A Correlation of

Elevate Science
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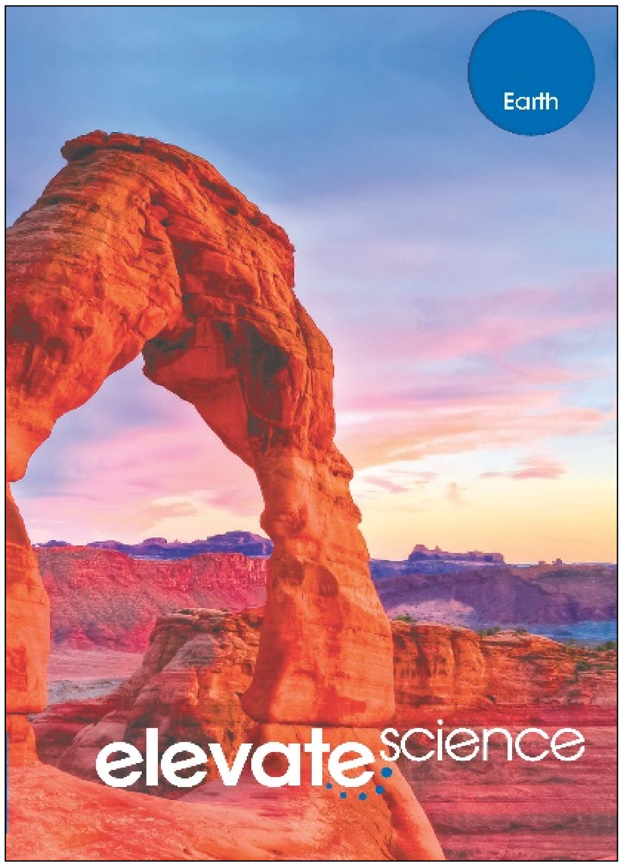

To the

North Dakota
Science Content Standards 2019
Middle School Earth & Space Science

Prepared by Savvas Learning Company, formerly Pearson K12 Learning.

A Correlation of Elevate Science: Earth, ©2019 to the
North Dakota Science Content Standards 2019
Middle School Earth & Space Science

Introduction

This document demonstrates how ***Elevate Science ©2019*** meets the North Dakota 2019 Science Content Standards for Middle School. Correlation page references are to the Student and Teacher's Editions and cited at the page level.

Pearson is proud to introduce ***Elevate Science*** Middle Grades – where exploration is the heart of science! Designed to address the rigors of new science standards, students will experience science up close and personal, using real-world, relevant phenomena to solve project-based problems. Our newest program prepares students for the challenges of tomorrow, building strong reasoning skills and critical thinking strategies as they engage in explorations, formulate claims, and gather and analyze data that promote evidence-based arguments. The blended print and digital curriculum covers all Next Generation Science Standards at every grade level.

Elevate Science helps teachers transform learning, promote innovation, and manage their classroom.

Transform science classrooms by immersing students in active, three-dimensional learning.
Elevate Science engages students with real-world tasks, open-ended Quests, uDemonstrate performance-based labs, and in the engineering/design process with uEngineer It! investigations.

- A new 3-D learning model enhances best practices.
- Engineering-focused features infuse STEM learning.
- Phenomena-based activities put students at the heart of a Quest for knowledge.

Innovate learning by focusing on 21st century skills.
Students are encouraged to think, collaborate, and innovate! With ***Elevate Science***, students explore STEM careers, experience engineering activities, and discover our scientific and technological world. The content, strategies, and resources of Elevate Science equip the science classroom for scientific inquiry and science and engineering practices.

- Problem-based learning Quests put students on a journey of discovery.
- STEM connections help integrate curriculum.
- Coding and innovation engage students and build 21st century skills.

Manage the classroom with confidence.
Teachers will lead their class in asking questions and engaging in argumentation. Evidence-based assessments provide new options for monitoring student understanding.

- Professional development offers practical point-of-use support.
- Embedded standards in the program allow for easy integration.
- ELL and differentiated instruction strategies help instructors reach every learner.
- Interdisciplinary connections relate science to other subjects.
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Designed for today's classroom, preparing students for tomorrow's world. ***Elevate Science*** promises to:

- Elevate thinking.
- Elevate learning.
- Elevate teaching.

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North Dakota Science Content Standards 2019 Middle School Earth & Space Science	Elevate Science Earth, ©2019
MS-ESS1 Earth's Place in the Universe	
Performance Standard MS-ESS1-1.	
Develop and use a model of the earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.	**SE/TE:** 491A–491B, 492–501, 502–503, 504–512, 514–522, 524–525, 528–531
Disciplinary Core Ideas	
ESS1.A: The Universe and Its Stars Patterns of the apparent motion of the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models. **ESS1.B: Earth and the Solar System** This model of the solar system can explain eclipses of the sun and the moon. Earth's spin axis is fixed in direction over the short term but tilted relative to its orbit around the sun. The seasons are a result of that tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year.	**SE/TE:** 480–481, 488–489, 492–501, 504–512, 514–522, 524–525, 532–533
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Patterns Patterns can be used to identify cause and effect relationships.	**SE/TE:** 492–501, 504–512, 514–522

North Dakota Science Content Standards 2019 Middle School Earth & Space Science	Elevate Science Earth, ©2019
Performance Standard MS-ESS1-2.	
Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.	**SE/TE:** 536–547, 560–569, 570–578, 582–587
Disciplinary Core Ideas	
ESS1.A: The Universe and Its Stars Earth and its solar system are part of the Milky Way galaxy, which is one of many galaxies in the universe. **ESS1.B: Earth and the Solar System** The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them. The solar system appears to have formed from a disk of dust and gas, drawn together by gravity.	**SE/TE:** 493, 494, 509–511, 536–549, 560–569, 570–578, 579–581
Science and Engineering Practices	
Developing and Using Models	**SE/TE:** 536–547, 560–569, 570–578
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Systems and System Models Models can be used to represent systems and their interactions.	**SE/TE:** 524–525, 528–531, 536–547, 554–558, 560–569, 570–578

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Performance Standard MS-ESS1-3.	
Analyze and interpret data to determine scale properties of objects in the solar system.	**SE/TE:** 535A–535B, 536–547, 548–549, 550–558
Disciplinary Core Ideas	
ESS1.B: Earth and the Solar System The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them.	**SE/TE:** 493, 494, 509–511, 536–549, 579–581
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Scale, Proportion, and Quantity	**SE/TE:** 536–547, 550–558, 559, 584–587

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Performance Standard MS-ESS1-4.	
Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.	**SE/TE:** 362–363, 365A–365B, 366–373, 374–375, 376–382, 384–392
Disciplinary Core Ideas	
ESS1.C: The History of Planet Earth The geologic time scale interpreted from rock strata provides a way to organize Earth's history. Analyses of rock strata and the fossil record provide only relative dates, not an absolute scale.	**SE/TE:** 366–373, 376–379, 382, 384–392, 394–395
Science and Engineering Practices	
Constructing Explanations and Designing Solutions	**SE/TE:** 365A–365B, 366–373, 376–382, 384–392, 398–401
Crosscutting Concepts	
Scale, Proportion, and Quantity Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.	**SE/TE:** 366–373, 376–382, 384–392

North Dakota Science Content Standards 2019 Middle School Earth & Space Science	Elevate Science Earth, ©2019
MS-ESS2 Earth's Systems	
Performance Standard MS-ESS2-1.	
Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.	**SE/TE:** 1–3, 3A–3B, 4–11, 36–37, 102–105, 105a–105b, 106–117, 118–126, 128–135, 136–143, 144–151, 170
Disciplinary Core Ideas	
ESS2.A: Earth's Materials and Systems All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. This energy is derived from the sun and Earth's hot interior. The energy that flows and matter that cycles produce chemical and physical changes in Earth's materials and living organisms.	**SE/TE:** 1, 4–10, 106–116, 118–126, 128–135, 136–141
Science and Engineering Practices	
Developing and Using Models	**SE/TE:** 3A–3B, 4–10, 71, 85, 105A–105B, 106–116, 118–126,128–135, 136–141
Crosscutting Concepts	
Stability and Change Explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and forces at different scales, including the atomic scale.	**SE/TE:** 4–10, 106–116, 118–126, 128–135, 136–141

North Dakota Science Content Standards 2019 Middle School Earth & Space Science	**Elevate Science Earth, ©2019**
Performance Standard MS-ESS2-2.	
Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying times and spatial scales.	**SE/TE:** 157–159, 167–174, 179–187, 191–198, 213–216, 222–224
Disciplinary Core Ideas	
ESS2.A: Earth's Materials and Systems The planet's systems interact over scales that range from microscopic to global in size, and they operate over fractions of a second to billions of years. These interactions have shaped Earth's history and will determine its future. **ESS2.C: The Roles of Water in Earth's Surface Processes** Water's movements—both on the land and underground—cause weathering and erosion, which change the land's surface features and create underground formations.	**SE/TE:** 11, 166–175, 178–188, 190–199, 210–211, 212–220, 222–228, 230–239, 242–251
Science and Engineering Practices	
Constructing Explanations and Designing Solutions	**SE/TE:** 166–175, 178–188, 190–199, 212–220, 222–228, 230–239, 242–251
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Performance Standard MS-ESS2-3.	
Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.	**SE/TE:** 152–155, 156–164, 180, 181, 200–201, 204–207
Disciplinary Core Ideas	
ESS2.B: Plate Tectonics and Large-Scale System Interactions Maps of ancient land and water patterns, based on investigations of rocks and fossils, make clear how Earth's plates have moved great distances, collided, and spread apart. **ESS1.C: The History of Planet Earth** Tectonic processes continually generate new ocean sea floor at ridges and destroy old sea floor at trenches. *(HS.ESS1.C GBE) (secondary to MS-ESS2-3)*	**SE/TE:** 33, 156–164, 177
Science and Engineering Practices	
Analyzing and Interpreting Data	**SE/TE:** 146–147, 156–164, 202–203
Crosscutting Concepts	
Patterns Patterns in rates of change and other numerical relationships can provide information about natural systems.	**SE/TE:** 156–164

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Performance Standard MS-ESS2-4.	
Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.	**SE/TE:** 1, 24–35, 36–43, 44–45, 47A–47B, 56–65, 94–95, 98–101
Disciplinary Core Ideas	
ESS2.C: The Roles of Water in Earth's Surface Processes • Water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land. • Global movements of water and its changes in form are propelled by sunlight and gravity.	**SE/TE:** 4–5, 24–33, 56–64, 94–95
Science and Engineering Practices	
Developing and Using Models	**SE/TE:** 24–33, 47A–47B, 56–64, 112
Crosscutting Concepts	
Energy and Matter Within a natural or designed system, the transfer of energy drives the motion and/or cycling of matter.	**SE/TE:** 24–33, 56–64

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Performance Standard MS-ESS2-5.	
Use data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions.	**SE/TE:** 44–47, 48–55, 66–73, 74–81, 92–97
Disciplinary Core Ideas	
ESS2.C: The Roles of Water in Earth's Surface Processes The complex patterns of the changes and the movement of water in the atmosphere, determined by winds, landforms, and ocean temperatures and currents, are major determinants of local weather patterns. **ESS2.D: Weather and Climate** Because these patterns are so complex, weather can only be predicted probabilistically.	**SE/TE:** 48–55, 66–73, 74–81
Science and Engineering Practices	
Analyzing and Interpreting Data	**Labs:** History of Hazardous Weather, Tracking Weather
Crosscutting Concepts	
Cause and Effect Cause and effect relationships may be used to predict phenomena in natural or designed systems.	**SE/TE:** 48–55, 66–73, 74–81

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Performance Standard MS-ESS2-6.	
Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.	**SE/TE:** 44–45, 48–55, 72, 74–81, 94–97, 120, 406–414, 416–424, 426–433, 434–435, 440–443, 448–456
Disciplinary Core Ideas	
ESS2.C: The Roles of Water in Earth's Surface Processes Variations in density due to variations in temperature and salinity drive a global pattern of interconnected ocean currents. **ESS2.D: Weather and Climate** Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. These interactions vary with latitude, altitude, and local and regional geography, all of which can affect oceanic and atmospheric flow patterns.	**SE/TE:** 31, 36–37, 74–80, 406–414, 416–424, 426–433, 436–437, 448–456, 480–481
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Developing and Using Models	**SE/TE:** 47A-47B, 51, 55, 80, 234, 247, 256-259, 413, 420-421, 422-423, 424, 433, 435, 438-439, 455, 456
Crosscutting Concepts	
Systems and System Models Models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy, matter, and information flows within systems.	**SE/TE:** 47A-47B, 51, 55, 80, 234, 247, 256-259, 413, 420-421, 422-423, 424, 433, 435, 438-439, 455, 456

North Dakota Science Content Standards 2019 Middle School Earth & Space Science	Elevate Science Earth, ©2019
MS-ESS1 Earth and Human Activity	
Performance Standard MS-ESS3-1.	
Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.	**SE/TE:** 30, 119, 125, 126, 162–163, 239, 260–263, 264–273, 274–280, 282–291, 292–298, 300-307, 345, 352, 354-355
Disciplinary Core Ideas	
ESS3.A: Natural Resources Humans depend on Earth's land, ocean, atmosphere, and biosphere for many different resources. Minerals, fresh water, and biosphere resources are limited, and many are not renewable or replaceable over human lifetimes. These resources are distributed unevenly around the planet as a result of past geologic processes.	**SE/TE:** 162–163, 260–263, 264–273, 274–281, 282–289, 290–291, 292–298, 316–317, 319, 326, 341, 352, 354–355
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Crosscutting Concepts	
Cause and Effect Cause and effect relationships may be used to predict phenomena in natural or designed systems.	**SE/TE:** 162–163, 264–273, 274–280, 282–289, 292–298

North Dakota Science Content Standards 2019 Middle School Earth & Space Science	Elevate Science Earth, ©2019
Performance Standard MS-ESS3-2.	
Analyze and interpret data on natural hazards to forecast future catastrophic events that necessitate the development of technologies to mitigate their effects.	**SE/TE:** 44–55, 82–97, 152–155, 178–188, 190–207, 208–211, 211A–211B, 221–229, 240–241, 252–259
Disciplinary Core Ideas	
ESS3.B: Natural Hazards Mapping the history of natural hazards in a region, combined with an understanding of related geologic forces can help forecast the locations and likelihoods of future events.	**SE/TE:** 82–91, 178–188, 190–199, 222–228, 256–259
Science and Engineering Practices	
Analyzing and Interpreting Data	**SE/TE:** 82–91, 178–188, 190–199, 211A–211B, 222–228
Crosscutting Concepts	
Patterns Graphs and charts can be used to identify patterns in data. The uses of technologies and any limitations on their use are driven by individual and societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus, technology use varies from region to region and over time	**SE/TE:** 9, 38–39, 48–55, 82–91, 111, 178–188, 190–199, 222–228

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Human Impacts	
Performance Standard MS-ESS3-3.	
Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.	**SE/TE:** 34–35, 189, 281, 319
Disciplinary Core Ideas	
ESS3.C: Human Impacts on Earth Systems • Human activities have significantly altered the biosphere, sometimes damaging or destroying natural habitats and causing the extinction of other species. But changes to Earth's environments can have different impacts (negative and positive) for different living things. Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise.	**SE/TE:** 273–274, 280–281, 312–313, 316, 319, 326
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Cause and Effect Relationships can be classified as causal or correlational, and correlation does not necessarily imply causation.	**SE/TE:** 273–274, 280–281, 312–313, 316, 319, 326

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Performance Standard MS-ESS3-4.	
Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.	**SE/TE:** 260–261, 264–273, 274–280, 282–291, 292–298, 300–301, 308–311, 312–319, 320–328, 330-341, 342-352, 354-361
Disciplinary Core Ideas	
ESS3.C: Human Impacts on Earth Systems Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise.	**SE/TE:** 264–273, 274–280, 282–289, 312–319, 320–328, 330–341, 342–352, 354–357, 358–361
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- Asking questions and defining problems - Engaging in argument from evidence	**SE/TE:** 274–280, 282–289, 312–319, 320–354, 330–341, 342–352, 354–361
Crosscutting Concepts	
Cause and Effect Cause and effect relationships may be used to predict phenomena in natural or designed	**SE/TE:** 264–273, 274–280, 282–289, 292–298, 312–319, 320–328, 330–341, 342-352, 354-357, 358-361

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Performance Standard MS-ESS3-5.	
Investigate factors that have caused changes in global temperatures over time.	**SE/TE:** 458–467, 470–478, 479, 480–481
Disciplinary Core Ideas	
ESS3.D: Global Climate Change Human activities, such as the release of greenhouse gases from burning fossil fuels, are major factors in the current rise in Earth's mean surface temperature (global warming). Reducing the level of climate change and reducing human vulnerability to whatever climate changes do occur depend on the understanding of climate science, engineering capabilities, and other kinds of knowledge, such as understanding of human behavior and on applying that knowledge wisely in decisions and activities.	**SE/TE:** 410, 446–447, 458–467, 470–478, 480–481, 523
Science and Engineering Practices	
- Asking Questions and Defining Problems - Planning and carrying out investigations	**SE/TE:** 455, 458–467, 470–478, 484–487
Crosscutting Concepts	
Stability and Change Stability might be disturbed either by sudden events or gradual changes that accumulate over time.	**SE/TE:** 458–467, 470–478

North Dakota Science Content Standards 2019 Middle School Earth & Space Science	Elevate Science Earth, ©2019
MS-ETS1 Engineering Design	
Performance Standard MS-ETS1-1.	
Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.	**SE/TE:** 23, 148–151, 288–289, 330–333, 446–447, 559, 597 **Labs:** Ingenious Island Part II **EDN:** Building a Bridge, Mars or Bust, Passive Solar Energy
Disciplinary Core Ideas	
ETS1.A: Defining and Delimiting Engineering Problems The more precisely a design task's criteria and constraints can be defined, the more likely it is that the designed solution will be successful. Specification of constraints includes consideration of scientific principles and other relevant knowledge that are likely to limit possible solutions.	**SE/TE:** 148–151, 288–289, 330–333, 446–447, 559, 597 **Labs:** Ingenious Island Part II **EDN:** Build a Timeline to the Distant Past, Building a Bridge, Mars or Bust, Passive Solar Energy
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Asking Questions and Defining Problems	**SE/TE:** 148–151, 288–289, 330–333, 446–447 **Labs:** Ingenious Island Part II **EDN:** Building a Bridge, Design a Tide Engine, Passive Solar Energy
Crosscutting Concepts	
Systems and System Models All human activity draws on natural resources and has both short and long-term consequences, positive as well as negative, for the health of people and the natural environment. The uses of technologies and limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions.	**SE/TE:** 148–151, 330–333, 344, 356, 357–358, 380–381, 446–447 **Labs:** Ingenious Island Part II, Trash versus Water **EDN:** Buying Water Once and Using It Twice, Harvesting Water, Mars or Bust

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Performance Standard MS-ETS1-2.	
Evaluate competing design solutions using systematic process to determine how well they meet the criteria and constraints of the problem.	**SE/TE:** 148–151, 398–401, 404–405, 446–447, 476, 559 **Labs:** Changing Coastlines, Trash versus Water **EDN:** Buying Water Once and Using it Twice
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ETS1.B: Developing Possible Solutions There are systematic processes for evaluating solutions with respect to how well they meet the criteria and constraints of a problem.	**SE/TE:** 148–151, 398–401,446–447, 476, 559 **Labs**: Changing Coastlines, Trash versus Water **EDN:** Prepare for a Big Wave
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Performance Standard MS-ETS1-3.	
Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.	**SE/TE:** 239, 256–259, 597 **Labs:** Ingenious Island Part II **EDN:** Building a Bridge, Design a Tide Engine
Disciplinary Core Ideas	
ET1.B: Developing Possible Solutions - A solution needs to be tested, and then modified on the basis of the test results, in order to improve it. Models of all kinds are important for testing solutions. **ET1.C: Optimizing the Design Solution** - The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.	**SE/TE:** 148–151, 398–401, 446–447, 476, 559 **Labs:** Changing Coastlines, Ingenious Island Part II **EDN**: Prepare for a Big Wave
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Crosscutting Concepts	
Cause and Effect Relationships can be classified as casual or correlational, and correlation does not necessarily imply causation.	**SE/TE:** 239, 256–259 **Labs:** Ingenious Island Part II
Performance Standard MS-ETS1-4.	
Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.	**SE/TE:** 1, 204–207, 208–209, 239, 251, 256–259, 330–333, 398–401, 597 **Labs:** Ingenious Island Part II **EDN**: Buying Water Once and Using it Twice, Passive Solar Energy, Prepare for a Big Wave
Disciplinary Core Ideas	
ETS1.B: Developing Possible Solutions A solution needs to be tested, and then modified based on test results, in order to improve it. Models of all kinds are important for testing solutions. **ET1.C: Optimizing the Design Solution** -The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.	**SE/TE:** 1, 204–207, 208–209, 239, 251, 256–259, 330–333, 398–401, 476, 597–598 **Labs**: Ingenious Island Part II **EDN:** Buying Water Once and Using it Twice, Passive Solar Energy, Prepare for a Big Wave
Science and Engineering Practices	
Developing and Using Models Develop a model to generate data to test ideas about designed systems, including those representing inputs and outputs.	**SE/TE:** 1, 204–207, 208–209, 239, 251, 256–259, 330–333, 398–401 **Labs**: Ingenious Island Part II **EDN:** Buying Water Once and Using it Twice, Passive Solar Energy, Prepare for a Big Wave
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Cause and effect relationships may be used to predict phenomena in natural or designed systems.	**EDN:** Buying Water Once and Using it Twice, Passive Solar Energy, Prepare for a Big Wave