

Next Generation Science Standards Grade 4 Correlation

The Digital Resources listed in the correlation include Key Ideas Presentations, Key Ideas Videos, SEP and CCC Preview Presentation and Activities, Virtual Labs, and PhET Activities.

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 4-PS3-1 Use evidence to construct an explanation relating the speed of an object to the energy of that object. Assessment Boundary: Assessment does not include quantitative measures of changes in the speed of an object or on any precise or quantitative definition of energy.	Topic 1, Experience 2 Student Activity Companion Volume 1: 43, 45, 53, 55, 59, 61 Teacher Guide, 27–29, 30 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas PS3.A Definitions of Energy The faster a given object is moving, the more energy it possesses.	Topic 1, Experience 2 Student Activity Companion Volume 1: 43, 45, 49-52, 53, 55, 59, 61 Teacher Guide, 27–29, 30 Corresponding Digital Resources and Assessments
Science and Engineering Practices SEP-6 Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Use evidence (e.g., measurements, observations, patterns) to construct an explanation.	Topic 1, Experience 2 Student Activity Companion Volume 1: 43, 45, 53, 55, 59, 61, 63, 65 Teacher Guide, 27-29, 30 Corresponding Digital Resources and Assessments
Crosscutting Concepts CCC-5 Energy and Matter Energy can be transferred in various ways and between objects.	Topic 1, Experience 2 Student Activity Companion Volume 1: 43, 45, 49-52, 53, 55, 59, 61, 63, 65 Teacher Guide, 27–29, 30 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 4-PS3-2 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. Assessment Boundary: Assessment does not include quantitative measurements of energy.	Topic 1, Experience 1 Student Activity Companion Volume 1: 13, 15, 23, 25, 29, 31 Teacher Guide, 55-57, 58 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas	
PS3.A Definitions of Energy Energy can be moved from place to place by moving objects or through sound, light, or electric currents.	Topic 1, Experience 1 Student Activity Companion Volume 1: 13, 15, 19–22, 23, 25, 29, 31 Teacher Guide, 55–57, 58 Corresponding Digital Resources and Assessments
PS3.B Conservation of Energy and Energy Transfer - Energy is present whenever there are moving objects, sound, light, or heat. When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air; as a result, the air gets heated and sound is produced. - Light also transfers energy from place to place. - Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced to begin with by transforming the energy of motion into electrical energy.	Topic 1, Experience 1 Student Activity Companion Volume 1: 13, 15, 19–22, 23, 25, 29, 31, 33, 35 Teacher Guide, 55–57, 58 Corresponding Digital Resources and Assessments
Science and Engineering Practices	
SEP-3 Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. Make observations to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.	Topic 1, Experience 1 Student Activity Companion Volume 1: 13, 15, 33, 35 Teacher Guide, 55–57, 58 Corresponding Digital Resources and Assessments
Crosscutting Concepts	
CCC-5 Energy and Matter Energy can be transferred in various ways and between objects.	Topic 1, Experience 1 Student Activity Companion Volume 1: 13, 15, 19–22, 23, 25, 29, 31 Teacher Guide, 55–57, 58 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 4-PS3-3 Ask questions and predict outcomes about the changes in energy that occur when objects collide. Clarification Statement: Emphasis is on the change in the energy due to the change in speed, not on the forces, as objects interact. Assessment Boundary: Assessment does not include quantitative measurements of energy.	Topic 1, Experience 2 Student Activity Companion Volume 1: 43, 45, 53, 55, 59, 61, 63, 65 Teacher Guide, 27–29, 30 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas	
PS3.A Definitions of Energy Energy can be moved from place to place by moving objects or through sound, light, or electric currents.	Topic 1, Experience 2 Student Activity Companion Volume 1: 43, 45, 49–52, 53, 55, 59, 61, 63, 65 Teacher Guide, 27–29, 30 Corresponding Digital Resources and Assessments
PS3.B Conservation of Energy and Energy Transfer Energy is present whenever there are moving objects, sound, light, or heat. When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air; as a result, the air gets heated and sound is produced.	Topic 1, Experience 2 Student Activity Companion Volume 1: 43, 45, 49–52, 53, 55, 59, 61, 63, 65 Teacher Guide, 27–29, 30 Corresponding Digital Resources and Assessments
PS3.C Relationship Between Energy and Forces When objects collide, the contact forces transfer energy so as to change the objects’ motions.	Topic 1, Experience 2 Student Activity Companion Volume 1: 43, 45, 49–52, 53, 55, 59, 61, 63, 65 Teacher Guide, 27–29, 30 Corresponding Digital Resources and Assessments
Science and Engineering Practices	
SEP-1 Asking Questions and Defining Problems Asking questions and defining problems in grades 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.	Topic 1, Experience 2 Student Activity Companion Volume 1: 43, 45, 53, 55, 59, 61 Teacher Guide, 27–29, 30 Corresponding Digital Resources and Assessments
Crosscutting Concepts	
CCC-5 Energy and Matter Energy can be transferred in various ways and between objects.	Topic 1, Experience 2 Student Activity Companion Volume 1: 43, 45, 49–52, 53, 55 Teacher Guide, 27–29, 30 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 4-PS3-4 Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. Clarification Statement: Examples of devices could include electric circuits that convert electrical energy into motion energy of a vehicle, light, or sound; and, a passive solar heater that converts light into heat. Examples of constraints could include the materials, cost, or time to design the device. Assessment Boundary: Devices should be limited to those that convert motion energy to electric energy or use stored energy to cause motion or produce light or sound.	Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75, 83, 85, 91, 93, 95, 97 Teacher Guide, 35–37, 38 Topic 3, Experience 1 Student Activity Companion Volume 1: 185, 187, 207, 209 Teacher Guide, 83–85, 86 Topic 3, Experience 3 Student Activity Companion Volume 1: 247, 249, 269, 271, 273 Teacher Guide, 99–101, 102 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas	
PS3.B Conservation of Energy and Energy Transfer Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced to begin with by transforming the energy of motion into electrical energy.	Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75, 79–82, 83, 85, 91, 93, 95, 97 Teacher Guide, 35–37, 38 Topic 3, Experience 1 Student Activity Companion Volume 1: 185, 187, 195, 197, 203, 205 Teacher Guide, 83–85, 86 Topic 3, Experience 3 Student Activity Companion Volume 1: 269, 271, 273 Teacher Guide, 102 Corresponding Digital Resources and Assessments
PS3.D Energy in Chemical Processes and Everyday Life The expression “produce energy” typically refers to the conversion of stored energy into a desired form for practical use.	Topic 3, Experience 1 Student Activity Companion Volume 1: 192, 195 Teacher Guide, 83–85 Corresponding Digital Resources and Assessments
ETS1.A Defining Engineering Problems Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.	Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75, 79–82, 91, 93, 95, 97 Teacher Guide, 35–37, 38 Topic 3, Experience 3 Student Activity Companion Volume 1: 269, 271, 273 Teacher Guide, 102 Corresponding Digital Resources and Assessments
Science and Engineering Practices	
SEP-6 Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Apply scientific ideas to solve design problems.	Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75, 79–82, 83, 85, 91, 93, 95, 97 Teacher Guide, 35–37, 38 Topic 3, Experience 1 Student Activity Companion Volume 1: 195, 197, 207, 209 Teacher Guide, 83–85, 86 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Crosscutting Concepts CCC-5 Energy and Matter Energy can be transferred in various ways and between objects.	Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75, 79–82, 83, 85, 91, 93, 95, 97 Teacher Guide, 35–37, 38 Topic 3, Experience 1 Student Activity Companion Volume 1: 185, 187, 203, 205, 207, 209 Teacher Guide, 83–85, 86 Topic 3, Experience 2 Student Activity Companion Volume 1: 223–226 Teacher Guide, 91–93 Topic 3, Experience 3 Student Activity Companion Volume 1: 247, 249, 269, 271, 273 Teacher Guide, 99–101, 102 Corresponding Digital Resources and Assessments
STSE-1 Influence of Engineering, Technology, and Science on Society and the Natural World Engineers improve existing technologies or develop new ones.	Topic 1, Experience 3 Student Activity Companion Volume 1: 79–82, 83, 85, 91, 93 Teacher Guide, 35–37, 38 Topic 3, Experience 1 Student Activity Companion Volume 1: 195, 197, 205 Teacher Guide, 83–85 Corresponding Digital Resources and Assessments
NOS-7 Science is a Human Endeavor - Most scientists and engineers work in teams. - Science affects everyday life.	Topic 1, Experience 3 Student Activity Companion Volume 1: 79–82 Teacher Guide, 35–37 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 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. Clarification Statement: Examples of models could include diagrams, analogies, and physical models using wire to illustrate wavelength and amplitude of waves. Assessment Boundary: Assessment does not include interference effects, electromagnetic waves, non-periodic waves, or quantitative models of amplitude and wavelength.	Topic 2, Experience 1 Student Activity Companion Volume 1: 113, 115, 117, 125, 127, 131, 133, 135, 137 Teacher Guide, 55–57, 58 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas PS4.A Wave Properties - Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; there is no net motion in the direction of the wave except when the water meets a beach. - Waves of the same type can differ in amplitude (height of the wave) and wavelength (spacing between wave peaks).	Topic 2, Experience 1 Student Activity Companion Volume 1: 113, 115, 117, 121–124, 125, 127, 131, 133 Teacher Guide, 55–57, 58 Corresponding Digital Resources and Assessments
Science and Engineering Practices SEP-2 Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. Develop a model using an analogy, example, or abstract representation to describe a scientific principle.	Topic 2, Experience 1 Student Activity Companion Volume 1: 113, 115, 117, 125, 127, 131, 133, 135, 137 Teacher Guide, 55–57, 58 Topic 2, Experience 2 Student Activity Companion Volume 1: 163, 165 Teacher Guide, 66 Corresponding Digital Resources and Assessments
NOS-2 Scientific Knowledge is Based on Empirical Evidence Science findings are based on recognizing patterns.	Topic 2, Experience 1 Student Activity Companion Volume 1: 113, 115, 117, 131, 133 Teacher Guide, 55–57, 58 Corresponding Digital Resources and Assessments
Crosscutting Concepts CCC-1 Patterns Similarities and differences in patterns can be used to sort, classify, and analyze simple rates of change for natural phenomena.	Topic 2, Experience 1 Student Activity Companion Volume 1: 113, 115, 117, 121–124, 125, 127, 131, 133 Teacher Guide, 55–57, 58 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 4-PS4-2 Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. Assessment Boundary: Assessment does not include knowledge of specific colors reflected and seen, the cellular mechanisms of vision, or how the retina works.	Topic 5, Experience 3 Student Activity Companion Volume 2: 209, 211, 219, 221, 225, 227, 229, 231 Teacher Guide, 179-181, 182 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas PS4.B Electromagnetic Radiation • An object can be seen when light reflected from its surface enters the eyes.	Topic 5, Experience 3 Student Activity Companion Volume 2: 209, 211, 215–218, 219, 221, 225, 227, 229, 231 Teacher Guide, 179–181, 182 Corresponding Digital Resources and Assessments
Science and Engineering Practices SEP-2 Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. • Develop a model to describe phenomena.	Topic 5, Experience 3 Student Activity Companion Volume 2: 209, 211, 219, 221, 225, 227, 229, 231 Teacher Guide, 179–181, 182 Corresponding Digital Resources and Assessments
Crosscutting Concepts CCC-2 Cause and Effect • Cause and effect relationships are routinely identified.	Topic 5, Experience 3 Student Activity Companion Volume 2: 209, 211, 219, 221, 225, 227, 229, 231 Teacher Guide, 179–181, 182 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 4-PS4-3 Generate and compare multiple solutions that use patterns to transfer information. Clarification Statement: Examples of solutions could include drums sending coded information through sound waves, using a grid of 1's and 0's representing black and white to send information about a picture, and using Morse code to send text.	Topic 2, Experience 2 Student Activity Companion Volume 1: 145, 147, 151-154, 163, 165, 167, 169 Teacher Guide, 63–65, 66 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas	
PS4.C Information Technologies and Instrumentation Digitized information can be transmitted over long distances without significant degradation. High-tech devices, such as computers or cell phones, can receive and decode information—convert it from digitized form to voice—and vice versa.	Topic 2, Experience 2 Student Activity Companion Volume 1: 151–154, 155, 157, 163, 165, 167, 169 Teacher Guide, 63–65, 66 Corresponding Digital Resources and Assessments
ETS1.C Optimizing the Design Solution Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.	Topic 2, Experience 2 Student Activity Companion Volume 1: 145, 147, 163, 165, 167, 169 Teacher Guide, 63–65, 66 Corresponding Digital Resources and Assessments
Science and Engineering Practices	
SEP-6 Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.	Topic 2, Experience 1 Student Activity Companion Volume 1: 135, 137 Teacher Guide, 58 Topic 2, Experience 2 Student Activity Companion Volume 1: 145, 147, 163, 165, 167, 169 Teacher Guide, 63–65, 66 Corresponding Digital Resources and Assessments
Crosscutting Concepts	
CCC-1 Patterns Similarities and differences in patterns can be used to sort and classify designed products.	Topic 2, Experience 2 Student Activity Companion Volume 1: 151–154, 155, 157 Teacher Guide, 63–65, 66 Corresponding Digital Resources and Assessments
STSE-2 Interdependence of Science, Engineering, and Technology Knowledge of relevant scientific concepts and research findings is important in engineering.	Topic 2, Experience 2 Student Activity Companion Volume 1: 145, 147, 167, 169 Teacher Guide, 63–65, 66 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. Clarification Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin. Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems.	Topic 5, Experience 1 Student Activity Companion Volume 2: 145, 147, 149, 157, 159, 163, 165, 167, 169 Teacher Guide, 163–165, 166 Topic 5, Experience 2 Student Activity Companion Volume 2: 177, 179, 181, 189, 191, 195, 197, 199, 201 Teacher Guide, 171–173, 174 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas LS1.A Structure and Function Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.	Topic 5, Experience 1 Student Activity Companion Volume 2: 145, 147, 149, 153–156, 157, 159, 163, 165, 167, 169 Teacher Guide, 163–165, 166 Topic 5, Experience 2 Student Activity Companion Volume 2: 177, 179, 181, 185–188, 189, 191, 195, 197, 199, 201 Teacher Guide, 171–173, 174 Corresponding Digital Resources and Assessments
Science and Engineering Practices SEP-7 Engaging in Argument from Evidence Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s). Construct an argument with evidence, data, and/or a model.	Topic 4, Experience 2 Student Activity Companion Volume 2: 45, 47 Teacher Guide, 127–129 Topic 5, Experience 1 Student Activity Companion Volume 2: 145, 147, 149, 157, 159, 163, 165, 167, 169 Teacher Guide, 163–165, 166 Topic 5, Experience 2 Student Activity Companion Volume 2: 189, 191, 195, 197 Teacher Guide, 171–173, 174 Corresponding Digital Resources and Assessments
Crosscutting Concepts CCC-4 Systems and System Models A system can be described in terms of its components and their interactions.	Topic 4, Experience 2 Student Activity Companion Volume 2: 45, 47 Teacher Guide, 127–129 Topic 5, Experience 1 Student Activity Companion Volume 2: 145, 147, 149, 153–156, 163, 165, 167, 169 Teacher Guide, 163–165, 166 Topic 5, Experience 2 Student Activity Companion Volume 2: 185–188, 189, 191 Teacher Guide, 171–173 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 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. Clarification Statement: Emphasis is on systems of information transfer. Assessment Boundary: Assessment does not include the mechanisms by which the brain stores and recalls information or the mechanisms of how sensory receptors function.	Topic 5, Experience 4 Student Activity Companion Volume 2: 239, 241, 243, 251, 253, 257, 259, 261, 263 Teacher Guide, 187–189, 190 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas LS1.D Information Processing • Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal’s brain. Animals are able to use their perceptions and memories to guide their actions.	Topic 5, Experience 4 Student Activity Companion Volume 2: 239, 241, 243, 247–250, 251, 253, 257, 259, 261, 263 Teacher Guide, 187–189, 190 Corresponding Digital Resources and Assessments
Science and Engineering Practices SEP-2 Developing and Using Models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. • Use a model to test interactions concerning the functioning of a natural system.	Topic 5, Experience 4 Student Activity Companion Volume 2: 239, 241, 243, 251, 253, 257, 259, 261, 263 Teacher Guide, 187–189, 190 Corresponding Digital Resources and Assessments
Crosscutting Concepts CCC-4 Systems and System Models • A system can be described in terms of its components and their interactions.	Topic 5, Experience 4 Student Activity Companion Volume 2: 239, 241, 243, 247–250, 251, 253, 257, 259, 261, 263 Teacher Guide, 187–189, 190 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 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. Clarification Statement: Examples of evidence from patterns could include rock layers with marine shell fossils above rock layers with plant fossils and no shells, indicating a change from land to water over time; and, a canyon with different rock layers in the walls and a river in the bottom, indicating that over time a river cut through the rock. Assessment Boundary: Assessment does not include specific knowledge of the mechanism of rock formation or memorization of specific rock formations and layers. Assessment is limited to relative time.	Topic 4, Experience 1 Student Activity Companion Volume 2: 13, 15, 19–22, 29, 31, 33, 35, 37 Teacher Guide, 119–121, 122 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas ESS1.C The History of Planet Earth Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed.	Topic 4, Experience 1 Student Activity Companion Volume 2: 13, 15, 19–22, 29, 31 Teacher Guide, 119–121, 122 Corresponding Digital Resources and Assessments
Science and Engineering Practices SEP-6 Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Identify the evidence that supports particular points in an explanation.	Topic 4, Experience 1 Student Activity Companion Volume 2: 13, 15, 23, 25, 29, 31, 33, 35, 37 Teacher Guide, 119–121, 122 Topic 4, Experience 2 Student Activity Companion Volume 2: 45, 47 Teacher Guide, 127–129 Corresponding Digital Resources and Assessments
Crosscutting Concepts CCC-1 Patterns Patterns can be used as evidence to support an explanation.	Topic 4, Experience 1 Student Activity Companion Volume 2: 13, 15, 19–22, 23, 25, 29, 31 Teacher Guide, 119–121, 122 Corresponding Digital Resources and Assessments
NOS-6 Scientific Knowledge Assumes an Order and Consistency in Natural Systems Science assumes consistent patterns in natural systems.	Topic 4, Experience 1 Student Activity Companion Volume 2: 19–22 Teacher Guide, 119–121 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 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. Clarification Statement: Examples of variables to test could include angle of slope in the downhill movement of water, amount of vegetation, speed of wind, relative rate of deposition, cycles of freezing and thawing of water, cycles of heating and cooling, and volume of water flow. Assessment Boundary: Assessment is limited to a single form of weathering or erosion.	Topic 4, Experience 2 Student Activity Companion Volume 2: 45, 47, 61, 63, 65, 67 Teacher Guide, 127–129, 130 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas	
ESS2.A Earth Materials and Systems Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around.	Topic 4, Experience 2 Student Activity Companion Volume 2: 45, 47, 51–54, 55, 57, 61, 63 Teacher Guide, 127–129, 130 Corresponding Digital Resources and Assessments
ESS2.E Biogeology Living things affect the physical characteristics of their regions.	Topic 4, Experience 2 Student Activity Companion Volume 2: 51–54 Teacher Guide, 127–129 Corresponding Digital Resources and Assessments
Science and Engineering Practices	
SEP-3 Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon.	Topic 4, Experience 2 Student Activity Companion Volume 2: 45, 47, 61, 63, 65, 67 Teacher Guide, 127–129, 130 Corresponding Digital Resources and Assessments
Crosscutting Concepts	
CCC-2 Cause and Effect Cause and effect relationships are routinely identified, tested, and used to explain change.	Topic 4, Experience 2 Student Activity Companion Volume 2: 41, 43, 51, 53 Teacher Guide, 119–121 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 4-ESS2-2 Analyze and interpret data from maps to describe patterns of Earth’s features. Clarification Statement: Maps can include topographic maps of Earth’s land and ocean floor, as well as maps of the locations of mountains, continental boundaries, volcanoes, and earthquakes.	Topic 4, Experience 3 Student Activity Companion Volume 2: 75, 77, 79, 83–86, 87, 89, 93, 95, 97, 99 Teacher Guide, 135–137, 138 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas ESS2.B Plate Tectonics and Large-Scale System Interactions • The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features areas of Earth.	Topic 4, Experience 3 Student Activity Companion Volume 2: 75, 77, 79, 83–86, 87, 89, 93, 95, 97, 99 Teacher Guide, 135–137, 138 Corresponding Digital Resources and Assessments
Science and Engineering Practices SEP-4 Analyzing and Interpreting Data Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used. • Analyze and interpret data to make sense of phenomena using logical reasoning.	Topic 4, Experience 3 Student Activity Companion Volume 2: 75, 77, 79, 87, 89, 93, 95, 97, 99 Teacher Guide, 135–137, 138 Corresponding Digital Resources and Assessments
Crosscutting Concepts CCC-1 Patterns • Patterns can be used as evidence to support an explanation.	Topic 4, Experience 3 Student Activity Companion Volume 2: 75, 77, 79, 83–86, 87, 89, 93, 95, 97, 99 Teacher Guide, 135–137, 138 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 4-ESS3-1 Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. Clarification Statement: Examples of renewable energy resources could include wind energy, water behind dams, and sunlight; non-renewable energy resources are fossil fuels and fissile materials. Examples of environmental effects could include loss of habitat due to dams, loss of habitat due to surface mining, and air pollution from burning of fossil fuels.	Topic 3, Experience 2 Student Activity Companion Volume 1: 227, 229, 233, 235, 237, 239 Teacher Guide, 91–93, 94 Topic 3, Experience 3 Student Activity Companion Volume 1: 247, 249, 257, 259, 265, 267, 269, 271, 273 Teacher Guide, 99–101, 102 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas ESS3.A Natural Resources Energy and fuels that humans use are derived from natural sources, and their use affects the environment in multiple ways. Some resources are renewable over time, and others are not.	Topic 3, Experience 1 Student Activity Companion Volume 1: 191–194, 203, 205 Teacher Guide, 83–85, 86 Topic 3, Experience 2 Student Activity Companion Volume 1: 217, 219, 223–226, 227, 229, 233, 235, 237, 239 Teacher Guide, 91–93, 94 Topic 3, Experience 3 Student Activity Companion Volume 1: 253–256, 257, 259, 265, 267 Teacher Guide, 99–101, 102 Corresponding Digital Resources and Assessments
Science and Engineering Practices SEP-8 Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluate the merit and accuracy of ideas and methods. Obtain and combine information from books and other reliable media to explain phenomena.	Topic 3, Experience 1 Student Activity Companion Volume 1: 203, 205 Teacher Guide, 86 Topic 3, Experience 2 Student Activity Companion Volume 1: 217, 219, 237, 239 Teacher Guide, 91–93, 94 Topic 3, Experience 3 Student Activity Companion Volume 1: 265, 267 Teacher Guide, 102 Corresponding Digital Resources and Assessments
Crosscutting Concepts CCC-2 Cause and Effect Cause and effect relationships are routinely identified and used to explain change.	Topic 3, Experience 1 Student Activity Companion Volume 1: 185, 187, 195, 197, 203, 205 Teacher Guide, 83–85, 86 Topic 3, Experience 2 Student Activity Companion Volume 1: 217, 219, 233, 235 Teacher Guide, 91–93, 94 Topic 3, Experience 3 Student Activity Companion Volume 1: 247, 249, 253–256, 257, 259, 265, 267, 269, 271, 273 Teacher Guide, 99–101, 102 Corresponding Digital Resources and Assessments
STSE-1 Influence of Engineering, Technology, and Science on Society and the Natural World Over time, people’s needs and wants change, as do their demands for new and improved technologies.	Topic 3, Experience 1 Student Activity Companion Volume 1: 205 Teacher Guide, 86 Corresponding Digital Resources and Assessments
STSE-2 Interdependence of Science, Engineering, and Technology Knowledge of relevant scientific concepts and research findings is important in engineering.	Topic 3, Experience 1 Student Activity Companion Volume 1: 191–194, 195, 197, 203, 205, 207, 209 Teacher Guide, 83–85, 86 Topic 3, Experience 3 Student Activity Companion Volume 1: 247, 249, 265, 267, 269, 271, 273 Teacher Guide, 99–101, 102 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 4-ESS3-2 Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. Clarification Statement: Examples of solutions could include designing an earthquake resistant building and improving monitoring of volcanic activity. Assessment Boundary: Assessment is limited to earthquakes, floods, tsunamis, and volcanic eruptions.	Topic 4, Experience 4 Student Activity Companion Volume 2: 107, 109, 117, 119, 127, 129 Teacher Guide, 143–145, 146 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas	
ESS3.B Natural Hazards A variety of hazards result from natural processes (e.g., earthquakes, tsunamis, volcanic eruptions). Humans cannot eliminate the hazards but can take steps to reduce their impacts.	Topic 4, Experience 4 Student Activity Companion Volume 2: 107, 109, 113–116, 117, 119, 123, 125, 127, 129 Teacher Guide, 143–145, 146 Corresponding Digital Resources and Assessments
ETS1.B Designing Solutions to Engineering Problems Testing a solution involves investigating how well it performs under a range of likely conditions.	Topic 4, Experience 4 Student Activity Companion Volume 2: 107, 109, 117, 119 Teacher Guide, 143–145 Corresponding Digital Resources and Assessments
Science and Engineering Practices	
SEP-6 Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.	Topic 4, Experience 4 Student Activity Companion Volume 2: 107, 109, 117, 119, 123, 125 Teacher Guide, 143–145, 146 Corresponding Digital Resources and Assessments
Crosscutting Concepts	
CCC-2 Cause and Effect Cause and effect relationships are routinely identified, tested, and used to explain change.	Topic 4, Experience 4 Student Activity Companion Volume 2: 117, 119, 123, 125 Teacher Guide, 143–145, 146 Corresponding Digital Resources and Assessments
STSE-1 Influence of Engineering, Technology, and Science on Society and the Natural World Engineers improve existing technologies or develop new ones to increase their benefits, to decrease known risks, and to meet societal demands.	Topic 4, Experience 4 Student Activity Companion Volume 2: 113–116, 123, 125, 127, 129 Teacher Guide, 143–145, 146 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 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.	Topic 1, Experience 1 Student Activity Companion Volume 1: 33, 35 Teacher Guide, 22 Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75, 95, 97 Teacher Guide, 35–37, 38 Topic 3, Experience 1 Student Activity Companion Volume 1: 207, 209 Teacher Guide, 86 Topic 3, Experience 2 Student Activity Companion Volume 1: 237, 239 Teacher Guide, 94 Topic 3, Experience 3 Student Activity Companion Volume 1: 269, 271, 273 Teacher Guide, 102 Topic 4, Experience 4 Student Activity Companion Volume 2: 107, 109 Teacher Guide, 143–145 Topic 5, Experience 2 Student Activity Companion Volume 2: 199, 201 Teacher Guide, 174 Topic 5, Experience 3 Student Activity Companion Volume 2: 213, 215 Teacher Guide, 190 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas	
ETS1.A Defining and Delimiting Engineering Problems Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.	Topic 1, Experience 1 Student Activity Companion Volume 1: 33, 35 Teacher Guide, 22 Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75, 95, 97 Teacher Guide, 35–37, 38 Topic 3, Experience 1 Student Activity Companion Volume 1: 207, 209 Teacher Guide, 86 Topic 3, Experience 2 Student Activity Companion Volume 1: 237, 239 Teacher Guide, 94 Topic 3, Experience 3 Student Activity Companion Volume 1: 269, 271, 273 Teacher Guide, 102 Topic 4, Experience 4 Student Activity Companion Volume 2: 107, 109 Teacher Guide, 143–145 Topic 5, Experience 2 Student Activity Companion Volume 2: 199, 201 Teacher Guide, 174 Topic 5, Experience 3 Student Activity Companion Volume 2: 229, 231 Teacher Guide, 190 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Science and Engineering Practices SEP-1 Asking Questions and Defining Problems Asking questions and defining problems in 3–5 builds on grades K–2 experiences and progresses to specifying qualitative relationships. • Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost.	Topic 1, Experience 1 Student Activity Companion Volume 1: 33, 35 Teacher Guide, 22 Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75, 95, 97 Teacher Guide, 35–37, 38 Topic 3, Experience 1 Student Activity Companion Volume 1: 195, 197, 207, 209 Teacher Guide, 83–85, 86 Topic 3, Experience 3 Student Activity Companion Volume 1: 249, 251, 253 Teacher Guide, 102 Topic 5, Experience 2 Student Activity Companion Volume 2: 199, 201 Teacher Guide, 174 Topic 5, Experience 3 Student Activity Companion Volume 2: 229, 231 Teacher Guide, 190 Corresponding Digital Resources and Assessments
Crosscutting Concepts STSE-1 Influence of Science, Engineering, and Technology on Society and the Natural World • People’s needs and wants change over time, as do their demands for new and improved technologies.	Topic 4, Experience 4 Student Activity Companion Volume 2: 123, 125 Teacher Guide, 146 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 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.	Topic 1, Experience 1 Student Activity Companion Volume 1: 33, 35 Teacher Guide, 22 Topic 1, Experience 2 Student Activity Companion Volume 1: 63, 65 Teacher Guide, 30 Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75, 95, 97 Teacher Guide, 35–37, 38 Topic 3, Experience 3 Student Activity Companion Volume 1: 269, 271, 273 Teacher Guide, 102 Topic 4, Experience 4 Student Activity Companion Volume 2: 107, 109 Teacher Guide, 143–145 Topic 5, Experience 2 Student Activity Companion Volume 2: 199, 201 Teacher Guide, 164 Topic 5, Experience 3 Student Activity Companion Volume 2: 229, 231 Teacher Guide, 182 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas	
ETS1.B Developing Possible Solutions • Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. • At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs.	Topic 1, Experience 1 Student Activity Companion Volume 1: 33, 35 Teacher Guide, 22 Topic 1, Experience 2 Student Activity Companion Volume 1: 63, 65 Teacher Guide, 30 Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75, 95, 97 Teacher Guide, 35–37, 38 Topic 3, Experience 3 Student Activity Companion Volume 1: 269, 271, 273 Teacher Guide, 102 Topic 4, Experience 4 Student Activity Companion Volume 2: 107, 109 Teacher Guide, 143–145 Topic 5, Experience 2 Student Activity Companion Volume 2: 199, 201 Teacher Guide, 174 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Science and Engineering Practices SEP-6 Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems. • Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem.	Topic 1, Experience 1 Student Activity Companion Volume 1: 33, 35 Teacher Guide, 22 Topic 1, Experience 2 Student Activity Companion Volume 1: 63, 65 Teacher Guide, 30 Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75, 95, 97 Teacher Guide, 35–37, 38 Topic 3, Experience 3 Student Activity Companion Volume 1: 269, 271, 273 Teacher Guide, 102 Topic 4, Experience 4 Student Activity Companion Volume 2: 107, 109 Teacher Guide, 143–145 Topic 5, Experience 2 Student Activity Companion Volume 2: 199, 201 Teacher Guide, 174 Topic 5, Experience 3 Student Activity Companion Volume 2: 229, 231 Teacher Guide, 182 Corresponding Digital Resources and Assessments
Crosscutting Concepts STSE-1 Influence of Science, Engineering, and Technology on Society and the Natural World • Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands.	Topic 1, Experience 3 Student Activity Companion Volume 1: 95, 97 Teacher Guide, 38 Topic 4, Experience 4 Student Activity Companion Volume 2: 123, 125, 127, 129 Teacher Guide, 146 Corresponding Digital Resources and Assessments

Next Generation Science Standards	WHERE YOU WILL FIND IT
Performance Expectation 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.	Topic 1, Experience 1 Student Activity Companion Volume 1: 33, 35 Teacher Guide, 20 Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75 Teacher Guide, 35–37 Topic 2, Experience 2 Student Activity Companion Volume 1: 145, 147 Teacher Guide, 63–65 Topic 3, Experience 3 Student Activity Companion Volume 1: 269, 271 Teacher Guide, 102 Topic 4, Experience 4 Student Activity Companion Volume 2: 107, 109 Teacher Guide, 135–137 Topic 5, Experience 3 Student Activity Companion Volume 2: 229, 231 Teacher Guide, 172 Corresponding Digital Resources and Assessments
Disciplinary Core Ideas	
ETS1.B Developing Possible Solutions Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved.	Topic 1, Experience 1 Student Activity Companion Volume 1: 33, 35 Teacher Guide, 22 Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75 Teacher Guide, 35–37 Topic 4, Experience 4 Student Activity Companion Volume 2: 107, 109 Teacher Guide, 143–145 Topic 5, Experience 3 Student Activity Companion Volume 2: 229, 231 Teacher Guide, 182 Corresponding Digital Resources and Assessments
ETS1.C Optimizing the Design Solution Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints.	Topic 1, Experience 1 Student Activity Companion Volume 1: 33, 35 Teacher Guide, 22 Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75 Teacher Guide, 35–37 Topic 2, Experience 2 Student Activity Companion Volume 1: 145, 147 Teacher Guide, 63–65 Topic 5, Experience 3 Student Activity Companion Volume 2: 229, 231 Teacher Guide, 182 Corresponding Digital Resources and Assessments
Science and Engineering Practices	
SEP-3 Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions. Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.	Topic 1, Experience 1 Student Activity Companion Volume 1: 33, 35 Teacher Guide, 22 Topic 1, Experience 3 Student Activity Companion Volume 1: 73, 75 Teacher Guide, 35–37 Corresponding Digital Resources and Assessments

ELA/Literacy Standards Grade 4

Correlation

The Digital Resources listed in the correlation include Key Ideas Presentations, Key Ideas Videos, SEP and CCC Preview Presentation and Activities, Virtual Labs, and PhET Activities.

ELA/Literacy: Reading	WHERE YOU WILL FIND IT
Key Ideas and Details Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.	
RI.4.1 Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text. (4-PS3-1) (4-PS4-3) (4-ESS3-2) (3-5-ETS1-2)	Student Activity Companion, Volume 1: 23, 25, 53, 55, 83, 85, 121–124, 125, 127, 151–154, 155, 157 Teacher Guide, 21, 29, 37, 55–57, 65 Corresponding Digital Resources and Assessment
Key Ideas and Details Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.	
RI.4.3 Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text. (4-PS3-1)	Student Activity Companion, Volume 1: 63, 55, 59, 61 Teacher Guide, 29, 30 Corresponding Digital Resources and Assessment
Craft and Structure Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.	
RI.4.4 Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.	Student Activity Companion, Volume 1: 7, 37, 67, 107, 139, 179, 211, 241 Volume 2: 7, 39, 69, 101, 139, 171, 203, 233 Teacher Guide, 14, 21, 29, 37, 57, 65, 85, 93, 101, 121, 129, 137, 145, 165, 173, 181, 189 Corresponding Digital Resources and Assessment
Integration of Knowledge and Ideas Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.	
RI.4.7 Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears. (4-ESS2-2) (3-5-ETS1-2)	Student Activity Companion, Volume 1: 95, 97; Volume 2: 83–86, 87, 89, 97, 99 Teacher Guide, 30, 135–138 Corresponding Digital Resources and Assessment
Integration of Knowledge and Ideas Analyze how two or more texts address similar themes or topics in order to build knowledge or to compare the approaches the authors take.	
RI.4.9 Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably. (4-PS3-1) (4-PS4-3) (4-ESS3-2) (3-5-ETS1-2)	Student Activity Companion, Volume 1: 95, 97, 121–124, 125, 127, 155, 157; Volume 2: 117, 119 Teacher Guide, 30, 55–57, 65, 143–145 Corresponding Digital Resources and Assessment
ELA/Literacy: Writing	WHERE YOU WILL FIND IT
Text Types and Purposes Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.	
W.4.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. (4-LS1-1)	Student Activity Companion, Volume 2: 157, 159, 189, 191 Teacher Guide, 165, 173 Corresponding Digital Resources and Assessment

Text Types and Purposes Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.	
W.4.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. (4-PS3-1)	Student Activity Companion, Volume 1: 53, 55, 59, 61 Teacher Guide, 29, 30 Corresponding Digital Resources and Assessment
Research to Build and Present Knowledge Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.	
W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic. (4-PS3-2) (4-PS3-3) (4-PS3-4) (4-ESS1-1) (4-ESS2-2) (4-ESS3-1) (3-5-ETS1-1) (3-5-ETS1-3)	Student Activity Companion, Volume 1: 23, 25, 83, 85, 95, 97, 227, 229, 237, 239, 257, 259, 271, 273; Volume 2: 23, 25, 33, 35, 37, 55, 57, 65, 67, 83–86, 87, 89, 97, 99, 107, 109, 117, 119, 215, 217, 225, 227, 237, 239 Teacher Guide, 21, 29, 30, 91–94, 99–102, 121, 122, 129, 135–138, 143–146 Corresponding Digital Resources and Assessment
Research to Build and Present Knowledge Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.	
W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources. (4-PS3-1) (4-PS3-2) (4-PS3-3) (4-PS3-4) (4-ESS1-1) (4-ESS2-1) (4-ESS3-1) (3-5-ETS1-1) (3-5-ETS1-3)	Student Activity Companion, Volume 1: 23, 25, 53, 55, 59, 61, 83, 85, 95, 97; Volume 2: 51–54, 55, 57, 97, 99 Teacher Guide, 21, 29, 30, 135, 137 Corresponding Digital Resources and Assessment
Research to Build and Present Knowledge Draw evidence from literary or informational texts to support analysis, reflection, and research.	
W.4.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (4-PS3-1) (4-ESS1-1) (4-ESS3-1) (3-5-ETS1-1) (3-5-ETS1-3)	Student Activity Companion, Volume 1: 53, 55, 59, 61, 83, 85, 95, 97; Volume 2: 23, 25, 51–54, 55, 57 Teacher Guide, 29, 30, 121, 135, 136, 137, 138 Corresponding Digital Resources and Assessment
ELA/Literacy: Speaking and Listening	WHERE YOU WILL FIND IT
Comprehension and Collaboration Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.	
SL.4.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.	Student Activity Companion, Volume 1: 53, 55, 125, 127, 155, 157, 167, 169, 185, 187, 195, 197, 217, 219, 227, 229 Teacher Guide, 29, 57, 65, 66, 83–85, 91–93, 101 Corresponding Digital Resources and Assessment
Presentation of Knowledge and Ideas Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.	
SL.4.4 Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.	Student Activity Companion, Volume 1: 33, 35, 63, 65, 73, 75, 95, 97, 125, 127, 207, 209 Teacher Guide, 22, 30, 35–37, 38, 57, 85 Corresponding Digital Resources and Assessment
Presentation of Knowledge and Ideas Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.	
SL.4.5 Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes. (4-PS4-1) (4-PS4-2) (4-LS1-2)	Student Activity Companion, Volume 1: 113, 115, 117, 125, 127, 131, 133, 135, 137; Volume 2: 189, 191, 199, 201, 219, 221, 251, 253, 229, 231 Teacher Guide, 55–58, 181–182, 190 Corresponding Digital Resources and Assessment

Mathematics Standards Grade 4

Correlation

The Digital Resources listed in the correlation include Key Ideas Presentations, Key Ideas Videos, SEP and CCC Preview Presentation and Activities, Virtual Labs, and PhET Activities.

Mathematics Standards	WHERE YOU WILL FIND IT
Operations and Algebraic Thinking Use the four operations with whole numbers to solve problems; Gain familiarity with factors and multiples; Generate and analyze patterns.	
4.OA.A.1 Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations. (4-ESS3-1, 4-ESS3-2)	Student Activity Companion, Volume 1: 185, 187 Teacher Guide, 99–101 Corresponding Digital Resources and Assessment
4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. (4-PS3-4)	Student Activity Companion, Volume 1: 247, 249 Teacher Guide, 99–101 Corresponding Digital Resources and Assessment
3-5.OA Operations and Algebraic Thinking (3-ETS1-1, 3-ETS1-2)	Student Activity Companion, Volume 2: 43, 45 Teacher Guide, 27–29 Corresponding Digital Resources and Assessment
Measurement and Data Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit; Represent and interpret data; Geometric measurement: understand concepts of angle and measure angles.	
4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. (4-ESS1-1, 4-ESS2-1)	Student Activity Companion, Volume 2: 29, 31, 65, 67 Teacher Guide, 122, 130 Corresponding Digital Resources and Assessment
4.MD.A.2 Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. (4-ESS2-1, 4-ESS2-2)	Student Activity Companion, Volume 2: 65, 67, 97, 99 Teacher Guide, 130, 138 Corresponding Digital Resources and Assessment
Geometry Draw and identify lines and angles, and classify shapes by properties of their lines and angles.	
4.G.A.1 Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures. (4-PS4-1, 4-PS4-2)	Student Activity Companion, Volume 1: 125, 127, 131, 133; Volume 2: 209, 211, 219, 221, 225, 227, 229, 231 Teacher Guide, 55–57, 58, 179–181, 182 Corresponding Digital Resources and Assessment
4.G.A.3 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded across the line into matching parts. Identify line-symmetric figures and draw lines of symmetry. (4-LS1-1)	Student Activity Companion, Volume 1: 113–115; Volume 2: 137, 127 Teacher Guide, 55–57, 174 Corresponding Digital Resources and Assessment

The Standards for Mathematical Practice These standards describe varieties of important processes and proficiencies. Processes include: problem solving, reasoning and proof, communication, representation, and connections. Proficiencies include: adaptive reasoning, strategic competence, conceptual understanding, procedural fluency, and productive disposition.	
MP.1 Make sense of problems and persevere in solving them.	Student Activity Companion, Volume 1: 73, 75, 95, 97, 207, 209, 269, 271, 273 Teacher Guide, 34–36, 37, 86, 102 Corresponding Digital Resources and Assessment
MP.2 Reason abstractly and quantitatively. (4-ESS1-1, 4-ESS2-1, 4-ESS3-1, 4-ESS3-2, 3-ETS1-1, 3-ETS1-2, 3-5-ETS1-3)	Student Activity Companion, Volume 1: 43, 45, 49–52, 53, 55, 59, 61, 195, 197, 203, 205; Volume 2: 13, 15, 29, 31, 33, 35, 37, 45, 47, 61, 67, 107, 109, 117, 119, 123, 125 Teacher Guide, 55–57, 58, 83–85, 86, 119–121, 122, 127–129, 130, 143–143, 146 Corresponding Digital Resources and Assessment
MP.3 Construct viable arguments and critique the reasoning of others.	Student Activity Companion, Volume 2: 33, 35, 37 Teacher Guide, 122 Corresponding Digital Resources and Assessment
MP.4 Model with mathematics. (4-PS4-1, 4-PS4-2, 4-ESS1-1, 4-ESS2-1, 4-ESS3-1, 4-ESS3-2, 3-ETS1-1, 3-ETS1-2, 3-5-ETS1-3)	Student Activity Companion, Volume 1: 121–124, 125, 127, 131, 133, 247, 249; Volume 2: 37, 45, 47, 61, 67, 209, 211, 219, 221, 225, 227 Teacher Guide, 55–57, 58, 99–101, 127–129, 130, 179–181, 182 Corresponding Digital Resources and Assessment
MP.5 Use appropriate tools strategically. (4-ESS2-1, 3-ETS1-1, 3-ETS1-2, 3-5-ETS1-3)	Student Activity Companion, Volume 1: 43, 45; Volume 2: 45, 47, 65, 67 Teacher Guide, 27–29, 127–129, 130 Corresponding Digital Resources and Assessment
MP.7 Look for and make use of structure.	Student Activity Companion, Volume 1: 43, 45, 53, 55, 59, 61, 113, 115, 117, 125, 127, 131, 133, 135, 137; Volume 2: 13, 15, 29, 31, 33, 35, 37, 97, 99 Teacher Guide, 27–29, 30, 55–57, 58, 119–121, 122, 138 Corresponding Digital Resources and Assessment
MP.8 Look for and express regularity in repeated reasoning.	Student Activity Companion, Volume 1: 43, 45, 53, 55, 59, 61, 113, 115, 117, 125, 127, 131, 133, 135, 137; Volume 2: 13, 15, 29, 31, 33, 35, 37, 97, 99 Teacher Guide, 27–29, 30, 55–57, 58, 119–121, 122, 138 Corresponding Digital Resources and Assessment

