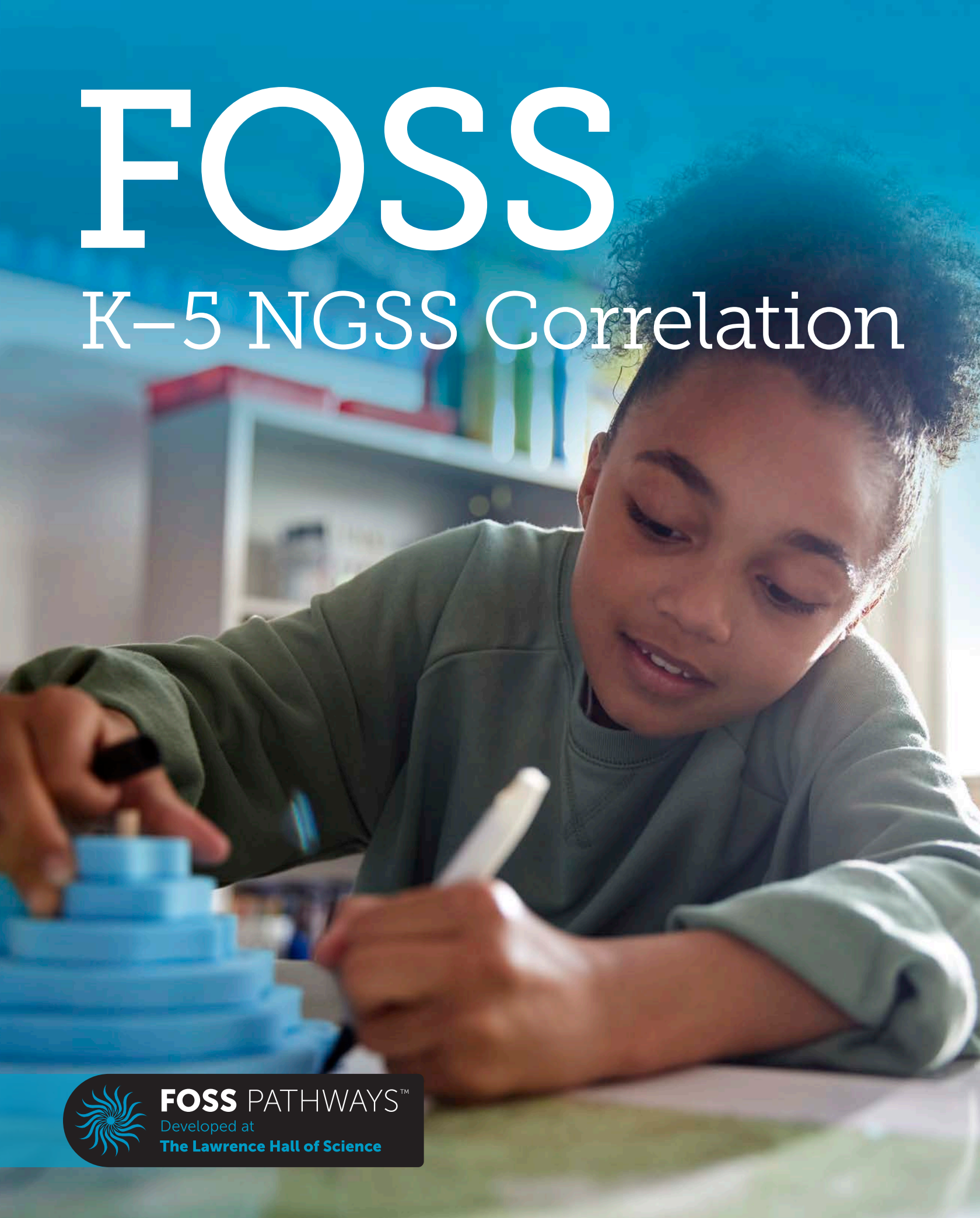
FOSS

K–5 NGSS Correlation



FOSS PATHWAYS™
Developed at
The Lawrence Hall of Science

K–5 Scope and Sequence Correlation At a Glance

GRADE	EARTH SCIENCE	PHYSICAL SCIENCE	LIFE SCIENCE
PK	Observing Nature		
	Foundation for LS1.A, LS1.C, PS1.A, ESS3.C		
K	Trees and Weather	Materials and Forces	Animals Two by Two
	K-LS1-1 • K-ESS2-2 • K-ESS3-1 • K-ESS3-2 • K-PS3-1	K-PS2-1 • K-PS2-2 • K-PS3-1 • K-PS3-2 • K-ESS2-2 • K-ESS3-3 • K-2-ETS1-1 • K-2-ETS1-2 • K-2-ETS1-3	K-LS1-1 • K-ESS2-2 • K-ESS3-1
1	Changes in the Sky	Sound and Light	Plants and Animals
	1-ESS1-1 • 1-ESS1-2	1-PS4-1 • 1-PS4-2 • 1-PS4-3 • 1-PS4-4 • K-2-ETS1-1 • K-2 ETS1-2 • K-2-ETS1-3	1-LS1-1 • 1-LS1-2 • 1-LS3-1 • K-2-EST1-1 • K-2-ETS1-2
2	Water and Landforms	Solids and Liquids	Insects and Plants
	2-ESS1-1 • 2-ESS2-1 • 2-ESS2-2 • 2-ESS2-3 • 2-PS1-1 • K-2-ETS1-3	2-PS1-1 • 2-PS1-2 • 2-PS1-3 • 2-PS1-4 • K-2-ETS1-1 • K-2-ETS1-2 • K-2-ETS1-3	2-LS2-1 • 2-LS2-2 • 2-LS4-1 • K-2-ETS1-2
3	Water and Climate	Motion	Structures of Life
	3-ESS2-1 • 3-ESS2-2 • 3-ESS3-1	3-PS2-1 • 3-PS2-2 • 3-PS2-3 • 3-PS2-4 • 3-5-ETS1-1 • 3-5-ETS1-2 • 3-5-ETS1-3	3-LS1-1 • 3-LS2-1 • 3-LS3-1 • 3-LS3-2 • 3-LS4-1 • 3-LS4-2 • 3-LS4-3 • 3-LS4-4
4	Soils, Rocks, and Landforms	Energy	Senses and Survival
	4-ESS1-1 • 4-ESS2-1 • 4-ESS2-2 • 4-ESS3-2 • 3-5-ETS1-2	4-PS3-1 • 4-PS3-2 • 4-PS3-3 • 4-PS3-4 • 4-PS4-1 • 4-PS4-2 • 4-PS4-3 • 4-ESS3-1 • 3-5-ETS1-1 • 3-5-ETS1-2 • 3-5-ETS1-3	4-LS1-1 • 4-LS1-2 • 3-5-ETS1-1
5	Earth and Sun	Mixtures and Solutions	Living Systems
	5-ESS1-1 • 5-ESS1-2 • 5-ESS2-1 • 5-ESS2-2 • 5-ESS3-1 • 5-PS1-1 • 5-PS2-1 • 3-5-ETS1-1 • 3-5-ETS1-2	5-PS1-1 • 5-PS1-2 • 5-PS1-3 • 5-PS1-4 • 5-ESS3-1 • 3-5-ETS1-2	5-PS3-1 • 5-LS1-1 • 5-LS2-1 • 5-ESS2-1 • 5-ESS3-1 • 3-5-ETS1-3

FOSS Pathways Grade K Detail Correlation

Trees and Weather

TREES AND WEATHER	
K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.	**Disciplinary Core Ideas** **LS1.C: Organization for Matter and Energy Flow in Organisms:** Investigation 1, Parts 1-4; Investigation 3, Parts 1-3 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 1, Parts 1-4; Investigation 3, Parts 1-3 **Crosscutting Concepts** **Patterns:** Investigation 1, Parts 1-4; Investigation 3, Parts 1-3
K-ESS2-1: Use and share observations of local weather conditions to describe patterns over time.	**Disciplinary Core Ideas** **ESS2.D: Weather and Climate:** Investigation 2, Parts 1-3; Investigation 3, Parts 1-3 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 2, Parts 1-3; Investigation 3, Parts 1-3 **Crosscutting Concepts** **Patterns:** Investigation 2, Parts 1-3; Investigation 3, Parts 1-3
K-ESS2-2: Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.	**Disciplinary Core Ideas** **ESS2.E: Biogeology:** Investigation 1, Part 1 **Science and Engineering Practices** **Engaging in Argument from Evidence:** Investigation 1, Part 1 **Crosscutting Concepts** **Systems and System Models:** Investigation 1, Part 1

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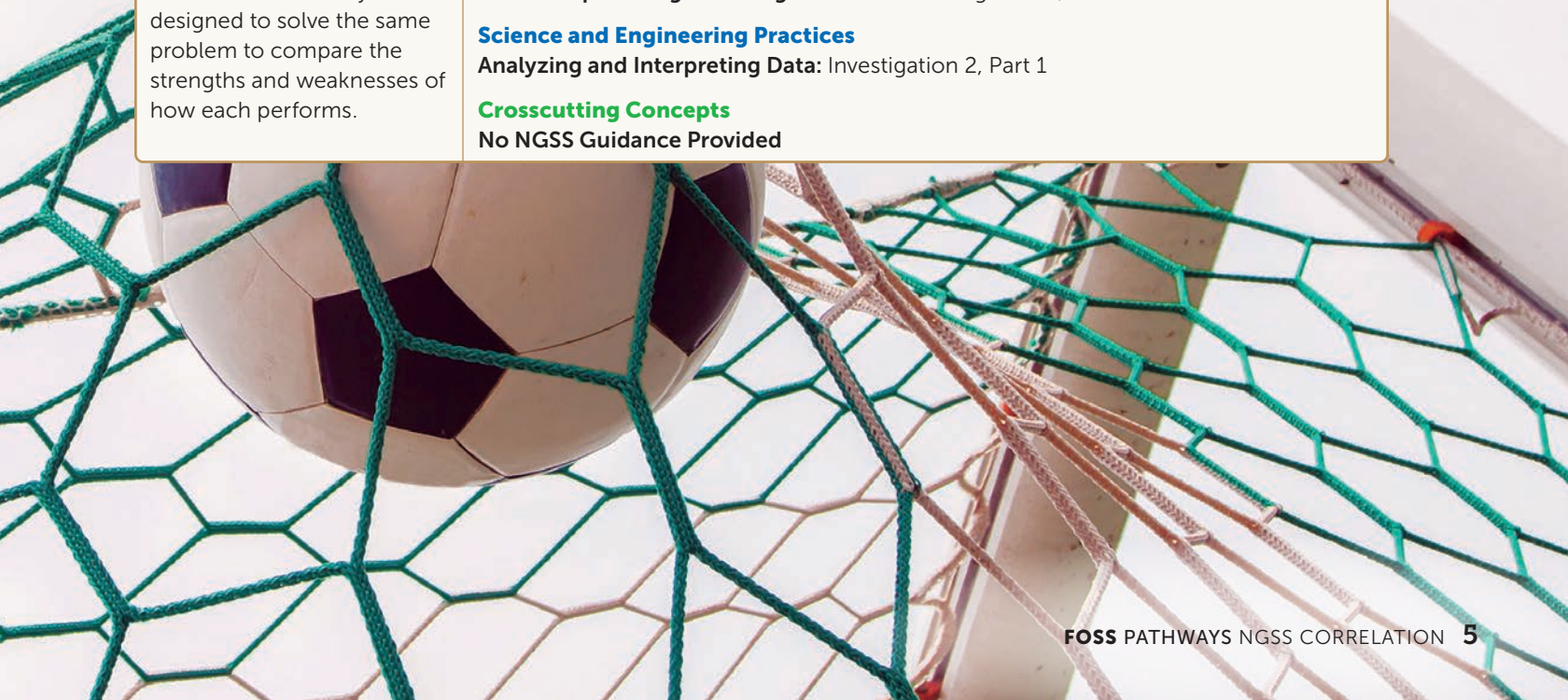
TREES AND WEATHER	
K-ESS3-1: Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.	**Disciplinary Core Ideas** **ESS3.A: Natural Resources:** Investigation 1, Parts 1-4 **Science and Engineering Practices** **Developing and Using Models:** Investigation 1, Parts 1-4 **Crosscutting Concepts** **Systems and System Models:** Investigation 1, Parts 1-4
K-ESS3-2: Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.	**Disciplinary Core Ideas** **ESS3.B: Natural Hazards:** Investigation 2, Part 3 **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 2, Part 3 **Crosscutting Concepts** **Cause and Effect:** Investigation 2, Part 3
K-PS3-1: Make observations to determine the effect of sunlight on Earth's surface.	**Disciplinary Core Ideas** **PS3.B: Conservation of Energy and Energy Transfer:** Investigation 2, Part 2 **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 2, Parts 1, 3 **Crosscutting Concepts** **Cause and Effect:** Investigation 2, Parts 2-3

FOSS Pathways Grade K Detail Correlation

Materials and Forces

MATERIALS AND FORCES	
K-ESS2-2: Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.	**Disciplinary Core Ideas** **ESS2.E: Biogeology:** Investigation 1, Parts 2-4 **Science and Engineering Practices** **Engaging in Argument from Evidence:** Investigation 1, Parts 2-3 **Crosscutting Concepts** **Systems and System Models:** Investigation 1, Parts 2-4
K-ESS3-3: Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.	**Disciplinary Core Ideas** **ESS3.C: Human Impacts on Earth Systems:** Investigation 2, Part 3 **Science and Engineering Practices** **Obtaining, Evaluating, and Communicating Information:** Investigation 2, Part 2 **Crosscutting Concepts** **Cause and Effect:** Investigation 2, Part 3
K-PS2-1: Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.	**Disciplinary Core Ideas** **PS2.A: Forces and Motion:** Investigation 3, Parts 1-3 **PS2.B: Types of Interactions:** Investigation 3, Parts 1-3 **PS3.C: Relationship Between Energy and Forces:** Investigation 3, Part 3 **Science and Engineering Practices** **Planning and Carrying Out Investigations:** Investigation 3, Parts 1-3 **Crosscutting Concepts** **Cause and Effect:** Investigation 3, Parts 1-3
K-PS2-2: Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.	**Disciplinary Core Ideas** **PS2.A: Forces and Motion:** Investigation 1, Parts 2-4; Investigation 2, Part 2; Investigation 3, Parts 2-3 **ETS1.A: Defining Engineering Problems:** Investigation 1, Parts 2-4; Investigation 3, Part 2 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 1, Parts 2-4; Investigation 3, Parts 2-3 **Crosscutting Concepts** **Cause and Effect:** Investigation 1, Parts 2-4; Investigation 2, Part 2; Investigation 3, Parts 2-3
K-PS3-1: Make observations to determine the effect of sunlight on Earth's surface.	**Disciplinary Core Ideas** **PS3.B: Conservation of Energy and Energy Transfer:** Investigation 1, Part 1 **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 1, Part 1 **Crosscutting Concepts** **Cause and Effect:** Investigation 1, Part 1

MATERIALS AND FORCES	
K-PS3-2: Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.	**Disciplinary Core Ideas** **PS3.B: Conservation of Energy and Energy Transfer:** Investigation 1, Parts 2-4; Investigation 2, Part 1 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 1, Parts 2-4; Investigation 2, Part 1 **Crosscutting Concepts** **Cause and Effect:** Investigation 1, Parts 2-4; Investigation 2, Part 1
K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	**Disciplinary Core Ideas** **ETS1.A: Defining and Delimiting Engineering Problems:** Investigation 1, Parts 2-4; Investigation 3, Part 2 **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 1, Parts 2-4; Investigation 3, Part 2 **Crosscutting Concepts** **No NGSS Guidance Provided**
K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	**Disciplinary Core Ideas** **ETS1.B: Developing Possible Solutions:** Investigation 2, Part 3 **Science and Engineering Practices** **Developing and Using Models:** Investigation 2, Part 3 **Crosscutting Concepts** **Structure and Function:** Investigation 2, Part 3
K-2-ETS1-3: Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	**Disciplinary Core Ideas** **ETS1.C: Optimizing the Design Solution:** Investigation 2, Part 1 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 2, Part 1 **Crosscutting Concepts** **No NGSS Guidance Provided**



FOSS Pathways Grade K Detail Correlation

Animals Two by Two

ANIMALS TWO BY TWO	
K-LS1-1: Use observations to describe patterns of what plants and animals (including humans) need to survive.	**Disciplinary Core Ideas** **LS1.C: Organization for Matter and Energy Flow in Organisms:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-3; Investigation 3, Part 1; Investigation 4, Part 1 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-3; Investigation 3, Part 1; Investigation 4, Part 1 **Crosscutting Concepts** **Patterns:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-3; Investigation 3, Part 1; Investigation 4, Part 1

ANIMALS TWO BY TWO	
K-ESS2-2: Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.	**Disciplinary Core Ideas** **ESS2.E: Biogeology:** Investigation 2, Parts 2-3; Investigation 4, Parts 1-2 **Science and Engineering Practices** **Engaging in Argument from Evidence:** Investigation 2, Part 2; Investigation 4, Part 2 **Crosscutting Concepts** **Systems and System Models:** Investigation 2, Parts 2-3; Investigation 4, Parts 1-2
K-ESS3-1: Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.	**Disciplinary Core Ideas** **ESS3.A: Natural Resources:** Investigation 1, Parts 1-2; Investigation 2, Parts 2-3; Investigation 3, Part 1 **Science and Engineering Practices** **Developing and Using Models:** Investigation 1, Parts 1-2; Investigation 2, Part 2; Investigation 3, Part 1 **Crosscutting Concepts** **Systems and System Models:** Investigation 1, Parts 1-2; Investigation 2, Parts 2-3; Investigation 3, Part 1

FOSS Grade K Assessment Opportunities

Disciplinary Core Ideas Assessment Opportunities

Grade K	TREES AND WEATHER			MATERIALS AND FORCES			ANIMALS TWO BY TWO			
DCI	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3	INV. 4
PS2.A										
PS2.B										
PS3.B										
PS3.C										
LS1.C										
ESS2.D										
ESS2.E										
ESS3.A										
ESS3.B										
ESS3.C										
ETS1.A										
ETS1.B										
ETS1.C										

Science and Engineering Practices Assessment Opportunities

Grade K	TREES AND WEATHER			MATERIALS AND FORCES			ANIMALS TWO BY TWO			
SEP	INV. 1	INV. 2	INV. 3	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

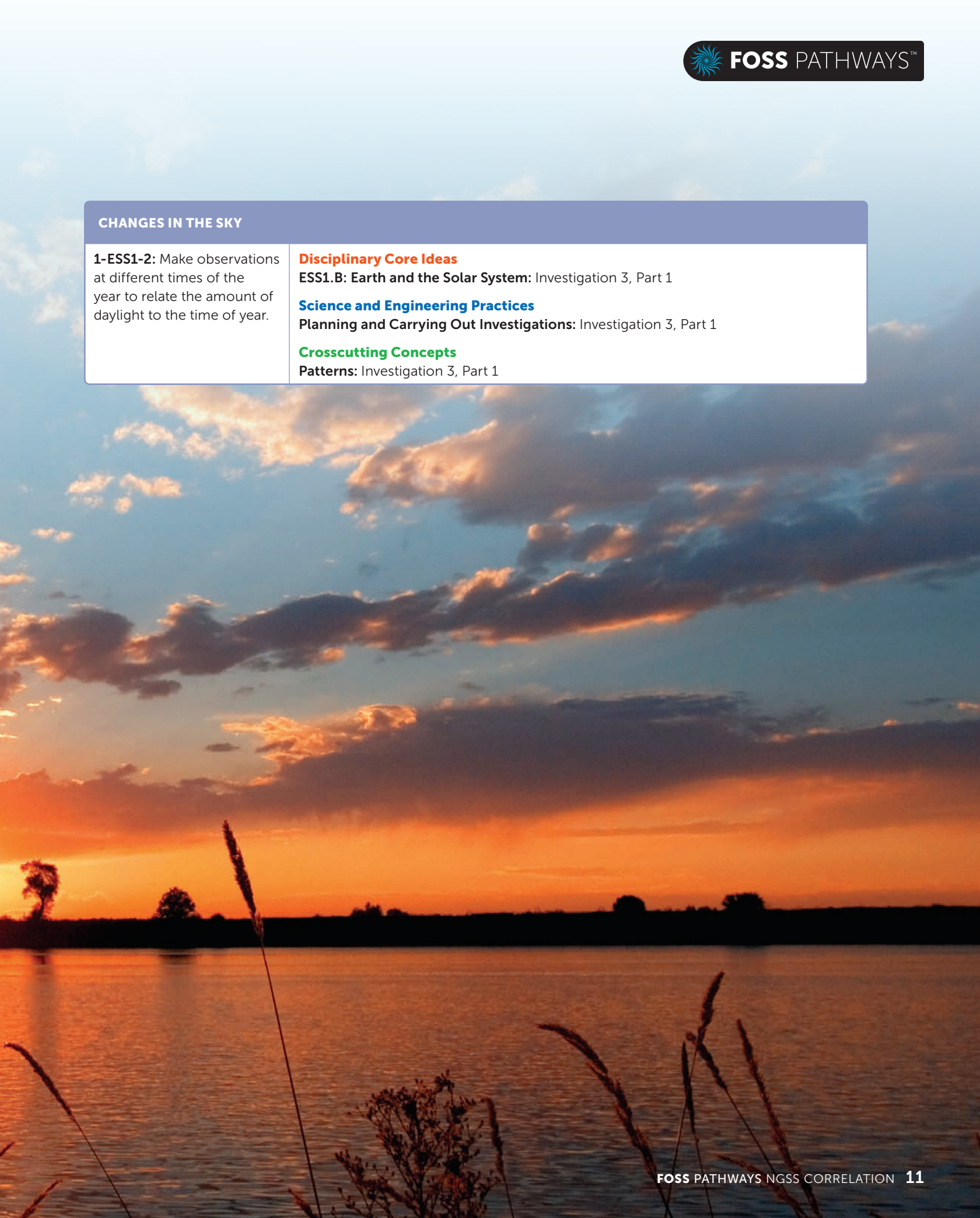
Grade K	TREES AND WEATHER			MATERIALS AND FORCES			ANIMALS TWO BY TWO			
CC	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3	INV. 4
Patterns										
Cause and Effect										
Scale, Proportion, and Quantity										
Systems and System Models										
Energy and Matter in Systems										
Structure and Function										
Stability and Change of Systems										

FOSS Pathways Grade 1 Detail Correlation

Changes in the Sky

CHANGES IN THE SKY	
1-ESS1-1: Use observations of the sun, moon, and stars to describe patterns that can be predicted.	**Disciplinary Core Ideas** **ESS1.A: The Universe and its Stars:** Investigation 1, Parts 1-3; Investigation 2, Parts 1-2 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 1, Parts 1-3; Investigation 2, Parts 1-2 **Crosscutting Concepts** **Patterns:** Investigation 1, Parts 1-3; Investigation 2, Parts 1-2

CHANGES IN THE SKY	
1-ESS1-2: Make observations at different times of the year to relate the amount of daylight to the time of year.	**Disciplinary Core Ideas** **ESS1.B: Earth and the Solar System:** Investigation 3, Part 1 **Science and Engineering Practices** **Planning and Carrying Out Investigations:** Investigation 3, Part 1 **Crosscutting Concepts** **Patterns:** Investigation 3, Part 1



FOSS Pathways Grade 1 Detail Correlation

Sound and Light

SOUND AND LIGHT	
1-PS4-1: Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.	**Disciplinary Core Ideas** **PS4.A: Wave Properties:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-2 **Science and Engineering Practices** **Planning and Carrying Out Investigations:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-2 **Crosscutting Concepts** **Cause and Effect:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-2
1-PS4-2: Make observations to construct an evidence-based account that objects can be seen only when illuminated.	**Disciplinary Core Ideas** **PS4.B: Electromagnetic Radiation:** Investigation 4, Part 2 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 4, Part 2 **Crosscutting Concepts** **Cause and Effect:** Investigation 4, Part 2
1-PS4-3: Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.	**Disciplinary Core Ideas** **PS4.B: Electromagnetic Radiation:** Investigation 3, Parts 1-2; Investigation 4, Parts 1-3 **Science and Engineering Practices** **Planning and Carrying Out Investigations:** Investigation 3, Parts 1-2; Investigation 4, Parts 1-2 **Crosscutting Concepts** **Cause and Effect:** Investigation 3, Parts 1-2; Investigation 4, Parts 1-3
1-PS4-4: Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.	**Disciplinary Core Ideas** **PS4.C: Information Technologies and Instrumentation:** Investigation 2, Part 2; Investigation 4, Part 3 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 2, Parts 1-2; Investigation 4, Part 3 **Crosscutting Concepts** **Cause and Effect:** Investigation 2, Parts 1-2; Investigation 4, Part 3
K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	**Disciplinary Core Ideas** **ETS1.A: Defining and Delimiting Engineering Problems:** Investigation 2, Part 2; Investigation 4, Part 3 **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 2, Part 2; Investigation 4, Part 3 **Crosscutting Concepts** **No NGSS Guidance Provided**

SOUND AND LIGHT	
K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	**Disciplinary Core Ideas** **ETS1.B: Developing Possible Solutions:** Investigation 2, Part 2; Investigation 4, Part 3 **Science and Engineering Practices** **Developing and Using Models:** Investigation 2, Parts 1-2 **Crosscutting Concepts** **Structure and Function:** Investigation 2, Part 2; Investigation 4, Part 3
K-2-ETS1-3: Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	**Disciplinary Core Ideas** **ETS1.C: Optimizing the Design Solution:** Investigation 2, Part 2 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 2, Parts 1-2 **Crosscutting Concepts** **No NGSS Guidance Provided**

FOSS Pathways Grade 1 Detail Correlation

Plants and Animals

PLANTS AND ANIMALS	
1-LS1-1: Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.	**Disciplinary Core Ideas** **LS1.A: Structure and Function:** Investigation 3, Part 1 **LS1.D: Information Processing:** Investigation 3, Part 1 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 3, Part 1 **Crosscutting Concepts** **Structure and Function:** Investigation 3, Part 1

PLANTS AND ANIMALS	
1-LS1-2: Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.	**Disciplinary Core Ideas** **LS1.B: Growth and Development of Organisms:** Investigation 2, Part 2 **Science and Engineering Practices** **Obtaining, Evaluating, and Communicating Information:** Investigation 2, Part 2 **Crosscutting Concepts** **Patterns:** Investigation 2, Part 2
1-LS3-1: Make observations to construct an evidence-based account that young plants and animals are alike, but not exactly alike, their parents.	**Disciplinary Core Ideas** **LS3.A: Inheritance of Traits:** Investigation 1, Parts 1-2; Investigation 2, Part 2 **LS3.B: Variation of Traits:** Investigation 1, Parts 1-2; Investigation 2, Part 2 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 1, Parts 1-2; Investigation 2, Part 2 **Crosscutting Concepts** **Patterns:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-2
K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	**Disciplinary Core Ideas** **ETS1.A: Defining and Delimiting Engineering Problems:** Investigation 3, Part 1 **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 3, Part 1 **Crosscutting Concepts** **No NGSS Guidance Provided**
K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	**Disciplinary Core Ideas** **ETS1.B: Developing Possible Solutions:** Investigation 3, Part 1 **Science and Engineering Practices** **Developing and Using Models:** Investigation 3, Part 1 **Crosscutting Concepts** **Structure and Function:** Investigation 3, Part 1

FOSS Grade 1 Assessment Opportunities

Disciplinary Core Ideas Assessment Opportunities

Grade 1	CHANGES IN THE SKY			SOUND AND LIGHT				PLANTS AND ANIMALS		
DCI	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3
PS4.A										
PS4.B										
PS4.C										
LS1.A										
LS1.B										
LS1.D										
LS3.A										
LS3.B										
ESS1.A										
ESS1.B										
ETS1.A										
ETS1.B										
ETS1.C										

Science and Engineering Practices Assessment Opportunities

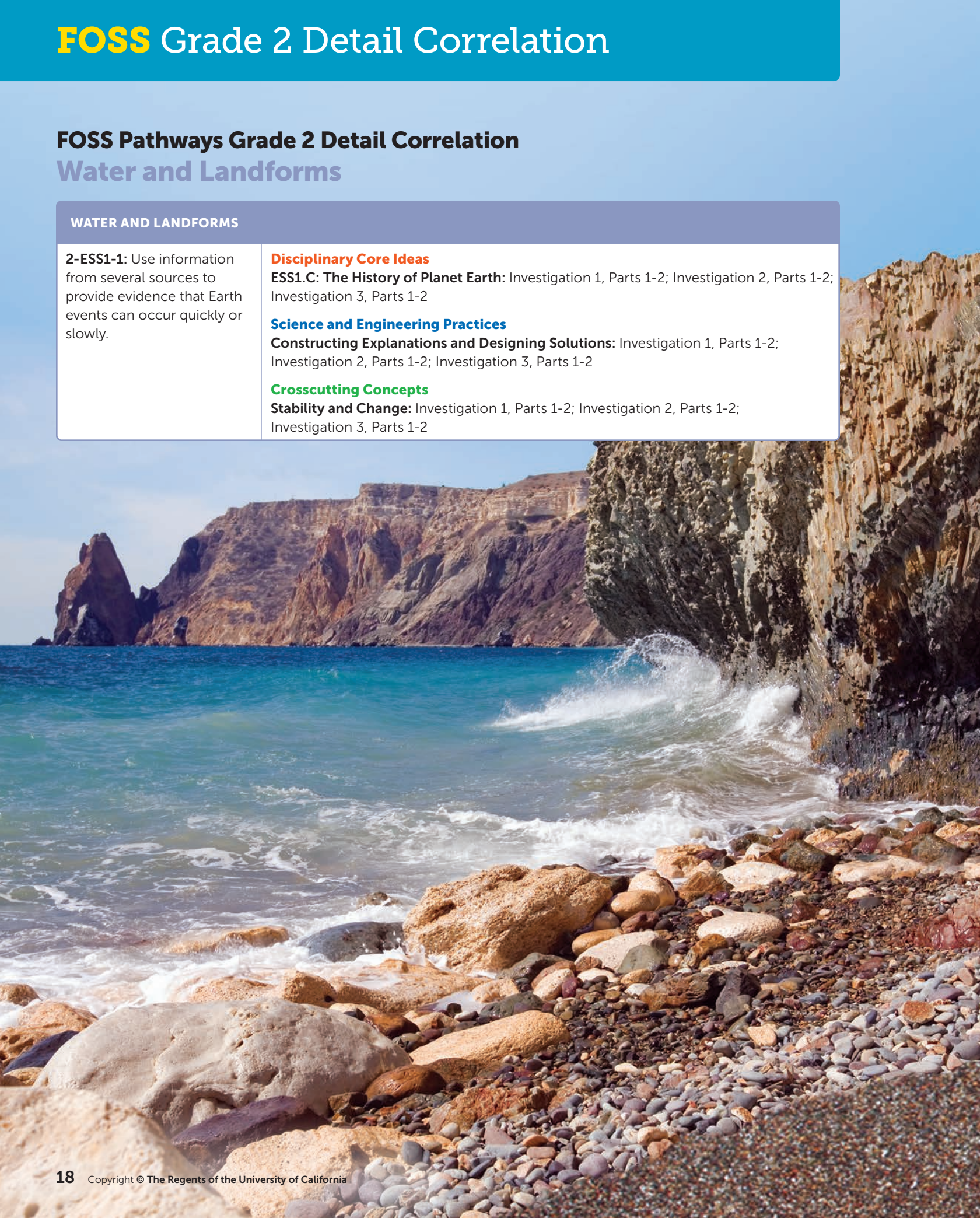
Grade 1	CHANGES IN THE SKY			SOUND AND LIGHT				PLANTS AND ANIMALS		
SEP	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3
Asking Questions and Defining Problems										
Developing and Using Models										
Planning and Carrying Out Investigations										
Analyzing and Interpreting 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 1	CHANGES IN THE SKY			SOUND AND LIGHT				PLANTS AND ANIMALS		
CC	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3
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 2 Detail Correlation
Water and Landforms

WATER AND LANDFORMS	
2-ESS1-1: Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	**Disciplinary Core Ideas** **ESS1.C: The History of Planet Earth:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-2; Investigation 3, Parts 1-2 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-2; Investigation 3, Parts 1-2 **Crosscutting Concepts** **Stability and Change:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-2; Investigation 3, Parts 1-2



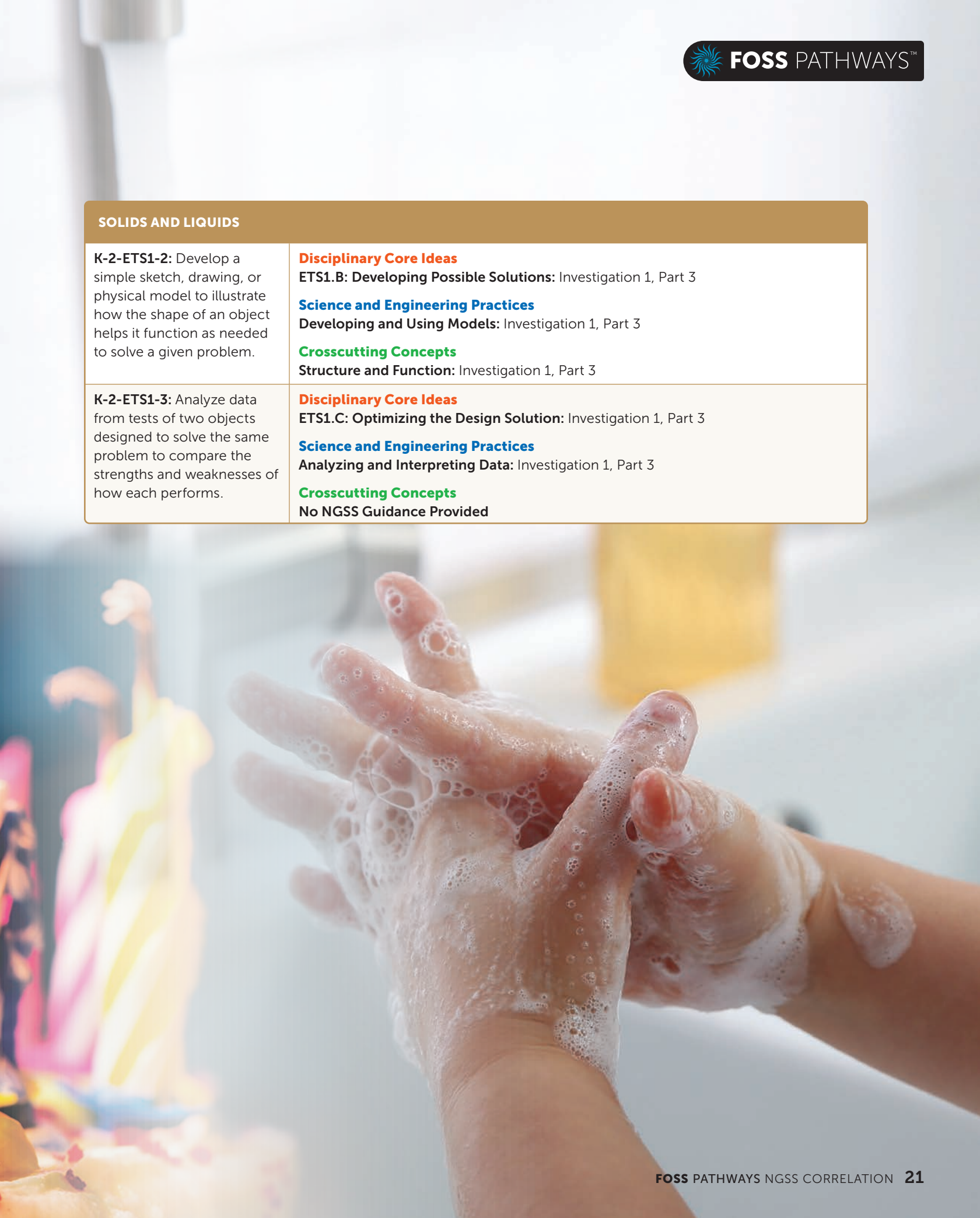
WATER AND LANDFORMS	
2-ESS2-1: Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.	**Disciplinary Core Ideas** **ESS2.A: Earth Materials and Systems:** Investigation 3, Part 1 **ETS1.C: Optimizing the Design Solution:** **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 3, Part 1 **Crosscutting Concepts** **Stability and Change:** Investigation 3, Part 1
2-ESS2-2: Develop a model to represent the shapes and kinds of land and bodies of water in an area.	**Disciplinary Core Ideas** **ESS2.B: Plate Tectonics and Large-Scale System Interactions:** Investigation 4, Part 2 **Science and Engineering Practices** **Developing and Using Models:** Investigation 4, Part 2 **Crosscutting Concepts** **Patterns:** Investigation 4, Part 2
2-ESS2-3: Obtain information to identify where water is found on Earth and that it can be solid or liquid.	**Disciplinary Core Ideas** **ESS2.C: The Roles of Water in Earth's Surface Processes:** Investigation 4, Part 1 **Science and Engineering Practices** **Obtaining, Evaluating, and Communicating Information:** Investigation 4, Part 1 **Crosscutting Concepts** **Patterns:** Investigation 4, Part 1
2-PS1-1: Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.	**Disciplinary Core Ideas** **ESS1.A: The Universe and its Stars:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-2 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-2 **Crosscutting Concepts** **Patterns:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-2
K-2-ETS1-3: Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	**Disciplinary Core Ideas** **ETS1.C: Optimizing the Design Solution:** Investigation 3, Part 1 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 3, Part 1 **Crosscutting Concepts** **No NGSS Guidance Provided**

FOSS Pathways Grade 2 Detail Correlation

Solids and Liquids

SOLIDS AND LIQUIDS	
2-PS1-1: Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.	**Disciplinary Core Ideas** **PS1.A: Structure and Properties of Matter:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-3; Investigation 3, Parts 1-3 **Science and Engineering Practices** **Planning and Carrying Out Investigations:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-2; Investigation 3, Parts 1-3 **Crosscutting Concepts** **Patterns:** Investigation 1, Parts 1-2; Investigation 2, Parts 1-3; Investigation 3, Parts 1-3
2-PS1-2: Analyze data obtained by testing different materials to determine which materials have the properties that are best suited for an intended purpose.	**Disciplinary Core Ideas** **PS1.A: Structure and Properties of Matter:** Investigation 1, Part 3 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 1, Part 3 **Crosscutting Concepts** **Cause and Effect:** Investigation 1, Part 3
2-PS1-3: Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.	**Disciplinary Core Ideas** **PS1.A: Structure and Properties of Matter:** Investigation 1, Part 3 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 1, Part 3 **Crosscutting Concepts** **Energy and Matter:** Investigation 1, Part 3
2-PS1-4: Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	**Disciplinary Core Ideas** **PS1.B: Chemical Reactions:** Investigation 3, Parts 2-3 **Science and Engineering Practices** **Engaging in Argument From Evidence:** Investigation 3, Part 3 **Crosscutting Concepts** **Cause and Effect:** Investigation 3, Parts 2-3
K-2-ETS1-1: Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	**Disciplinary Core Ideas** **ETS1.A: Defining and Delimiting Engineering Problems:** Investigation 1, Part 3 **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 1, Part 3 **Crosscutting Concepts** **No NGSS Guidance Provided**

SOLIDS AND LIQUIDS	
K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	**Disciplinary Core Ideas** **ETS1.B: Developing Possible Solutions:** Investigation 1, Part 3 **Science and Engineering Practices** **Developing and Using Models:** Investigation 1, Part 3 **Crosscutting Concepts** **Structure and Function:** Investigation 1, Part 3
K-2-ETS1-3: Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	**Disciplinary Core Ideas** **ETS1.C: Optimizing the Design Solution:** Investigation 1, Part 3 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 1, Part 3 **Crosscutting Concepts** **No NGSS Guidance Provided**



FOSS Pathways Grade 2 Detail Correlation

Insects and Plants

INSECTS AND PLANTS	
2-LS2-1: Plan and conduct an investigation to determine if plants need sunlight and water to grow.	**Disciplinary Core Ideas** **LS2.A: Interdependent Relationships in Ecosystems:** Investigation 2, Parts 1-2 **Science and Engineering Practices** **Planning and Carrying Out Investigations:** Investigation 2, Parts 1-2 **Crosscutting Concepts** **Cause and Effect:** Investigation 2, Part 2
2-LS2-2: Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	**Disciplinary Core Ideas** **LS2.A: Interdependent Relationships in Ecosystems:** Investigation 3, Part 2 **ETS1.B: Developing Possible Solutions:** Investigation 3, Part 3 **Science and Engineering Practices** **Developing and Using Models:** Investigation 3, Part 2 **Crosscutting Concepts** **Structure and Function:** Investigation 3, Part 2

INSECTS AND PLANTS	
2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.	**Disciplinary Core Ideas** **LS4:D: Biodiversity and Humans:** Investigation 1, Parts 1-3; Investigation 3, Part 1 **Science and Engineering Practices** **Planning and Carrying Out Investigations:** Investigation 1, Parts 1-3; Investigation 3, Part 1 **Crosscutting Concepts** **No NGSS Guidance Provided**
K-2-ETS1-2: Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	**Disciplinary Core Ideas** **ETS1.B: Developing Possible Solutions:** Investigation 2, Part 3 **Science and Engineering Practices** **Developing and Using Models:** Investigation 2, Part 3 **Crosscutting Concepts** **Structure and Function:** Investigation 2, Part 3

FOSS Grade 2 Assessment Opportunities

Disciplinary Core Ideas Assessment Opportunities

Grade 2	WATER AND LANDFORMS				SOLIDS AND LIQUIDS			INSECTS AND PLANTS		
DCI	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3
PS1.A										
PS1.B										
LS2.A										
LS4.D										
ESS1.C										
ESS2.A										
ESS2.B										
ESS2.C										
ETS1.A										
ETS1.B										
ETS1.C										

Science and Engineering Practices Assessment Opportunities

Grade 2	WATER AND LANDFORMS				SOLIDS AND LIQUIDS			INSECTS AND PLANTS		
SEP	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3
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										

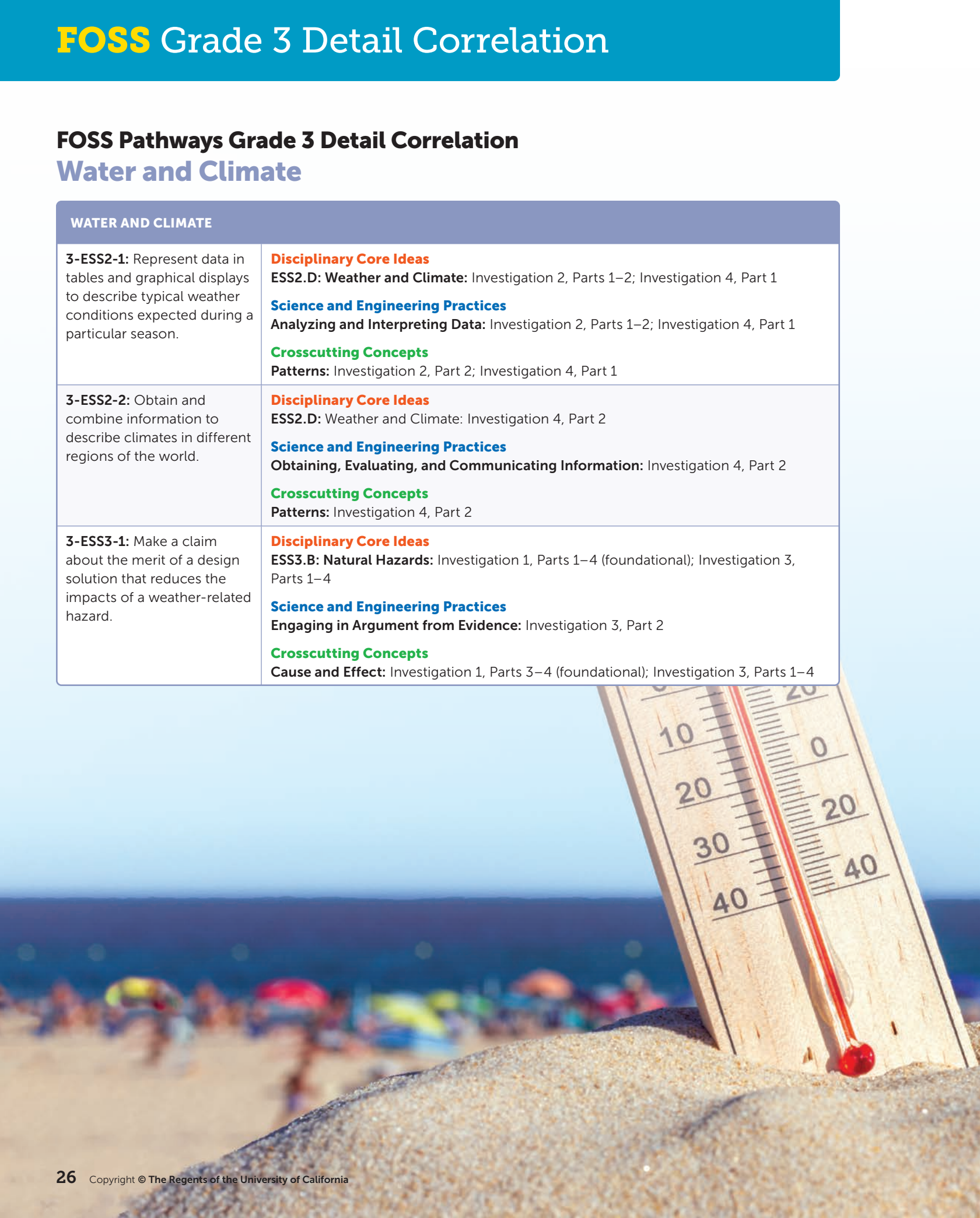
Crosscutting Concepts Assessment Opportunities

Grade 2	WATER AND LANDFORMS				SOLIDS AND LIQUIDS			INSECTS AND PLANTS		
CC	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 1	INV. 2	INV. 3
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 3 Detail Correlation

Water and Climate

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

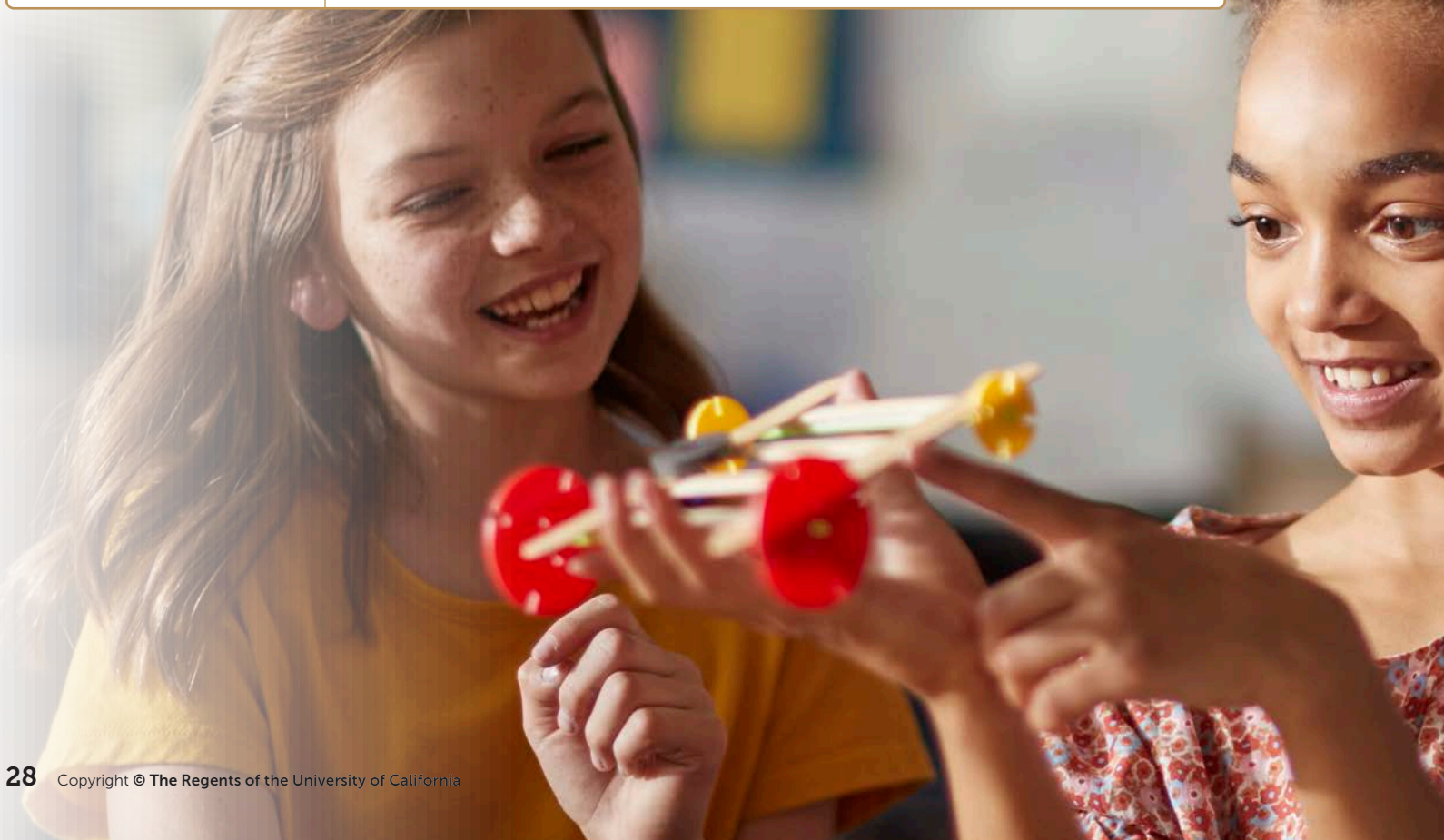


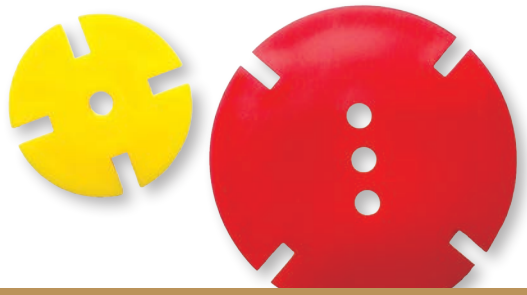
WATER AND CLIMATE	
3-5-ETS1-1: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	**Disciplinary Core Ideas** **ETS1.A: Defining and Delimiting Engineering Problems:** Investigation 3, Side Trip 6 **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 1, Parts 1 and 3; Investigation 3, Parts 2–3 and Side Trip 6 **Crosscutting Concepts** **No NGSS Guidance Provided**
3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	**Disciplinary Core Ideas** **ETS1.B: Developing Possible Solutions:** Investigation 3, Side Trip 6 **Science and Engineering Practices** **Developing and Using Models:** Investigation 1, Part 3; Investigation 3, Part 3 and Side Trip 6 **Crosscutting Concepts** **No NGSS Guidance Provided**
3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	**Disciplinary Core Ideas** **ETS1.C: Optimizing the Design Solution:** Investigation 3, Side Trip 6 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 1, Parts 2–4; Investigation 3, Parts 1–4 and Side Trip 6; Investigation 4, Part 2 **Crosscutting Concepts** **No NGSS Guidance Provided**

FOSS Pathways Grade 3 Detail Correlation

Motion

MOTION	
3-PS2-1: Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.	**Disciplinary Core Ideas** **EPS2.A: Forces and Motion:** Investigation 3, Parts 1–4 **Science and Engineering Practices** **Planning and Carrying Out Investigations:** Investigation 3, Parts 1–4 **Crosscutting Concepts** **Cause and Effect:** Investigation 3, Parts 1–4
3-PS2-2: Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.	**Disciplinary Core Ideas** **PS2.A: Forces and Motion:** Investigation 1, Parts 2–3; Investigation 2, Parts 1–3 **Science and Engineering Practices** **Planning and Carrying Out Investigations:** Investigation 1, Part 2; Investigation 2, Parts 1–3 **Crosscutting Concepts** **Patterns:** Investigation 1, Part 2; Investigation 2, Parts 1-3
3-PS2-3: Ask questions to determine cause and effect relationships of electrical or magnetic interactions between two objects not in contact with each other.	**Disciplinary Core Ideas** **PS2.B: Types of Interactions:** Investigation 1, Parts 1–3 **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 1, Parts 1–2 **Crosscutting Concepts** **Cause and Effect:** Investigation 1, Parts 1–3





MOTION	
3-PS2-4: Define a simple design problem that can be solved by applying scientific ideas about magnets.	**Disciplinary Core Ideas** **PS2.B: Types of Interactions:** Investigation 3, Part 4 **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 3, Part 4 **Crosscutting Concepts** **No NGSS Guidance Provided**
3-5-ETS1-1: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	**Disciplinary Core Ideas** **ETS1.A: Defining and Delimiting Engineering Problems:** Investigation 3, Part 4 **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 3, Part 4 **Crosscutting Concepts** **No NGSS Guidance Provided**
3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	**Disciplinary Core Ideas** **ETS1.B: Developing Possible Solutions:** Investigation 3, Part 4 **Science and Engineering Practices** **Developing and Using Models:** Investigation 1, Part 2 **Crosscutting Concepts** **No NGSS Guidance Provided**
3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	**Disciplinary Core Ideas** **ETS1.C: Optimizing the Design Solution:** Investigation 3, Part 3 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 3, Part 3 **Crosscutting Concepts** **No NGSS Guidance Provided**

FOSS Pathways Grade 3 Detail Correlation

Structures of Life

STRUCTURES OF LIFE	
3-LS1-1: Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	**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 **Science and Engineering Practices** **Developing and Using Models:** Investigation 2, Part 2; Investigation 4, Part 1 **Crosscutting Concepts** **Patterns:** Investigation 1, Parts 1–3; Investigation 2, Parts 1–2; Investigation 4, Part 1
3-LS2-1: Construct an argument that some animals form groups that help members survive.	**Disciplinary Core Ideas** **LS2.D: Social Interactions and Group Behavior:** Investigation 3, Part 3 **Science and Engineering Practices** **Engaging in Argument from Evidence:** Investigation 1, Part 3; Investigation 2, Part 1; Investigation 4, Part 1 **Crosscutting Concepts** **Cause and Effect:** Investigation 3, Part 3
3-LS3-1: 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.	**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 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 2, Parts 1–2 **Crosscutting Concepts** **Patterns:** Investigation 2, Parts 1–2
3-LS3-2: Use evidence to support the explanation that traits can be influenced by the environment.	**Disciplinary Core Ideas** **LS3.A: Inheritance of Traits:** Investigation 2, Part 2 **LS3.B: Variation of Traits:** Investigation 2, Part 2 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 2, Part 2 **Crosscutting Concepts** **Cause and Effect:** Investigation 2, Part 1

STRUCTURES OF LIFE	
3-LS4-1: Analyze and interpret data from fossils to provide evidence of the organisms and environments in which they lived long ago.	**Disciplinary Core Ideas** **LS4.A: Evidence of Common Ancestry and Diversity:** Investigation 4, Part 2 **Science and Engineering Practices** **Analyzing and Interpreting Data:** Investigation 4, Part 2 **Crosscutting Concepts** **Scale, Proportion, and Quantity:** Investigation 4, Part 2
3-LS4-2: 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.	**Disciplinary Core Ideas** **LS4.B: Natural Selection:** Investigation 4, Part 1 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 4, Part 1 **Crosscutting Concepts** **Cause and Effect:** Investigation 4, Part 1
3-LS4-3: 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.	**Disciplinary Core Ideas** **LS4.C: Adaptation:** Investigation 3, Part 2; Investigation 4, Parts 1–2 **Science and Engineering Practices** **Engaging in Argument from Evidence:** Investigation 4, Part 1 **Crosscutting Concepts** **Cause and Effect:** Investigation 4, Part 1
3-LS4-4: Make a claim 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.	**Disciplinary Core Ideas** **LS4.D: Biodiversity and Humans:** Investigation 4, Part 1 **LS2.C: Ecosystem Dynamics, Functioning, and Resilience:** Investigation 4, Part 1 **Science and Engineering Practices** **Engaging in Argument from Evidence:** Investigation 4, Part 1 **Crosscutting Concepts** **Systems and System Models:** Investigation 4, Part 1

FOSS Grade 3 Assessment Opportunities

Disciplinary Core Ideas Assessment Opportunities

Grade 3	WATER AND CLIMATE				MOTION			STRUCTURES OF LIFE			
DCI	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

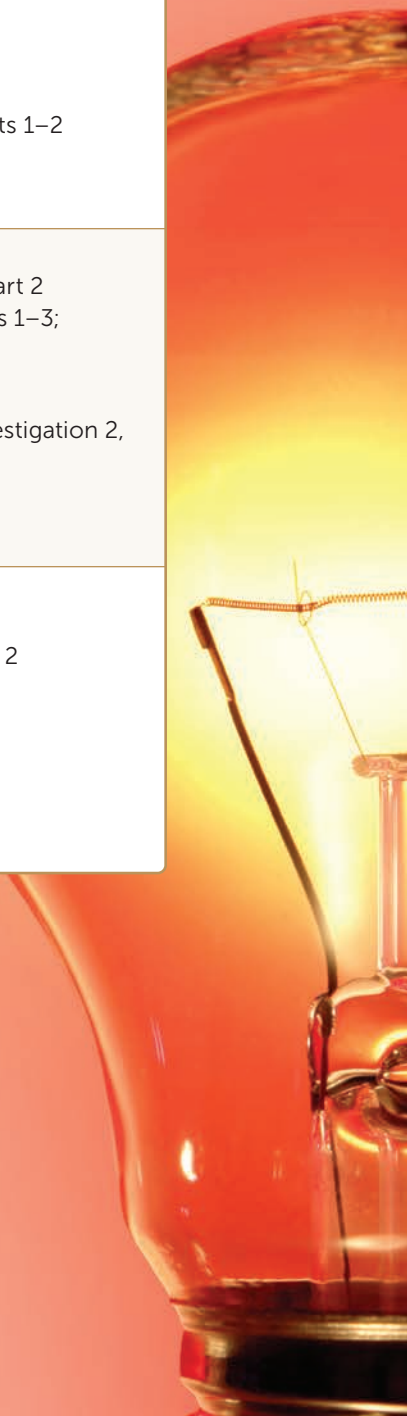
SOILS, ROCKS, AND LANDFORMS	
4-ESS1-1: Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.	**Disciplinary Core Ideas** **ESS1.C: The History of Planet Earth:** Investigation 4, Part 2 **Science and Engineering Practices**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

SOILS, ROCKS, AND LANDFORMS	
4-ESS3-2: Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.	**Disciplinary Core Ideas** **ESS3.B: Natural Hazards:** Investigation 3, Part 2 **ETS1.B: Designing Solutions to Engineering Problems:** Investigation 2, Part 3 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 2, Part 3; Investigation 3, Part 2 **Crosscutting Concepts** **Cause and Effect:** Investigation 2, Part 3
3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	**Disciplinary Core Ideas** **ETS1.B: Developing Possible Solutions:** Investigation 2, Part 3 **Science and Engineering Practices** **Developing and Using Models:** Investigation 2, Part 3 **Crosscutting Concepts** **Influence of Engineering, Technology, and Science on Society and the Natural World:** Investigation 2, Part 3

FOSS Pathways Grade 4 Detail Correlation

Energy

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

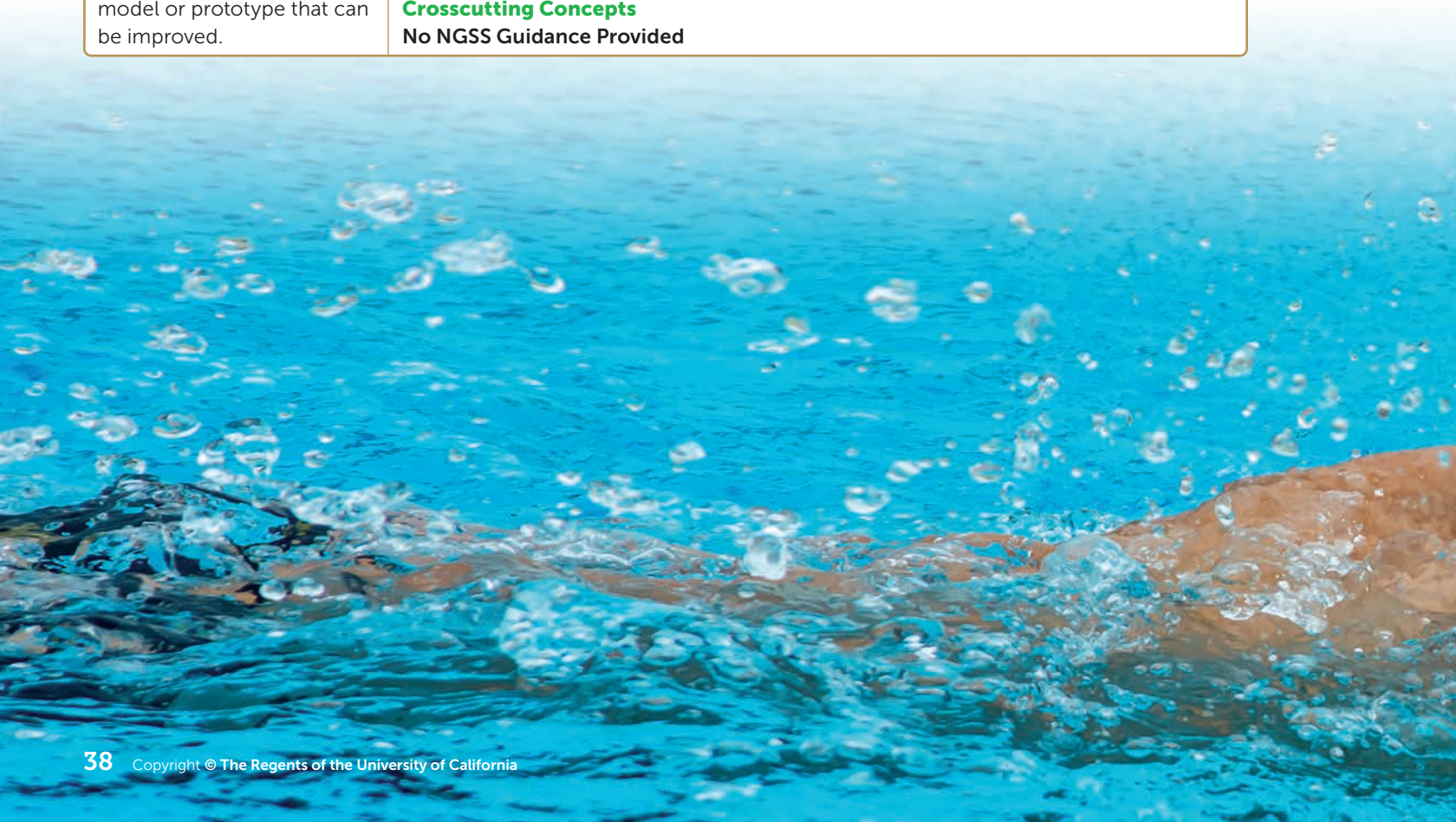


ENERGY	
4-PS3-4: Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.	**Disciplinary Core Ideas** **PS3.B: Conservation of Energy and Energy Transfer:** Investigation 1, Parts 2–3; Investigation 2, Parts 1–2 **PS3.D: Energy in Chemical Processes and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

FOSS Pathways Grade 4 Detail Correlation

Energy

ENERGY	
3-5-ETS1-1: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	**Disciplinary Core Ideas** **ETS1.A: Defining and Delimiting Engineering Problems:** Investigation 1, Part 3 **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 1, Part 3 **Crosscutting Concepts** **Influence of Engineering, Technology, and Science on Society and the Natural World:** Investigation 1, Part 3
3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	**Disciplinary Core Ideas** **ETS1.B: Developing Possible Solutions:** Investigation 2, Part 2 **Science and Engineering Practices** **Developing and Using Models:** Investigation 2, Part 2 **Crosscutting Concepts** **Influence of Engineering, Technology, and Science on Society and the Natural World:** Investigation 2, Part 2
3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	**Disciplinary Core Ideas** **ETS1.C: Optimizing the Design Solution:** Investigation 2, Part 2 **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 2, Part 2 **Crosscutting Concepts** **No NGSS Guidance Provided**



FOSS Pathways Grade 4 Detail Correlation

Senses and Survival

SENSES AND SURVIVAL	
4-LS1-1: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.	**Disciplinary Core Ideas** **LS1.A: Structure and Function:** Investigation 1, Parts 1–2; Investigation 2, Parts 1–2; Investigation 3, Parts 1–2 **Science and Engineering Practices** **Engaging in Argument from Evidence:** Investigation 1, Part 3; Investigation 2, Part 1; Investigation 3, Part 2 **Crosscutting Concepts** **Systems and System Models:** Investigation 1, Parts 1–3; Investigation 2, Parts 1–2; Investigation 3, Parts 1–2
4-LS1-2: 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.	**Disciplinary Core Ideas** **LS1.D: Information Processing:** Investigation 1, Parts 1–3; Investigation 2, Part 2 **Science and Engineering Practices** **Engaging in Argument from Evidence:** Investigation 1, Part 3; Investigation 2, Part 1 **Crosscutting Concepts** **Systems and System Models:** Investigation 1, Parts 1–3; Investigation 2, Parts 1–2

FOSS Grade 4 Assessment Opportunities

Disciplinary Core Ideas Assessment Opportunities

Grade 4	SOILS, ROCKS, AND LANDFORMS				ENERGY				SENSES AND SURVIVAL		
DCI	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		
SEP	**INV. 1**	**INV. 2**	**INV. 3**	**INV. 4**	**INV. 1**	**INV. 2**	**INV. 3**	**INV. 4**	**INV. 1**	**INV. 2**	**INV. 3**
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		
CC	**INV. 1**	**INV. 2**	**INV. 3**	**INV. 4**	**INV. 1**	**INV. 2**	**INV. 3**	**INV. 4**	**INV. 1**	**INV. 2**	**INV. 3**
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

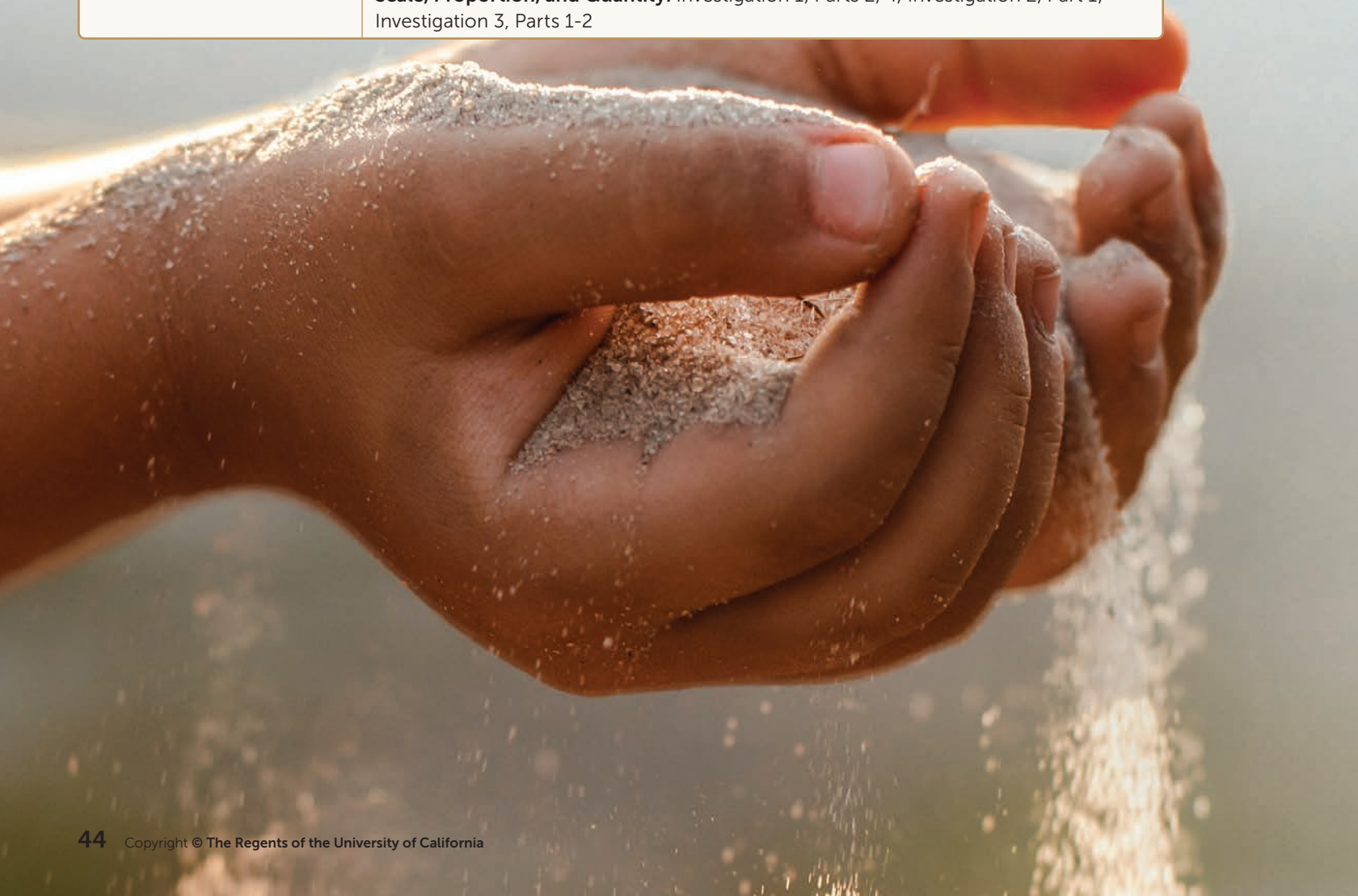
EARTH AND SUN	
5-ESS1-1: Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.	**Disciplinary Core Ideas** **ESS1.A: The Universe and Its Stars:** Investigation 4, Parts 2–3 **Science and Engineering Practices** **Engaging in Argument from Evidence:** Investigation 4, Part 2 **Crosscutting Concepts** **Scale, Proportion, and Quantity:** Investigation 4, Parts 2–3
5-ESS1-2: 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.	**Disciplinary Core Ideas** **ESS1.B: Earth and the Solar System:** Investigation 3, Parts 1–2; Investigation 4, Parts 2–3 **Science and Engineering Practices** **Analyzing and Interpreting Information:** Investigation 3, Parts 1–2; Investigation 4, Part 3 **Crosscutting Concepts** **Patterns:** Investigation 3, Parts 1–2; Investigation 4, Parts 2–3
5-ESS2-1: Develop a model using an example to describe ways in which the geosphere, biosphere, hydrosphere, and/or atmosphere interact.	**Disciplinary Core Ideas** **ESS2.A: Earth Materials and Systems:** Investigation 1, Part 2; Investigation 2, Part 1 **Science and Engineering Practices** **Developing and Using Models:** Investigation 1, Part 2; Investigation 2, Part 1 **Crosscutting Concepts** **Systems and System Models:** Investigation 1, Part 2; Investigation 2, Part 1
5-ESS2-2: Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.	**Disciplinary Core Ideas** **ESS2.C: The Roles of Water in Earth's Surface Processes:** Investigation 2, Part 1 **Science and Engineering Practices** **Using Mathematics and Computational Thinking:** Investigation 2, Part 1 **Crosscutting Concepts** **Scale, Proportion, and Quantity:** Investigation 2, Part 1

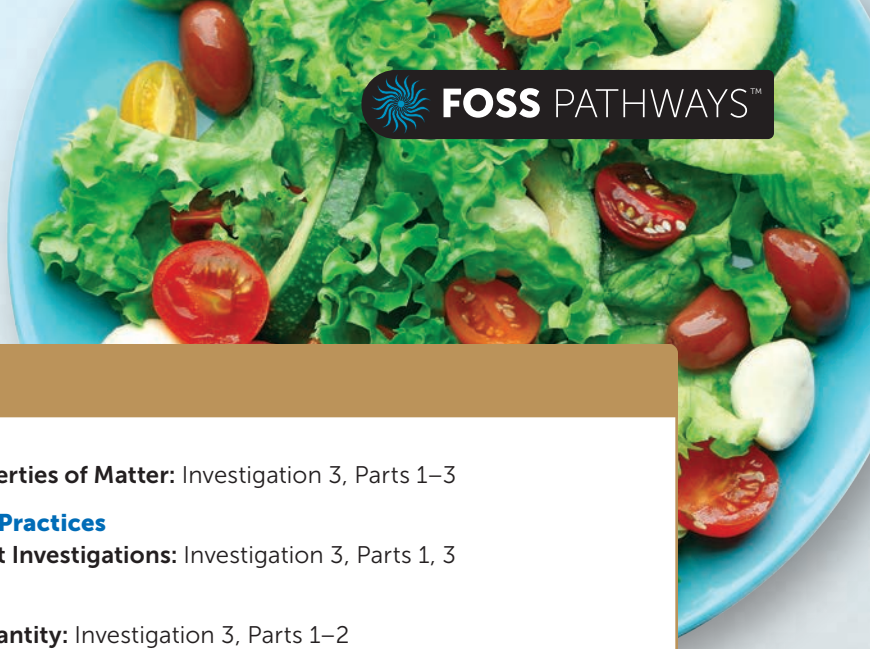
EARTH AND SUN	
5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	**Disciplinary Core Ideas** **ESS3.C: Human Impacts on Earth Systems:** Investigation 2, Part 2 **Science and Engineering Practices** **Obtaining, Evaluating, and Communicating Information:** Investigation 2, Part 2 **Crosscutting Concepts** **Systems and System Models:** Investigation 2, Part 2
5-PS1-1: 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 1–2 **Science and Engineering Practices** **Developing and Using Models:** Investigation 1, Parts 1–2 **Crosscutting Concepts** **Scale, Proportion, and Quantity:** Investigation 1, Parts 1–2
5-PS2-1: Support an argument that the gravitational force exerted by Earth on objects is directed down.	**Disciplinary Core Ideas** **PS1.B: Types of Interactions:** Investigation 4, Part 1 **Science and Engineering Practices** **Engaging in Argument from Evidence:** Investigation 4, Part 1 **Crosscutting Concepts** **Cause and effect:** Investigation 4, Part 1
3-5-ETS1-1: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	**Disciplinary Core Ideas** **ETS1.A: Defining and Delimiting Engineering Problems:** Investigation 1, Home/School Connection **Science and Engineering Practices** **Asking Questions and Defining Problems:** Investigation 1, Home/School Connection **Crosscutting Concepts** **Influence of Engineering, Technology, and Science on Society and the Natural World:** Investigation 1, Home/School Connection
3-5-ETS1-3: Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	**Disciplinary Core Ideas** **ETS1.C: Optimizing the Design Solution:** Investigation 1, Home/School Connection **Science and Engineering Practices** **Constructing Explanations and Designing Solutions:** Investigation 1, Home/School Connection **Crosscutting Concepts** **No NGSS Guidance Provided**

FOSS Pathways Grade 5 Detail Correlation

Mixtures and Solutions

MIXTURES AND SOLUTIONS	
5-PS1-1: 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
5-PS1-2: 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





FOSS PATHWAYS™

MIXTURES AND SOLUTIONS	
5-PS1-3: Make observations and measurements to identify materials based on their properties.	**Disciplinary Core Ideas** **PS1.A: Structure and Properties of Matter:** Investigation 3, Parts 1–3 **Science and Engineering Practices** **Planning and Carrying Out Investigations:** Investigation 3, Parts 1, 3 **Crosscutting Concepts** **Scale, Proportion, and Quantity:** Investigation 3, Parts 1–2
5-PS1-4: Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	**Disciplinary Core Ideas** **PS1.B: Chemical Interactions:** Investigation 4, Parts 1–2 **Science and Engineering Practices** **Planning and Carrying Out Investigations:** Investigation 4, Parts 1–2 **Crosscutting Concepts** **Cause and Effect:** Investigation 4, Parts 1–2
5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	**Disciplinary Core Ideas** **ESS3.C: Human Impacts on Earth Systems:** Investigation 3, Part 3 **Science and Engineering Practices** **Obtaining, Evaluating, and Communicating Information:** Investigation 3, Part 3 **Crosscutting Concepts** **Systems and System Models:** Investigation 3, Part 2
3-5-ETS1-2: Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	**Disciplinary Core Ideas** **ETS1.B: Developing Possible Solutions:** Investigation 3, Part 3 **Science and Engineering Practices** **Developing and Using Models:** Investigation 3, Part 2 **Crosscutting Concepts** **Influence of Engineering, Technology, and Science on Society and the Natural World:** Investigation 3, Part 3

FOSS Pathways Grade 5 Detail Correlation

Living Systems

LIVING SYSTEMS	
5-LS1-1: Support an argument that plants get the materials they need for growth chiefly from air and water.	**Disciplinary Core Ideas** **LS1.C: Organization for Matter and Energy Flow in Organisms:** Investigation 2, Part 1 **Science and Engineering Practices** **Engaging in Argument from Evidence:** Investigation 2, Part 1 **Crosscutting Concepts** **Energy and Matter:** Investigation 2, Part 1
5-LS2-1: Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	**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 **Science and Engineering Practices** **Developing and Using Models:** Investigation 1, Parts 1–2; Investigation 3, Parts 1–3; Investigation 4, Part 1 **Crosscutting Concepts** **Systems and System Models:** Investigation 1, Parts 1–2; Investigation 3, Parts 1–3; Investigation 4, Part 1
5-ESS2-1: Develop a model using an example to describe ways in which the geosphere, biosphere, hydrosphere, and/or atmosphere interact.	**Disciplinary Core Ideas** **ESS2.A: Earth Materials and Systems:** Investigation 2, Part 1; Investigation 3, Parts 1–3; Investigation 4, Part 1 **Science and Engineering Practices** **Developing and Using Models:** Investigation 2, Part 1; Investigation 3, Parts 1–3; Investigation 4, Part 1 **Crosscutting Concepts** **Systems and System Models:** Investigation 2, Part 1; Investigation 3, Parts 1–3; Investigation 4, Part 1

LIVING SYSTEMS	
5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	**Disciplinary Core Ideas** **ESS3.C: Human Impacts and Earth Systems:** Investigation 3, Parts 2–3; Investigation 4, Part 1 **Science and Engineering Practices** **Obtaining, Evaluating, and Communicating Information:** Investigation 3, Parts 2–3; Investigation 4, Part 1 **Crosscutting Concepts** **Systems and System Models:** Investigation 3, Parts 2–3; Investigation 4, Part 1
5-PS3-1: 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.	**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 **Science and Engineering Practices** **Developing and Using Models:** Investigation 2, Parts 1–2 **Crosscutting Concepts** **Energy and Matter:** Investigation 2, Parts 1–2

FOSS Grade 5 Assessment Opportunities

Disciplinary Core Ideas Assessment Opportunities

Grade 5	EARTH AND SUN				MIXTURES AND SOLUTIONS				LIVING SYSTEMS			
DCI	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			
SEP	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 4	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 5	EARTH AND SUN				MIXTURES AND SOLUTIONS				LIVING SYSTEMS			
CC	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 4	INV. 1	INV. 2	INV. 3	INV. 4
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 the K-5 Next Generation Science Standards within the teaching time allotted for while retaining flexibility for customized instruction.

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