms of Energy	Active Investigation Math Extension	82-90 91-100	85: steps 1-3 98: step 17
	Inv. 2: Series and Parallel, Part 3: Solving the String of Lights Problem	Active Investigation	127-134	130: steps 1-3; 132: step 10
	Inv. 3: The Forces of Magnetism: Part 1: Magnets and Materials Inv. 3: The Forces of Magnetism, Part 4: Magnetic Force	Active Investigation Active Investigation	156-162 181-189	160: step 13 183: steps 3-10
	Inv. 4: Electromagnets, Part 3: Reinventing the Telegraph Inv. 4: Electromagnets, Part 4: Design Your Own Investigation	Active Investigation Active Investigation	229-237 238-244	235: step 15 241: steps 1-6
FOSS Water and Landforms	Inv. 1: Hot Water, Cold Water, Part 1: Build a Thermometer	Home/School Connection	55-68	68: step 26
	Inv. 2: Water Vapor, Part 3: Surface Area	Active Investigation	119-125	121: steps 1-3
	Inv. 3: Landforms, Part 2: Stream-Table Investigations	Active Investigation	160-171	168: steps 17-20
	Inv. 4: Water and Resources, Part 2: Waterwheels	Active Investigation	199-205	201: steps 2-8
	Inv. 5: Patterns of Change, Part 6: Weather Maps	Active Investigation	291-302	298: steps 10-11

FOSS Environments	Inv. 2: Ecosystems, Part 2: Food Chains and Food Webs Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web	Active Investigation Active Investigation	121-129 140-148	128: step 21 143: steps 1-8
	Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment Inv. 3: Brine Shrimp Hatching, Part 2: Determining the Range of Tolerance	Active Investigation Active Investigation	164-171 172-180	167: steps 2-8 180: step 22
	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants	Active Investigation	216-231	221: steps 1-10
		I-Check 3	312	Item 12
4.3.C: represent the natural world using models such as rivers, stream tables, or fossils and identify their limitations, including accuracy and size; and				
FOSS Energy and Electromagnetism	Inv. 1: Energy and Circuits, Part 3: Conductors and Insulators	Active Investigation	82-90	85: steps 1-3
	Inv. 2: Series and Parallel, Part 3: Solving the String of Lights Problem	Active Investigation	127-134	130: steps 1-10
	Inv. 3: The Forces of Magnetism, Part 4: Magnetic Force	Active Investigation	181-189	183: steps 3-10
	Inv. 4: Electromagnets, Part 3: Reinventing the Telegraph Inv. 4: Electromagnets, Part 4: Design Your Own Investigation	Active Investigation Active Investigation	229-237 238-244	233: step 5; 235: step 15 241: steps 1-6
		Performance Assessment	335	Performance Assessment, Station 1
FOSS Water and Landforms	Inv. 2: Water Vapor, Part 3: Surface Area Inv. 2: Water Vapor, Part 4: Condensation	Active Investigation Active Investigation	119-125 126-136	121: steps 1-3 131: steps 7-8
	Inv. 3: Landforms, Part 1: Erosion and Deposition Inv. 3: Landforms, Part 2: Stream-Table Investigations	Active Investigation Active Investigation	148-159 160-171	152: steps 3-5 164: steps 4-8; 166: steps 11-12 168: steps 17-20
	Inv. 4: Water and Resources, Part 2: Waterwheels Inv. 4: Water and Resources, Part 3: Water in Soil	Active Investigation Active Investigation	199-205 206-214	201: steps 2-8, 10 211: step 10
	Inv. 5: Patterns of Change, Part 3: Phases of the Moon Inv. 5: Patterns of Change, Part 6: Weather Maps	Active Investigation Active Investigation	258-269 291-302	264: steps 5-8 298: steps 10-11
		I-Check 3	358	Item 9

FOSS Environments	Inv. 1: Environmental Factors, Part 2: Designing an Isopod Experiment	Active Investigation Science Resources Book	76-85 SRB 187-189	84: step 28 <i>Setting Up a Terrarium</i> IG 81: steps 14-15
	Inv. 2: Ecosystems, Part 1: Designing an Aquarium Inv. 2: Ecosystems, Part 2: Food Chains and Food Webs Inv. 2: Ecosystems, Part 3: Population Simulation Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web	Active Investigation Active Investigation Active Investigation Active Investigation	112-120 121-129 130-139 140-148	118: step 16 126: step 14 133: step 2 143: steps 1-8
	Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment Inv. 3: Brine Shrimp Hatching, Part 2: Determining the Range of Tolerance Inv. 3: Brine Shrimp Hatching, Part 3: Determining Viability	Active Investigation Active Investigation Active Investigation	164-171 172-180 181-188	167: steps 2-8 175: step 8 185: step 10
	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants Inv. 4: Range of Tolerance, Part 2: Plant Patterns	Active Investigation Home/School Connection Active Investigation	216-231 232-240	221: steps 1-10 231: step 53 237: steps 9-11
4.3.D: connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.				
FOSS Energy and Electromagnetism	Inv. 1: Energy and Circuits, Part 1: Lighting a Bulb Inv. 1: Energy and Circuits, Part 3: Conductors and Insulators	Student Resources Book Active Investigation	SRB 9-13 82-90	<i>Edison Sees the Light</i> IG 69: steps 19-20 85: steps 1-3
	Inv. 2: Series and Parallel, Part 3: Solving the String of Lights Problem	Active Investigation	127-134	130: steps 1-10
	Inv. 3: The Forces of Magnetism, Part 4: Magnetic Force	Active Investigation	181-189	183: steps 3-10
	Inv. 4: Electromagnets, Part 1: Building and Electromagnet Inv. 4: Electromagnets, Part 3: Reinventing the Telegraph Inv. 4: Electromagnets, Part 4: Design Your Own Investigation	Student Resources Book Active Investigation Student Resources Book Active Investigation	SRB 55-57 229-237 SRB 69-77 238-244	<i>Electricity Creates Magnetism</i> IG 220: steps 19-20 232: step 2 <i>Morse Gets Clicking</i> IG 235: steps 13-14 241: steps 1-6
		Survey/Posttest Performance Assessment	264 335	Item 8 Performance Assessment, Station 1
FOSS Water and Landforms	Inv. 2: Water Vapor, Part 3: Surface Area	Active Investigation	119-125	121: steps 1-3

	Inv. 3: Landforms, Part 1: Erosion and Deposition Inv. 3: Landforms, Part 2: Stream-Table Investigations	Active Investigation Active Investigation	148-159 160-171	152: steps 3-5 168: steps 17-20
	Inv. 4: Water and Resources, Part 2: Waterwheels Inv. 4: Water and Resources, Part 3: Water in Soil	Active Investigation Student Resources Book Student Resources Book	199-205 SRB 132-134 SRB 136-137	201: steps 2-8 <i>Ellen Swallow Richards: and Early Ecologist</i> IG 213: steps 16-17 <i>Solar Disinfection System</i> IG 213: steps 18-19
	Inv. 5: Patterns of Change, Part 4: Local Weather Inv. 5: Patterns of Change, Part 6: Weather Maps	Media/Video Active Investigation	270-284 291-302	284: step 23 298: steps 10-11
FOSS Environments	Inv. 1: Environmental Factors, Part 3: Leaf-Litter Critters	Science Resources Book	SRB 192-200	<i>Amazon Rain Forest Journal</i> IG 94: steps 12-13
	Inv. 2: Ecosystems, Part 2: Food Chains and Food Webs Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web	Science Resources Book Active Investigation	SRB 206-208 140-148	What is an Ecosystem? IG 127: steps 17-18 143: steps 1-8
	Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment Inv. 3: Brine Shrimp Hatching, Part 2: Determining the Range of Tolerance Inv. 3: Brine Shrimp Hatching, Part 3: Determining Viability	Active Investigation Science Resources Book Science Resources Book	164-171 SRB 227-233 SRB 239-246	167: steps 2-8 <i>The Mono Lake Story</i> IG 175: steps 6-7 <i>The Shrimp Club</i> IG 187: steps 14-15
	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants Inv. 4: Range of Tolerance, Part 2: Plant Patterns	Active Investigation Science Resources Book Science Resources Book	216-231 SRB 254-258 SRB 264-269	221: steps 1-10 <i>Environmental Scientists</i> IG 230: steps 46-47 <i>Animals from the Past</i> IG 240: steps 16-17

4.4. Scientific Investigation and Reasoning.

The student knows how to use a variety of tools, materials, equipment, and models to conduct science inquiry. The student is expected to:

4.4.A: collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, pan balances, triple beam balances, graduated cylinders, beakers, hot plates, meter sticks, compasses, magnets, collecting nets, and notebooks; timing devices, including clocks and stopwatches; and materials to support observation of habitats of organisms such as terrariums and aquariums; and

FOSS Energy and Electromagnetism	Inv. 1: Energy and Circuits, Part 1: Lighting a Bulb Inv. 1: Energy and Circuits, Part 2: Energy on the Move Inv. 1: Energy and Circuits, Part 3: Conductors and Insulators Inv. 1: Energy and Circuits, Part 4: Forms of Energy	Active Investigation Active Investigation Active Investigation Active Investigation	56-70 71-81 82-90 91-100	63: steps 4-12 75: steps 3-13 85: step 3; 87: step 10 94: step 4; 95: step 7
	Inv. 2: Series and Parallel, Part 1: Building Series Circuits Inv. 2: Series and Parallel, Part 2: Building Parallel Circuits Inv. 2: Series and Parallel, Part 3: Solving the String of Lights Problem Inv. 2: Series and Parallel, Part 4: Solar Cells in Series and Parallel	Active Investigation Active Investigation Active Investigation Active Investigation	114-119 120-126 127-134 135-141	116: steps 3-4, 8; 118: step 12 122: step 3; 124: step 8 130: steps 1-3 139: steps 5, 7
	Inv. 3: The Forces of Magnetism, Part 1: Magnets and Materials Inv. 3: The Forces of Magnetism, Part 2: Magnets Interact Inv. 3: The Forces of Magnetism, Part 3: Magnetic Fields Inv. 3: The Forces of Magnetism, Part 4: Magnetic Force Inv. 3: The Forces of Magnetism, Part 5: Magnets Outdoors (optional)	Active Investigation Active Investigation Active Investigation Active Investigation Math Extension Active Investigation	156-162 163-171 172-180 181-189 190-196	159: step 10 165: step 2; 168: step 8; 169: step 11 174: step 2 183: steps 3-10 189: step 22 193: steps 5-10
	Inv. 4: Electromagnets, Part 1: Building and Electromagnet Inv. 4: Electromagnets, Part 2: Changing the Strength Inv. 4: Electromagnets, Part 3: Reinventing the Telegraph Inv. 4: Electromagnets, Part 4: Design Your Own Investigation	Active Investigation Active Investigation Active Investigation Active Investigation	212-221 222-228 229-237 238-244	215: steps 2-3 224: step 3 233: step 4; 235: step 15 241: steps 1-6
		I-Check 1 I-Check 3 Performance Assessment	278 306 335 336	Item 11 Items 2, 4, 8, 9, 10 Performance Assessment, Station 1 Performance Assessment, Station 2
FOSS Water and Landforms	Inv. 1: Hot Water, Cold Water, Part 1: Build a Thermometer Inv. 1: Hot Water, Cold Water, Part 2: Sinking and Floating Water Inv. 1: Hot Water, Cold Water, Part 3: Water as Ice Inv. 1: Hot Water, Cold Water, Part 4: Ice Outdoors	Active Investigation Active Investigation Active Investigation Active Investigation	55-68 69-76 77-87 88-94	63: steps 7-9; 65: step 13 72: steps 4-5, 7 80: step 5; 81: steps 9-10; 82: step 12; 83: step 17 92: step 3; 93: step 8
	Inv. 2: Water Vapor, Part 1: Evaporation Inv. 2: Water Vapor, Part 2: Evaporation Locations Inv. 2: Water Vapor, Part 3: Surface Area Inv. 2: Water Vapor, Part 4: Condensation	Active Investigation Active Investigation Active Investigation Active Investigation	106-111 112-118 119-125 126-136	108: steps 2-3 115: steps 8-9; 116: step 12 121: step 3; 122: step 6; 123: step 8 129: step 4; 132: step 12

	Inv. 3: Landforms, Part 1: Erosion and Deposition Inv. 3: Landforms, Part 2: Stream-Table Investigations	Active Investigation Active Investigation	148-159 160-171	152: steps 4-5 164: step 4; 166: step 11 168: steps 17-20
	Inv. 4: Water and Resources, Part 1: Water in Earth Materials Inv. 4: Water and Resources, Part 2: Waterwheels Inv. 4: Water and Resources, Part 3: Water in Soil	Active Investigation Active Investigation Active Investigation Home/School Connection	190-198 199-205 206-214	192: steps 4-5 201: steps 2-8 210: step 5 213: step 20
	Inv. 5: Patterns of Change, Part 1: Shadow Shifting Inv. 5: Patterns of Change, Part 2: Night-Sky Observations Inv. 5: Patterns of Change, Part 3: Phases of the Moon Inv. 5: Patterns of Change, Part 4: Local Weather Inv. 5: Patterns of Change, Part 5: Severe Weather Inv. 5: Patterns of Change, Part 6: Weather Maps	Active Investigation Active Investigation Active Investigation Active Investigation Active Investigation	242-249 250-257 258-269 270-284 285-290 291-302	245: steps 6-7 254: step 4; 255: step 9; 256: step 12 264: step 5; 268: step 16 280: steps 7, 10; 282: step 14 288: step 5 295: steps 4-7; 298: steps 10-11
		Survey/Posttest Performance Assessment	322 377 378 379 381 382	Item 15a Performance Assessment, Station 1 Performance Assessment, Station 2 Performance Assessment, Station 3 Performance Assessment, Station 4 Performance Assessment, Station 5
FOSS Environments	Inv. 1: Environmental Factors, Part 1: Observing Mealworms Inv. 1: Environmental Factors, Part 2: Designing an Isopod Experiment Inv. 1: Environmental Factors, Part 3: Leaf-Litter Critters	Active Investigation Active Investigation Science Resources Book	58-75 76-85 SRB 187-189 86-96	66: step 4; 68: step 9 78: steps 1-2; 80: step 10; 84: step 28 <i>Setting Up a Terrarium</i> IG 81: steps 14-15 91: step 4
	Inv. 2: Ecosystems, Part 1: Designing an Aquarium Inv. 2: Ecosystems, Part 3: Population Simulation Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web	Active Investigation Active Investigation Active Investigation	112-120 130-139 140-148	115: steps 3-6; 116: step 7 134: step 6 143: steps 1-8
	Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment Inv. 3: Brine Shrimp Hatching, Part 2: Determining the Range of Tolerance Inv. 3: Brine Shrimp Hatching, Part 3: Determining Viability Inv. 3: Brine Shrimp Hatching, Part 4: Variation in a Population	Active Investigation Active Investigation Active Investigation Active Investigation	164-171 172-180 181-188 189-199	168: step 7; 169: step 8 174: step 2; 176: steps 11-12, 14 183: step 4 192: step 4
	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants Inv. 4: Range of Tolerance, Part 2: Plant Patterns	Active Investigation Active Investigation	216-231 232-240	221: step 4; 223: step 10; 225: step 23 236: step 4

		Performance Assessment	327 329 330 331	Performance Assessment, Station 1 Performance Assessment, Station 2 Performance Assessment, Station 3 Performance Assessment, Station 4
		Student Resources Book	SRB: 286-294	References: <i>Tools for Scientific Investigation</i>
4.4.B: use safety equipment as appropriate, including safety goggles and gloves.				
FOSS Energy and Electromagnetism	Inv. 1: Energy and Circuits, Part 3: Conductors and Insulators	Active Investigation	82-90	85: steps 1-3; 88: step 12
	Inv. 2: Series and Parallel, Part 3: Solving the String of Lights Problem	Active Investigation	127-134	130: steps 1-3
	Inv. 3: The Forces of Magnetism, Part 4: Magnetic Force	Active Investigation	181-189	183: steps 3-10
	Inv. 4: Electromagnets, Part 3: Reinventing the Telegraph Inv. 4: Electromagnets, Part 4: Design Your Own Investigation	Active Investigation Active Investigation	229-237 238-244	235: step 15 241: steps 1-6
FOSS Water and Landforms	Inv. 1: Hot Water, Cold Water, Part 1: Build a Thermometer	Active Investigation	55-68	63: step 7
	Inv. 2: Water Vapor, Part 3: Surface Area	Active Investigation	119-125	121: steps 1-3
	Inv. 3: Landforms, Part 1: Erosion and Deposition Inv. 3: Landforms, Part 2: Stream-Table Investigations	Active Investigation Active Investigation	148-159 160-171	153: step 5 164: step 4; 166: step 11; 168: steps 17-20
	Inv. 4: Water and Resources, Part 2: Waterwheels Inv. 4: Water and Resources, Part 3: Water in Soil	Active Investigation Active Investigation	199-205 206-214	201: steps 2-8 210: step 5, 7
	Inv. 5: Patterns of Change, Part 6: Weather Maps	Active Investigation	291-302	298: steps 10-11
		I-Check 1 Performance Assessment	338 379	Item 4 Performance Assessment, Station 3
FOSS Environments	Inv. 1: Environmental Factors, Part 3: Leaf-Litter Critters	Active Investigation	86-96	91: step 4
	Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web	Active Investigation	140-148	143: steps 1-8

	Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment Inv. 3: Brine Shrimp Hatching, Part 2: Determining the Range of Tolerance Inv. 3: Brine Shrimp Hatching, Part 3: Determining Viability	Active Investigation Active Investigation Active Investigation	164-171 172-180 181-188	168: step 7e 174: step 2 183: step 4
	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants Inv. 4: Range of Tolerance, Part 2: Plant Patterns	Active Investigation Active Investigation	216-231 232-240	221: steps 1-10; 225: steps 23-24 236: step 4
		Performance Assessment	327	Performance Assessment, Station 1

4.5. Matter and Energy

The student knows that matter has measurable physical properties and those properties determine how matter is classified, changes, and is used. The student is expected to:

4.5.A: measure, compare, and contrast physical properties of matter, including size, mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float;

FOSS Energy and Electromagnetism	Inv. 3: The Forces of Magnetism, Part 1: Magnets and Materials Inv. 3: The Forces of Magnetism, Part 3: Magnetic Fields Inv. 3: The Forces of Magnetism, Part 4: Magnetic Force Inv. 3: The Forces of Magnetism, Part 5: Magnets Outdoors (optional)	Active Investigation Home/School Connection Active Investigation Active Investigation Active Investigation	156-162 172-180 181-189 190-196	159: steps 8-15 162: step 21 174: steps 1-3 187: step 15 193: steps 6-10
		Survey/Posttest I-Check 3 I-Check 4 Performance Assessment	264 306 322 336	Items 2, 13 Items 1, 3, 10 Item 9 Performance Assessment, Station 2
FOSS Water and Landforms	Inv. 1: Hot Water, Cold Water, Part 1: Build a Thermometer Inv. 1: Hot Water, Cold Water, Part 2: Sinking and Floating Water Inv. 1: Hot Water, Cold Water, Part 3: Water as Ice	Active Investigation Student Resources Book Home/School Connection Active Investigation Student Resources Book Active Investigation Student Resources Book	55-68 SRB 81-84 69-76 SRB 88-91 77-87 SRB 92-97	64: step 9; 65: step 14 <i>A Report from the Blue Planet</i> IG 67: steps 21-22 68: step 26 71: step 1; 72: steps 5-8 <i>Water: Hot and Cold</i> IG 75: steps 14-15 80: step 7; 81: step 10; 82: step 14 <i>Ice is Everywhere</i> IG 86: steps 28-29

	Inv. 2: Water Vapor, Part 1: Evaporation Inv. 2: Water Vapor, Part 2: Evaporation Locations Inv. 2: Water Vapor, Part 3: Surface Area	Active Investigation Active Investigation Home/School Connection Active Investigation Student Resources Book	106-111 112-118 119-125 SRB 100-101	109: steps 3-5 114: steps 2-15 118: step 20 123: step 8 <i>Surface Area Experiment</i> IG 124: steps 12-13
	Inv. 3: Landforms, Part 1: Erosion and Deposition	Active Investigation	148-159	155: step 11
	Inv. 4: Water and Resources, Part 1: Water in Earth Materials	Active Investigation	190-198	192: step 2
		Survey/Posttest I-Check 1 I-Check 2 Performance Assessment	322 338 348 377 378 379 382	Items 6, 14 Items 1, 3ab, 8 Items 2, 3, 4, 6, 8 Performance Assessment, Station 1 Performance Assessment, Station 2 Performance Assessment, Station 3 Performance Assessment, Station 5
FOSS Environments				
		Performance Assessment	329	Performance Assessment, Station 2
4.5.B: predict the changes caused by heating and cooling such as ice becoming liquid water and condensation forming on the outside of a glass of ice water; and				
FOSS Water and Landforms	Inv. 1: Hot Water, Cold Water, Part 1: Build a Thermometer Inv. 1: Hot Water, Cold Water, Part 2: Sinking and Floating Water Inv. 1: Hot Water, Cold Water, Part 3: Water as Ice	Active Investigation Active Investigation Active Investigation Math Extension	55-68 69-76 77-87	64: step 9; 65: step 14; 66: step 20 79: step 2; 81: step 9; 84: step 19 85: step 27
	Inv. 2: Water Vapor, Part 4: Condensation	Active Investigation Science Resources Book	126-136 SRB 102-105	129: step 1 <i>The Water Cycle</i> IG 135: steps 18-19
		Survey/Posttest I-Check 1 I-Check 2 Performance Assessment	322 338 348 379	Items 7, 8, 9, 12ab Items 2ab, 6, 7a-d, 9, 10 Items 1, 4, 7, 8a-d, 10 Performance Assessment, Station 3

4.5.C: compare and contrast a variety of mixtures and solutions such as rocks in sand, sand in water, or sugar in water.

FOSS Water and Landforms	Inv. 1: Hot Water, Cold Water, Part 2: Sinking and Floating Water Inv. 1: Hot Water, Cold Water, Part 3: Water as Ice	Active Investigation Active Investigation	69-76 77-87	72: steps 5-8 83: step 17
	Inv. 4: Water and Resources, Part 1: Water in Earth Materials	Active Investigation	190-198	192: steps 3-8

4.6. Force, Motion and Energy

The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems. The student is expected to:

4.6.A: differentiate among forms of energy, including mechanical, sound, electrical, light, and heat/thermal;

FOSS Energy and Electromagnetism	Inv. 1: Energy and Circuits, Part 1: Lighting a Bulb Inv. 1: Energy and Circuits, Part 2: Energy on the Move	Active Investigation Active Investigation Science Resources Book	56-70 71-81 SRB 14-18	67: step 16 76: step 8; 77: step 10; 79: step 19 <i>Electrical Energy</i> IG 81: steps 21-22
	Inv. 1: Energy and Circuits, Part 4: Forms of Energy	Active Investigation Media/Video Student Resources Book	91-100 FOSSweb SRB 20-28	94: step 5; 95: step 7; 98: step 16 <i>What is Energy? (Chapters 1-5)</i> IG 96: step 12 <i>Changes in Energy</i> IG 97: steps 13-14
		I-Check 1 I-Check 2	278 292	Items 4ab, 10, 12, 13 Item 7

4.6.B: differentiate between conductors and insulators

FOSS Energy and Electromagnetism	Inv. 1: Energy and Circuits, Part 3: Conductors and Insulators	Active Investigation Science Resources Book	82-90 SRB 19	85: steps 1, 3; 86: steps 5-8; 87: step 10; 88: step 13 <i>Conductors and Insulators</i> IG 90: steps 17-18
	Inv. 4: Electromagnets, Part 1: Building and Electromagnet	Active Investigation	212-221	218: step 13
		Survey/Posttest I-Check 1 I-Check 2 I-Check 3	264 278 292 306	Item 12 Items 3, 8, 14ab Item 2 Items 1, 3

4.6.C: demonstrate that electricity travels in a closed path, creating an electrical circuit, and explore an electromagnetic field; and

<p>FOSS Energy and Electromagnetism</p>	<p>Inv. 1: Energy and Circuits, Part 1: Lighting a Bulb</p> <p>Inv. 1: Energy and Circuits, Part 2: Energy on the Move</p> <p>Inv. 1: Energy and Circuits, Part 3: Conductors and Insulators</p> <p>Inv. 1: Energy and Circuits, Part 4: Forms of Energy</p>	<p>Active Investigation Science Resources Book</p> <p>Active Investigation</p> <p>Active Investigation</p> <p>Active Investigation</p>	<p>56-70 SRB 9-13</p> <p>71-81 82-90 91-100</p>	<p>63: steps 5-12 <i>Edison Sees the Light</i> IG 69: steps 19-20 76: step 7; 78: step 13 88: step 13 95: step 7</p>
	<p>Inv. 2: Series and Parallel, Part 1: Building Series Circuits</p> <p>Inv. 2: Series and Parallel, Part 2: Building Parallel Circuits</p> <p>Inv. 2: Series and Parallel, Part 3: Solving the String of Lights Problem</p> <p>Inv. 2: Series and Parallel, Part 4: Solar Cells in Series and Parallel</p>	<p>Active Investigation</p> <p>Active Investigation</p> <p>Student Resources Book</p> <p>Home/School Connection</p> <p>Active Investigation</p> <p>Active Investigation</p>	<p>114-119 120-126 SRB 29-34</p> <p>127-134 135-141</p>	<p>116: steps 2-10 122: steps 2-9 <i>Series and Parallel Circuits</i> IG 126: steps 14-15 126: step 17 130: steps 2-8 138: steps 2-6</p>
	<p>Inv. 3: The Forces of Magnetism, Part 2: Magnets Interact</p>	<p>Active Investigation Student Resources Book</p>	<p>163-171 SRB 41-47</p>	<p>165: steps 2-7; 168: steps 8-11 <i>When Magnet Meets Magnet</i> IG 171: steps 17-18</p>
	<p>Inv. 4: Electromagnets, Part 1: Building and Electromagnet</p> <p>Inv. 4: Electromagnets, Part 2: Changing the Strength</p> <p>Inv. 4: Electromagnets, Part 3: Reinventing the Telegraph</p> <p>Inv. 4: Electromagnets, Part 4: Design Your Own Investigation</p>	<p>Active Investigation Media/Video</p> <p>Science Resources Book</p> <p>Home/School Connection</p> <p>Active Investigation</p> <p>Student Resources Book</p> <p>Student Resources Book</p> <p>Active Investigation</p> <p>Student Resources Book</p> <p>Active Investigation</p>	<p>212-221 FOSSweb</p> <p>SRB 55-57</p> <p>222-228 SRB 58-59</p> <p>SRB 60-68</p> <p>229-237 SRB 69-77</p> <p>238-244</p>	<p>215: steps 3-10 <i>What is Energy? Chapter 7</i> IG 219: steps 17-18 <i>Electricity Creates Magnetism</i> IG 220: steps 19-20 221: step 22 224: steps 2-9 <i>Using Magnetic Fields</i> IG 227: steps 12-13 <i>Electromagnets Everywhere</i> IG 227: steps 12, 14 232: steps 3-5; 235: steps 15-18 <i>Morse Gets Clicking</i> IG 235: steps 13-14 241: steps 1-6</p>

		Survey/Posttest I-Check 1 I-Check 2 I-Check 4 Performance Assessment	264 278 292 322 335	Items 1, 5, 6, 7, 9, 10, 14 Items 1ab, 2, 5, 6, 14b Items 1, 3, 4ab, 5ab, 6, 8ab, 9 Items 1, 2, 3, 4, 5, 6, 8, 9, 10 Performance Assessment, Station 1
4.6.D: design and experiment to test the effect of force on an object such as push or pull, gravity, friction, or magnetism				
FOSS Energy and Electromagnetism	Inv. 1: Energy and Circuits, Part 3: Conductors and Insulators	Active Investigation	82-90	85: steps 1-3
	Inv. 3: The Forces of Magnetism, Part 3: Magnetic Fields	Active Investigation Science Resources Book	172-180 SRB 48-50	174: steps 1-12 <i>Magnificent Magnetic Models</i> IG 179: steps 16-17
	Inv. 3: The Forces of Magnetism, Part 4: Magnetic Force	Science Resources Book Active Investigation	SRB 51-54 181-189	<i>Make a Magnetic Compass</i> IG 179: steps 16-17 183: steps 2-17
	Inv. 4: Electromagnets, Part 4: Design Your Own Investigation	Active Investigation	238-244	241: steps 1-6
		Survey/Posttest I-Check 3 Performance Assessment	264 306 336	Item 13 Items 5, 6ab Performance Assessment, Station 2
FOSS Water and Landforms	Inv. 3: Landforms, Part 2: Stream-Table Investigations	Active Investigation	160-171	163: steps 2-7; 166: steps 10-15
4.7. Earth and Space The student knows that Earth consists of useful resources and its surface is constantly changing. The student is expected to:				
4.7.A: examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants;				
FOSS Water and Landforms	Inv. 4: Water and Resources, Part 1: Water in Earth Materials	Active Investigation Student Resources Book	190-198 SRB 125-128	192: steps 2-8 <i>Natural Resources</i> IG 197: steps 15-16
	Inv. 4: Water and Resources, Part 3: Water in Soil	Active Investigation Media/Video	206-214 FOSSweb	209: steps 2-10; 212: step 15 <i>What is Soil?</i> <i>Investigation: Soil's Permeability</i> IG 212: step 12

		Survey/Posttest I-Check 4 Performance Assessment	322 368 377	Items 10 a-e Items 1, 2, 3, 5, 8 Performance Assessment, Station 1
4.7.B: observe and identify slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice; and				
FOSS Water and Landforms	Inv. 3: Landforms, Part 1: Erosion and Deposition Inv. 3: Landforms, Part 2: Stream-Table Investigations Inv. 3: Landforms, Part 3: Schoolyard Erosion and Deposition	Active Investigation Science Resources Book Science Resources Book Active Investigation Media/Video Active Investigation	148-159 SRB 106-112 SRB 113-119 160-171 FOSSweb 172-179	153: steps 5-10 <i>Weathering, Erosion, and Deposition</i> IG 158: steps 18-19 <i>Landforms Photo Album</i> IG 163: step 1 163: steps 2-7; 166: steps 10-15 <i>Weathering and Erosion (Chapters 5, 7)</i> IG 171: step 25 175: steps 2-10
		I-Check 3 I-Check 4 Performance Assessment	358 368 384	Items 1, 2, 3, 4, 5, 6, 7, 8, 10 Items 4, 9 Performance Assessment, Station 6
4.7.C: identify and classify Earth's renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation.				
FOSS Energy and Electromagnetism	Inv. 2: Series and Parallel, Part 3: Solving the String of Lights Problem	Student Resources Book	SRB 35-40	<i>Alternative Sources of Energy</i> IG 133: steps 12-13
		Survey/Posttest I-Check 1 I-Check 2	264 278 292	Item 3 Items 7, 9 Items 10ab
FOSS Water and Landforms	Inv. 4: Water and Resources, Part 1: Water in Earth Materials Inv. 4: Water and Resources, Part 2: Waterwheels	Media/Video Student Resources Book Student Resources Book Media/Multimedia Activity Active Investigation Student Resources Book	FOSSweb SRB 120-124 SRB 125-128 FOSSweb 199-205 SRB 129-131	<i>All about Natural Resources</i> IG 195: step 11 <i>Water: A Vital Resource</i> IG 197: steps 13-14 <i>Natural Resources</i> IG 197: steps 15-16 <i>Resource ID</i> IG 197: step 17 201: step 1 <i>The Power of Water</i> IG 205: steps 14-15

	I-Check 4 Performance Assessment	368 377	Item 7 Performance Assessment, Station 1
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4.8. Earth and Space

The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:

4.8.A: measure and record changes in weather and make predictions using weather maps, weather symbols, and a map key;

FOSS Water and Landforms	Inv. 5: Patterns of Change, Part 4: Local Weather	Active Investigation Student Resources Book	270-284 SRB 153-155	279: steps 4-17; 279: step 19 <i>Weather Instruments</i> IG 284: steps 20-21 <i>All about Meteorology</i> IG 284: step 22 284: step 23
		Media/Video	FOSSweb	
		Home/School Connection		
	Inv. 5: Patterns of Change, Part 5: Severe Weather	Active Investigation	285-290	287: steps 1-4
	Inv. 5: Patterns of Change, Part 6: Weather Maps	Media/Video	FOSSweb	<i>Meteorology (Chapters 1 and 7)</i> IG 295: step 2
		Active Investigation Student Resources Book	291-302 SRB 165-173	295: steps 3-7; 298: steps 11-13 <i>Weather Maps</i> IG 297: steps 8-9 <i>Weather Maps</i> IG 298: step 10
		Media/Multimedia Activity Media/Video	FOSSweb FOSSweb	<i>Meteorology (Chapters 3, 4, 5)</i> IG 300: step 16

	Survey/Posttest Performance Assessment	322 378	Items 2ab Performance Assessment, Station 2
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4.8.B: describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process; and

FOSS Water and Landforms	Inv. 1: Hot Water, Cold Water, Part 1: Build a Thermometer	Science Resources Book	SRB 85-87	<i>Which Way Does it Go?</i> IG 67: steps 23-24
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	<p>Inv. 2: Water Vapor, Part 1: Evaporation</p> <p>Inv. 2: Water Vapor, Part 4: Condensation</p>	<p>Student Resources Book</p> <p>Active Investigation Media/Video</p> <p>Student Resources Book</p>	<p>SRB 98-99</p> <p>126-136 FOSSweb</p> <p>SRB 102-105</p>	<p><i>Drying Up</i> IG 111: steps 9-10 132: step 13 <i>Water Cycle (Chapters 2, 3)</i> IG 133: step 14 <i>The Water Cycle</i> IG 135: steps 18-19</p>
	<p>Inv. 5: Patterns of Change, Part 5: Severe Weather</p>	<p>Media/Video</p> <p>Student Resources Book</p>	<p>FOSSweb</p> <p>SRB 156-164</p>	<p><i>Hurricanes and Tornadoes (Chapters 1-10)</i> IG 288: step 5 <i>Severe Weather</i> IG 289: steps 6-7</p>
		<p>Survey/Posttest I-Check 2</p>	<p>322 348</p>	<p>Items 11, 13 Item 9</p>

4.8.C: collect and analyze data to identify sequences and predict patterns of change in shadows, tides, seasons, and the observable appearance of the Moon over time.

FOSS Water and Landforms	<p>Inv. 5: Patterns of Change, Part 1: Shadow Shifting</p> <p>Inv. 5: Patterns of Change, Part 2: Night-Sky Observations</p> <p>Inv. 5: Patterns of Change, Part 3: Phases of the Moon</p> <p>Inv. 5: Patterns of Change, Part 4: Local Weather</p> <p>Inv. 5: Patterns of Change, Part 6: Weather Maps</p>	<p>Active Investigation</p> <p>Student Resources Book</p> <p>Active Investigation</p> <p>Active Investigation Media/Video</p> <p>Student Resources Book</p> <p>Student Resources Book</p> <p>Media/Multimedia</p> <p>Math Extension</p> <p>Active Investigation Media/Video</p>	<p>242-249</p> <p>SRB 138-142</p> <p>250-257</p> <p>258-269 FOSSweb</p> <p>SRB 143-147</p> <p>SRB 148-152</p> <p>FOSSweb</p> <p>270-284 FOSSweb</p>	<p>244: steps 3-12 <i>Changing Shadows</i> IG 248: steps 17-18 253: steps 1-12 262: steps 1-9 <i>All about the Moon</i> IG 263: step 4 <i>Changing Moon</i> IG 267: steps 14-15 <i>Lunar Cycle</i> IG 267: steps 14-15 <i>Tides</i> IG 268: steps 16-17 IG 269: step 19 283: step 19 <i>Climate and Seasons (Chapter 5)</i></p>
		<p>Survey/Posttest Performance Assessment</p>	<p>322 381</p>	<p>Items 1, 3a-c, 4, 5, 15ab Performance Assessment, Station 4</p>

4.9. Organisms and Environments

The student knows and understands that living organisms within an ecosystem interact with one another and with their environment. The student is expected to:

4.9.A: investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food; and

FOSS Environments	Inv. 2: Ecosystems, Part 2: Food Chains and Food Webs	Active Investigation Science Resources Book	121-129 SRB 206-208	124: steps 7-10 <i>What is an Ecosystem?</i> IG 127: steps 17-18
	Inv. 2: Ecosystems, Part 3: Population Simulation Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web	Science Resources Book Home/School Connection Active Investigation Active Investigation Science Resources Book Science Resources Book	SRB 209-215 130-139 140-148 SRB 220-223 SRB 224-225	IG 127: steps 19-20 129: step 23 133: step 2; 134: steps 8-16 143: step 3 <i>Monterey Bay National Sanctuary</i> IG 146: steps 14-15 <i>Comparing Aquatic and Terrestrial Ecosystems</i> IG 147: steps 16-17
	Inv. 3: Brine Shrimp Hatching, Part 2: Determining the Range of Tolerance	Active Investigation	172-180	175: step 8
	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants	Active Investigation Science Resources Book Science Resources Book	216-231 SRB 259-260 SRB 261-263	221: steps 1-10; 224: steps 16-38 <i>Range of Tolerance</i> IG 230: steps 48-49 <i>How Organisms Depend on One Another</i> IG 231: steps 50-51
		Survey/Posttest I-Check 2 I-Check 3 Performance Assessment	272 300 312 331	Items 2, 6, 7 Items 2, 8 Item 8 Performance Assessment, Station 4

4.9.B: describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web such as fire in a forest.

FOSS Environments	Inv. 2: Ecosystems, Part 2: Food Chains and Food Webs	Active Investigation Science Resources Book	121-129 SRB	124: step 6; 125: step 10; 126: step 14 <i>Food Chains and Food Webs</i> IG 127: steps 19-20 <i>Food Webs</i> (after Inv. 2, Part 2)
	Inv. 2: Ecosystems, Part 3: Population Simulation	Active Investigation Science Resources Book	130-139 SRB 216-219	133: step 2; 134: steps 8-16 <i>Human Activities and Aquatic Systems</i> IG 138: steps 21-22
	Inv. 2: Ecosystems, Part 4: Kelp Forest Food Web	Active Investigation Science Resources Book	140-148 SRB 220-223	144: steps 7-10 <i>Monterey Bay National Sanctuary</i> IG 146: steps 14-15 <i>Comparing Aquatic and Terrestrial Ecosystems</i> IG 147: steps 16-17
	Inv. 3: Brine Shrimp Hatching, Part 2: Determining the Range of Tolerance	Science Resources Book	SRB 227-233	<i>The Mono Lake Story</i> IG 175: steps 6-7
		Active Investigation Science Resources Book	172-180 SRB 234-238	175: step 8 <i>What Happens When Ecosystems Change?</i> IG 176: steps 9-10
	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants	Science Resources Book	SRB 259-260	<i>Range of Tolerance</i> IG 230: steps 48-49
		Survey/Posttest I-Check 1 I-Check 2 I-Check 3	272 288 300 312	Items 6, 10ab Item 3 Items 1, 5, 6, 7, 9a-c, 11, 12 Items 7, 8, 10, 12b

4.10. Organisms and Environments

The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:

4.10.A: explore how adaptations enable organisms to survive in their environment such as comparing birds' beaks and leaves on plants;

FOSS Environments	Inv. 1: Environmental Factors, Part 1: Observing Mealworms	Science Resources Book	SRB 177-186	<i>Two Terrestrial Environments</i> IG 70: steps 17-18
	Inv. 1: Environmental Factors, Part 2: Designing an Isopod Experiment	Science Resources Book	SRB 190-191	<i>Isopods</i> IG 83: steps 23-24
	Inv. 1: Environmental Factors, Part 3: Leaf-Litter Critters	Home/School Connection	86-96	<i>Virtual Terrarium</i> (after Inv. 1, Part 2) 96: step 15

	Inv. 2: Ecosystems, Part 1: Designing an Aquarium	Active Investigation Science Resources Book Multimedia	112-120 SRB 201-205 FOSSweb	115: steps 6-18 <i>Freshwater Environments</i> IG 119: steps 19-20 <i>Virtual Aquarium</i> (after Inv. 2, Part 1)
	Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment Inv. 3: Brine Shrimp Hatching, Part 3: Determining Viability Inv. 3: Brine Shrimp Hatching, Part 4: Variation in a Population	Science Resources Book Media/Video Active Investigation Science Resources Book	SRB 226 FOSSweb 189-199 SRB 247-253	<i>Brine Shrimp</i> IG 171: step 14 <i>Plant and Animal Adaptations</i> IG 186: step 12 193: steps 4-14 <i>Variation and Selection</i> IG 196: steps 17-18
	Inv. 4: Range of Tolerance, Part 1: Water or Salt Tolerance and Plants Inv. 4: Range of Tolerance, Part 2: Plant Patterns Inv. 4: Range of Tolerance, Part 3: Plant Adaptations	Active Investigation Science Resources Book Science Resources Book Active Investigation Science Resources Book Active Investigation Media/Video	216-231 SRB 259-260 SRB 261-263 232-240 SRB 264-269 241-247 FOSSweb	221: steps 1-10; 224: steps 16-38 <i>Range of Tolerance</i> IG 230: steps 48-49 <i>How Organisms Depend on One Another</i> IG 231: steps 50-51 236: steps 2-11 <i>Animals from the Past</i> IG 240: steps 16-17 243: step 1 <i>All about Plant Adaptations</i> IG 244: steps 4-5
		Survey/Posttest I-Check 1 I-Check 2 I-Check 3 Performance Assessment	272 288 300 312 327	Items 11, 13, 14 Items 1, 3, 5, 7, 9, 10 Item 3 Items 1ab, 2ab, 4ab, 5, 9, 12ab Performance Assessment, Station 1
4.10.B: demonstrate that some likenesses between parents and offspring are inherited, passed from generation to generation such as eye color in humans or shapes of leaves in plants. Other likenesses are learned such as table manners or reading a book and seals balancing balls on their noses; and				
FOSS Environments	Inv. 1: Environmental Factors, Part 1: Observing Mealworms	Student Resources Book	SRB 278-281	<i>Darkling Beetles</i> IG 75: steps 29-30

	Inv. 3: Brine Shrimp Hatching, Part 4: Variation in a Population	Active Investigation Media/Video	189-199 FOSSweb	193: steps 4-14 <i>Genes and Heredity</i> IG 197: step 19 <i>How Animals Educate Their Young</i> IG 197: step 19
	Inv. 4: Range of Tolerance, Part 3: Plant Adaptations	Active Investigation	241-247	254: step 6
		Survey/Posttest I-Check 3	272 312	Items 3, 5, 12 Items 3, 6
4.10.C: explore, illustrate, and compare life cycles in living organisms such as butterflies, beetles, radishes, or lima beans.				
FOSS Environments	Inv. 1: Environmental Factors, Part 1: Observing Mealworms	Active Investigation Science Resources Book	58-75 SRB 278-281	67: steps 7-13; 71: steps 19-20; 72: steps 22-27 <i>Darkling Beetles</i> IG 75: steps 29-30
	Inv. 3: Brine Shrimp Hatching, Part 1: Setting Up the Experiment Inv. 3: Brine Shrimp Hatching, Part 3: Determining Viability	Active Investigation Active Investigation Home/School Connection	164-171 181-188	167: steps 3-8 185: step 10 186: step 13
	Inv. 4: Range of Tolerance, Part 3: Plant Adaptations	Science Resources Book	SRB 270-277	<i>Life Cycles</i> IG 246: steps 8-9
		Survey/Posttest I-Check 1 I-Check 2 Performance Assessment	272 288 300 330	Items 1, 8, 15 Items 4, 11ab Item 4 Performance Assessment, Station 3