F.4 Science - Grade 4

PUBLISHER/PROVIDER MATERIAL INFORMATION (TO BE COMPLETED BY PUBLISHER/PROVIDER)			
Publisher/Provider Name/Imprint:	Amplify Education, Inc.	Grade(s):	4
Title of Student Edition:	Amplify Science Grade 4 Student Book (6 Pack) Bundle	Student Edition ISBN:	9781644828281
Title of Teacher Edition:	Amplify Science Grade 4 Digital Experience Teacher License, 6 year	Teacher Edition ISBN:	9798885700276
Title of SE Workbook:	Amplify Science Grade 4 Student Investigation Notebook Bundle	SE Workbook ISBN:	9781643330631

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Section 1: Standards Review: Science

Abbreviations for the Form F Standards Review Tab:
- PE: Performance Expectation
- DCI: Disciplinary Core Idea
- SEP: Science and Engineering Practices
- CCC: Crosscutting Concepts
- CONN: Connections
- NM: NM STEM Ready Standard
- CCSS: Common Core State Standards for ELA/Literacy in Science and Common Core State Standards for Math in Science as identified in the NGSS

PUBLISHER/PROVIDER INSTRUCTIONS:
- Publisher/Provider citations for this section will refer to the **Teacher Edition (teacher-facing core material).** The cited Teacher Edition should correspond with the title and ISBN entered on the Form F cover page, whether in print, online, or both. The review set submitted to the summer review institute should also correspond with what is cited on the Form F. If the review set is an online platform only, then that is what should be cited on the Form F and submitted for review by the review teams. If the review set is in print only, then that is what should be cited on the Form F and submitted for review by the review teams.
- For this section, the publisher/provider will enter one citation per DCI, SEP, CCC, CONN, and NM standard in Column D. Each citation should direct the reviewer to a specific location in the materials that best meets the standard. The citations should be concise and should allow the reviewer to easily determine that all components of the standard have been met. Each citation should cover no more than 3 pages within the materials. ***Any cells grayed out do not require a citation.***
  - o Column D: Enter one citation in Column D from the **Teacher Edition (teacher-facing core material)**. Each citation should direct the reviewer to a specific location in the materials that best meets the standard. The cited material for each DCI, SEP, CCC, and CONN must directly relate to the PE under which they fall.
- The material will be scored for alignment with each DCI, SEP, CCC, CONN, and NM standard within each PE as "Meets expectations", "Partially meets expectations", or "Does not meet expectations" based on the citations provided. A score for the PE will be derived from the related DCIs, SEPS, CCCs, CONNs, and NM Standards within the PE.
  - **o NOTE: You may not use a citation more than once across ALL sections of the rubric.**

Criteria #	Standard Identifier	Grade 4 Science Standards Review:	Publisher/Provider Citation from Teacher Edition	Score	If Scored D: Reviewer's Evidence for Publisher Citation	Reviewer Citation from Student Edition/Workbook	Score	Required: Reviewer's Evidence	Comments, other citations, notes
Energy									
1	**PE**	**4-PS3-1. Students who demonstrate understanding can: Use evidence to construct an explanation relating the speed of an object to the energy of that object.**							
2	**DCI**	**PS3.A: Definitions of Energy** • The faster a given object is moving, the more energy it possesses.	*Energy Conversions* Chapter 3, Lesson 3.4 **Activity 2 (slides 25–30)**, including Teacher Support Notes, **"Instructional Suggestion, Going Further: Revisiting the Energy Conversions Simulation"** and **"Assessment, Additional Assessment Opportunities: Assessing Student Understanding of Speed in Relation to Energy"** linked to on slide 22						
3	**SEP**	**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.	*Vision and Light* Chapter 2, Lesson 2.5 **Activity 3 (slides 15–23)**						
4	**CCC**	**Energy and Matter** • Energy can be transferred in various ways and between objects.	*Energy Conversions* Chapter 4, Lesson 4.2 **Activity 2 (slides 27–36)**						
5	**PE**	**4-PS3-2. Students who demonstrate understanding can: Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.**							
6	**DCI**	**PS3.A: Definitions of Energy** • Energy can be moved from place to place by moving objects or through sound, light, or electric currents.	*Energy Conversions* Chapter 2, Lesson 2.1 **Activity 2 (slides 25–29)**						

7	DCI	**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.	*Waves, Energy, and Information* Chapter 2, Lesson 2.6 **Activity 3 (slides 24–33)**						
8	DCI	**PS3.B: Conservation of Energy and Energy Transfer** • Light also transfers energy from place to place.	*Energy Conversions* Chapter 3, Lesson 3.1 **Activity 2 (slides 19–25)**, including Teacher Support Notes, **"Instructional Suggestion, Providing More support: The Sun as an Energy Source"** and **"Assessment, Assessment Opportunity: Assessing Student Understanding of Energy Transferred by Light"** linked to on slide 14						
9	DCI	**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.	*Energy Conversions* Chapter 3, Lesson 3.2 **Activity 1 (slides 9–14)**						
10	SEP	**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.	*Vision and Light* Chapter 5, Lesson 5.2 **Activity 2 (slides 5–10)**, including **Possible Responses** linked to on slide 9						
11	CCC	**Energy and Matter** • Energy can be transferred in various ways and between objects.	*Waves, Energy, and Information* Chapter 2, Lesson 2.5 **Activity 2 (slides 22–28)**						
12	PE	**4-PS3-3. Students who demonstrate understanding can: Ask questions and predict outcomes about the changes in energy that occur when objects collide.**							
13	DCI	**PS3.A: Definitions of Energy** • Energy can be moved from place to place by moving objects or through sound, light, or electric currents.	*Waves, Energy, and Information* Chapter 1, Lesson 1.4 **Activity 2 (slides 12–18)**						
14	DCI	**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.	*Waves, Energy, and Information* Chapter 2, Lesson 2.6 **Activity 3 (slides 24–33)**						
15	DCI	**PS3.C: Relationship Between Energy and Forces** • When objects collide, the contact forces transfer energy so as to change the objects' motions.	*Waves, Energy, and Information* Chapter 2, Lesson 2.6 **Activity 1 (slides 2–13)**						
16	SEP	**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.	*Vision and Light* Chapter 5, Lesson 5.1 **Activity 4 (slides 22–29)**						

17	CCC	**Energy and Matter** • Energy can be transferred in various ways and between objects.	*Waves, Energy, and Information* Chapter 2, Lesson 2.4 **Activity 3 (slide 22–28)**						
18	PE	**4-PS3-4. Students who demonstrate understanding can: Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.**							
19	DCI	**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.	*Energy Conversions* Chapter 2, Lesson 2.1 **Activity 2 (slides 30–37)**						
20	DCI	**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.	*Energy Conversions* Chapter 2, Lesson 2.1 **Activity 3 (slides 49–57)**						
21	DCI	**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.	*Energy Conversions* Chapter 4, Lesson 4.3 **Activity 3 (slides 20–27)**						
22	SEP	**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.	*Energy Conversions* Chapter 4, Lesson 4.6 **Activity 1 (slides 2–10)**						
23	CCC	**Energy and Matter** • Energy can be transferred in various ways and between objects.	*Waves, Energy, and Information* Chapter 2, Lesson 2.4 Activity 3 Teacher Support Note, **"Instructional Suggestion, Going Further: Using Balls to Represent Collisions"** linked to on slide 22						
24	CONN	**Influence of Engineering, Technology, and Science on Society and the Natural World** • Engineers improve existing technologies or develop new ones.	*Energy Conversions* Chapter 3, Lesson 3.3 **Activity 4 (slides 28–39)**						
25	CONN	**Science is a Human Endeavor** • Most scientists and engineers work in teams. • Science affects everyday life.	*Waves, Energy, and Information* Chapter 1, Lesson 1.3 **Activity 2 (slides 19–29)**						
Waves and Their Applications in Technologies for Information Transfer									
26	PE	**4-PS4-1. Students who demonstrate understanding can: Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.**							
27	DCI	**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, Energy, and Information* Chapter 1, Lesson 1.4 **Activity 1 (slides 2–11)**						
28	DCI	**PS4.A: Wave Properties** • Waves of the same type can differ in amplitude (height of the wave) and wavelength (spacing between wave peaks).	*Waves, Energy, and Information* Chapter 3, Lesson 3.1 **Activity 2 (slides 10–21)**						

29	**SEP**	**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.	*Waves, Energy, and Information* Chapter 2, Lesson 2.5 **Activity 1 (slides 2–16)**						
30	**CONN**	**Scientific Knowledge is Based on Empirical Evidence** • Science findings are based on recognizing patterns.	*Waves, Energy, and Information* Chapter 3, Lesson 3.5 **Activity 2 (slides 10–14)**, including Teacher Support Note, **"Rationale, Pedagogical Goals: Understanding the Nature of Science"** linked to on slide 10						
31	**CCC**	**Patterns** • Similarities and differences in patterns can be used to sort, classify, and analyze simple rates of change for natural phenomena.	*Waves, Energy, and Information* Chapter 3, Lesson 3.6 **Activity 1 (slides 9–18)**						
32	**PE**	**4-PS4-2. Students who demonstrate understanding can: Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.**							
33	**DCI**	**PS4.B: Electromagnetic Radiation** • An object can be seen when light reflected from its surface enters the eyes.	*Vision and Light* Chapter 2, Lesson 2.3 **Activity 3 (slides 26–34)**						
34	**SEP**	**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.	*Waves, Energy, and Information* Chapter 1, Lesson 1.5 **Activity 3 (slides 22–28)**						
35	**CCC**	**Cause and Effect** • Cause and effect relationships are routinely identified.	*Vision and Light* Chapter 2, Lesson 2.1 **Activity 4 (slides 45–54)**						
36	**PE**	**4-PS4-3. Students who demonstrate understanding can: Generate and compare multiple solutions that use patterns to transfer information.**							
37	**DCI**	**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.	*Waves, Energy, and Information* Chapter 4, Lesson 4.1 **Activity 3 (slides 29–37)**						
38	**DCI**	**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.	*Energy Conversions* Chapter 3, Lesson 3.4 **Activity 3 (slides 31–43)**						
39	**SEP**	**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.	*Energy Conversions* Chapter 3, Lesson 3.5 **Activity 2 (slides 13–17)**						
40	**CCC**	**Patterns** • Similarities and differences in patterns can be used to sort and classify designed products.	*Energy Conversions* Chapter 3, Lesson 3.2 **Activity 2 (slides 24–31)**						
41	**CONN**	**Interdependence of Science, Engineering, and Technology** • Knowledge of relevant scientific concepts and research findings is important in engineering.	*Energy Conversions* Chapter 3, Lesson 3.3 **Activity 2 (slides 13–24)**						
From Molecules to Organisms: Structures and Processes									

42	PE	**4-LS1-1. Students who demonstrate understanding can: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.**							
43	DCI	**LS1.A: Structure and Function** • Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.	*Vision and Light* Chapter 3, Lesson 3.3 **Activity 2 (slides 8–18)**						
44	SEP	**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.	*Earth's Features* Chapter 1, Lesson 1.6 **Activity 2 (slides 18–28)**						
45	CCC	**Systems and System Models** • A system can be described in terms of its components and their interactions.	*Energy Conversions* Chapter 1, Lesson 1.2 **Activity 4 (slides 31–36)**						
46	PE	**4-LS1-2. Students who demonstrate understanding can: 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.**							
47	DCI	**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.	*Vision and Light* Chapter 3, Lesson 3.4 **Activity 1 (slides 17–26)**						
48	SEP	**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.	*Vision and Light* Chapter 3, Lesson 3.1 **Activity 1 (slides 20–30)**						
49	CCC	**Systems and System Models** • A system can be described in terms of its components and their interactions.	*Energy Conversions* Chapter 2, Lesson 2.1 **Activity 3 (slides 49–57)**						
Earth's Place in the Universe									
50	PE	**4-ESS1-1. Students who demonstrate understanding can: Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.**							
51	DCI	**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.	*Earth's Features* Chapter 3, Lesson 3.4 **Activity 2 (slides 23–34)**						
52	SEP	**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.	*Vision and Light* Chapter 3, Lesson 3.5 **Activity 3 (slides 21–30)**						
53	CCC	**Patterns** **• Patterns can be used as evidence to support an explanation.**	*Waves, Energy, and Information* Chapter 4, Lesson 4.4 **Activity 3 (slides 28–38)**						
54	CONN	**Scientific Knowledge Assumes an Order and Consistency in Natural Systems** • Science assumes consistent patterns in natural systems.	*Waves, Energy, and Information* Chapter 3, Lesson 3.5 **Activity 3 (slides 15–20)**						
Earth's Systems									

55	PE	**4-ESS2-1. Students who demonstrate understanding can: Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.**							
56	DCI	**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.	*Earth's Features* Chapter 4, Lesson 4.2 **Activity 3 (slides 19–28)**						
57	DCI	**ESS2.E: Biogeology** • Living things affect the physical characteristics of their regions.	*Earth's Features* Chapter 2, Lesson 2.2 **Activity 3 (slides 43–50)**						
58	SEP	**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.	*Earth's Features* Chapter 4, Lesson 4.4 **Activity 2 (slides 8–19)**						
59	CCC	**Cause and Effect** • Cause and effect relationships are routinely identified, tested, and used to explain change.	*Vision and Light* Chapter 2, Lesson 2.1 Activity 4 Teacher Support Note, **"Background, Crosscutting Concept: Cause and Effect Across Chapter 2"** linked to on slide 37						
60	PE	**4-ESS2-2. Students who demonstrate understanding can: Analyze and interpret data from maps to describe patterns of Earth's features.**							
61	DCI	**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.	*Earth's Features* Chapter 4, Lesson 4.5 **Activity 4 (slides 24–37)**, including Teacher Support Note, **"Assessment, Assessment Opporutnity: Assessing Student Understanding of Patterns in Earth's Features"** linked to on slide 24						
62	SEP	**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.	*Earth's Features* Chapter 4, Lesson 4.3 **Activity 4 (slides 24–29)**						
63	CCC	**Patterns** • Patterns can be used as evidence to support an explanation.	*Waves, Energy, and Information* Chapter 4, Lesson 4.4 **"Assessment Guide"** (found in lesson Digital Resources)						
Earth and Human Activity									
64	PE	**4-ESS3-1. Students who demonstrate understanding can: Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.**							
65	DCI	**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.	*Energy Conversions* Chapter 3, Lesson 3.1 **Activity 4 (slides 37–47)**						

66	**SEP**	**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.	*Energy Conversions* Chapter 2, Lesson 2.2 **Activity 4 (slides 20–31)**						
67	**CCC**	**Cause and Effect** • Cause and effect relationships are routinely identified and used to explain change.	*Vision and Light* Chapter 4, Lesson 4.3 **Activity 2 (slides 21–36)**						
68	**CONN**	**Interdependence of Science, Engineering, and Technology** • Knowledge of relevant scientific concepts and research findings is important in engineering.	*Energy Conversions* Chapter 3, Lesson 3.3 **Activity 3 (slides 25–27)**, including Teacher Support Note, **"Rationale, Pedagogical Goals: Understanding the Nature of Science"** linked to on slide 25						
69	**CONN**	**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.	*Energy Conversions* Chapter 2, Lesson 2.2 **Activity 2 (slides 10–13)**, including Teacher Support Note, **"Background, Literacy Note: About the Book"** linked to on slide 10						
70	**PE**	**4-ESS3-2. Students who demonstrate understanding can: Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.**							
71	**DCI**	**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.	*Waves, Energy, and Information* Chapter 1, Lesson 1.3 **Activity 3 (slides 30–40)**, including Teacher Support Notes, **"Going Further: Discussing Earthquake Waves and Warning Systems"** and **"Assessment, Additional Assessment Opportunities: Assessing Student Understanding of Responses to Natural Hazards"** linked to on slide 30						
72	**DCI**	**ETS1.B: Designing Solutions to Engineering Problems** • Testing a solution involves investigating how well it performs under a range of likely conditions.	*Energy Conversions* Chapter 3, Lesson 3.5 **Activity 1 (slides 2–12)**						
73	**SEP**	**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.	*Energy Conversions* Chapter 3, Lesson 3.5 **Activity 3 (slides 18–22)**						
74	**CCC**	**Cause and Effect** • Cause and effect relationships are routinely identified, tested, and used to explain change.	*Vision and Light* Chapter 3, Lesson 3.2 **Activity 4 (slides 30–33)**						
75	**CONN**	**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.	*Energy Conversions* Chapter 4, Lesson 4.4 **Activity 1 (slides 2–7)**						
Engineering Design:									

76	PE	**3-5-ETS1-1. Students who demonstrate understanding can: Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.**							
77	DCI	**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. (3-5-ETS1-1)	*Energy Conversions* Chapter 4, Lesson 4.5 **Activity 1 (slides 2–9)**						
78	SEP	**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. (3-5-ETS1-1)	*Energy Conversions* Chapter 1, Lesson 1.1 **Activity 2 (slides 8–15)**						
79	CCC	**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. (3-5-ETS1-1)	*Energy Conversions* Chapter 1, Lesson 1.1 Activity 2 Teacher Support Note, **"Instructional Suggestion, Nature of Science: Connecting to Engineering, Technology, and Applications of Science"** linked to on slide 8						
80	PE	**3-5-ETS1-2. Students who demonstrate understanding can: 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.**							
81	DCI	**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. (3-5-ETS1-2)	*Energy Conversions* Chapter 3, Lesson 3.4 **Activity 1 (slides 4–21)**						
82	DCI	**ETS1.B: Developing Possible Solutions** • At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and share ideas can lead to improved designs. (3-5-ETS1-2)	*Energy Conversions* Chapter 4, Lesson 4.5 **Activity 2 (slides 10–19)**						
83	SEP	**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. (3-5-ETS1-2)	*Energy Conversions* Chapter 3, Lesson 3.6 **Activity 3 (slides 28–35)**						
84	CCC	**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. (3-5-ETS1-2)	*Energy Conversions* Chapter 4, Lesson 4.6 **Activity 2 (slides 11–19)**						
85	PE	**3-5-ETS1-3. Students who demonstrate understanding can: 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.**							
86	DCI	**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. (3-5-ETS1-3)	*Energy Conversions* Chapter 3, Lesson 3.4 Slide 40, **"On-the-Fly Assessment 13"** in Teacher Notes						

87	DCI	**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. (3-5-ETS1-3)	*Energy Conversions* Chapter 4, Lesson 4.4 **Activity 3 (slides 18–28)**						
88	SEP	**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. (3-5-ETS1-3)	*Vision and Light* Chapter 5, Lesson 5.2 **Activity 1 (slides 2–4)**						

CCSS for ELA/Literacy and Math in Grade 4 NGSS • **NOTE: The standards noted at the end of each CCSS (such as *(HS-ESS1-1), (HS-ESS1-2), (HS-ESS1-5)*) are the occurrences of the CCSS within the NGSS.**									
Grade 4 CCSS ELA/Literacy									
89	**CCSS ELA/ Literacy**	**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)*	*Earth's Features* Chapter 1, Lesson 1.2 **Activity 4 (slides 29–34)**						
90	**CCSS ELA/ Literacy**	**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)*	*Vision and Light* Chapter 1, Lesson 1.3 **Activity 3 (slides 25–41)**						
91	**CCSS ELA/ Literacy**	**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)*	*Energy Conversions* Chapter 4, Lesson 4.1 **Activity 3 (slides 26–33)**, including Teacher Support Note, **"Background, Literacy Note: Text Features"** linked to on slide 26						
92	**CCSS ELA/ Literacy**	**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)*	*Earth's Features* Chapter 2, Lesson 2.1 **Activities 3 & 4 (slides 20–25; 32–39)**						
93	**CCSS ELA/ Literacy**	**W.4.1** Write opinion pieces on topics or texts, supporting a point of view with reasons and information. *(4-LS1-1)*	*Energy Conversions* Chapter 1, Lesson 1.6 **Activity 4 (slides 24–26)**						
94	**CCSS ELA/ Literacy**	**W.4.2** Write informative/explanatory texts to examine a topic and convey ideas and information clearly. *(4-PS3-1)*	*Energy Conversions* Chapter 2, Lesson 2.3 **Activity 1 (slides 2–6)**						
95	**CCSS ELA/ Literacy**	**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-ESS2-1), (4-ESS3-1)*	*Earth's Features* Chapter 2, Lesson 2.3 **Activity 1 (slides 2–10)**						
96	**CCSS ELA/ Literacy**	**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)*	*Vision and Light* Chapter 1, Lesson 1.4 **Activity 1 (slides 21–27)**						
97	**CCSS ELA/ Literacy**	**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)*	*Energy Conversions* Chapter 1, Lesson 1.3 **Activity 3 (slides 28–36)**						
98	**CCSS ELA/ Literacy**	**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)*	*Waves, Energy, and Information* Chapter 2, Lesson 2.2 **Activity 3 (slides 33–37)**						
Grade 4 CCSS Math									

99	**CCSS Math**	**MP.2** Reason abstractly and quantitatively. *(4-ESS1-1), (4-ESS2-1), (4-ESS3-1), (4-ESS3-2), (3-5-ETS1-1), (3-5-ETS1-2), (3-5-ETS1-3)*	*Vision and Light* Chapter 4, Lesson 4.2 **Activity 2 (slides 16–29)**						
100	**CCSS Math**	**MP.4** Model with mathematics. *(4-PS4-1), (4-PS4-2), (3-5-ETS1-1), (4-ESS3-1), (4-ESS2-1), (4-ESS3-1), (4-ESS3-2), (3-5-ETS1-1), (3-5-ETS1-2), (3-5-ETS1-3)*	*Energy Conversions* Chapter 2, Lesson 2.4 **Activity 2 (slides 12–19)**, including Teacher Support Note, **"Instructional Suggestion, Going Further: Mathematical Thinking"** linked to on slide 5						
101	**CCSS Math**	**MP.5** Use appropriate tools strategically. *(4-ESS2-1), (3-5-ETS1-1), (3-5-ETS1-2), (3-5-ETS1-3)*	*Earth's Features* Chapter 1, Lesson 1.4 **Activity 2 (slides 11–24)**						
102	**CCSS Math**	**4.OA.A.1** Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 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)*	No citation provided.						
103	**CCSS Math**	**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)*	*Earth's Features* Chapter 2, Lesson 2.4 **Activity 2 (slides 9–18)**, including Teacher Support Note, **"Instructional Suggestion, Going Further: Mathematical Thinking"** linked to on slide 9						
104	**CCSS Math**	**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)*	No citation provided.						
105	**CCSS Math**	**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)*	*Earth's Features* Chapter 4, Lesson 4.3 **Activity 3 (slides 15–23)**, including Teacher Support Note, **"Instructional Suggestion, Going Further: Mathematical Thinking"** linked to on slide 15						
106	**CCSS Math**	**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)*	*Vision and Light* Chapter 2, Lesson 2.4 **Activity 1 (slides 10–21)**, including Teacher Support Note, **"Instructional Suggestion, Going Further: Mathematical Thinking"** linked to on slide 2						
107	**CCSS Math**	**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)*	No citation provided.						

Section 2: Science Content Review

PUBLISHER/PROVIDER INSTRUCTIONS:

- Publisher/provider citations for this section will refer to the **Teacher Edition (teacher-facing core material)** and/or **Student Edition/Student Workbook (student-facing core material)**. The cited Teacher Edition, Student Edition, and/or Student Workbook should correspond with titles and ISBNs entered on the Form F cover page, whether in print, online, or both. The review set submitted to the summer review institute should also correspond with what is cited on the Form F. If the review set is an online platform only, then that is what should be cited on the Form F and submitted for review by the review teams. If the review set is in print only, then that is what should be cited on the Form F and submitted for review by the review teams.
- For this section, the publisher/provider will enter one citation per criterion (Column C). Each citation should direct the reviewer to a specific location in the materials that best meets the criterion. The citations should be concise and should allow the reviewer to easily determine that all components of the criterion have been met. Each citation should cover no more than 3 pages within the materials.
  - o **Column C:** Enter one citation in Column C from either the **Teacher Edition (teacher-facing core material)** OR **Student Edition/Student Workbook (student-facing core material)**. Each citation should direct the reviewer to a specific location in the materials that best meets the criterion.
- The material will be scored for alignment with each criterion as "Meets expectations", "Partially meets expectations", or "Does not meet expectations" based on the citations provided.
  - o **NOTE: You may not use a citation more than once across ALL sections of the rubric.**

Criteria #	Grade K-12 Science Content Criteria	Publisher/Provider Citation	Score	If Scored D: Reviewer's Evidence for Publisher Citation	Reviewer Citation	Score	Required: Reviewer's Evidence	Comments, other citations, notes
FOCUS AREA 1: PHENOMENA-/PROBLEM-BASED AND THREE-DIMENSIONAL APPROACH **Instructional materials are centered around high quality phenomena and/or problems and require a three dimensional approach to make sense of the phenomena or to solve the problems.**								
1	Materials clearly integrate and describe the three-dimensional NM STEM Ready! Standards via appropriate grade-band, interdisciplinary progressions that center around the phenomena, utilizing aligned SEPs, CCCs, DCIs and the common core math and ELA standards' connections.	*Earth's Features* **Unit Overview** (pg. 2–3 in Printable Teacher Guide) Planning for the Unit, **Standards at a Glance** (pg. 29 in Printable Teacher Guide)						
2	Materials consistently support meaningful student sensemaking with the three dimensions, including discourse, that is appropriate to grade band progressions, instruction and assessment.	*Vision and Light* Planning for the Unit, **Unit Map** (pg. 4–5 in Printable Unit Guide)						
3	Natural and designed phenomena and/or problems that are meaningful and apparent to students drive coherent lessons and activities in all three dimensions.	*Energy Conversions* Printable Resources, **Coherence Flowchart**						
FOCUS AREA 2: THREE-DIMENSIONAL ASSESSMENT **Assessments provide tools, guidance and support for teachers to collect, interpret and act on data about student progress toward the learning goals of the 3 dimensional standards.**								
4	Materials engage students in meaningful tasks as well as multiple assessment types and opportunities, across all dimensions, in order to make sense of phenomena and/or design solutions to problems.	*Vision and Light* Teacher References, Assessment System, **Entry-Level and Summative Assessments** & **Monitoring Progress** (pg. 595–597 in Printable Teacher Guide)						
5	Materials include opportunities for students to obtain feedback from teachers and peers as well as opportunities for student self-reflection.	*Energy Conversions* Chapter 1, Lesson 1.6 **Activity 4 (slides 23–26)** including **Teacher Support Notes** linked to on slide 23						
FOCUS AREA 3: TEACHER SUPPORTS **Materials include opportunities for teachers to effectively plan and utilize materials.**								
6	Materials provide a comprehensive list of supplies and teacher guidance needed to support instructional activities in a safe manner.	*Energy Conversions* Chapter 1, Lesson 1.3 **Materials & Preparation** (pg. 4–6 in Printable Lesson Guide)						

7	Materials provide teacher guidance for the use of embedded and meaningful technology to support and enhance student learning, when applicable.	*Vision and Light* Teacher References, **Apps in this Unit** (pg. 648–652 in Printable Teacher Guide)						
8	Materials and assessments include teacher guidance for students at, approaching, or exceeding grade level expectations.	*Waves, Energy, and Information* Chapter 3, Lesson 3.2 **Differentiation** (pg. 6–7 in Printable Lesson Guide) Slide 24, **On-the-Fly Assessment 10** in Teacher Notes						
9	Materials provide teacher guidance for interpreting student evidence of learning, monitoring student progress and providing feedback to guide student learning and to modify instruction.	*Energy Conversions* Chapter 2, Lesson 2.3 Slide 4, **Critical Juncture Assessment 1** in Teacher Notes						
FOCUS AREA 4: STUDENT CENTERED INSTRUCTION **Materials are designed for each student's regular and active participation in science content.**								
10	Materials provide opportunities to engage students' curiosity and participation in a way that pulls from their prior knowledge and connects their learning to relevant phenomena and problems.	*Vision and Light* Chapter 1, *Lesson 1.1* **"Eliciting and Leveraging Students' Prior Knowledge, Personal Experiences, and Cultural Backgrounds"** (from lesson Digital Resources)						
11	The flow of lessons from one unit to the next is coherent, meaningful, direct, and apparent to students.	*Earth's Features* Chapter 3, Lesson 3.1 **Activity 1 (slides 2–8)**						
FOCUS AREA 5: EQUITY **Materials are designed for all learners.**								
12	Materials provide extensions and/or opportunities for all students to engage in learning grade-level/band science and engineering in greater depth.	*Earth's Features* Chapter 2, Lesson 2.3 **Differentiation** (pg. 8–9 in Printable Lesson Guide)						
13	Materials and assessments are designed in an accessible manner and include multiple ways for all students to build and reflect on science knowledge; multiple ways for all students to access content (Universal Design for Learning); and multiple opportunities for student self-reflection.	*Amplify Science* Program Guide, Access and equity, **Universal Design for Learning**						

Section 2: All Content Review				
PUBLISHER/PROVIDER INSTRUCTIONS: • The All Content tab will be completed solely by the reviewers. They will score each criterion and provide evidence for their score from the material based on their overall review of the material. You will not provide any citations for this tab. • The material will be scored for alignment with each criterion as "Meets expectations", "Partially meets expectations", or "Does not meet expectations".				
Criteria #	**All Content Criteria Review**	Score	Required: Reviewer's Evidence from Material	Comments, citations, notes
FOCUS AREA 1: COHERENCE **Instructional materials are coherent and consistent with the New Mexico Content Standards that all students should study in order to be college- and career-ready.**				
1	Instructional materials address the full content contained in the standards for all students by grade level.			
2	Instructional materials support students to show mastery of each standard.			
3	Instructional materials require students to engage at a level of maturity appropriate to the grade level under review.			
4	Instructional materials are coherent, making meaningful connections for students by linking the standards within a lesson and unit.			
FOCUS AREA 2: WELL-DESIGNED LESSONS **Instructional materials take into account effective lesson structure and pacing.**				
5	The Teacher Edition presents learning progressions to provide an overview of the scope and sequence of skills and concepts. The design of the assignments shows a purposeful sequencing of teaching and learning expectations.			
6	Within each lesson of the instructional materials, there are clear, measurable, standards-aligned content objectives.			
7	Within each lesson of the instructional materials, there are clear, measurable language objectives tied directly to the content objectives.			
8	Instructional materials provide focused resources to support students' acquisition of both general academic vocabulary and content-specific vocabulary.			
9	The visual design of the instructional materials (whether in print or digital) maintains a consistent layout that supports student engagement with the subject.			

10	Instructional materials incorporate features that aid students and teachers in making meaning of the text.			
11	Instructional materials provide students with ongoing review and practice for the purpose of retaining previously acquired knowledge.			
FOCUS AREA 3: RESOURCES FOR PLANNING **Instructional materials provide teacher resources to support planning, learning, and understanding of the New Mexico Content Standards.**				
12	Instructional materials provide a list of lessons in the Teacher Edition (in print or clearly distinguished/ accessible as a teacher's edition in digital materials), cross-referencing the standards addressed and providing an estimated instructional time for each lesson, chapter, and unit.			
13	Instructional materials support teachers with instructional strategies to help guide students' academic development.			
14	Instructional materials include a teacher edition/ teacher-facing material with useful annotations and suggestions on how to present the content in the student edition/student-facing material and in the supporting material.			
15	Instructional materials integrate opportunities for digital learning, including interactive digital components.			
FOCUS AREA 4: ASSESSMENT **Instructional materials offer teachers a variety of assessment resources and tools to collect ongoing data about student progress related to the standards.**				
16	Instructional materials provide a variety of assessments that measure student progress in all strands of the standards for the content under review. *(Adopted New Mexico Content Standards for 2024: NM STEM Ready Science Standards)*			
17	Instructional materials provide multiple formative and summative assessments, clearly defining which standards are being assessed through content and language objectives.			
18	Instructional materials provide scoring guides for assessments that are aligned with the standards they address, and that offer teachers guidance in interpreting student performance and suggestions for further instruction, differentiation, remediation and/or acceleration.			

19	Instructional materials provide appropriate assessment alternatives for English Learners, Culturally and Linguistically Diverse students, advanced students, and special needs students.			
20	Instructional materials include opportunities to assess student understanding and knowledge of the standards using technology.			
FOCUS AREA 5: EXTENSIVE SUPPORT **Instructional materials give all students extensive opportunities and support to explore key concepts.**				
21	Instructional materials can be customized or adapted to meet the needs of different student populations.			
22	Instructional materials provide differentiated strategies and/or activities to meet the needs of students working below proficiency and those of advanced learners.			
23	Instructional materials provide appropriate linguistic support for English Learners and Culturally and Linguistically Diverse students, and accommodations and modifications for other special populations that will support their regular and active participation in learning content.			
24	Instructional materials provide strategies and resources for teachers to inform and engage parents, family members, and caregivers of all learners about the program and provide suggestions for how they can help support student progress and achievement.			
25	Instructional materials include opportunities for all students that encourage and support critical and creative thinking, inquiry, and complex problem-solving skills.			
FOCUS AREA 6: CULTURAL AND LINGUISTIC PERSPECTIVES **Instructional materials represent a variety of cultural and linguistic perspectives.**				
26	Instructional materials inform culturally and linguistically responsive pedagogy by affirming students' backgrounds in the materials themselves and in the student discussions.			
27	Instructional materials provide a collection of images, stories, and information, representing a broad range of demographic groups, and do not make generalizations or reinforce stereotypes.			

28	Instructional materials provide context, illustrations, and activities for students to make interdisciplinary connections and/or connections to real-life experiences and diverse cultural and linguistic backgrounds.			
FOCUS AREA 7: INCLUSION OF CULTURALLY AND LINGUISTICALLY RESPONSIVE LENS **Instructional materials highlight diversity in culture and language through multiple perspectives.**				
29	Instructional materials include tools and resources to relate the content area appropriately to diversity in culture and language.			
30	Instructional materials include tools and resources that demonstrate multiple perspectives in a specific concept.			
31	Instructional materials engage students in critical reflection about their own lives and societies, including cultures past and present in New Mexico.			
32	Instructional materials address multiple ethnic descriptions, interpretations, or perspectives of events and experiences.			