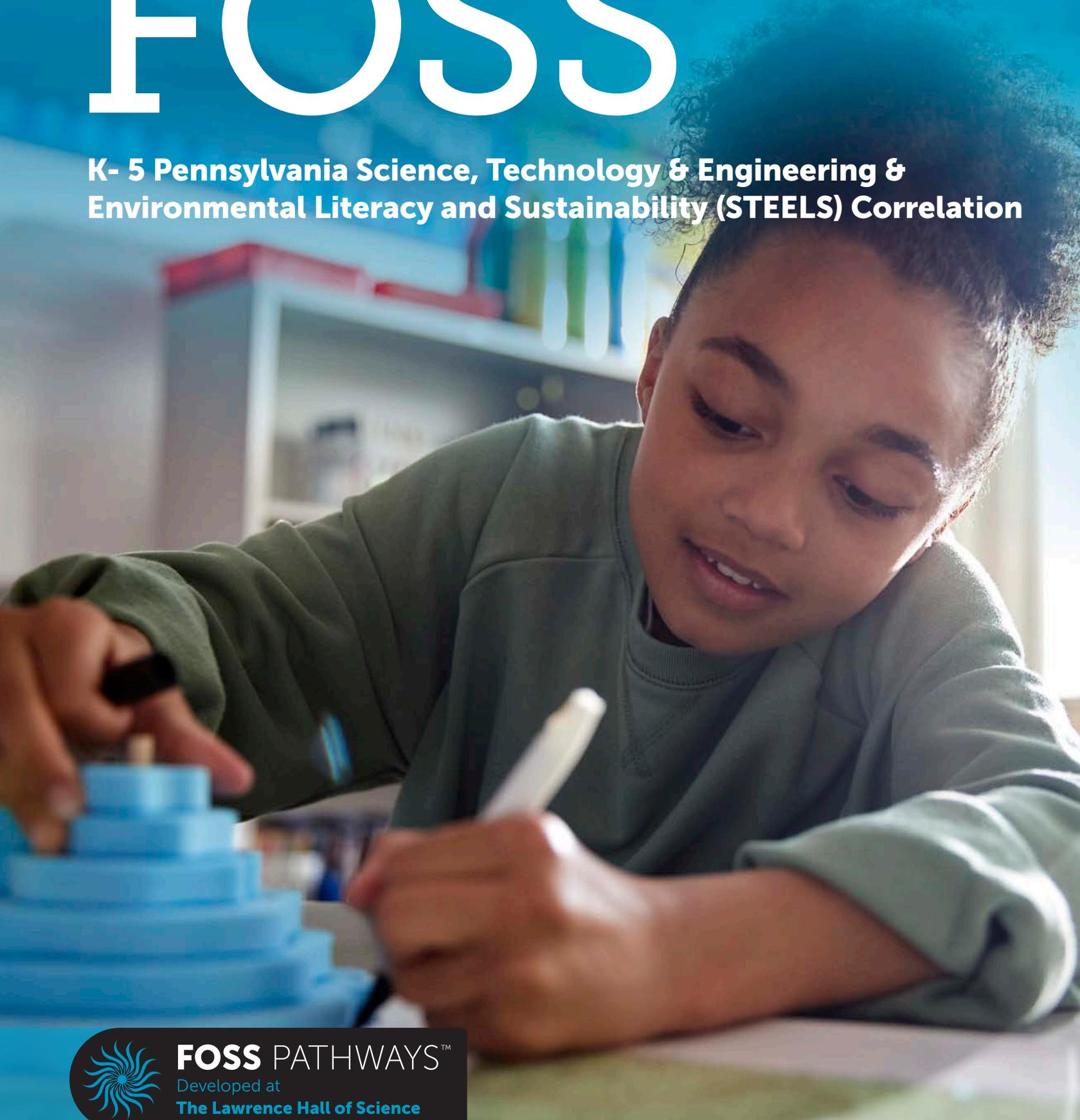


FOSS

K- 5 Pennsylvania Science, Technology & Engineering & Environmental Literacy and Sustainability (STEELS) Correlation



K–2 Scope and Sequence Correlation At-A-Glance

GRADE	EARTH SCIENCE	PHYSICAL SCIENCE	LIFE SCIENCE
K	Trees and Weather	Materials and Forces	Animals Two by Two
	3.1.K.A • 3.2.K.C • 3.3.K.A • 3.3.K.B • 3.3.K.C • 3.3.K.D 3.4.K-2.A • 3.4.K-2.C 3.5.K-2.K • 3.5.K-2.M • 3.5.K-2.N • 3.5.K-2.Q • 3.5.K-2.S • 3.5.K-2.Z	3.2.K.B • 3.2.K.A • 3.2.K.C • 3.2.K.D • 3.3.K.E 3.4.K-2.A 3.5.K-2.B • 3.5.K-2.D • 3.5.K-2.K • 3.5.K-2.M • 3.5.K-2.P • 3.5.K-2.Q • 3.5.K-2.S • 3.5.K-2.T • 3.5.K-2.V • 3.5.K-2.W • 3.5.K-2.X • 3.5.K-2.BB • 3.5.K-2.CC • 3.5.K-2.DD	3.1.K.A • 3.3.K.B • 3.3.K.C
1	Changes in the Sky (Using NG Air and Weather)	Sound and Light	Plants and Animals
	3.3.1.A • 3.3.1.B 3.5.K-2.K • 3.5.K-2.M • 3.5.K-2.N • 3.5.K-2.Q • 3.5.K-2.S • 3.5.K-2.T • 3.5.K-2.U • 3.5.K-2.X • 3.5.K-2.Z • 3.5.K-2.DD	3.2.1.A • 3.2.1.B • 3.2.1.C • 3.2.1.D 3.5.K-2.C • 3.5.K-2.K • 3.5.K-2.M • 3.5.K-2.N • 3.5.K-2.Q • 3.5.K-2.S • 3.5.K-2.M • 3.5.K-2.N • 3.5.K-2.Q • 3.5.K-2.S • 3.5.K-2.T • 3.5.K-2.V • 3.5.K-2.X • 3.5.K-2.Z • 3.5.K-2.DD	3.1.1.A • 3.1.1.B • 3.1.1.C 3.4.K-2.A 3.5.K-2.L • 3.5.K-2.U • 3.5.K-2.BB • 3.5.K-2.CC
2	Water and Landforms (Using NG Pebbles, Sand, and Silt)	Solids and Liquids	Insects and Plants
	3.2.2.A • 3.2.2.B • 3.3.2.A • 3.3.2.B • 3.3.2.C • 3.3.2.D 3.4.K-2.C • 3.4.K-2.D • 3.5.K-2.G • 3.5.K-2.H • 3.5.K-2.K • 3.5.K-2.L • 3.5.K-2.Q • 3.5.K-2.R • 3.5.K-2.S • 3.5.K-2.T • 3.5.K-2.U • 3.5.K-2.W • 3.5.K-2.AA • 3.5.K-2.DD	3.2.2.A • 3.2.2.B • 3.2.2.C • 3.2.2.D 3.5.K-2.B • 3.5.K-2.F • 3.5.K-2.H • 3.5.K-2.K • 3.5.K-2.L • 3.5.K-2.Q • 3.5.K-2.R • 3.5.K-2.S • 3.5.K-2.T • 3.5.K-2.U • 3.5.K-2.X • 3.5.K-2.BB • 3.5.K-2.DD	3.1.2.A • 3.1.2.B • 3.1.2.C 3.4.K-2.A 3.5.K-2.K • 3.5.K-2.O • 3.5.K-2.P • 3.5.K-2.Q • 3.5.K-2.S • 3.5.K-2.T • 3.5.K-2.V • 3.5.K-2.X • 3.5.K-2.DD

3–5 Scope and Sequence Correlation At-A-Glance

GRADE	EARTH SCIENCE	PHYSICAL SCIENCE	LIFE SCIENCE
3	Water and Climate	Motion	Structures of Life
	3.3.3.A • 3.3.3.B • 3.3.3.C* 3.4.3-5.E • 3.4.3-5.F 3.5.3-5.V	3.2.3.A • 3.2.3.B • 3.2.3.C • 3.2.3.D 3.5.3-5.C • 3.5.3-5.I • 3.5.3-5.M • 3.5.3-5.N • 3.5.3-5.P • 3.5.3-5.Q • 3.5.3-5.R • 3.5.3-5.U • 3.5.3-5.BB	3.1.3.A • 3.1.3.B • 3.1.3.C • 3.1.3.D • 3.1.3.E • 3.1.3.F • 3.1.3.G • 3.1.3.H* 3.4.3-5.A • 3.4.3-5.B
4	Soils, Rocks, and Landforms	Energy	Senses and Survival
	3.3.4.A • 3.3.4.B • 3.3.4.C • 3.3.4.D • 3.3.4.E • 3.4.3-5.E 3.5.3-5.J • 3.5.3-5.O • 3.5.3-5.P • 3.5.3-5.T • 3.5.3-5.V • 3.5.3-5.W	3.2.4.A • 3.2.4.B* • 3.2.4.C • 3.2.4.D • 3.2.4.E • 3.2.4.F • 3.2.4.G • 3.3.4.D 3.4.3-5.B 3.5.3-5.C • 3.5.3-5.J • 3.5.3-5.M • 3.5.3-5.N • 3.5.3-5.O • 3.5.3-5.Q • 3.5.3-5.R • 3.5.3-5.DD	3.1.4.A • 3.1.4.B 3.4.3-5.A • 3.4.3-5.B 3.5.3-5.EE • 3.5.3-5.FF • 3.5.3-5.GG
5	Earth and Sun	Mixtures and Solutions	Living Systems
	3.2.5.A • 3.2.5.F • 3.3.5.A • 3.3.5.B • 3.3.5.C • 3.3.5.D* • 3.3.5.E • 3.3.5.F† 3.4.3-5.B • 3.4.3-5.D 3.5.3-5.E • 3.5.3-5.G • 3.5.3-5.J	3.2.5.A • 3.2.5.B • 3.2.5.C† • 3.2.5.D • 3.2.5.E • 3.3.5.E 3.4.3-5.A • 3.4.3-5.B • 3.4.3-5.C • 3.4.3-5.E 3.5.3-5.B • 3.5.3-5.I • 3.5.3-5.L • 3.5.3-5.M • 3.5.3-5.O • 3.5.3-5.P • 3.5.3-5.Q • 3.5.3-5.R • 3.5.3-5.T • 3.5.3-5.U • 3.5.3-5.W	3.1.5.A • 3.1.5.B • 3.2.5.G • 3.3.5.C • 3.3.5.E 3.4.3-5.A • 3.4.3-5.B • 3.4.3-5.C • 3.4.3-5.D • 3.4.3-5.E • 3.4.3-5.F • 3.4.3-5.G 3.5.3-5.E • 3.5.3-5.CC • 3.5.3-5.EE

* PA STEELS Science standard with modified wording

† Additional PA STEELS Science standard (does not have NGSS equivalent)

KEY:

S: 3.1 – Life Science, 3.2 – Physical Science, 3.3 – Earth/Space Science

ELS: 3.4

TE: 3.5

FOSS Pathways Grade 3 Detail Correlation Water and Climate

WATER AND CLIMATE	
<p>3.3.3.A: Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.</p>	<p>Disciplinary Core Ideas ESS2.D: Weather and Climate: Investigation 2, Parts 1–2</p> <p>Science and Engineering Practices Analyzing and Interpreting Data: Investigation 2, Parts 1–2</p> <p>Crosscutting Concepts Patterns: Investigation 2, Part 2</p>
<p>3.3.3.B: Obtain and combine information to describe climates in different regions of the world.</p>	<p>Disciplinary Core Ideas ESS2.D: Weather and Climate: Investigation 4, Part 2</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 4, Part 2</p> <p>Crosscutting Concepts Patterns: Investigation 4, Part 2</p>
<p>3.3.3.C: Make a claim supported by evidence about the merit of a design solution that reduces the impacts of a weather-related hazard.</p>	<p>Disciplinary Core Ideas ESS3.B: Natural Hazards: Investigation 1, Parts 1–4 (foundational); Investigation 3, Parts 1–4</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 3, Part 2</p> <p>Crosscutting Concepts Cause and Effect: Investigation 1, Parts 3–4 (foundational); Investigation 3, Parts 1–4</p>

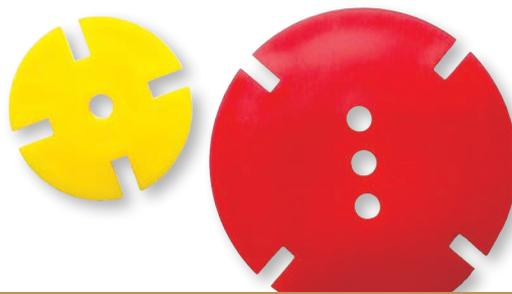


WATER AND CLIMATE	
<p>3.4.3-5.E: Construct an argument to support whether action is needed on a selected environmental issue and propose possible solutions.</p>	<p>Disciplinary Core Ideas ESS3.C: Human Impacts on Earth systems: Investigation 1, Parts 2–3; Investigation 3, Part 4</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 1, Parts 2–3; Investigation 3, Part 4 Obtaining, Evaluating, and Communicating Information: Investigation 1, Part 2; Investigation 3, Part 4</p> <p>Crosscutting Concepts Cause and Effect: Investigation 1, Part 3 (foundational); Investigation 3, Part 4</p>
<p>3.4.3-5.F: Critique the ways that people depend on and change the environment.</p>	<p>Disciplinary Core Ideas ESS3.A: Natural Resources: Investigation 3, Part 4 ESS3.C: Human Impacts on Earth Systems: Investigation 3, Part 4</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 3, Part 4 Engaging in Argument from Evidence: Investigation 3, Part 4</p> <p>Crosscutting Concepts Cause and Effect: Investigation 1, Parts 3–4 (foundational); Investigation 3, Parts 1–4</p>
<p>3.5.3-5.V: Interpret how good design improves the human condition.</p>	<p>Disciplinary Core Ideas ETS1.C: Optimizing the Design Solution: Investigation 3, Part 4</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 3, Part 4</p> <p>Technology and Engineering Practices Optimism: Investigation 3, Part 4</p>
<p>3.5.3-5.Z: Create a new product that improves someone’s life</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 3, Part 4 ETS1.B: Developing Possible Solutions: Investigation 3, Part 4 ETS1.C: Optimizing the Design Solution: Investigation 3, Part 4</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 3, Part 4</p> <p>Technology and Engineering Practices Creativity: Investigation 3, Part 4 Making and Doing: Investigation 3, Part 4</p>

FOSS Pathways Grade 3 Detail Correlation Motion

MOTION	
<p>3.2.3.B: Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.</p>	<p>Disciplinary Core Ideas PS2.A: Forces and Motion: Investigation 3, Parts 1–4</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 3, Parts 1–4</p> <p>Crosscutting Concepts Cause and Effect: Investigation 3, Parts 1–4</p>
<p>3.2.3.A: Make observations and/or measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion.</p>	<p>Disciplinary Core Ideas PS2.A: Forces and Motion: Investigation 1, Parts 2–3; Investigation 2, Parts 1–3</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 1, Part 2; Investigation 2, Parts 1–3</p> <p>Crosscutting Concepts Patterns: Investigation 1, Part 2; Investigation 2, Parts 1–3</p>
<p>3.2.3.C: Ask questions to determine cause and effect relationships of electrical or magnetic interactions between two objects not in contact with each other.</p>	<p>Disciplinary Core Ideas PS2.B: Types of Interactions: Investigation 1, Parts 1–3</p> <p>Science and Engineering Practices Asking Questions and Defining Problems: Investigation 1, Parts 1–2</p> <p>Crosscutting Concepts Cause and Effect: Investigation 1, Parts 1–3</p>





MOTION	
<p>3.2.3.D: Define a simple design problem that can be solved by applying scientific ideas about magnets.</p>	<p>Disciplinary Core Ideas PS2.B: Types of Interactions: Investigation 3, Part 4</p> <p>Science and Engineering Practices Asking Questions and Defining Problems: Investigation 3, Part 4</p> <p>Crosscutting Concepts Cause and Effect: Investigation 1, Parts 1–3</p>
<p>3.5.3-5.C: Follow directions to complete a technological task.</p>	<p>Disciplinary Core Ideas ETS1.B: Developing Possible Solutions: Investigation 3, Parts 1–4</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 3, Parts 1–4</p> <p>Technology and Engineering Practices Making and Doing: Investigation 3, Parts 1, 2, and 4</p>
<p>3.5.3-5.I: Design solutions by safely using tools, materials, and skills.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 3, Part 4 ETS1.B: Developing Possible Solutions: Investigation 3, Part 4</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 3, Parts 1–4</p> <p>Technology and Engineering Practices Making and Doing: Investigation 3, Parts 1, 2, and 4</p>
<p>3.5.3-5.M: Demonstrate essential skills of the engineering design process.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 3, Part 4 ETS1.B: Developing Possible Solutions: Investigation 3, Part 4 ETS1.C: Optimizing the Design Solution: Investigation 3, Part 4</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 3, Parts 1–4</p> <p>Technology and Engineering Practices Creativity: Investigation 3, Parts 2–4 Making and Doing: Investigation 3, Parts 1, 2, and 4</p>
<p>3.5.3-5.N: Identify why a product or system is not working properly</p>	<p>Disciplinary Core Ideas ETS1.B: Developing Possible Solutions: Investigation 3, Part 4</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 3, Parts 1, 2, and 4</p> <p>Technology and Engineering Practices Optimism: Investigation 3, Part 3 Critical Thinking: Investigation 3, Part 4</p>

FOSS Pathways Grade 3 Detail Correlation

Motion

MOTION	
<p>3.5.3-5.P: Evaluate the strengths and weaknesses of existing design solutions, including their own solutions.</p>	<p>Disciplinary Core Ideas ETS1.B: Developing Possible Solutions: Investigation 3, Part 4</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 3, Part 3</p> <p>Technology and Engineering Practices Optimism: Investigation 3, Parts 3–4 Critical Thinking: Investigation 3, Part 4</p>
<p>3.5.3-5.Q: Practice successful design skills.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 3, Part 4 ETS1.B: Developing Possible Solutions: Investigation 3, Part 4 ETS1.C: Optimizing the Design Solution: Investigation 3, Part 3</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 3, Parts 1, 2, and 4</p> <p>Technology and Engineering Practices Creativity: Investigation 3, Parts 2–4</p>
<p>3.5.3-5.R: Apply tools, techniques, and materials in a safe manner as part of the design process</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 3, Part 4</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 3, Parts 1–4</p> <p>Technology and Engineering Practices Making and Doing: Investigation 3, Parts 1, 2 and 4</p>
<p>3.5.3-5.U: Evaluate designs based on criteria, constraints, and standards.</p>	<p>Disciplinary Core Ideas ETS1.B: Developing Possible Solutions: Investigation 3, Part 1</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 3, Part 3</p> <p>Technology and Engineering Practices Critical Thinking: Investigation 3, Part 4</p>



MOTION	
<p>3.5.3-5.Y: Identify the resources needed to get the technological job done, such as people, materials, capital, tools, machines, knowledge, energy, and time.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 3, Part 4</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 3, Parts 1, 2, and 4</p> <p>Technology and Engineering Practices Critical Thinking: Investigation 3, Parts 3–4</p>
<p>3.5.3-5.BB: Illustrate how, when parts of a system are missing, it may not work as planned.</p>	<p>Disciplinary Core Ideas ETS1.B: Developing Possible Solutions: Investigation 3, Part 4</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 3, Parts 1, 2, and 4</p> <p>Technology and Engineering Practices Systems Thinking: Investigation 3, Parts 3–4</p>



FOSS Pathways Grade 3 Detail Correlation Structures of Life

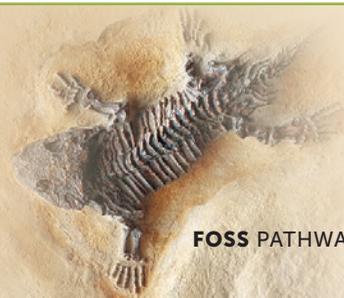
STRUCTURES OF LIFE	
<p>3.1.3.A: Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.</p>	<p>Disciplinary Core Ideas LS1.B: Growth and Development of Organisms: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2; Investigation 3, Parts 1–2; Investigation 4, Part 1</p> <p>Science and Engineering Practices Developing and Using Models: Investigation 2, Part 2; Investigation 4, Part 1</p> <p>Crosscutting Concepts Patterns: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2; Investigation 4, Part 1</p>
<p>3.1.3.B: Construct an argument that some animals form groups that help members survive.</p>	<p>Disciplinary Core Ideas LS2.D: Social Interactions and Group Behavior: Investigation 3, Part 3</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 1, Part 3; Investigation 2, Part 1; Investigation 4, Part 1</p> <p>Crosscutting Concepts Cause and Effect: Investigation 3, Part 3</p>
<p>3.1.3.C: Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.</p>	<p>Disciplinary Core Ideas LS3.A: Inheritance of Traits: Investigation 2, Parts 1–2; Investigation 3, Part 2 LS3.B: Variation of Traits: Investigation 2, Part 2; Investigation 3, Part 2</p> <p>Science and Engineering Practices Analyzing and Interpreting Data: Investigation 2, Parts 1–2</p> <p>Crosscutting Concepts Patterns: Investigation 2, Parts 1–2</p>
<p>3.1.3.D: Use evidence to support the explanation that traits can be influenced by the environment.</p>	<p>Disciplinary Core Ideas LS3.A: Inheritance of Traits: Investigation 2, Part 2 LS3.B: Variation of Traits: Investigation 2, Part 2</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 2, Part 2</p> <p>Crosscutting Concepts Cause and Effect: Investigation 2, Part 1</p>
<p>3.1.3.E: Analyze and interpret data from fossils to provide evidence of the organisms and environments in which they lived long ago.</p>	<p>Disciplinary Core Ideas LS4.A: Evidence of Common Ancestry and Diversity: Investigation 4, Part 2</p> <p>Science and Engineering Practices Analyzing and Interpreting Data: Investigation 4, Part 2</p> <p>Crosscutting Concepts Scale, Proportion, and Quantity: Investigation 4, Part 2</p>





STRUCTURES OF LIFE

<p>3.1.3.F: Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.</p>	<p>Disciplinary Core Ideas LS4.B: Natural Selection: Investigation 4, Part 1</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 4, Part 1</p> <p>Crosscutting Concepts Cause and Effect: Investigation 4, Part 1</p>
<p>3.1.3.G: Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.</p>	<p>Disciplinary Core Ideas LS4.C: Adaptation: Investigation 3, Part 2; Investigation 4, Parts 1–2</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 4, Part 1</p> <p>Crosscutting Concepts Cause and Effect: Investigation 4, Part 1</p>
<p>3.1.3.H: Make a claim supported by evidence about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.</p>	<p>Disciplinary Core Ideas LS4.D: Biodiversity and Humans: Investigation 4, Part 1 LS2.C: Ecosystem Dynamics, Functioning, and Resilience: Investigation 4, Part 1</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 4, Part 1</p> <p>Crosscutting Concepts Systems and System Models: Investigation 4, Part 1</p>
<p>3.4.3-5.A: Analyze how living organisms, including humans, affect the environment in which they live, and how their environment affects them.</p>	<p>Disciplinary Core Ideas ESS3.C: Human Impacts on Earth Systems: Investigation 4, Part 1</p> <p>Science and Engineering Practices Analyzing and Interpreting Data: Investigation 4, Part 1</p> <p>Crosscutting Concepts Cause and Effect: Investigation 4, Part 1 Structure and Function: Investigation 4, Part 1</p>
<p>3.4.3-5.B: Make a claim about the environmental and social impacts of design solutions and civic actions, including their own actions.</p>	<p>Disciplinary Core Ideas ESS3.A: Natural Resources: Investigation 4, Part 1 ESS3.C: Human Impacts on Earth Systems: Investigation 4, Part 1</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 4, Part 1</p> <p>Crosscutting Concepts Cause and Effect: Investigation 4, Part 1</p>



Disciplinary Core Ideas Assessment Opportunities

Grade 3	WATER AND CLIMATE				MOTION			STRUCTURES OF LIFE			
	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3	INV. 4
PS2.A											
PS2.B											
LS1.A											
LS1.B											
LS2.C											
LS2.D											
LS3.A											
LS3.B											
LS4.A											
LS4.B											
LS4.C											
LS4.D											
ESS2.C											
ESS2.D											
ESS3.B											
ETS1.A											
ETS1.B											
ETS1.C											



Science and Engineering Practices Assessment Opportunities

Grade 3	WATER AND CLIMATE				MOTION			STRUCTURES OF LIFE			
SEP	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3	INV. 4
Asking Questions and Defining Problems											
Developing and Using Models											
Planning and Carrying Out Investigations											
Analyzing and Interpreting Data											
Using Mathematics and Computational Thinking											
Constructing Explanations and Designing Solutions											
Engaging in Argument from Evidence											
Obtaining, Evaluating, and Communicating Information											

Crosscutting Concepts Assessment Opportunities

Grade 3	WATER AND CLIMATE				MOTION			STRUCTURES OF LIFE			
CC	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3	INV. 4
Patterns											
Cause and Effect											
Scale, Proportion, and Quantity											
Systems and System Models											
Structure and Function											

FOSS Pathways Grade 4 Detail Correlation Soils, Rocks, and Landforms

SOILS, ROCKS, AND LANDFORMS	
<p>3.3.4.A: Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.</p>	<p>Disciplinary Core Ideas ESS1.C: The History of Planet Earth: Investigation 4, Part 2</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 4, Part 2</p> <p>Crosscutting Concepts Patterns: Investigation 4, Part 2</p>
<p>3.3.4.B: Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.</p>	<p>Disciplinary Core Ideas ESS2.A: Earth Materials and Systems: Investigation 1, Parts 1–2; Investigation 2, Parts 1–3 ESS2.E: Biogeology: Investigation 1, Parts 1–2; Investigation 2, Part 3</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 1, Parts 1–2; Investigation 2, Parts 1–3</p> <p>Crosscutting Concepts Cause and Effect: Investigation 1, Part 2; Investigation 2, Parts 1–3</p>
<p>3.3.4.C: Analyze and interpret data from maps to describe patterns of Earth’s features.</p>	<p>Disciplinary Core Ideas ESS2.B: Plate Tectonics and Large-Scale System Interactions: Investigation 3, Parts 1–2; Investigation 4, Part 1</p> <p>Science and Engineering Practices Analyzing and Interpreting Data: Investigation 3, Parts 1–2; Investigation 4, Part 1</p> <p>Crosscutting Concepts Patterns: Investigation 4, Part 1</p>



SOILS, ROCKS, AND LANDFORMS

<p>3.3.4.E: Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.</p>	<p>Disciplinary Core Ideas ESS3.B: Natural Hazards: Investigation 3, Part 2 ETS1.B: Designing Solutions to Engineering Problems: Investigation 2, Part 3</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 2, Part 3; Investigation 3, Part 2</p> <p>Crosscutting Concepts Cause and Effect: Investigation 2, Part 3</p>
<p>3.4.3-5.E: Construct an argument to support whether action is needed on a selected environmental issue and propose possible solutions.</p>	<p>Disciplinary Core Ideas ESS1.C: The History of Planet Earth: Investigation 2, Part 3</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 2, Part 3 Obtaining, Evaluating, and Communicating Information: Investigation 2, Part 3</p> <p>Crosscutting Concepts Patterns: Investigation 2, Part 3 Cause and Effect: Investigation 2, Part 3</p>
<p>3.5.3-5.K: Judge technologies to determine the best one to use to complete a given task or meet a need.</p>	<p>Disciplinary Core Ideas ETS1.B: Developing Possible Solutions: Investigation 2, Part 3</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 2, Part 3</p> <p>Technology and Engineering Practices Critical Thinking: Investigation 2, Part 3</p>



FOSS Pathways Grade 4 Detail Correlation Soils, Rocks, and Landforms

SOILS, ROCKS, AND LANDFORMS	
<p>3.5.3-5.O: Describe requirements of designing or making a product or system.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 2, Part 3 ETS1.B: Developing Possible Solutions: Investigation 2, Part 3 ETS1.C: Optimizing the Design Solution: Investigation 2, Part 3</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 2, Part 3</p> <p>Technology and Engineering Practices Communication: Investigation 2, Part 3</p>
<p>3.5.3-5.P: Evaluate the strengths and weaknesses of existing design solutions, including their own solutions.</p>	<p>Disciplinary Core Ideas ETS1.B: Developing Possible Solutions: Investigation 2, Part 3</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 2, Part 3</p> <p>Technology and Engineering Practices Creativity: Investigation 2, Part 3 Attention to Ethics: Investigation 2, Part 3</p>
<p>3.5.3-5.S: Illustrate that there are multiple approaches to design.</p>	<p>Disciplinary Core Ideas ETS1.C: Optimizing the Design Solution: Investigation 2, Part 3</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 2, Part 3</p> <p>Technology and Engineering Practices Critical Thinking: Investigation 2, Part 3 Optimism: Investigation 2, Part 3</p>



SOILS, ROCKS, AND LANDFORMS	
<p>3.5.3-5.T: Apply universal principals and elements of design.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 2, Part 3 ETS1.B: Developing Possible Solutions: Investigation 2, Part 3 ETS1.C: Optimizing the Design Solution: Investigation 2, Part 3</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 2, Part 3</p> <p>Technology and Engineering Practices Making and Doing: Investigation 2, Part 3</p>
<p>3.5.3-5.U: Evaluate designs based on criteria, constraints, and standards.</p>	<p>Disciplinary Core Ideas ETS1.B: Developing Possible Solutions: Investigation 2, Part 3</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 2, Part 3</p> <p>Technology and Engineering Practices Critical Thinking: Investigation 2, Part 3</p>
<p>3.5.3-5.V: Interpret how good design improves the human condition.</p>	<p>Disciplinary Core Ideas ETS1.C: Optimizing the Design Solution: Investigation 2, Part 3</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 2, Part 3</p> <p>Technology and Engineering Practices Optimism: Investigation 2, Part 3</p>
<p>3.5.3-5.W: Describe the properties of different materials</p>	<p>Disciplinary Core Ideas PS1.A: Structure and Properties of Matter: Investigation 1, Part 2; Investigation 2, Part 3</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 1, Part 2; Investigation 2, Part 3</p> <p>Technology and Engineering Practices Communication: Investigation 1, Part 2; Investigation 2, Part 3</p>



FOSS Pathways Grade 4 Detail Correlation Energy

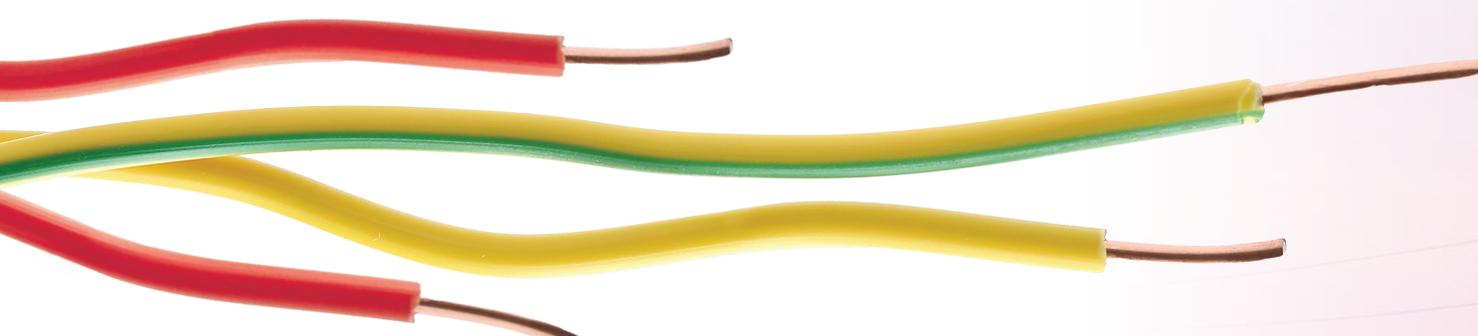
ENERGY	
<p>3.3.4.D: Obtain and combine information to describe that energy and fuels are derived from natural resources and that their uses affect the environment.</p>	<p>Disciplinary Core Ideas ESS3.A: Natural Resources: Investigation 1, Part 2</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 1, Part 2</p> <p>Crosscutting Concepts Energy and Matter: Investigation 3, Parts 1–2</p>
<p>3.2.4.A: Use evidence to construct an explanation relating the speed of an object to the energy of that object.</p>	<p>Disciplinary Core Ideas PS3.A: Definitions of Energy: Investigation 3, Parts 1–2</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 3, Parts 1–2</p> <p>Crosscutting Concepts Energy and Matter: Investigation 3, Parts 1–2</p>
<p>3.2.4.B: Make and communicate observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electrical currents.</p>	<p>Disciplinary Core Ideas PS3.A: Definitions of Energy: Investigation 1, Parts 1–3; Investigation 2, Part 2 PS3.B: Conservation of Energy and Energy Transfer: Investigation 1, Parts 1–3; Investigation 2, Parts 1–3</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 1, Parts 1–3; Investigation 2, Part 2</p> <p>Crosscutting Concepts Energy and Matter: Investigation 1, Parts 1–3; Investigation 2, Parts 1–3</p>
<p>3.2.4.C: Ask questions and predict outcomes about the changes in energy that occur when objects collide.</p>	<p>Disciplinary Core Ideas PS3.A: Definitions of Energy: Investigation 3, Part 2 PS3.B: Conservation of Energy and Energy Transfer: Investigation 3, Part 2 PS3.C: Relationship Between Energy and Forces: Investigation 3, Part 2</p> <p>Science and Engineering Practices Asking Questions and Defining Problems: Investigation 3, Part 2</p> <p>Crosscutting Concepts Energy and Matter: Investigation 3, Part 2</p>



ENERGY	
<p>3.2.4.D: Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.</p>	<p>Disciplinary Core Ideas PS3.B: Conservation of Energy and Energy Transfer: Investigation 1, Parts 2–3; Investigation 2, Parts 1–2 PS3.D: Energy in Chemical Processes and Everyday Life: Investigation 1, Part 3; Investigation 2, Part 1 ETS1.A: Defining Engineering Problems: Investigation 1, Part 3; Investigation 2, Part 1</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 1, Parts 2–3; Investigation 2, Parts 1–2</p> <p>Crosscutting Concepts Energy and Matter: Investigation 1, Parts 2–3; Investigation 2, Parts 1–2</p>
<p>3.2.4.E: Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.</p>	<p>Disciplinary Core Ideas PS4.A: Wave Properties: Investigation 4, Part 2</p> <p>Science and Engineering Practices Developing and Using Models: Investigation 4, Part 2</p> <p>Crosscutting Concepts Patterns: Investigation 4, Part 2</p>
<p>3.2.4.F: Develop a model to describe that light reflecting from objects and entering the eyes allows objects to be seen.</p>	<p>Disciplinary Core Ideas PS4.B: Electromagnetic Radiation: Investigation 4, Part 1</p> <p>Science and Engineering Practices Developing and Using Models: Investigation 4, Part 1</p> <p>Crosscutting Concepts Patterns: Investigation 4, Part 2</p>
<p>3.2.4.G: Generate and compare multiple solutions that use patterns to transfer information</p>	<p>Disciplinary Core Ideas PS4.C: Information Technologies and Instrumentation: Investigation 2, Parts 2–3 ETS1.C: Optimizing the Design Solution: Investigation 2, Part 2</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 2, Parts 2–3</p> <p>Crosscutting Concepts Patterns: Investigation 2, Parts 2–3</p>

FOSS Pathways Grade 4 Detail Correlation Energy

ENERGY	
<p>3.5.3-5.A: Use appropriate symbols, numbers, and words to communicate key ideas about technological products and systems.</p>	<p>Disciplinary Core Ideas ETS1.B: Developing Possible Solutions: Investigation 1, Parts 1–2; Investigation 2, Parts 1–3</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 1, Parts 1–2; Investigation 2, Parts 1–3</p> <p>Technology and Engineering Practices Communication: Investigation 1, Parts 1–2; Investigation 2, Parts 1–3</p>
<p>3.4.3-5.B: Make a claim about the environmental and social impacts of design solutions and civic actions, including their own actions.</p>	<p>Disciplinary Core Ideas ESS3.A: Natural Resources: Investigation 1, Part 2 ESS3.C: Human Impacts on Earth Systems: Investigation 1, Part 2</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 1, Part 2</p> <p>Crosscutting Concepts Cause and Effect: Investigation 1, Part 2</p>
<p>3.5.3-5.C: Follow directions to complete a technological task.</p>	<p>Disciplinary Core Ideas ETS1.B: Developing Possible Solutions: Investigation 1, Parts 1–2; Investigation 2, Parts 1–3</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 1, Parts 1–2; Investigation 2, Parts 1–3</p> <p>Technology and Engineering Practices Making and Doing: Investigation 1, Parts 1–2; Investigation 2, Parts 1–3</p>
<p>3.5.3-5.D: Predict how certain aspects of their daily lives would be different without given technologies.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 1, Parts 1–2; Investigation 2, Parts 1–3</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 1, Parts 1–2; Investigation 2, Parts 1–3</p> <p>Technology and Engineering Practices Critical Thinking: Investigation 1, Parts 1–2; Investigation 2, Parts 1–3</p>



ENERGY	
<p>3.5.3-5.J: Explain how technologies are developed or adapted when individual or societal needs and wants change.</p>	<p>Disciplinary Core Ideas ETS1.C: Optimizing the Design Solution: Investigation 1, Part 1; Investigation 2, Part 3</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 1, Part 1; Investigation 2, Part 3</p> <p>Technology and Engineering Practices Optimism: Investigation 1, Part 1; Investigation 2, Part 3</p>
<p>3.5.3-5.M: Demonstrate essential skills of the engineering design process.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2 ETS1.B: Developing Possible Solutions: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2 ETS1.C: Optimizing the Design Solution: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2</p> <p>Technology and Engineering Practices Creativity: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2 Making and Doing: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2</p>
<p>3.5.3-5.N: Identify why a product or system is not working properly</p>	<p>Disciplinary Core Ideas PS4.C: Information Technologies and Instrumentation: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2 ETS1.C: Optimizing the Design Solution: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2</p> <p>Technology and Engineering Practices Optimism: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2 Critical Thinking: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2</p>
<p>3.5.3-5.O: Describe requirements of designing or making a product or system.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2 ETS1.B: Developing Possible Solutions: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2 ETS1.C: Optimizing the Design Solution: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2</p> <p>Technology and Engineering Practices Communication: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2</p>

FOSS Pathways Grade 4 Detail Correlation Energy

ENERGY

3.5.3-5.Q: Practice successful design skills.

Disciplinary Core Ideas

ETS1.A: Defining and Delimiting Engineering Problems: Investigation 1, Parts 2–3; Investigation 2, Parts 1–2

ETS1.B: Developing Possible Solutions: Investigation 1, Parts 2–3; Investigation 2, Parts 1–2

ETS1.C: Optimizing the Design Solution: Investigation 1, Parts 2–3; Investigation 2, Parts 1–2

Science and Engineering Practices

Constructing Explanations and Designing Solutions: Investigation 1; Parts 2–3; Investigation 2, Parts 1–2

Technology and Engineering Practices

Creativity: Investigation 1, Parts 2–3; Investigation 2, Parts 1–2

3.5.3-5.R: Apply tools, techniques, and materials in a safe manner as part of the design process.

Disciplinary Core Ideas

ETS1.A: Defining and Delimiting Engineering Problems: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2

Science and Engineering Practices

Planning and Carrying Out Investigations: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2

Technology and Engineering Practices

Making and Doing: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2



ENERGY

3.5.3-5.AA: Create representations of the tools people made, how they cultivated to provide food, made clothing, and built shelters to protect themselves.

Disciplinary Core Ideas

ETS1.A: Defining and Delimiting Engineering Problems: Investigation 2, Part 3

Science and Engineering Practices

Obtaining, Evaluating, and Communicating Information: Investigation 2, Part 3

Technology and Engineering Practices

Systems Thinking: Investigation 2, Part 3

3.5.3-5.CC: Describe how a subsystem is a system that operates as part of another larger system.

Disciplinary Core Ideas

ETS1.B: Developing Possible Solutions: Investigation 1, Part 3

Science and Engineering Practices

Obtaining, Evaluating, and Communicating Information: Investigation 1, Part 3

Technology and Engineering Practices

Systems Thinking: Investigation 1, Part 3

3.5.3-5.DD: Demonstrate how simple technologies are often combined to form more complex systems.

Disciplinary Core Ideas

ETS1.C: Optimizing the Design Solution: Investigation 1, Part 1, 3; Investigation 2, Parts 1–3

Science and Engineering Practices

Developing and Using Models: Investigation 1, Part 1, 3; Investigation 2, Parts 1–3

Technology and Engineering Practices

Systems Thinking: Investigation 1, Part 1, 3; Investigation 2, Parts 1–3



FOSS Pathways Grade 4 Detail Correlation Senses and Survival

SENSES AND SURVIVAL	
<p>3.1.4.A: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.</p>	<p>Disciplinary Core Ideas LS1.A: Structure and Function: Investigation 1, Parts 1–2; Investigation 2, Parts 1–2; Investigation 3, Parts 1–2</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 1, Part 3; Investigation 2, Part 1; Investigation 3, Part 2</p> <p>Crosscutting Concepts Systems and System Models: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2; Investigation 3, Parts 1–2</p>
<p>3.1.4.B: Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.</p>	<p>Disciplinary Core Ideas LS1.D: Information Processing: Investigation 1, Parts 1–3; Investigation 2, Part 2</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 1, Part 3; Investigation 2, Part 1</p> <p>Crosscutting Concepts Systems and System Models: Investigation 1, Parts 1–3; Investigation 2, Parts 1–2</p>
<p>3.4.3-5.A: Analyze how living organisms, including humans, affect the environment in which they live, and how their environment affects them.</p>	<p>Disciplinary Core Ideas ESS3.C: Human Impacts on Earth Systems: Investigation 1, Part 3</p> <p>Science and Engineering Practices Analyzing and Interpreting Data: Investigation 1, Part 3</p> <p>Crosscutting Concepts Cause and Effect: Investigation 1, Part 3 Structure and Function: Investigation 1, Part 3</p>
<p>3.4.3-5.B: Make a claim about the environmental and social impacts of design solutions and civic actions, including their own actions.</p>	<p>Disciplinary Core Ideas ESS3.A: Natural Resources: Investigation 1, Part 3 ESS3.C: Human Impacts on Earth Systems: Investigation 1, Part 3</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 1, Part 3</p> <p>Crosscutting Concepts Cause and Effect: Investigation 1, Part 3</p>
<p>3.5.3-5.L: Demonstrate how tools and machines extend human capabilities, such as holding, lifting, carrying, fastening, separating, and computing.</p>	<p>Disciplinary Core Ideas ETS1.B: Developing Possible Solutions: Investigation 2, Part 2</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 2, Part 2</p> <p>Crosscutting Concepts Optimism: Investigation 2, Part 2</p>

SENSES AND SURVIVAL	
<p>3.5.3-5.EE: Explain how solutions to problems are shaped by economic, political, and cultural forces.</p>	<p>Disciplinary Core Ideas No guidance provided by NGSS: Investigation 1, Part 3</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 1, Part 3</p> <p>Technology and Engineering Practices Systems Thinking: Investigation 1, Part 3</p>
<p>3.5.3-5.FF: Compare how things found in nature differ from things that are human-made, noting differences and similarities in how they are produced and used.</p>	<p>Disciplinary Core Ideas NAEP D.4.6: Investigation 2, Part 2</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 2, Part 2</p> <p>Technology and Engineering Practices Systems Thinking: Investigation 2, Part 2</p>
<p>3.5.3-5.GG: Describe the unique relationship between science and technology, and how the natural world can contribute to the human-made world to foster innovation.</p>	<p>Disciplinary Core Ideas No guidance provided by NGSS: Investigation 1, Part 3; Investigation 2, Part 2</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 1, Part 3; Investigation 2, Part 2</p> <p>Technology and Engineering Practices Creativity: Investigation 1, Part 3; Investigation 2, Part 2</p>



Disciplinary Core Ideas Assessment Opportunities

Grade 4	SOILS, ROCKS, AND LANDFORMS				ENERGY				SENSES AND SURVIVAL		
	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3
PS3.A											
PS3.B											
PS3.C											
PS3.D											
PS4.A											
PS4.B											
PS4.C											
LS1.A											
LS1.D											
ESS1.C											
ESS2.A											
ESS2.B											
ESS2.E											
ESS3.A											
ESS3.B											
ETS1.A											
ETS1.B											
ETS1.C											



Science and Engineering Practices Assessment Opportunities

Grade 4	SOILS, ROCKS, AND LANDFORMS				ENERGY				SENSES AND SURVIVAL		
	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3
SEP											
Asking Questions and Defining Problems											
Developing and Using Models											
Planning and Carrying Out Investigations											
Analyzing and Interpreting Data											
Using Mathematics and Computational Thinking											
Constructing Explanations and Designing Solutions											
Engaging in Argument from Evidence											
Obtaining, Evaluating, and Communicating Information											

Crosscutting Concepts Assessment Opportunities

Grade 4	SOILS, ROCKS, AND LANDFORMS				ENERGY				SENSES AND SURVIVAL		
	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3
CC											
Patterns											
Cause and Effect											
Scale, Proportion, and Quantity											
Systems and System Models											
Energy and Matter in Systems											
Structure and Function											
Stability and Change of Systems											

FOSS Pathways Grade 5 Detail Correlation Earth and Sun

EARTH AND SUN	
<p>3.2.5.A: Develop a model to describe that matter is made of particles too small to be seen.</p>	<p>Disciplinary Core Ideas PS1.A: Structure and Properties of Matter: Investigation 1, Parts 1–2</p> <p>Science and Engineering Practices Developing and Using Models: Investigation 1, Parts 1–2</p> <p>Crosscutting Concepts Scale, Proportion, and Quantity: Investigation 1, Parts 1–2</p>
<p>3.2.5.F: Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.</p>	<p>Disciplinary Core Ideas PS1.A: Structure and Properties of Matter: Investigation 4, Part 1</p> <p>Science and Engineering Practices Using Mathematics and Computational Thinking: Investigation 4, Part 1</p> <p>Crosscutting Concepts Scale, Proportion, and Quantity: Investigation 4, Part 1</p>
<p>3.3.5.A: Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.</p>	<p>Disciplinary Core Ideas ESS1.A: The Universe and Its Stars: Investigation 4, Parts 2–3</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 4, Part 2</p> <p>Crosscutting Concepts Scale, Proportion, and Quantity: Investigation 4, Parts 2–3</p>



EARTH AND SUN	
<p>3.3.5.B: Represent data in graphical displays to reveal patterns of daily changes in the length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.</p>	<p>Disciplinary Core Ideas ESS1.B: Earth and the Solar System: Investigation 3, Parts 1–2; Investigation 4, Parts 2–3</p> <p>Science and Engineering Practices Analyzing and Interpreting Information: Investigation 3, Parts 1–2; Investigation 4, Part 3</p> <p>Crosscutting Concepts Patterns: Investigation 3, Parts 1–2; Investigation 4, Parts 2–3</p>
<p>3.3.5.C: Develop a model using an example to describe ways in which the geosphere, biosphere, hydrosphere, and/or atmosphere interact.</p>	<p>Disciplinary Core Ideas ESS2.A: Earth Materials and Systems: Investigation 1, Part 2; Investigation 2, Part 1</p> <p>Science and Engineering Practices Developing and Using Models: Investigation 1, Part 2; Investigation 2, Part 1</p> <p>Crosscutting Concepts Systems and System Models: Investigation 1, Part 2; Investigation 2, Part 1</p>
<p>3.3.5.D: Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.</p>	<p>Disciplinary Core Ideas ESS2.C: The Roles of Water in Earth’s Surface Processes: Investigation 2, Part 1</p> <p>Science and Engineering Practices Using Mathematics and Computational Thinking: Investigation 2, Part 1</p> <p>Crosscutting Concepts Scale, Proportion, and Quantity: Investigation 2, Part 1</p>



FOSS Pathways Grade 5 Detail Correlation Earth and Sun

EARTH AND SUN	
<p>3.3.5.E: Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.</p>	<p>Disciplinary Core Ideas ESS3.C: Human Impacts on Earth Systems: Investigation 2, Part 2</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 2, Part 2</p> <p>Crosscutting Concepts Systems and System Models: Investigation 2, Part 2</p>
<p>3.4.3-5.D: Develop a model to demonstrate how local environmental issues are connected to larger local environment and human systems.</p>	<p>Disciplinary Core Ideas ESS3.C: Human Impacts on Earth Systems: Investigation 2, Parts 1–2 LS4.D: Biodiversity and Humans: Investigation 2, Parts 1–2</p> <p>Science and Engineering Practices Developing and Using Models: Investigation 2, Parts 1–2</p> <p>Crosscutting Concepts Systems and System Models: Investigation 2, Parts 1–2 Cause and Effect: Investigation 2, Parts 1–2</p>
<p>3.4.3-5.E: Construct an argument to support whether action is needed on a selected environmental issue and propose possible solutions.</p>	<p>Disciplinary Core Ideas LS4.D: Biodiversity and Humans: Investigation 2, Parts 1–2 ESS3.C: Human Impacts on Earth Systems: Investigation 2, Parts 1–2</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 2, Parts 1–2 Obtaining, Evaluating, and Communicating Information: Investigation 2, Parts 1–2</p> <p>Crosscutting Concepts Cause and Effect: Investigation 2, Parts 1–2</p>



EARTH AND SUN	
<p>3.5.3-5.E: Explain why responsible use of technology requires sustainable management of resources.</p>	<p>Disciplinary Core Ideas ESS3.C: Human Impacts on Earth Systems: Investigation 2, Part 2</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 2, Part 2</p> <p>Technology and Engineering Practices Critical Thinking: Investigation 2, Part 2</p>
<p>3.5.3-5.F: Classify resources used to create technologies as either renewable or nonrenewable.</p>	<p>Disciplinary Core Ideas ESS3.A: Natural Resources: Investigation 2, Part 2</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 2, Part 2</p> <p>Technology and Engineering Practices Critical Thinking: Investigation 2, Part 2</p>
<p>3.5.3-5.G: Describe the helpful and harmful effects of technology.</p>	<p>Disciplinary Core Ideas No STEELS guidance provided</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 2, Part 2</p> <p>Technology and Engineering Practices Attention to Ethics: Investigation 2, Part 2</p>



FOSS Pathways Grade 5 Detail Correlation Mixtures and Solutions

MIXTURES AND SOLUTIONS

3.2.5.A: Develop a model to describe that matter is made of particles too small to be seen.

Disciplinary Core Ideas

PS1.A: Structure and Properties of Matter: Investigation 1, Parts 1–4; Investigation 2, Parts 1–2

Science and Engineering Practices

Developing and Using Models: Investigation 2, Parts 1–2

Crosscutting Concepts

Scale, Proportion, and Quantity: Investigation 2, Parts 1–2

3.2.5.B: Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.

Disciplinary Core Ideas

PS1.A: Structure and Properties of Matter: Investigation 1, Parts 2, 4

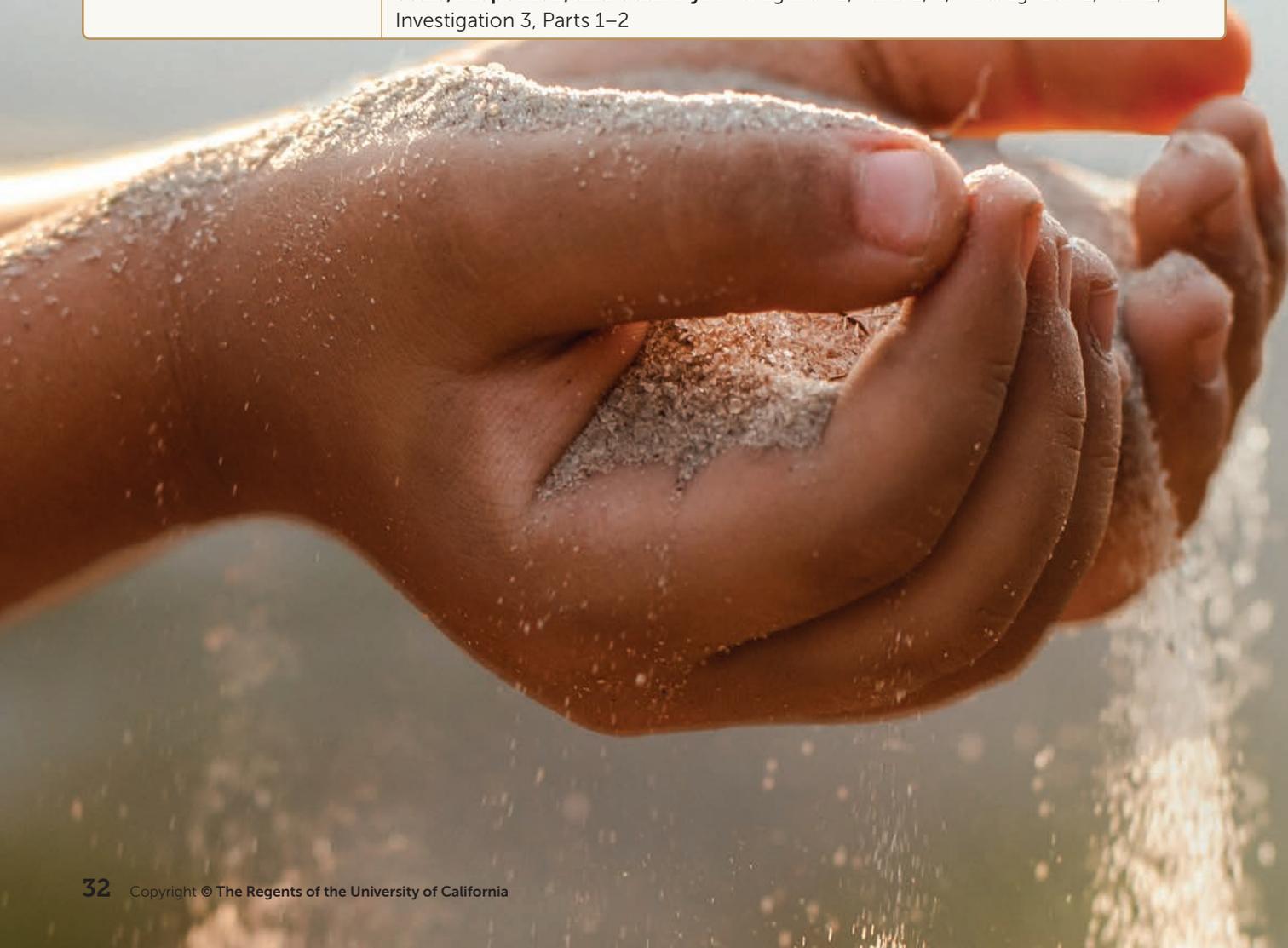
PS1.B: Chemical Reactions: Investigation 4, Parts 1–2

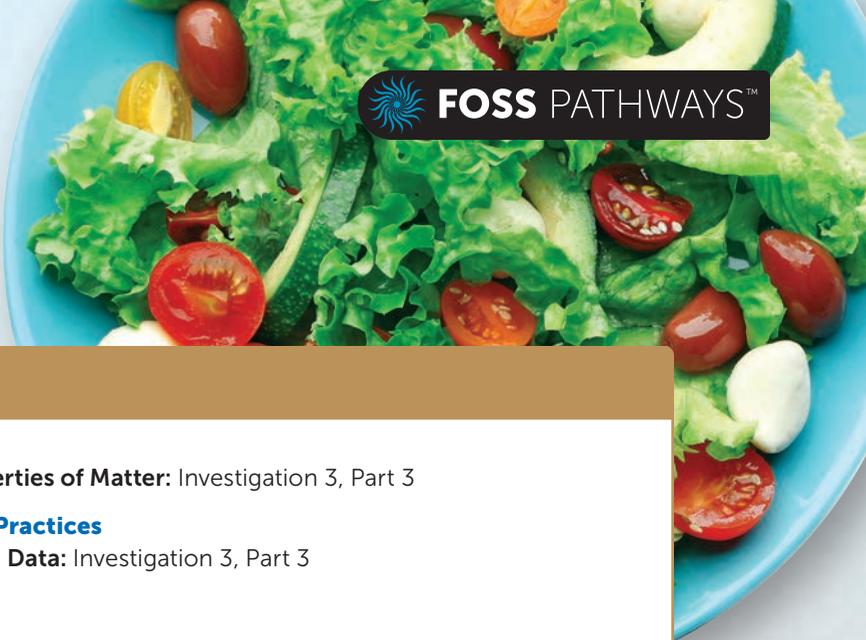
Science and Engineering Practices

Using Mathematics and Computational Thinking: Investigation 1, Part 2; Investigation 2, Parts 1–2; Investigation 3, Part 1

Crosscutting Concepts

Scale, Proportion, and Quantity: Investigation 1, Parts 2, 4; Investigation 2, Part 1; Investigation 3, Parts 1–2

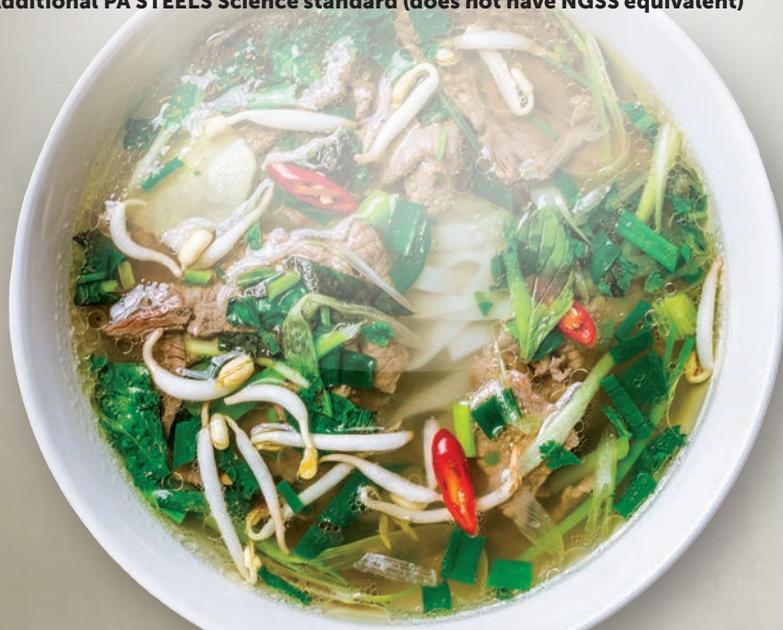




MIXTURES AND SOLUTIONS

<p>3.2.5.Ct: Interpret and analyze data to make decisions about how to utilize materials based on their properties.</p>	<p>Disciplinary Core Ideas PS1.A: Structure and Properties of Matter: Investigation 3, Part 3</p> <p>Science and Engineering Practices Analyzing and Interpreting Data: Investigation 3, Part 3</p> <p>Crosscutting Concepts No STEELS guidance given</p>
<p>3.2.5.D: Make observations and measurements to identify materials based on their properties.</p>	<p>Disciplinary Core Ideas PS1.A: Structure and Properties of Matter: Investigation 3, Parts 1–3</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 3, Parts 1, 3</p> <p>Crosscutting Concepts Scale, Proportion, and Quantity: Investigation 3, Parts 1–2</p>
<p>3.2.5.E: Conduct an investigation to determine whether the mixing of two or more substances results in new substances.</p>	<p>Disciplinary Core Ideas PS1.B: Chemical Interactions: Investigation 4, Parts 1–2</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 4, Parts 1–2</p> <p>Crosscutting Concepts Cause and Effect: Investigation 4, Parts 1–2</p>
<p>3.3.5.F†: Generate and design possible solutions to a current environmental issue, threat, or concern.</p>	<p>Disciplinary Core Ideas LS2.B: Cycles of Matter and Energy Transfer in Ecosystems: Investigation 1, Parts 3–4; Investigation 2, Part 1</p> <p>Science and Engineering Practices Developing Possible Solutions: Investigation 1, Part 3</p> <p>Crosscutting Concepts Science Addresses Questions About the Natural and Material World: Investigation 1, Parts 3–4, Investigation 2, Part 1</p>

† Additional PA STEELS Science standard (does not have NGSS equivalent)



FOSS Pathways Grade 5 Detail Correlation Mixtures and Solutions

MIXTURES AND SOLUTIONS	
<p>3.4.3-5.A: Analyze how living organisms, including humans, affect the environment in which they live, and how their environment affects them.</p>	<p>Disciplinary Core Ideas ESS3.C: Human Impacts on Earth Systems: Investigation 2, Part 2</p> <p>Science and Engineering Practices Analyzing and Interpreting Data: Investigation 2, Part 2</p> <p>Crosscutting Concepts Cause and Effect: Investigation 2, Part 2</p>
<p>3.4.3-5.B: Make a claim about the environmental and social impacts of design solutions and civic actions, including their own actions.</p>	<p>Disciplinary Core Ideas ESS3.A: Natural Resources: Investigation 3, Part 3 ESS3.C: Human Impacts on Earth Systems: Investigation 3, Part 3</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 3, Part 3</p> <p>Crosscutting Concepts Cause and Effect: Investigation 3, Part 3</p>
<p>3.4.3-5.C: Examine ways you influence your local environment and community by collecting and displaying data.</p>	<p>Disciplinary Core Ideas ESS3.A: Natural Resources: Investigation 3, Part 2 ESS3.C: Human Impacts on Earth Systems: Investigation 3, Part 2</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 3, Part 2</p> <p>Crosscutting Concepts Cause and Effect: Investigation 3, Part 2</p>
<p>3.4.3-5.E: Construct an argument to support whether action is needed on a selected environmental issue and propose possible solutions.</p>	<p>Disciplinary Core Ideas LS4.D: Biodiversity and Humans: Investigation 1, Parts 3–4; Investigation 2, Part 1 ESS3.C Human Impacts on Earth Systems: Investigation 1, Parts 3–4; Investigation 2, Part 1</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 2, Part 1 Obtaining, Evaluating, and Communicating Information: Investigation 1, Parts 3–4; Investigation 2, Part 1</p> <p>Crosscutting Concepts Cause and Effect: Investigation 1, Parts 3–4; Investigation 2, Part 1</p>

MIXTURES AND SOLUTIONS

<p>3.5.3-5.B: Examine information to assess the trade-offs to using a product or system.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 3, Parts 2–3</p> <p>Science and Engineering Practices Analyzing and Interpreting Data: Investigation 3, Parts 2–3</p> <p>Technology and Engineering Practices Systems Thinking: Investigation 3, Parts 2–3 Attention to Ethics: Investigation 3, Part 3</p>
<p>3.5.3-5.I: Design solutions by safely using tools, materials, and skills.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 1, Part 3 ETS1.B: Developing Possible Solutions: Investigation 1, Part 3</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 1, Part 3</p> <p>Technology and Engineering Practices Cause and Effect: Investigation 1, Part 3</p>
<p>3.5.3-5.M: Demonstrate essential skills of the engineering design process.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 1, Part 3 ETS1.B: Developing Possible Solutions: Investigation 1, Part 3 ETS1.C: Optimizing the Design Solution: Investigation 1, Part 3</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 1, Part 3</p> <p>Technology and Engineering Practices Creativity: Investigation 1, Part 3 Making and Doing: Investigation 1, Part 3</p>
<p>3.5.3-5.O: Describe requirements of designing or making a product or system.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 3, Part 3 ETS1.B: Developing Possible Solutions: Investigation 3, Part 3 ETS1.C: Optimizing the Design Solution: Investigation 3, Part 3</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 3, Part 3</p> <p>Technology and Engineering Practices Communication: Investigation 3, Part 3</p>

FOSS Pathways Grade 5 Detail Correlation Mixtures and Solutions

MIXTURES AND SOLUTIONS	
<p>3.5.3-5.P: Evaluate the strengths and weaknesses of existing design solutions, including their own solutions.</p>	<p>Disciplinary Core Ideas ETS1.B: Developing Possible Solutions: Investigation 3, Part 3</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 3, Part 3</p> <p>Technology and Engineering Practices Critical Thinking: Investigation 3, Part 3 Optimism: Investigation 3, Part 3</p>
<p>3.5.3-5.Q: Practice successful design skills.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 1, Part 3; Investigation 3, Part 3 ETS1.B: Developing Possible Solutions: Investigation 1, Part 3; Investigation 3, Part 3 ETS1.C: Optimizing the Design Solution: Investigation 1, Part 3; Investigation 3, Part 3</p> <p>Science and Engineering Practices Constructing Explanations and Designing Solutions: Investigation 1, Part 3; Investigation 3, Part 3</p> <p>Technology and Engineering Practices Creativity: Investigation 1, Part 3; Investigation 3, Part 3</p>
<p>3.5.3-5.R: Apply tools, techniques, and materials in a safe manner as part of the design process.</p>	<p>Disciplinary Core Ideas ETS1.A: Defining and Delimiting Engineering Problems: Investigation 1, Part 3</p> <p>Science and Engineering Practices Planning and Carrying Out Investigations: Investigation 1, Part 3</p> <p>Technology and Engineering Practices Making and Doing: Investigation 1, Part 3</p>



MIXTURES AND SOLUTIONS

3.5.3-5.T: Apply universal design principles and elements of design.

Disciplinary Core Ideas

ETS1.A: Defining and Delimiting Engineering Problems: Investigation 1, Part 3

ETS1.B: Developing Possible Solutions: Investigation 1, Part 3

ETS1.C: Optimizing the Design Solution: Investigation 1, Part 3

Science and Engineering Practices

Constructing Explanations and Designing Solutions: Investigation 1, Part 3

Technology and Engineering Practices

Making and Doing: Investigation 1, Part 3

3.5.3-5.U: Evaluate designs based on criteria, constraints, and standards.

Disciplinary Core Ideas

PS1.B: Chemical Interactions: Investigation 3, Part 3

Science and Engineering Practices

Planning and Carrying Out Investigations: Investigation 3, Part 3

Technology and Engineering Practices

Cause and Effect: Investigation 3, Part 3

3.5.3-5.W: Describe the properties of different materials.

Disciplinary Core Ideas

PS1.B: Chemical Interactions: Investigation 3, Part 3

Science and Engineering Practices

Planning and Carrying Out Investigations: Investigation 3, Part 3

Technology and Engineering Practices

Cause and Effect: Investigation 3, Part 3

FOSS Pathways Grade 5 Detail Correlation Living Systems

LIVING SYSTEMS	
<p>3.1.5.A: Support an argument that plants get the materials they need for growth chiefly from air and water.</p>	<p>Disciplinary Core Ideas LS1.C: Organization for Matter and Energy Flow in Organisms: Investigation 2, Part 1</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 2, Part 1</p> <p>Crosscutting Concepts Energy and Matter: Investigation 2, Part 1</p>
<p>3.1.5.B: Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.</p>	<p>Disciplinary Core Ideas LS2.A: Interdependent Relationships in Ecosystems: Investigation 1, Parts 1–2; Investigation 3, Parts 1–3; Investigation 4, Part 1 LS2.B: Cycles of Matter and Energy Transfer in Ecosystems: Investigation 1, Parts 1–2</p> <p>Science and Engineering Practices Developing and Using Models: Investigation 1, Parts 1–2; Investigation 3, Parts 1–3; Investigation 4, Part 1</p> <p>Crosscutting Concepts Systems and System Models: Investigation 1, Parts 1–2; Investigation 3, Parts 1–3; Investigation 4, Part 1</p>
<p>3.2.5.G: Use models to describe that energy in animals’ food (used for body repair, growth, and motion and to maintain body warmth) was once energy from the sun.</p>	<p>Disciplinary Core Ideas PS3.D: Energy in Chemical Processes and Everyday Life: Investigation 2, Parts 1–2 LS1.C: Organization for Matter and Energy Flow in Organisms: Investigation 2, Parts 1–2</p> <p>Science and Engineering Practices Developing and Using Models: Investigation 2, Parts 1–2</p> <p>Crosscutting Concepts Energy and Matter: Investigation 2, Parts 1–2</p>
<p>3.3.5.C: Develop a model using an example to describe ways in which the geosphere, biosphere, hydrosphere, and/or atmosphere interact.</p>	<p>Disciplinary Core Ideas ESS2.A: Earth Materials and Systems: Investigation 2, Part 1; Investigation 3, Parts 1–3; Investigation 4, Part 1</p> <p>Science and Engineering Practices Developing and Using Models: Investigation 2, Part 1; Investigation 3, Parts 1–3; Investigation 4, Part 1</p> <p>Crosscutting Concepts Systems and System Models: Investigation 2, Part 1; Investigation 3, Parts 1–3; Investigation 4, Part 1</p>
<p>3.3.5.E: Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.</p>	<p>Disciplinary Core Ideas ESS3.C: Human Impacts and Earth Systems: Investigation 3, Parts 2–3; Investigation 4, Part 1</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 3, Parts 2–3; Investigation 4, Part 1</p> <p>Crosscutting Concepts Systems and System Models: Investigation 3, Parts 2–3; Investigation 4, Part 1</p>

LIVING SYSTEMS

<p>3.4.3-5.A: Analyze how living organisms, including humans, affect the environment in which they live, and how their environment affects them.</p>	<p>Disciplinary Core Ideas ESS3.C: Human Impacts on Earth Systems: Investigation 3, Parts 2–3, Investigation 4, Part 1</p> <p>Science and Engineering Practices Analyzing and Interpreting Data: Investigation 3, Parts 2–3, Investigation 4, Part 1</p> <p>Crosscutting Concepts Cause and Effect: Investigation 3, Parts 2–3, Investigation 4, Part 1</p>
<p>3.4.3-5.B: Make a claim about the environmental and social impacts of design solutions and civic actions, including their own actions.</p>	<p>Disciplinary Core Ideas ESS3.C: Human Impacts on Earth Systems: Investigation 3, Parts 2–3, Investigation 4, Part 1</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 3, Parts 2–3, Investigation 4, Part 1</p> <p>Crosscutting Concepts Cause and Effect: Investigation 3, Parts 2–3, Investigation 4, Part 1</p>
<p>3.4.3-5.D: Develop a model to demonstrate how local environmental issues are connected to larger local environment and human systems.</p>	<p>Disciplinary Core Ideas ESS3.C: Human Impacts and Earth Systems: Investigation 3, Parts 2–3 LS4.D: Biodiversity and Humans: Investigation 3, Parts 2–3</p> <p>Science and Engineering Practices Developing and Using Models: Investigation 3, Parts 2–3</p> <p>Crosscutting Concepts Systems and System Models: Investigation 3, Parts 2–3 Cause and Effect: Investigation 3, Parts 2–3</p>
<p>3.4.3-5.E: Construct an argument to support whether action is needed on a selected environmental issue and propose possible solutions.</p>	<p>Disciplinary Core Ideas LS4.D: Biodiversity and Humans: Investigation 4, Part 1 ESS3.C Human Impacts on Earth Systems: Investigation 4, Part 1</p> <p>Science and Engineering Practices Engaging in Argument from Evidence: Investigation 4, Part 1 Obtaining, Evaluating, and Communicating Information: Investigation 4, Part 1</p> <p>Crosscutting Concepts Cause and Effect: Investigation 4, Part 1</p>
<p>3.4.3-5.F: Critique ways that people depend on and change the environment.</p>	<p>Disciplinary Core Ideas ESS3.A: Natural Resources: Investigation 3, Parts 2–3 ESS3.C: Human Impacts and Earth Systems: Investigation 3, Parts 2–3</p> <p>Science and Engineering Practices Obtaining, Evaluating, and Communicating Information: Investigation 3, Parts 2–3 Engaging in Argument from Evidence: Investigation 3, Parts 2–3</p> <p>Crosscutting Concepts Cause and Effect: Investigation 3, Parts 2–3</p>

Disciplinary Core Ideas Assessment Opportunities

Grade 5	EARTH AND SUN				MIXTURES AND SOLUTIONS				LIVING SYSTEMS			
	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 4
PS1.A												
PS1.B												
PS2.B												
PS3.D												
LS1.C												
LS2.A												
LS2.B												
ESS1.A												
ESS1.B												
ESS2.A												
ESS2.C												
ESS3.C												
ETS1.A												
ETS1.B												
ETS1.C												



Science and Engineering Practices Assessment Opportunities

Grade 5	EARTH AND SUN				MIXTURES AND SOLUTIONS				LIVING SYSTEMS			
	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 4
SEP												
Asking Questions and Defining Problems												
Developing and Using Models												
Planning and Carrying Out Investigations												
Analyzing and Interpreting Data												
Using Mathematics and Computational Thinking												
Constructing Explanations and Designing Solutions												
Engaging in Argument from Evidence												
Obtaining, Evaluating, and Communicating Information												

Crosscutting Concepts Assessment Opportunities

Grade 5	EARTH AND SUN				MIXTURES AND SOLUTIONS				LIVING SYSTEMS			
	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 4
CC												
Patterns												
Cause and Effect												
Scale, Proportion, and Quantity												
Systems and System Models												
Energy and Matter in Systems												
Structure and Function												
Stability and Change of Systems												



FOSS Pathways addresses Pennsylvania's Science, Technology & Engineering, Environmental Literacy & Sustainability (STEELS) standards at K-5 within the teaching time allotted for while retaining flexibility for customized instruction.

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