CACS Curriculum Map — Grade 4 Science (FOSS Kit-Based)

Built around the three FOSS Next Generation kits used for Grade 4 — Energy; Environments; and Rocks and Soil — one per trimester, aligned to the 2026 NJSLS-Science standards (NGSS Performance Expectations).

Pacing Overview

When	FOSS Kit	Focus
September – Mid-November (Weeks 1–9)	FOSS Energy	Energy Transfer, Speed, and Collisions · Waves and Information Transfer · Engineering Design
Mid-November – December	*— gap —*	Winter break falls in this window; reinforcement / reteaching / other instruction, not detailed in this map
January – Mid-February (Weeks 1–5)	FOSS Environments	Structure, Function, and Information Processing
Mid-February – February	*— gap —*	Reinforcement / reteaching / other instruction, not detailed in this map
March – Mid-April (Weeks 1–6)	FOSS Rocks and Soil	Earth's Systems: Processes That Shape the Earth · Earth and Human Activity
Mid-April – June	*— gap —*	Reinforcement / reteaching / other instruction, not detailed in this map

Standards Key

Key	What It Means
NGSS / NJSLS-Science	2026 New Jersey Student Learning Standards for Science (readoption effective 2025–2026), aligned to the Next Generation Science Standards (NGSS). Grade 4 Performance Expectations span 4-PS3, 4-PS4 (Physical Science), 4-LS1 (Life Science), 4-ESS1, 4-ESS2, 4-ESS3 (Earth and Space Sciences), and the shared 3-5-ETS1 (Engineering Design).
FOSS Grade 4 Kits	FOSS Energy; FOSS Environments; and FOSS Rocks and Soil — the three FOSS Next Generation (2018) kits this map is built around, one per trimester.
IG / EA	IG = Investigations Guide page reference. EA = Embedded Assessment (FOSS's built-in Performance Assessment), cited from the FOSS Next Generation K–5 NGSS Correlation (May 2019).
FOSSweb	FOSS's official companion website (fossweb.com), source for this map's named digital resources (e.g., “All About Waves,” “Tutorial: Fossils”).

Grade 4 Science Curriculum Map

Month / FOSS Kit	Content Standards & Objectives	Instructional Concepts / Areas of Focus	Activities	Assessment	Resources
September – Mid-November (Weeks 1–9) **FOSS Energy** *Energy Transfer, Speed, and Collisions · Waves and Information Transfer · Engineering Design*	***NGSS Performance Expectations — 2026 NJSLS-Science*** • 4-PS3-1 — Use evidence to construct an explanation relating the speed of an object to the energy of that object. • 4-PS3-2 — Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. • 4-PS3-3 — Ask questions and predict outcomes about the changes in energy that occur when objects collide. • 4-PS3-4 — Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. • 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. • 4-PS4-2 — Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. • 4-PS4-3 — Generate and compare multiple solutions that use patterns to transfer information. • 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. • 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. • 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	***Areas of Focus*** • The faster an object moves, the more energy it has; when objects collide, energy transfers between them and changes their motion. • Energy can move from place to place by sound, light, heat, and electric currents, and can be converted from one form into another to do useful work. • Waves are regular patterns of motion that can differ in amplitude and wavelength, and can cause objects to move; light reflecting off an object and entering the eye is what allows that object to be seen. • Engineers define a design problem's criteria and constraints, generate and compare multiple possible solutions, and plan fair tests to identify what needs improvement. ***ESL Accommodations (WIDA ELD Standard 4 — Language for Science)*** • Pre-teach and post key vocabulary for this unit with visuals, realia, and student-friendly definitions before whole-group instruction (explaining how energy transfers between objects and comparing solutions to design problems). • Use the WIDA Key Language Use of Explain and Compare as the language focus: provide sentence frames (e.g., “I notice ___.” “This happens because ___.”) to scaffold explain and compare in both the interpretive (listening/viewing) and expressive (speaking/representing) modes. • Pair verbal explanations with visual models, real objects, and hands-on materials (photos, charts, FOSS kit materials) so multilingual learners can access content independent of English proficiency level.	***Investigation Set A — Energy Transfer, Speed, and Collisions*** • 4-PS3-1: Use evidence from collisions and impacts to construct an explanation relating an object's speed to its energy. • 4-PS3-2: Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents; explore the FOSSweb digital resources “Lighting a Bulb” and “Flow of Electric Current.” • 4-PS3-3: Ask questions and predict outcomes about the changes in energy that occur when objects collide; explore the FOSSweb digital resource “All About Transfer of Energy.” • 4-PS3-4: Apply scientific ideas to design, test, and refine a device that converts energy from one form to another; explore the FOSSweb digital resource “Conductor Detector.” ***Investigation Set B — Waves, Light, and Engineering Design*** • 4-PS4-1: Develop a model of waves to describe patterns in amplitude and wavelength and show that waves can cause objects to move; explore the FOSSweb digital resource “All About Waves.” • 4-PS4-2: Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen; explore the FOSSweb digital resource “All About Light.” • 4-PS4-3: Generate and compare multiple solutions (e.g., coded drumbeats, a black-and-white picture grid, Morse code) that use patterns to transfer information. • 3-5-ETS1-1 / 3-5-ETS1-2 / 3-5-ETS1-3: Define a simple	***Assessment Components (FOSS Next Generation embedded Performance Assessments)*** • 4-PS3-1: FOSS Energy: EA Notebook Entry, IG p. 304 (Step 15); EA Response Sheet, IG p. 315, SNM No. 25 • 4-PS3-2: FOSS Energy: EA Performance Assessment, IG p. 255 (Step 6), IG p. 293 (Step 10) • 4-PS3-3: FOSS Energy: EA Performance Assessment, IG p. 293 (Step 10); EA Response Sheet, IG p. 315, SNM No. 25 • 4-PS3-4: FOSS Energy: EA Notebook Entry, IG p. 126 (Step 17); EA Response Sheet, IG p. 156, SNM No. 7; EA Performance Assessment, IG p. 255 (Step 6), IG p. 293 (Step 10), IG p. 381 (Step 18); EA Review, IG p. 351 (Step 13) • 4-PS4-1: FOSS Energy: EA Notebook Entry, IG p. 352 (Step 18) • 4-PS4-2: FOSS Energy: EA Response Sheet, IG p. 367, SNM No. 28 • 4-PS4-3: FOSS Energy: EA Notebook Entry, IG p. 20, SNM No. 21 • 3-5-ETS1-1: FOSS Energy: EA Performance Assessment, IG p. 164 (Step 4), IG p. 381 (Step 18)	• FOSS Energy Investigations Guide • FOSSweb (fossweb.com) digital resources: “All About Waves,” “All About Light,” “All About Transfer of Energy,” “Conductor Detector” • Batteries, bulbs, wire, motors, and other electric-circuit and energy-transfer materials • Appropriate literature on energy, waves, light, and engineering design

Month / FOSS Kit	Content Standards & Objectives	Instructional Concepts / Areas of Focus	Activities	Assessment	Resources
	model or prototype that can be improved. ***Learning Objectives*** • 4-PS3-1: I can use evidence to explain how an object's speed relates to its energy. • 4-PS3-2: I can show evidence that energy moves from place to place through sound, light, heat, and electric currents. • 4-PS3-3: I can ask questions and predict what happens to energy when objects collide. • 4-PS3-4: I can design, test, and improve a device that changes energy from one form into another. • 4-PS4-1: I can build a model of a wave and describe its amplitude and wavelength. • 4-PS4-2: I can model how light reflecting off an object lets me see it. • 4-PS4-3: I can compare solutions that use patterns to send information. • 3-5-ETS1-1: I can define a design problem, including what it needs to do and what limits I have to work within. • 3-5-ETS1-2: I can generate and compare more than one possible solution to a problem. • 3-5-ETS1-3: I can plan and carry out a fair test to find what part of my design needs improvement.	***Enrichment*** • Have students design and build a simple device (e.g., a pinwheel generator or a periscope) that converts one form of energy into another, then explain the energy transformation to the class. • Challenge students to research a real-world technology that uses wave patterns to transmit information (e.g., fiber optics, radio), and compare it to the coded-message systems explored in class.	design problem with specified criteria and constraints; generate and compare multiple possible solutions; plan and carry out a fair test to identify what part of a model or prototype could be improved.	• 3-5-ETS1-2: FOSS Energy: EA Performance Assessment, IG p. 381 (Step 18) • 3-5-ETS1-3: FOSS Energy: EA Performance Assessment, IG p. 381 (Step 18)	
January – Mid-February (Weeks 1–5) **FOSS Environments** *Structure, Function, and Information Processing*	***NGSS Performance Expectations — 2026 NJSLS-Science*** • 4-LS1-1 — Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. • 4-LS1-2 — Use a model to describe that animals receive	***Areas of Focus*** • Plants and animals have internal and external structures — from thorns and roots to hearts and skin — that support survival, growth, behavior, and reproduction. • Animals' sense receptors detect different kinds of information,	***Investigations*** • 4-LS1-1: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction; explore the FOSSweb digital resource "Virtual Investigation: Trout Range of Tolerance."	***Assessment Components (FOSS Next Generation embedded Performance Assessments)*** • 4-LS1-1: FOSS Environments: EA Response Sheet, IG p. 211, SNM Nos. 12–13	• FOSS Environments Investigations Guide • FOSSweb (fossweb.com) digital resources: "Virtual Investigation:

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	different types of information through their senses, process the information in their brain, and respond to the information in different ways. ***Learning Objectives*** • 4-LS1-1: I can argue, using evidence, how a plant or animal's structures help it survive, grow, behave, and reproduce. • 4-LS1-2: I can use a model to show how animals sense information, process it, and respond.	which the brain processes to guide their behavior and memory. • A system, like an organism's body, can be described in terms of its parts and how those parts interact. ***ESL Accommodations (WIDA ELD Standard 4 — Language for Science)*** • Pre-teach and post key vocabulary for this unit with visuals, realia, and student-friendly definitions before whole-group instruction (describing plant and animal structures and explaining how animals sense and respond to information). • Use the WIDA Key Language Use of Describe and Explain as the language focus: provide sentence frames (e.g., "I notice ___." "This happens because ___.") to scaffold describe and explain in both the interpretive (listening/viewing) and expressive (speaking/representing) modes. • Pair verbal explanations with visual models, real objects, and hands-on materials (photos, charts, FOSS kit materials) so multilingual learners can access content independent of English proficiency level. ***Enrichment*** • Have students choose an animal not studied in class and research how its senses are specially adapted to its environment, then present their findings. • Challenge students to design a model organism with structures suited to a hypothetical environment, justifying each structure's function.	• 4-LS1-2: Use a model to describe that animals receive different types of information through their senses, process that information in their brain, and respond in different ways; explore the FOSSweb digital resources "Animal Language and Communication" and "Sense of Hearing."	• 4-LS1-2: FOSS Environments: EA, IG pp. 212–213 (Step 22)	Trout Range of Tolerance," "Animal Language and Communication," "Sense of Hearing" • Live-organism and habitat materials (e.g., aquatic environment tanks, terrarium supplies) for classroom observation • Appropriate literature on animal structures, senses, and behavior
March – Mid-April (Weeks 1–6) **FOSS Rocks and Soil**	***NGSS Performance Expectations — 2026 NJSLS-Science*** • 4-ESS1-1 — Identify evidence from patterns in rock formations and fossils in rock layers to support	***Areas of Focus*** • Patterns in rock layers and fossils reveal how a landscape has changed over long spans of time.	***Investigations*** • 4-ESS1-1: Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a	***Assessment Components (FOSS Next Generation embedded Performance Assessments)***	• FOSS Rocks and Soil Investigations Guide

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Earth's Systems: Processes That Shape the Earth · Earth and Human Activity	an explanation for changes in a landscape over time. • 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. • 4-ESS2-2 — Analyze and interpret data from maps to describe patterns of Earth's features. • 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. • 4-ESS3-2 — Generate and compare multiple solutions to reduce the impacts of natural Earth processes and climate change on humans. ***Learning Objectives*** • 4-ESS1-1: I can use evidence from rock layers and fossils to explain how a landscape changed over time. • 4-ESS2-1: I can collect evidence of how weathering or erosion changes the land. • 4-ESS2-2: I can use map data to describe patterns in Earth's features. • 4-ESS3-1: I can explain where energy and fuels come from and how using them affects the environment. • 4-ESS3-2: I can compare solutions that reduce the impact of natural hazards on people.	• Water, ice, wind, living things, and gravity break down rock and soil and move the pieces, shaping the land through weathering and erosion. • Mountains, earthquakes, volcanoes, and other Earth features occur in patterns that can be located and analyzed using maps. • People rely on natural resources for energy and fuel, and engineers can design solutions that reduce the impact of natural hazards like earthquakes, floods, and volcanic eruptions. ***ESL Accommodations (WIDA ELD Standard 4 — Language for Science)*** • Pre-teach and post key vocabulary for this unit with visuals, realia, and student-friendly definitions before whole-group instruction (describing patterns in Earth's features and arguing the merit of a solution to a natural hazard). • Use the WIDA Key Language Use of Describe and Argue as the language focus: provide sentence frames (e.g., "I notice ___." "This happens because ___.") to scaffold describe and argue in both the interpretive (listening/viewing) and expressive (speaking/representing) modes. • Pair verbal explanations with visual models, real objects, and hands-on materials (photos, charts, FOSS kit materials) so multilingual learners can access content independent of English proficiency level. ***Enrichment*** • Have students research a local landform or waterway and use evidence to explain how weathering and erosion shaped it over time.	landscape over time; explore the FOSSweb digital resources "Fossils" and "Tutorial: Fossils." • 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; explore the FOSSweb digital resources "Weathering and Erosion," "Tutorial: Weathering," and "Virtual Investigation: Stream Tables." • 4-ESS2-2: Analyze and interpret data from maps to describe patterns of Earth's features; explore the FOSSweb digital resources "Volcanoes" and "Topographer." • 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; explore the FOSSweb digital resources "Natural Resources," "Resource ID," and "Virtual Investigation: Natural Resources." • 4-ESS3-2: Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans; explore the FOSSweb digital resources "All About Earthquakes" and "Mt. St. Helens Impact."	• 4-ESS1-1: FOSS Rocks and Soil: EA Performance Assessment, IG p. 180 (Step 23); EA Notebook Entry, IG p. 197 (Step 15) • 4-ESS2-1: FOSS Rocks and Soil: EA Observation, IG p. 114 (Step 6); EA Response Sheet, IG p. 118, SNM No. 3; EA Performance Assessment, IG p. 124 (Step 7), IG p. 180 (Step 23) • 4-ESS2-2: FOSS Rocks and Soil: EA Performance Assessment, IG p. 180 (Step 23), IG p. 245 (Step 5) • 4-ESS3-1: FOSS Rocks and Soil: EA Response Sheet, IG p. 280, SNM No. 18; EA Notebook Entry, IG p. 291 (Step 15) • 4-ESS3-2: FOSS Rocks and Soil: EA Notebook Entry, IG p. 255 (Step 9)	• FOSSweb (fossweb.com) digital resources: "Tutorial: Fossils," "Tutorial: Weathering," "Topographer," "Virtual Investigation: Natural Resources" • Rock, mineral, and soil samples; stream-table materials; and topographic maps • Appropriate literature on landforms, weathering, natural resources, and natural hazards

Month / FOSS Kit	Content Standards & Objectives	Instructional Concepts / Areas of Focus	Activities	Assessment	Resources
		• Challenge students to research a real natural-hazard mitigation project (e.g., a seawall, an earthquake-resistant building) and present a claim, with evidence, about its merit.			