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Chapter Title: Chapter 1 The Nature of Science

Chapter Question: How is science the process of trying to understand the world?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #1 SE: 6-11 Lesson #2 SE: 12-18	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Chapter Opener SE: 5 Chapter end matter SE: 20-21	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Lesson #1 SE: 6-11 Lesson #2 SE: 12-18 Chapter end matter SE: 20-21	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Lesson #1 SE: 6-11 Lesson #2 SE: 12-18 Chapter end matter SE: 20-21	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Lesson #1 SE: 6-11 Lesson #2 SE: 12-18 Chapter end matter SE: 20-21	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #1 SE: 6-11 Lesson #2 SE: 12-18 Chapter end matter SE: 20-21	Use qualitative and quantitative evidence to develop evidence-based arguments.

Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lesson #1 SE: 17-18 Chapter end matter SE: 20-21	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #1 SE: 7 Lesson 2 SE: 17-18 Chapter end matter SE: 20-21	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lesson #1 SE: 7 Lesson 2 SE: 17-18 Chapter end matter SE: 20-21	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Lesson 2 SE: 17-18 Chapter end matter SE: 20-21	Generate new and productive questions to evaluate and refine core explanations.

Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lesson #1 SE: 6-11 Lesson #2 SE: 19 Chapter end matter SE: 20-21	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lesson #1 SE: 6-11 Lesson #2 SE: 19 Chapter end matter SE: 20-21	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Chapter opener SE: 5 Chapter end matter SE: 20-21	Demonstrate how to safely use tools, instruments, and supplies.
Essential Questions: • How is science used to learn about ancient cultures? • What is scientific problem solving?	

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Chapter Title: Chapter 2 Minerals

Chapter Question: What is a mineral, and how can one identify different types of minerals?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Chapter end matter SE: 48-49	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Chapter opener SE: 29 Lesson #1 SE: 31, 35 Chapter end matter SE: 48-49	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Chapter opener SE: 29 Lesson #1 SE: 31, 35 Chapter end matter SE: 48-49	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Chapter opener SE: 29 Lesson #1 SE: 31, 35 Chapter end matter SE: 48-49	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter opener SE: 29 Lesson #1 SE: 31, 35 Chapter end matter SE: 48-49	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Chapter opener SE: 29 Lesson #1 SE: 31, 35 Chapter end matter SE: 48-49	Use qualitative and quantitative evidence to develop evidence-based arguments.

Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Chapter opener SE: 29 Lesson #1 SE: 35 Chapter end matter SE: 48-49	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Chapter opener SE: 29 Lesson #1 SE: 35 Chapter end matter SE: 48-49	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Chapter end matter SE: 48-49	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Chapter end matter SE: 48-49	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Chapter end matter SE: 48-49	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.

Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Chapter end matter SE: 48-49	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lesson #1 SE: 35 Chapter end matter SE: 48-49	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: A. Properties of Matter: All objects and substances in the natural world are composed of matter. Matter has two fundamental properties: matter takes up space, and matter has inertia.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: All matter is made of atoms. Matter made of only one type of atom is called an element.	
5.2.8.A.1 Lesson #1 SE: 30, 34 Lesson 3 SE: 45-47	Explain that all matter is made of atoms, and give examples of common elements.
Content Statement: All substances are composed of one or more of approximately 100 elements.	
5.2.8.A.2 Lesson #1 SE: 30, 34 Lesson 3 SE: 45-47	Analyze and explain the implications of the statement “all substances are composed of elements.”
Content Statement: Properties of solids, liquids, and gases are explained by a model of matter as composed of tiny particles (atoms) in motion.	
5.2.8.A.3 Lesson #1 SE: 33	Use the kinetic molecular model to predict how solids, liquids, and gases would behave under various physical circumstances, such as heating or cooling.

Content Statement: Elements are a class of substances composed of a single kind of atom. Compounds are substances that are chemically formed and have physical and chemical properties that differ from the reacting substances.	
5.2.8.A.5 Lesson #2 SE: 36-40 Chapter end matter SE: 48-49	Identify unknown substances based on data regarding their physical and chemical properties.
Essential Questions: • What characteristics do all minerals share, and how are minerals formed? • How can physical characteristics be used to identify minerals? • What are gems, and what useful elements are found in minerals?	

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Chapter Title: Chapter 3 Rocks

Chapter Question: How do the processes of the rock cycle form different types of rocks?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Chapter end matter SE: 78-79	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Chapter opener SE: 57 Lesson #1 SE: 59 Lesson #2 SE: 66 Lesson #3 SE: 72 Chapter end matter SE: 78-79	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Chapter opener SE: 57 Lesson #1 SE: 59 Lesson #2 SE: 66 Lesson #3 SE: 72 Chapter end matter SE: 78-79	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Chapter opener SE: 57 Lesson #1 SE: 59 Lesson #2 SE: 66 Lesson #3 SE: 72 Chapter end matter SE: 78-79	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter opener SE: 57 Lesson #1 SE: 59 Lesson #2 SE: 66 Lesson #3 SE: 72 Chapter end matter SE: 78-79	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.

Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Chapter opener SE: 57 Lesson #1 SE: 59 Lesson #2 SE: 66 Lesson #3 SE: 72 Chapter end matter SE: 78-79	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lesson #2 SE: 66 Chapter end matter SE: 78-79	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #2 SE: 66 Chapter end matter SE: 78-79	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lesson #2 SE: 66 Chapter end matter SE: 78-79	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Chapter opener SE: 57	Generate new and productive questions to evaluate and refine core explanations.

Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lesson #2 SE: 66 Chapter end matter SE: 78-79	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lesson #2 SE: 66 Chapter end matter SE: 78-79	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lesson #4 SE: 72 Chapter end matter SE: 78-79	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5. 4 Earth Systems Science: All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.	
CPI #	**Cumulative Progress Indicator (CPI)**
Strand: C. Properties of Earth Materials: Earth's composition is unique, is related to the origin of our solar system, and provides us with the raw resources needed to sustain life.	
Content Statement: Physical and chemical changes take place in Earth materials when Earth features are modified through weathering and erosion.	
5.4.8.C.2 Chapter Opener SE: 56 Lesson #1 SE: 60, 61 Lesson #2 SE: 65	Explain how chemical and physical mechanisms (changes) are responsible for creating a variety of landforms.

Strand: D. Tectonics: The theory of plate tectonics provides a framework for understanding the dynamic processes within and on Earth.	
Content Statement: Earth is layered with a lithosphere, a hot, convecting mantle, and a dense, metallic core.	
5.4.8.D.1 Lesson #2 SE: 62-63	Model the interactions between the layers of Earth.
Essential Questions: • How are rocks formed through the rock cycle? • How are igneous rocks formed and classified? • How are metamorphic rocks formed and classified? • How are sedimentary rocks formed and classified?	

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Chapter Title: **Chapter 4 Atmosphere**

Chapter Question: **How does Earth's atmosphere absorb and distribute energy from the Sun?**

Chapter Overview Template	
Content Area: **Science**	
Target Course/Grade Level: **Science Grades 6-8**	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: **5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: **A. Understand Scientific Explanations**: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Chapter end matter SE: 108-109	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Chapter opener SE: 89 Lesson #1 SE: 95 Lesson #2 SE: 101 Chapter end matter SE: 108-109	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Chapter opener SE: 89 Lesson #1 SE: 95 Lesson #2 SE: 101 Chapter end matter SE: 108-109	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Chapter opener SE: 89 Lesson #1 SE: 95 Lesson 2 SE: 101 Chapter end matter SE: 108-109	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter opener SE: 89 Lesson #1 SE: 95 Lesson 2 SE: 101 Chapter end matter SE: 108-109	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.

Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Chapter opener SE: 89 Lesson #1 SE: 95 Lesson #2 SE: 101 Chapter end matter SE: 108-109	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Chapter end matter SE: 108-109	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Chapter opener SE: 89 Lesson #1 SE: 95 Lesson #2 SE: 101 Chapter end matter SE: 108-109	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Chapter end matter SE: 108-109	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Chapter end matter SE: 108-109	Generate new and productive questions to evaluate and refine core explanations.

Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Chapter end matter SE: 108-109	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Chapter end matter SE: 108-109	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lesson #1 SE: 95 Chapter end matter SE: 108-109	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: A. Properties of Matter: All objects and substances in the natural world are composed of matter. Matter has two fundamental properties: matter takes up space, and matter has inertia.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Properties of solids, liquids, and gases are explained by a model of matter as composed of tiny particles (atoms) in motion.	
5.2.8.A.3 Lesson #2 SE: 100-101 Lesson 3 SE: 103	Use the kinetic molecular model to predict how solids, liquids, and gases would behave under various physical circumstances, such as heating or cooling.

Standard: 5. 4 Earth Systems Science: All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.	
Strand: A. Objects in the Universe: Our universe has been expanding and evolving for 13.7 billion years under the influence of gravitational and nuclear forces. As gravity governs its expansion, organizational patterns, and the movement of celestial bodies, nuclear forces within stars govern its evolution through the processes of stellar birth and death. These same processes governed the formation of our solar system 4.6 billion years ago.	
CPI #	**Cumulative Progress Indicator (CPI)**
Strand: B. History of Earth: From the time that Earth formed from a nebula 4.6 billion years ago, it has been evolving as a result of geologic, biological, physical, and chemical processes.	
Content Statement: Today's planet is very different than early Earth. Evidence for one-celled forms of life (bacteria) extends back more than 3.5 billion years.	
5.4.8.B.1 Lesson #1 SE: 90	Correlate the evolution of organisms and the environmental conditions on Earth as they changed throughout geologic time.
Strand: C. Properties of Earth Materials: Earth's composition is unique, is related to the origin of our solar system, and provides us with the raw resources needed to sustain life.	
Content Statement: Earth's atmosphere is a mixture of nitrogen, oxygen, and trace gases that include water vapor. The atmosphere has a different physical and chemical composition at different elevations.	
5.4.8.C.3 Lesson #1 SE: 92-97	Model the vertical structure of the atmosphere using information from active and passive remote-sensing tools (e.g., satellites, balloons, and/or ground-based sensors) in the analysis.
Strand: E. Energy in Earth Systems: Internal and external sources of energy drive Earth systems.	
Content Statement: The Sun provides energy for plants to grow and drives convection within the atmosphere and oceans, producing winds, ocean currents, and the water cycle.	
5.4.8.E.1 Lesson #2 SE: 99-102 Lesson #3 SE: 103-107	Explain how energy from the Sun is transformed or transferred in global wind circulation, ocean circulation, and the water cycle.
Strand: F. Climate and Weather: Earth's weather and climate systems are the result of complex interactions between land, ocean, ice, and atmosphere.	
Content Statement: Climate is influenced locally and globally by atmospheric interactions with land masses and bodies of water.	
5.4.8.F.2 Lesson #3 SE: 106-107	Explain the mechanisms that cause varying daily temperature ranges in a coastal community and in a community located in the interior of the country.

Content Statement: Weather (in the short term) and climate (in the long term) involve the transfer of energy and water in and out of the atmosphere.	
5.4.8.F.3 Lesson #2 SE: 101	Create a model of the hydrologic cycle that focuses on the transfer of water in and out of the atmosphere. Apply the model to different climates around the world.
Strand: G. Biogeochemical Cycles: The biogeochemical cycles in the Earth systems include the flow of microscopic and macroscopic resources from one reservoir in the hydrosphere, geosphere, atmosphere, or biosphere to another, are driven by Earth's internal and external sources of energy, and are impacted by human activity.	
Content Statement: Investigations of environmental issues address underlying scientific causes and may inform possible solutions.	
5.4.8.G.2 Lesson #1 SE: 96-97	Investigate a local or global environmental issue by defining the problem, researching possible causative factors, understanding the underlying science, and evaluating the benefits and risks of alternative solutions.
Essential Questions: • What is the structure of Earth's atmosphere? • How does Earth's atmosphere help control how much of the Sun's radiation is absorbed or lost to space? • How does uneven heating of the Earth's surface cause air to move?	

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Chapter Title: Chapter 5 Weather
Chapter Question: What is weather?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Chapter opener SE: 117	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Chapter opener SE: 117 Lesson #1 SE: 120 Chapter end matter SE: 138-139	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Chapter opener SE: 117 Lesson #1 SE: 120 Chapter end matter SE: 138-139	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Chapter opener SE: 117 Lesson #1 SE: 120 Chapter end matter SE: 138-139	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter opener SE: 117 Lesson #1 SE: 120 Chapter end matter SE: 138-139	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Chapter opener SE: 117 Lesson #1 SE: 120 Chapter end matter SE: 138-139	Use qualitative and quantitative evidence to develop evidence-based arguments.

Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Section #3 SE: 135 Chapter end matter SE: 138-139	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Chapter end matter SE: 138-139	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Chapter end matter SE: 138-139	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Chapter end matter SE: 138-139	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Chapter end matter SE: 138-139	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Chapter end matter SE: 138-139	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.

Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Chapter opener SE: 117 Chapter end matter SE: 138-139	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: A. Properties of Matter: All objects and substances in the natural world are composed of matter. Matter has two fundamental properties: matter takes up space, and matter has inertia.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Properties of solids, liquids, and gases are explained by a model of matter as composed of tiny particles (atoms) in motion.	
5.2.8.A.3 Lesson #1 SE: 119	Use the kinetic molecular model to predict how solids, liquids, and gases would behave under various physical circumstances, such as heating or cooling.
Strand: C. Forms of Energy: Knowing the characteristics of familiar forms of energy, including potential and kinetic energy, is useful in coming to the understanding that, for the most part, the natural world can be explained and is predictable.	
Content Statement: A tiny fraction of the light energy from the Sun reaches Earth. Light energy from the Sun is Earth's primary source of energy, heating Earth surfaces and providing the energy that results in wind, ocean currents, and storms.	
5.2.8.C.1 Lesson #2 SE: 130, 131	Structure evidence to explain the relatively high frequency of tornadoes in "Tornado Alley."
Standard: 5. 4 Earth Systems Science: All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.	
Strand: C. Properties of Earth Materials: Earth's composition is unique, is related to the origin of our solar system, and provides us with the raw resources needed to sustain life.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Earth's atmosphere is a mixture of nitrogen, oxygen, and trace gases that include water vapor. The atmosphere has a different physical and chemical composition at different elevations.	
5.4.8.C.3 Lesson #3 SE: 134-135	Model the vertical structure of the atmosphere using information from active and passive remote-sensing tools (e.g., satellites, balloons, and/or ground-based sensors) in the analysis.

Strand: F. Climate and Weather: Earth's weather and climate systems are the result of complex interactions between land, ocean, ice, and atmosphere.	
Content Statement: Global patterns of atmospheric movement influence local weather.	
5.4.8.F.1 Lesson #3 SE: 134-136, 137	Determine the origin of local weather by exploring national and international weather maps.
Content Statement: Climate is influenced locally and globally by atmospheric interactions with land masses and bodies of water.	
5.4.8.F.2 Lesson #1 SE: 118-119	Explain the mechanisms that cause varying daily temperature ranges in a coastal community and in a community located in the interior of the country.
Essential Questions: • What are the components of weather? • What causes changes in weather? • How do meteorologists forecast the weather?	

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Chapter Title: Chapter 6 Climate
Chapter Question: What is climate?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Chapter Opener SE: 147 Lesson #3 SE: 167 Chapter end matter SE: 168-169	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.

Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Chapter Opener SE: 147 Lesson #1 SE: 149, 150 Lesson #3 SE: 157 Chapter end matter SE: 168-169	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.
Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Chapter Opener SE: 147 Lesson #1 SE: 149, 150 Lesson #3 SE: 157 Chapter end matter SE: 168-169	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Chapter Opener SE: 147 Lesson #1 SE: 149, 150 Lesson #3 SE: 157 Chapter end matter SE: 168-169	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.

Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter Opener SE: 147 Lesson #1 SE: 149, 150 Lesson #3 SE: 157 Chapter end matter SE: 168-169	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Chapter Opener SE: 147 Lesson #1 SE: 149, 150 Lesson #3 SE: 157 Chapter end matter SE: 168-169	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lesson #3 SE: 157 Chapter end matter SE: 168-169	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Chapter Opener SE: 147 Chapter end matter SE: 168-169	Monitor one's own thinking as understandings of scientific concepts are refined.

Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Chapter Opener SE: 147 Chapter end matter SE: 168-169	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Lesson #3 SE: 157 Chapter end matter SE: 168-169	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Chapter Opener SE: 147 Chapter end matter SE: 168-169	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Chapter Opener SE: 147 Chapter end matter SE: 168-169	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lesson #3 SE: 167 Chapter end matter SE: 168-169	Demonstrate how to safely use tools, instruments, and supplies.

Standard: 5. 4 Earth Systems Science: All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.	
Strand: A. Objects in the Universe: Our universe has been expanding and evolving for 13.7 billion years under the influence of gravitational and nuclear forces. As gravity governs its expansion, organizational patterns, and the movement of celestial bodies, nuclear forces within stars govern its evolution through the processes of stellar birth and death. These same processes governed the formation of our solar system 4.6 billion years ago.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Earth's tilt, rotation, and revolution around the Sun cause changes in the height and duration of the Sun in the sky. These factors combine to explain the changes in the length of the day and seasons.	
5.4.8.A.2 Lesson #1 SE: 148 Lesson #3 SE: 156-157	Use evidence of global variations in day length, temperature, and the amount of solar radiation striking Earth's surface to create models that explain these phenomena and seasons.
Strand: B. History of Earth: From the time that Earth formed from a nebula 4.6 billion years ago, it has been evolving as a result of geologic, biological, physical, and chemical processes.	
Content Statement: Fossils provide evidence of how life and environmental conditions have changed. The principle of Uniformitarianism makes possible the interpretation of Earth's history. The same Earth processes that occurred in the past occur today.	
5.4.8.B.2 Lesson #3 SE: 156-159	Evaluate the appropriateness of increasing the human population in a region (e.g., barrier islands, Pacific Northwest, Midwest United States) based on the region's history of catastrophic events, such as volcanic eruptions, earthquakes, and floods.
Strand: E. Energy in Earth Systems: Internal and external sources of energy drive Earth systems.	
Content Statement: The Sun provides energy for plants to grow and drives convection within the atmosphere and oceans, producing winds, ocean currents, and the water cycle.	
5.4.8.E.1 Lesson #3 SE: 157-159, 161	Explain how energy from the Sun is transformed or transferred in global wind circulation, ocean circulation, and the water cycle.
Strand: F. Climate and Weather: Earth's weather and climate systems are the result of complex interactions between land, ocean, ice, and atmosphere.	
Content Statement: Climate is influenced locally and globally by atmospheric interactions with land masses and bodies of water.	
5.4.8.F.2 Lesson #1 SE: 149-151	Explain the mechanisms that cause varying daily temperature ranges in a coastal community and in a community located in the interior of the country.

Content Statement: Weather (in the short term) and climate (in the long term) involve the transfer of energy and water in and out of the atmosphere.	
5.4.8.F.3 Lesson #2 SE: 152	Create a model of the hydrologic cycle that focuses on the transfer of water in and out of the atmosphere. Apply the model to different climates around the world.
Strand: G. Biogeochemical Cycles: The biogeochemical cycles in the Earth systems include the flow of microscopic and macroscopic resources from one reservoir in the hydrosphere, geosphere, atmosphere, or biosphere to another, are driven by Earth's internal and external sources of energy, and are impacted by human activity.	
Content Statement: Water in the oceans holds a large amount of heat, and therefore significantly affects the global climate system.	
5.4.8.G.1 Lesson #1 SE: 149-150 Lesson 3 SE: 157-159	Represent and explain, using sea surface temperature maps, how ocean currents impact the climate of coastal communities.
Content Statement: Investigations of environmental issues address underlying scientific causes and may inform possible solutions.	
5.4.8.G.2 Lesson #3 SE: 163-166, 167	Investigate a local or global environmental issue by defining the problem, researching possible causative factors, understanding the underlying science, and evaluating the benefits and risks of alternative solutions.
Essential Questions: • What factors determine the climate of a region? • How are climates classified, and how are different plants adapted to different climate types? • What factors influence climate change?	

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Chapter Title: **Chapter 7 Earth in Space**

Chapter Question: **How does Earth's place in space explain what we observe from Earth?**

Chapter Overview Template	
Content Area: **Science**	
Target Course/Grade Level: **Science Grades 6-8**	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: **5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: **A. Understand Scientific Explanations**: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #2 SE: 189	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Chapter opener SE: 177 Lesson #2 SE: 189 Chapter end matter SE: 202-203	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Chapter opener SE: 177 Lesson #2 SE: 189 Chapter end matter SE: 202-203	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Lesson #2 SE: 189 Chapter end matter SE: 202-203	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter end matter SE: 202-203	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Chapter opener SE: 177 Lesson #2 SE: 189 Chapter end matter SE: 202-203	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Chapter end matter SE: 202-203	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.

Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #2 SE: 189 Chapter end matter SE: 202-203	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Chapter end matter SE: 202-203	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Chapter end matter SE: 202-203	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lesson #2 SE: 189 Chapter end matter SE: 202-203	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lesson #2 SE: 189 Chapter end matter SE: 202-203	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.

Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lesson #2 SE: 193 Chapter end matter SE: 202-203	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5. 4 Earth Systems Science: All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.	
Strand: A. Objects in the Universe: Our universe has been expanding and evolving for 13.7 billion years under the influence of gravitational and nuclear forces. As gravity governs its expansion, organizational patterns, and the movement of celestial bodies, nuclear forces within stars govern its evolution through the processes of stellar birth and death. These same processes governed the formation of our solar system 4.6 billion years ago.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: The relative positions and motions of the Sun, Earth, and Moon result in the phases of the Moon, eclipses, and the daily and monthly cycle of tides.	
5.4.8.A.1 Lesson #2 SE: 185-190, 193	Analyze moon-phase, eclipse, and tidal data to construct models that explain how the relative positions and motions of the Sun, Earth, and Moon cause these three phenomena.
Content Statement: Earth's tilt, rotation, and revolution around the Sun cause changes in the height and duration of the Sun in the sky. These factors combine to explain the changes in the length of the day and seasons.	
5.4.8.A.2 Lesson #1 SE: 180-183 Chapter end matter SE: 202-203	Use evidence of global variations in day length, temperature, and the amount of solar radiation striking Earth's surface to create models that explain these phenomena and seasons.
Content Statement: Gravitation is a universal attractive force by which objects with mass attract one another. The gravitational force between two objects is proportional to their masses and inversely proportional to the square of the distance between the objects.	
5.4.8.A.3 Lesson #1 SE: 179	Predict how the gravitational force between two bodies would differ for bodies of different masses or bodies that are different distances apart.

Content Statement: The regular and predictable motion of objects in the solar system (Kepler's Laws) is explained by gravitational forces.	
5.4.8.A.4 Lesson #3 SE: 194-200	Analyze data regarding the motion of comets, planets, and moons to find general patterns of orbital motion.
Essential Questions: • What causes seasons to occur? • What is the moon like, and how does it move around Earth? • What makes up our solar system?	

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Chapter Title: Chapter 8 Life's Structure and Classification

Chapter Question: What is life science?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Chapter opener SE: 213 Lesson #3 SE: 225, 231 Chapter end matter SE: 237	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.
Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Chapter opener SE: 213 Lesson #3 SE: 225, 231 Chapter end matter SE: 237	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.

Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Lesson #3 SE: 231 Chapter end matter SE: 237	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Lesson #3 SE: 231 Chapter end matter SE: 237	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #3 SE: 231	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Chapter end matter SE: 237	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Chapter end matter SE: 237	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Chapter end matter SE: 237	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Chapter end matter SE: 237	Generate new and productive questions to evaluate and refine core explanations.

Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lesson #2 SE: 219	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lesson #2 SE: 219	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lesson #3 SE: 231 Chapter end matter SE: 236-237	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: B. Changes in Matter: Substances can undergo physical or chemical changes to form new substances. Each change involves energy.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Chemical changes can occur when two substances, elements, or compounds react and produce one or more different substances. The physical and chemical properties of the products are different from those of the reacting substances.	
5.2.8.B.2 Lesson #3 SE: 227	Compare and contrast the physical properties of reactants with products after a chemical reaction, such as those that occur during photosynthesis and cellular respiration.
Strand: D. Energy Transfer and Conservation: The conservation of energy can be demonstrated by keeping track of familiar forms of energy as they are transferred from one object to another.	
Content Statement: Nuclear reactions take place in the Sun. In plants, light energy from the Sun is transferred to oxygen and carbon compounds, which in combination, have chemical potential energy (photosynthesis).	
5.2.8.D.2 Lesson #3 SE: 227	Describe the flow of energy from the Sun to the fuel tank of an automobile.

Standard: 5. 3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.	
Strand: A. Organization and Development: Living organisms are composed of cellular units (structures) that carry out functions required for life. Cellular units are composed of molecules, which also carry out biological functions.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: All organisms are composed of cell(s). In multicellular organisms, specialized cells perform specialized functions. Tissues, organs, and organ systems are composed of cells and function to serve the needs of cells for food, air, and waste removal.	
5.3.8.A.1 Lesson #1 SE: 214 Lesson #3 SE: 230	Compare the benefits and limitations of existing as a single-celled organism and as a multicellular organism.
Content Statement: During the early development of an organism, cells differentiate and multiply to form the many specialized cells, tissues, and organs that compose the final organism. Tissues grow through cell division.	
5.3.8.A.2 Lesson #3 SE: 224-230	Relate the structures of cells, tissues, organs, and systems to their functions in supporting life.
Strand: B. Matter and Energy Transformations: Food is required for energy and building cellular materials. Organisms in an ecosystem have different ways of obtaining food, and some organisms obtain their food directly from other organisms.	
Content Statement: Food is broken down to provide energy for the work that cells do, and is a source of the molecular building blocks from which needed materials are assembled.	
5.3.8.B.1 Lesson #1 SE: 215, 216	Relate the energy and nutritional needs of organisms in a variety of life stages and situations, including stages of development and periods of maintenance.
Content Statement: All animals, including humans, are consumers that meet their energy needs by eating other organisms or their products.	
5.3.8.B.2 Lesson #1 SE: 216 Lesson #3 SE: 227	Analyze the components of a consumer's diet and trace them back to plants and plant products.

Strand: D. Heredity and Reproduction: Organisms reproduce, develop, and have predictable life cycles. Organisms contain genetic information that influences their traits, and they pass this on to their offspring during reproduction.	
Content Statement: Some organisms reproduce asexually. In these organisms, all genetic information comes from a single parent. Some organisms reproduce sexually, through which half of the genetic information comes from each parent.	
5.3.8.D.1 Lesson #1 SE: 216	Defend the principle that, through reproduction, genetic traits are passed from one generation to the next, using evidence collected from observations of inherited traits.
Strand: E. Evolution and Diversity: Sometimes, differences between organisms of the same kind provide advantages for surviving and reproducing in different environments. These selective differences may lead to dramatic changes in characteristics of organisms in a population over extremely long periods of time.	
Content Statement: Anatomical evidence supports evolution and provides additional detail about the sequence of branching of various lines of descent.	
5.3.8.E.2 Lesson #2 SE: 219	Compare the anatomical structures of a living species with fossil records to derive a line of descent.
Essential Questions: • What are the characteristics of living things? • How are living things classified? • What is a cell, and what structures are found in different cell types? • What are viruses?	

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Chapter Title: Chapter 9 Cell Processes

Chapter Question: What cell processes ensure the survival of cell's the?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Chapter end matter SE: 267	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Chapter opener SE: 245 Lesson #2 SE: 255, 260 Chapter end matter SE: 267	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Chapter opener SE: 245 Lesson #2 SE: 255, 260 Chapter end matter SE: 267	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Chapter opener SE: 245 Lesson #2 SE: 260 Chapter end matter SE: 267	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter opener SE: 245 Lesson #2 SE: 260 Chapter end matter SE: 267	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Chapter opener SE: 245 Lesson #1 SE: 251 Lesson #2 SE: 255, 260 Chapter end matter SE: 267	Use qualitative and quantitative evidence to develop evidence-based arguments.

Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lesson #2 SE: 260 Chapter end matter SE: 267	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Chapter end matter SE: 267	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Chapter end matter SE: 267	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Chapter end matter SE: 267	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lesson #2 SE: 260 Chapter end matter SE: 267	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lesson #2 SE: 260 Chapter end matter SE: 267	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.

Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lesson #2 SE: 260 Chapter end matter SE: 267	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: A. Properties of Matter: All objects and substances in the natural world are composed of matter. Matter has two fundamental properties: matter takes up space, and matter has inertia.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: All matter is made of atoms. Matter made of only one type of atom is called an element.	
5.2.8.A.1 Lesson #1 SE: 246-247	Explain that all matter is made of atoms, and give examples of common elements.
Content Statement: All substances are composed of one or more of approximately 100 elements.	
5.2.8.A.2 Lesson #1 SE: 247	Analyze and explain the implications of the statement “all substances are composed of elements.”
Content Statement: Properties of solids, liquids, and gases are explained by a model of matter as composed of tiny particles (atoms) in motion.	
5.2.8.A.3 Lesson #2 SE: 255	Use the kinetic molecular model to predict how solids, liquids, and gases would behave under various physical circumstances, such as heating or cooling.
Content Statement: The Periodic Table organizes the elements into families of elements with similar properties.	
5.2.8.A.4 Lesson #1 SE: 247	Predict the physical and chemical properties of elements based on their positions on the Periodic Table.

Strand: B. Changes in Matter: Substances can undergo physical or chemical changes to form new substances. Each change involves energy.	
Content Statement: Chemical changes can occur when two substances, elements, or compounds react and produce one or more different substances. The physical and chemical properties of the products are different from those of the reacting substances.	
5.2.8.B.2 Lesson #3 SE: 261-265 Chapter and matter SE: 266-267	Compare and contrast the physical properties of reactants with products after a chemical reaction, such as those that occur during photosynthesis and cellular respiration.
Strand: D. Energy Transfer and Conservation: The conservation of energy can be demonstrated by keeping track of familiar forms of energy as they are transferred from one object to another.	
Content Statement: Nuclear reactions take place in the Sun. In plants, light energy from the Sun is transferred to oxygen and carbon compounds, which in combination, have chemical potential energy (photosynthesis).	
5.2.8.D.2 Lesson #3 SE: 262-263 Chapter end matter SE: 266-267	Describe the flow of energy from the Sun to the fuel tank of an automobile.
Standard: 5. 3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.	
Strand: B. Matter and Energy Transformations: Food is required for energy and building cellular materials. Organisms in an ecosystem have different ways of obtaining food, and some organisms obtain their food directly from other organisms.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Food is broken down to provide energy for the work that cells do, and is a source of the molecular building blocks from which needed materials are assembled.	
5.3.8.B.1 Lesson #3 SE: 261	Relate the energy and nutritional needs of organisms in a variety of life stages and situations, including stages of development and periods of maintenance.

Content Statement: All animals, including humans, are consumers that meet their energy needs by eating other organisms or their products.	
5.3.8.B.2 Lesson #3 SE: 262-263	Analyze the components of a consumer's diet and trace them back to plants and plant products.

Essential Questions:

- What elements are in all organisms, and how do these elements combine to form the substances needed for life?
- How do substances pass through the cell membrane?
- How do cells capture and use energy?

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Chapter Title: Chapter 10 Cell Reproduction
Chapter Question: How do cells reproduce?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #2 SE: 287 Chapter end matter 296-297	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lesson #1 SE: 281, 283 Lesson #2 SE: 287 Lesson #3 SE: 291 Chapter end matter 296-297	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Chapter opener SE: 275 Lesson #1 SE: 281, 283 Lesson #2 SE: 287 Lesson #3 SE: 291 Chapter end matter 296-297	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Chapter opener SE: 275 Lesson #1 SE: 281, 283	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter opener SE: 275 Lesson #1 SE: 283	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Chapter opener SE: 275 Lesson #1 SE: 283 Chapter end matter 296-297	Use qualitative and quantitative evidence to develop evidence-based arguments.

Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Chapter opener SE: 275 Lesson #1 SE: 283	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Chapter opener SE: 275 Chapter end matter 296-297	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Chapter end matter 296-297	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Chapter end matter 296-297	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lesson #1 SE: 283 Chapter end matter 296-297	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Chapter end matter 296-297	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.

Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lesson #1 SE: 283	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5. 3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.	
Strand: D. Heredity and Reproduction: Organisms reproduce, develop, and have predictable life cycles. Organisms contain genetic information that influences their traits, and they pass this on to their offspring during reproduction.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Some organisms reproduce asexually. In these organisms, all genetic information comes from a single parent. Some organisms reproduce sexually, through which half of the genetic information comes from each parent.	
5.3.8.D.1 Lesson #1 SE: 281-282 Lesson #2 SE: 284-287 Chapter end matter SE: 296-297	Defend the principle that, through reproduction, genetic traits are passed from one generation to the next, using evidence collected from observations of inherited traits.
Content Statement: The unique combination of genetic material from each parent in sexually reproducing organisms results in the potential for variation.	
5.3.8.D.2 Lesson #2 SE: 284-287	Explain the source of variation among siblings.
Content Statement: Characteristics of organisms are influenced by heredity and/or their environment.	
5.3.8.D.3 Lesson #2 SE: 289 Lesson 3 SE: 294-295 Chapter end matter SE: 296-297	Describe the environmental conditions or factors that may lead to a change in a cell's genetic information or to an organism's development, and how these changes are passed on.
Essential Questions: • How do cells divide to support growth, repair, and asexual reproduction? • What is the role of meiosis in sexual reproduction? • What is DNA?	

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Chapter Title: **Chapter 11 Heredity**

Chapter Question: **How do inherited genes determine an organism's traits?**

Chapter Overview Template	
Content Area: **Science**	
Target Course/Grade Level: **Science Grades 6-8**	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: **5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: **A. Understand Scientific Explanations**: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #2 SE: 316 Chapter end matter SE: 324-325	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lesson #1 SE: 308, 311	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Lesson #1 SE: 308, 311, 313 Lesson #2 SE: 316 Chapter end matter SE: 324-325	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Lesson #1 SE: 308, 311, 313 Lesson #2 SE: 316 Chapter end matter SE: 324-325	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Lesson #1 SE: 308, 311, 3131 Lesson #2 SE: 316 Chapter end matter SE: 324-325	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #1 SE: 308, 311, 3131 Lesson #2 SE: 316 Chapter end matter SE: 324-325	Use qualitative and quantitative evidence to develop evidence-based arguments.

Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lesson #1 SE: 308, 313 Lesson #2 SE: 316 Chapter end matter SE: 324-325	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Chapter end matter SE: 324-325	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lesson #1 SE: 313 Chapter end matter SE: 324-325	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Chapter end matter SE: 324-325	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Chapter opener SE: 305 Lesson #1 SE: 313 Chapter end matter SE: 324-325	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.

Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Chapter opener SE: 305 Lesson #1 SE: 313 Chapter end matter SE: 324-325	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Organisms are treated humanely, responsibly, and ethically.	
5.1.8.D.4 Lesson #1 SE: 308 Chapter end matter SE: 324-325	Handle and treat organisms humanely, responsibly, and ethically.
Standard: 5. 3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.	
Strand: D. Heredity and Reproduction: Organisms reproduce, develop, and have predictable life cycles. Organisms contain genetic information that influences their traits, and they pass this on to their offspring during reproduction.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Some organisms reproduce asexually. In these organisms, all genetic information comes from a single parent. Some organisms reproduce sexually, through which half of the genetic information comes from each parent.	
5.3.8.D.1 Chapter opener SE: 305 Lesson #1 SE: 306-313 Lesson #2 SE: 314-316, 318-320	Defend the principle that, through reproduction, genetic traits are passed from one generation to the next, using evidence collected from observations of inherited traits.

Content Statement: The unique combination of genetic material from each parent in sexually reproducing organisms results in the potential for variation.	
5.3.8.D.2 Lesson #1 SE: 306-313 Lesson #2 SE: 314-316, 319-320	Explain the source of variation among siblings.
Content Statement: Characteristics of organisms are influenced by heredity and/or their environment.	
5.3.8.D.3 Lesson #2 SE: 317-319	Describe the environmental conditions or factors that may lead to a change in a cell's genetic information or to an organism's development, and how these changes are passed on.
Essential Questions: • How did Gregor Mendel discover the basic principles of genetics? • How do alleles, genes, and the environment determine an organism's traits? • What is genetic engineering, and how is it used to alter organisms?	

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Chapter Title: Chapter 12 Adaptations over Time
Chapter Question: How do life forms change over time?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Chapter end matter SE: 354-355	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Chapter opener SE: 333 Lesson #1 SE: 337, 339, 342 Lesson #3 SE: 351 Chapter end matter SE: 354-355	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Chapter opener SE: 333 Lesson #1 SE: 337, 339, 342 Lesson #3 SE: 351 Chapter end matter SE: 354-355	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Chapter end matter SE: 354-355	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter end matter SE: 354-355	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Chapter end matter SE: 354-355	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Chapter end matter SE: 354-355	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Chapter end matter SE: 354-355	Monitor one's own thinking as understandings of scientific concepts are refined.

Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Chapter end matter SE: 354-355	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Chapter end matter SE: 354-355	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Chapter end matter SE: 354-355	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Chapter end matter SE: 354-355	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Chapter end matter SE: 354-355	Demonstrate how to safely use tools, instruments, and supplies.

Standard: 5. 3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.	
Strand: D. Heredity and Reproduction: Organisms reproduce, develop, and have predictable life cycles. Organisms contain genetic information that influences their traits, and they pass this on to their offspring during reproduction.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Some organisms reproduce asexually. In these organisms, all genetic information comes from a single parent. Some organisms reproduce sexually, through which half of the genetic information comes from each parent.	
5.3.8.D.1 Lesson #1 SE: 337	Defend the principle that, through reproduction, genetic traits are passed from one generation to the next, using evidence collected from observations of inherited traits.
Content Statement: The unique combination of genetic material from each parent in sexually reproducing organisms results in the potential for variation.	
5.3.8.D.2 Lesson #1 SE: 338-339 Chapter end matter SE: 354-355	Explain the source of variation among siblings.
Content Statement: Characteristics of organisms are influenced by heredity and/or their environment.	
5.3.8.D.3 Lesson #1 SE: 340	Describe the environmental conditions or factors that may lead to a change in a cell's genetic information or to an organism's development, and how these changes are passed on.
Strand: E. Evolution and Diversity: Sometimes, differences between organisms of the same kind provide advantages for surviving and reproducing in different environments. These selective differences may lead to dramatic changes in characteristics of organisms in a population over extremely long periods of time.	
Content Statement: Individual organisms with certain traits are more likely than others to survive and have offspring in particular environments. The advantages or disadvantages of specific characteristics can change when the environment in which they exist changes. Extinction of a species occurs when the environment changes and the characteristics of a species are insufficient to allow survival.	
5.3.8.E.1 Lesson #3 SE: 352	Organize and present evidence to show how the extinction of a species is related to an inability to adapt to changing environmental conditions using quantitative and qualitative data.

Content Statement: Anatomical evidence supports evolution and provides additional detail about the sequence of branching of various lines of descent.	
5.3.8.E.2 Lesson #1 SE: 340 Lesson #2 SE: 351-353	Compare the anatomical structures of a living species with fossil records to derive a line of descent.
Standard: 5. 4 Earth Systems Science: All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.	
Strand: B. History of Earth: From the time that Earth formed from a nebula 4.6 billion years ago, it has been evolving as a result of geologic, biological, physical, and chemical processes.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Today's planet is very different than early Earth. Evidence for one-celled forms of life (bacteria) extends back more than 3.5 billion years.	
5.4.8.B.1 Lesson #2 SE: 343-347	Correlate the evolution of organisms and the environmental conditions on Earth as they changed throughout geologic time.
Essential Questions: • How was the theory of evolution developed, and how does evolution explain changes in organisms over time? • What evidence supports the theory of evolution? • What does the evidence suggest about primate and human evolution?	

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Chapter Title: Chapter 13 Circulation and Immunity

Chapter Question: How do the circulatory and immune systems interact to keep the body healthy?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Chapter Opener 365 Lab 389 Unit Opener 362	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lesson #1 SE: 367, 368 Lesson #3 SE: 379, 380 Chapter Opener 365 Lab 389	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Lesson #1 SE: 368 Lesson #3 SE: 379 Lab 389-391 Chapter Opener 365	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Lab 390-391	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Lesson #3 SE: 379	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #3 SE: 379 Lab 389-391	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lab 390-391	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #3 SE: 380 Chapter Opener 364	Monitor one's own thinking as understandings of scientific concepts are refined.

Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lab 390-391	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Lab 391	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lab 391	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lab 391	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lab 368, 389-391	Demonstrate how to safely use tools, instruments, and supplies.

Standard: 5. 3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.	
Strand: A. Organization and Development: Living organisms are composed of cellular units (structures) that carry out functions required for life. Cellular units are composed of molecules, which also carry out biological functions.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: During the early development of an organism, cells differentiate and multiply to form the many specialized cells, tissues, and organs that compose the final organism. Tissues grow through cell division.	
5.3.8.A.2 Lesson #1 SE:366-368 Lesson #2 SE:371-373, 375-376 Lesson #3 SE: 377-380 Lab 389 Chapter closer 395	Relate the structures of cells, tissues, organs, and systems to their functions in supporting life.
Strand: D. Heredity and Reproduction: Organisms reproduce, develop, and have predictable life cycles. Organisms contain genetic information that influences their traits, and they pass this on to their offspring during reproduction.	
Content Statement: Some organisms reproduce asexually. In these organisms, all genetic information comes from a single parent. Some organisms reproduce sexually, through which half of the genetic information comes from each parent.	
5.3.8.D.1 Lesson #1 SE: 369	Defend the principle that, through reproduction, genetic traits are passed from one generation to the next, using evidence collected from observations of inherited traits.
Essential Questions: • What is blood, and how does it transport needed substances to and wastes away from the cells? • How does the circulatory system transport substances through the body? • How does the immune system protect the body from disease? • How do pathogens cause disease?	

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Chapter Title: **Chapter 14 Digestion, Respiration, and Excretion**

Chapter Question: **How do the digestive, respiratory, and excretory systems work together to keep your body healthy?**

Chapter Overview Template	
Content Area: **Science**	
Target Course/Grade Level: **Science Grades 6-8**	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: **5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: **A. Understand Scientific Explanations**: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #3 SE: 418 Lab 425 Unit Opener 363	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lesson #3 SE: 415 Lesson #4 SE: 423	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Lesson #2 SE: 407 Lesson #3 SE: 415 Lab 411, 424-425 Unit Opener 363	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter Opener 399 Lab 411, 424-425	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #2 SE: 407 Chapter Opener 399 Lab 411, 424-425	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lab 425	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #1 SE: 404 Lab 425 Unit Opener 363	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lesson #1 SE: 404 Lab 411, 425	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.

Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lesson #1 SE: 404	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lab 411, 424-425	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: A. Properties of Matter: All objects and substances in the natural world are composed of matter. Matter has two fundamental properties: matter takes up space, and matter has inertia.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: All substances are composed of one or more of approximately 100 elements.	
5.2.8.A.2 Lesson #2 SE: 405, 408	Analyze and explain the implications of the statement "all substances are composed of elements."
Standard: 5. 3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.	
Strand: A. Organization and Development: Living organisms are composed of cellular units (structures) that carry out functions required for life. Cellular units are composed of molecules, which also carry out biological functions.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: During the early development of an organism, cells differentiate and multiply to form the many specialized cells, tissues, and organs that compose the final organism. Tissues grow through cell division.	
5.3.8.A.2 Lesson #1 SE: 401-404 Lesson #3 SE: 412-414 Lesson #4 SE: 419-423	Relate the structures of cells, tissues, organs, and systems to their functions in supporting life.

Strand: B. Matter and Energy Transformations: Food is required for energy and building cellular materials. Organisms in an ecosystem have different ways of obtaining food, and some organisms obtain their food directly from other organisms.	
Content Statement: Food is broken down to provide energy for the work that cells do, and is a source of the molecular building blocks from which needed materials are assembled.	
5.3.8.B.1 Lesson #1 SE: 400 Lesson #2 SE: 405-410	Relate the energy and nutritional needs of organisms in a variety of life stages and situations, including stages of development and periods of maintenance.
Content Statement: All animals, including humans, are consumers that meet their energy needs by eating other organisms or their products.	
5.3.8.B.2 Lesson #2 SE: 409-410	Analyze the components of a consumer's diet and trace them back to plants and plant products.
Essential Questions: • How do the organs of the digestive system process and absorb nutrients? • Why is it so important to eat a balanced diet? • How do the organs of the respiratory system supply the body with oxygen and remove carbon dioxide and gaseous wastes? • How does the excretory system remove wastes from the body?	

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Chapter Title: **Chapter 15 Support, Movement, and Responses**

Chapter Question: **How do the structures and functions of the skin and the muscular, skeletal, and nervous systems help maintain the body's homeostasis?**

Chapter Overview Template	
Content Area: **Science**	
Target Course/Grade Level: **Science Grades 6-8**	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: **5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: **A. Understand Scientific Explanations**: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #2 SE: 443 Lesson #4 SE: 452 Chapter Opener 432 Unit Opener 363	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lab 438, 458-459	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Lesson #4 SE: 452, 455 Lab 438, 458-459	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Lab 458-459	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Lab 438, 458-459	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #1 SE: 436 Lesson #4 SE: 455 Chapter Opener 433 Lab 458-459	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lab 458-459	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #2 SE: 443 Lesson #4 SE: 451, 455 Unit Opener 363	Monitor one's own thinking as understandings of scientific concepts are refined.

Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Chapter Closer 460 Lab 438, 459	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Lab 438, 459	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lab 438, 459	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lab 438, 459	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lab 459	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: E. Forces and Motion: It takes energy to change the motion of objects. The energy change is understood in terms of forces.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Forces have magnitude and direction. Forces can be added. The net force on an object is the sum of all the forces acting on the object. An object at rest will remain at rest unless acted on by an unbalanced force. An object in motion at constant velocity will continue at the same velocity unless acted on by an unbalanced force.	
5.2.8.E.2 Lesson #2 SE: 441-442	Compare the motion of an object acted on by balanced forces with the motion of an object acted on by unbalanced forces in a given specific scenario.

Standard: 5. 3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.	
Strand: A. Organization and Development: Living organisms are composed of cellular units (structures) that carry out functions required for life. Cellular units are composed of molecules, which also carry out biological functions.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: During the early development of an organism, cells differentiate and multiply to form the many specialized cells, tissues, and organs that compose the final organism. Tissues grow through cell division.	
5.3.8.A.2 Lesson #1 SE: 434 Lesson #2 SE: 440 Lesson #3 SE: 444-445 Lesson #4 SE: 450-456	Relate the structures of cells, tissues, organs, and systems to their functions in supporting life.
Strand: B. Matter and Energy Transformations: Food is required for energy and building cellular materials. Organisms in an ecosystem have different ways of obtaining food, and some organisms obtain their food directly from other organisms.	
Content Statement: Food is broken down to provide energy for the work that cells do, and is a source of the molecular building blocks from which needed materials are assembled.	
5.3.8.B.1 Lesson #2 SE: 443	Relate the energy and nutritional needs of organisms in a variety of life stages and situations, including stages of development and periods of maintenance.
Essential Questions: • What are the structure and functions of the skin? • How do muscles provide motion for internal organs and enable you to move place to place? • What are the functions of the skeletal system? • How does the nervous system enable you to respond to internal and external stimuli?	

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Chapter Title: Chapter 16 Regulation and Reproduction

Chapter Question: What body systems are involved in human reproduction and growth?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Unit Opener 363	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Chapter Opener 467 Lab 488-489	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.
Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Chapter Opener 467 Lab 488-489	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.

Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Lab 488-489	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lab 488-489	Use qualitative and quantitative evidence to develop evidence-based arguments.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #1 SE: 472 Lab 488-489 Unit Opener 363	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lab 488-489	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lab 478, 488-489	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lab 478, 488-489	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lab 488-489	Demonstrate how to safely use tools, instruments, and supplies.

Content Statement: Organisms are treated humanely, responsibly, and ethically.	
5.1.8.D.4 Lab 488-489	Handle and treat organisms humanely, responsibly, and ethically.
Standard: 5. 3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.	
Strand: A. Organization and Development: Living organisms are composed of cellular units (structures) that carry out functions required for life. Cellular units are composed of molecules, which also carry out biological functions.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: During the early development of an organism, cells differentiate and multiply to form the many specialized cells, tissues, and organs that compose the final organism. Tissues grow through cell division.	
5.3.8.A.2 Lesson #1 SE: 470-472 Lesson #2 SE: 473-477 Lesson #3 SE: 481-483	Relate the structures of cells, tissues, organs, and systems to their functions in supporting life.
Strand: D. Heredity and Reproduction: Organisms reproduce, develop, and have predictable life cycles. Organisms contain genetic information that influences their traits, and they pass this on to their offspring during reproduction.	
Content Statement: Some organisms reproduce asexually. In these organisms, all genetic information comes from a single parent. Some organisms reproduce sexually, through which half of the genetic information comes from each parent.	
5.3.8.D.1 Lesson #2 SE: 474-475 Lesson #3 SE: 479-480	Defend the principle that, through reproduction, genetic traits are passed from one generation to the next, using evidence collected from observations of inherited traits.
Content Statement: The unique combination of genetic material from each parent in sexually reproducing organisms results in the potential for variation.	
5.3.8.D.2 Lesson #3 SE: 480	Explain the source of variation among siblings.
Essential Questions: • How do hormones from endocrine glands affect body functions, including reproduction? • What are the reproductive structures in males and females? • How do humans change from birth until death?	

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Chapter Title: **Chapter 17 Plants**

Chapter Question: **What are plants, and how do adaptations enable plants to live in a variety of environments?**

Chapter Overview Template	
Content Area: **Science**	
Target Course/Grade Level: **Science Grades 6-8**	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: **5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: **A. Understand Scientific Explanations**: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #1 SE: 502 Lesson #3 SE: 515	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lesson #1 SE: 502 Lesson #3 SE: 513	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Lesson #2 SE: 507 Lesson #3 SE: 513	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Lesson #2 SE: 507 Lab 522-523	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #3 SE: 513 Lab 521	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lab 521	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #1 SE: 505 Lesson #3 SE: 513 Lab 521, 522-523	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lab 522-523	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.

Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Lab 522-523	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Chapter Opener 499 Lab 523	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Chapter Opener 499 Lab 523	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lab 522-523	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5.3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.	
Strand: B. Matter and Energy Transformations: Food is required for energy and building cellular materials. Organisms in an ecosystem have different ways of obtaining food, and some organisms obtain their food directly from other organisms.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: All animals, including humans, are consumers that meet their energy needs by eating other organisms or their products.	
5.3.8.B.2 Lesson #3 SE: 517, 520 Chapter Opener 499	Analyze the components of a consumer's diet and trace them back to plants and plant products.

Strand: D. Heredity and Reproduction: Organisms reproduce, develop, and have predictable life cycles. Organisms contain genetic information that influences their traits, and they pass this on to their offspring during reproduction.	
Content Statement: Some organisms reproduce asexually. In these organisms, all genetic information comes from a single parent. Some organisms reproduce sexually, through which half of the genetic information comes from each parent.	
5.3.8.D.1 Lesson #1 SE: 503 Lesson #3 SE: 519	Defend the principle that, through reproduction, genetic traits are passed from one generation to the next, using evidence collected from observations of inherited traits.
Content Statement: Characteristics of organisms are influenced by heredity and/or their environment.	
5.3.8.D.3 Lesson #1 SE: 502-503	Describe the environmental conditions or factors that may lead to a change in a cell's genetic information or to an organism's development, and how these changes are passed on.
Strand: E. Evolution and Diversity: Sometimes, differences between organisms of the same kind provide advantages for surviving and reproducing in different environments. These selective differences may lead to dramatic changes in characteristics of organisms in a population over extremely long periods of time.	
Content Statement: Anatomical evidence supports evolution and provides additional detail about the sequence of branching of various lines of descent.	
5.3.8.E.2 Lesson #1 SE: 501	Compare the anatomical structures of a living species with fossil records to derive a line of descent.
Standard: 5. 4 Earth Systems Science: All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.	
Strand: B. History of Earth: From the time that Earth formed from a nebula 4.6 billion years ago, it has been evolving as a result of geologic, biological, physical, and chemical processes.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Today's planet is very different than early Earth. Evidence for one-celled forms of life (bacteria) extends back more than 3.5 billion years.	
5.4.8.B.1 Lesson #1 SE:501-502 Lesson #2 SE: 509	Correlate the evolution of organisms and the environmental conditions on Earth as they changed throughout geologic time.
Essential Questions: • What adaptations enable plants to survive on land? • What are seedless plants, and how are they adapted to moist environments? • What are seed plants, and how are they adapted to live in diverse environments?	

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Chapter Title: Chapter 18 Interactions of Living Things

Chapter Question: How do organisms interact with both the living and nonliving parts of their environment?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #1 SE: 534 Chapter Opener 531 Lab 538	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lesson #2 SE: 540 Lesson #3 SE: 548 Chapter Opener 531 Lab 538	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Lesson #2 SE: 540 Lesson #3 SE: 548 Lab 538	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Lab 550-551	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter Opener 531 Lab 538, 550-551	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Chapter Opener 531 Lab 538, 550-551	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lab 538, 550-551	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #1 SE: 534 Lesson #2 SE: 543 Lesson #3 SE: 546, 549 Chapter Closer 555 Lab 538, 550-551	Monitor one's own thinking as understandings of scientific concepts are refined.

Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lab 538, 550-551	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Lab 538, 550-551	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lab 538, 550-551	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lab 538, 550-551	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lab 538	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5. 3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.	
Strand: B. Matter and Energy Transformations: Food is required for energy and building cellular materials. Organisms in an ecosystem have different ways of obtaining food, and some organisms obtain their food directly from other organisms.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: All animals, including humans, are consumers that meet their energy needs by eating other organisms or their products.	
5.3.8.B.2 Lesson #3 SE: 544-549	Analyze the components of a consumer's diet and trace them back to plants and plant products.

Strand: C. Interdependence: All animals and most plants depend on both other organisms and their environment to meet their basic needs.	
Content Statement: Symbiotic interactions among organisms of different species can be classified as: • Producer/consumer • Predator/prey • Parasite/host • Scavenger/prey • Decomposer/prey	
5.3.8.C.1 Lesson #2 SE: 542	Model the effect of positive and negative changes in population size on a symbiotic pairing.
Essential Questions: • How do organisms depend on the living and nonliving parts of their environment for survival? • How do organisms in an environment interact with one another? • How do matter and energy move through the environment?	

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Chapter Title: **Chapter 19 Conserving Resources**

Chapter Question: **Why are Earth's resources limited or unlimited, and how does this affect our use of them?**

Chapter Overview Template	
Content Area: **Science**	
Target Course/Grade Level: **Science Grades 6-8**	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: **5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: **A. Understand Scientific Explanations**: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #2 SE: 569 Lab 577, 582-583	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lab 577, 582-583	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Lesson #1 SE: 562 Lesson #2 SE: 569 Lab 577, 582-583	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Lab 582-583	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Lesson #2 SE: 569 Lab 577, 582-583	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #1 SE: 562 Lesson #2 SE: 569 Lab 577, 582-583	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lesson #2 SE: 569	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.

Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #1 SE: 563, 566 Lesson #2 SE: 570 Lesson #3 SE: 580-581 Chapter Opener 558-559 Lab 583	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lesson #2 SE: 576 Lab 577, 582-583	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Lesson # 2 SE: 570 Lab 582-583	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lab 577, 582-583	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lesson #3 SE: 580 Lab 577, 582-583	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.

Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lab 577, 582-583	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: A. Properties of Matter: All objects and substances in the natural world are composed of matter. Matter has two fundamental properties: matter takes up space, and matter has inertia.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Substances are classified according to their physical and chemical properties. Acids are a class of compounds that exhibit common chemical properties, including a sour taste, characteristic color changes with litmus and other acid/base indicators, and the tendency to react with bases to produce a salt and water.	
5.2.8.A.7 Lesson #2 SE: 569	Determine the relative acidity and reactivity of common acids, such as vinegar or cream of tartar, through a variety of student-designed investigations.
Strand: C. Forms of Energy: Knowing the characteristics of familiar forms of energy, including potential and kinetic energy, is useful in coming to the understanding that, for the most part, the natural world can be explained and is predictable.	
Content Statement: Energy is transferred from place to place. Light energy can be thought of as traveling in rays. Thermal energy travels via conduction and convection.	
5.2.8.C.2 Lesson #1 SE: 565-567 Lab 582-583	Model and explain current technologies used to capture solar energy for the purposes of converting it to electrical energy.
Strand: D. Energy Transfer and Conservation: The conservation of energy can be demonstrated by keeping track of familiar forms of energy as they are transferred from one object to another.	
Content Statement: Nuclear reactions take place in the Sun. In plants, light energy from the Sun is transferred to oxygen and carbon compounds, which in combination, have chemical potential energy (photosynthesis).	
5.2.8.D.2 Lesson #1 SE: 560-562	Describe the flow of energy from the Sun to the fuel tank of an automobile.

Standard: 5.4 Earth Systems Science: All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.	
Strand: C. Properties of Earth Materials: Earth's composition is unique, is related to the origin of our solar system, and provides us with the raw resources needed to sustain life.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Physical and chemical changes take place in Earth materials when Earth features are modified through weathering and erosion.	
5.4.8.C.2 Lesson #2 SE: 575 Chapter Opener 559	Explain how chemical and physical mechanisms (changes) are responsible for creating a variety of landforms.
Strand: G. Biogeochemical Cycles: The biogeochemical cycles in the Earth systems include the flow of microscopic and macroscopic resources from one reservoir in the hydrosphere, geosphere, atmosphere, or biosphere to another, are driven by Earth's internal and external sources of energy, and are impacted by human activity.	
Content Statement: Investigations of environmental issues address underlying scientific causes and may inform possible solutions.	
5.4.8.G.2 Lesson #1 SE: 563 Lab 582-583	Investigate a local or global environmental issue by defining the problem, researching possible causative factors, understanding the underlying science, and evaluating the benefits and risks of alternative solutions.
Essential Questions: • What is the difference between renewable and nonrenewable resources? • What are the causes of air, water, and soil pollution? • How can natural resources be conserved?	

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Chapter Title: **Chapter 20 Properties and Changes of Matter**

Chapter Question: **How is matter classified?**

Chapter Overview Template	
Content Area: **Science**	
Target Course/Grade Level: **Science Grades 6-8**	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: **5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: **A. Understand Scientific Explanations**: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #1 SE: 597 Lab 599, 610-611	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lesson #1 SE: 597 Lab 599	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Lesson #1 SE: 596 Lab 599, 610-611	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Lab 610-611	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Lesson #1 SE: 596-598 Lab 599, 610-611	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #1 SE: 596-597, 598 Lesson #2 SE: 603 Chapter Opener 593 Lab 610-611	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lab 610-611	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lab 599, 610-611	Monitor one's own thinking as understandings of scientific concepts are refined.

Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lesson #1 SE: 597 Lab 599, 610-611	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Lesson #1 SE: 597 Lab 599, 610-611	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lab 599, 610-611	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lab 599, 610-611	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lesson #1 SE: 596-598 Lab 599, 610-611	Demonstrate how to safely use tools, instruments, and supplies.

Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: A. Properties of Matter: All objects and substances in the natural world are composed of matter. Matter has two fundamental properties: matter takes up space, and matter has inertia.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Properties of solids, liquids, and gases are explained by a model of matter as composed of tiny particles (atoms) in motion.	
5.2.8.A.3 Lesson #2 SE: 600-601 Chapter Opener 592	Use the kinetic molecular model to predict how solids, liquids, and gases would behave under various physical circumstances, such as heating or cooling.
Content Statement: Elements are a class of substances composed of a single kind of atom. Compounds are substances that are chemically formed and have physical and chemical properties that differ from the reacting substances.	
5.2.8.A.5 Lesson #1 SE: 597	Identify unknown substances based on data regarding their physical and chemical properties.
Content Statement: Substances are classified according to their physical and chemical properties. Acids are a class of compounds that exhibit common chemical properties, including a sour taste, characteristic color changes with litmus and other acid/base indicators, and the tendency to react with bases to produce a salt and water.	
5.2.8.A.7 Lab 610-611	Determine the relative acidity and reactivity of common acids, such as vinegar or cream of tartar, through a variety of student-designed investigations.
Strand: B. Changes in Matter: Substances can undergo physical or chemical changes to form new substances. Each change involves energy.	
Content Statement: When substances undergo chemical change, the number and kinds of atoms in the reactants are the same as the number and kinds of atoms in the products. The mass of the reactants is the same as the mass of the products.	
5.2.8.B.1 Lesson #2 SE: 609	Explain, using an understanding of the concept of chemical change, why the mass of reactants and the mass of products remain constant.
Content Statement: Chemical changes can occur when two substances, elements, or compounds react and produce one or more different substances. The physical and chemical properties of the products are different from those of the reacting substances.	
5.2.8.B.2 Lesson #2 SE: 603, 605, 607	Compare and contrast the physical properties of reactants with products after a chemical reaction, such as those that occur during photosynthesis and cellular respiration.
Essential Questions: • What are the physical and chemical properties of matter? • How does matter undergo physical and chemical changes?	

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Chapter Title: **Chapter 21 Substances, Mixtures, and Solubility**

Chapter Question: **What are substances and mixtures?**

Chapter Overview Template	
Content Area: **Science**	
Target Course/Grade Level: **Science Grades 6-8**	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: **5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: **A. Understand Scientific Explanations**: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #2 SE: 630 Lesson #3 SE: 635 Lab 642-643	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lab 642-643	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Lesson # 3 SE: 635 Chapter Opener 619 Lab 633, 642-643	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter Opener 619 Lab 642-643	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #2 SE: 630 Lesson #3 SE: 635 Chapter Opener 619 Lab 633, 642-643	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lesson #2 SE: 630 Lab 642-643	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #1 SE: 625 Lesson #2 SE: 631 Lesson #3 SE: 641 Lab 643	Monitor one's own thinking as understandings of scientific concepts are refined.

Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lesson #3 SE: 640 Lab 642-643	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lab 633, 642-643	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lab 633, 642-643	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Chapter Opener 619 Lab 642-643	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: A. Properties of Matter: All objects and substances in the natural world are composed of matter. Matter has two fundamental properties: matter takes up space, and matter has inertia.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: All matter is made of atoms. Matter made of only one type of atom is called an element.	
5.2.8.A.1 Lesson #1 SE: 620	Explain that all matter is made of atoms, and give examples of common elements.
Content Statement: All substances are composed of one or more of approximately 100 elements.	
5.2.8.A.2 Lesson #1 SE: 620	Analyze and explain the implications of the statement "all substances are composed of elements."

Content Statement: Substances are classified according to their physical and chemical properties. Acids are a class of compounds that exhibit common chemical properties, including a sour taste, characteristic color changes with litmus and other acid/base indicators, and the tendency to react with bases to produce a salt and water.	
5.2.8.A.7 Lab 642-643	Determine the relative acidity and reactivity of common acids, such as vinegar or cream of tartar, through a variety of student-designed investigations.
Strand: B. Changes in Matter: Substances can undergo physical or chemical changes to form new substances. Each change involves energy.	
Content Statement: Chemical changes can occur when two substances, elements, or compounds react and produce one or more different substances. The physical and chemical properties of the products are different from those of the reacting substances.	
5.2.8.B.2 Lesson #3 SE: 637	Compare and contrast the physical properties of reactants with products after a chemical reaction, such as those that occur during photosynthesis and cellular respiration.
Essential Questions: • What is a solution? • What is solubility? • What are acids and bases, and what do they produce when dissolved in water?	

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Chapter Title: **Chapter 22 States of Matter**

Chapter Question: **How do the particles in solids, liquids, and gases behave under different conditions?**

Chapter Overview Template	
Content Area: **Science**	
Target Course/Grade Level: **Science Grades 6-8**	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: **5.1 Science Practices:** All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: **A. Understand Scientific Explanations**: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #2 SE: 662 Lab 674-675	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lesson #2 SE: 664 Lab 674-675	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Chapter Opener 651 Lab 665, 674-675	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Lab 674-675	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Chapter Opener 651 Lab 665, 674-675	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #2 SE: 662 Lesson #3 SE: 669 Chapter Opener 651 Lab 665, 674-675	Use qualitative and quantitative evidence to develop evidence-based arguments.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #1 SE: 656 Lesson #2 SE: 662, 664 Chapter Opener 651	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lab 674-675	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.

Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Lab 674-675	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lab 674-675	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lab 674-675	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Chapter Opener 651 Lab 665, 674-675	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: A. Properties of Matter: All objects and substances in the natural world are composed of matter. Matter has two fundamental properties: matter takes up space, and matter has inertia.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: All matter is made of atoms. Matter made of only one type of atom is called an element.	
5.2.8.A.1 Lesson #1 SE: 653	Explain that all matter is made of atoms, and give examples of common elements.
Content Statement: All substances are composed of one or more of approximately 100 elements.	
5.2.8.A.2 Lesson #1 SE: 653-655	Analyze and explain the implications of the statement "all substances are composed of elements."

Content Statement: Properties of solids, liquids, and gases are explained by a model of matter as composed of tiny particles (atoms) in motion.	
5.2.8.A.3 Lesson #2 SE: 658-660 Lesson #3 SE: 669-670	Use the kinetic molecular model to predict how solids, liquids, and gases would behave under various physical circumstances, such as heating or cooling.
Essential Questions: • What determines the state of matter of a substance? • What is released when matter changes state? • How do particles behave in fluids, liquids, and gases?	

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Chapter Title: Chapter 23 Newton's Laws of Motion

Chapter Question: How do forces affect the motion of an object?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #4 SE: 704 Chapter Opener 683 Lab 706-707	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lesson #1 SE: 687 Lesson #4 SE: 704 Lab 701, 706-707	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Lesson #4 SE: 704 Chapter Opener 683 Lab 701, 706-707	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Evidence is generated and evaluated as part of building and refining models and explanations.	
5.1.8.B.1 Lab 706-707	Design investigations and use scientific instrumentation to collect, analyze, and evaluate evidence as part of building and revising models and explanations.
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Lesson #1 SE: 687 Lab 701, 706-707	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #1 SE: 687 Chapter Opener 683 Lab 701, 706-707	Use qualitative and quantitative evidence to develop evidence-based arguments.
Content Statement: Scientific reasoning is used to support scientific conclusions.	
5.1.8.B.4 Lab 706-707	Use quality controls to examine data sets and to examine evidence as a means of generating and reviewing explanations.

Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #1 SE: 689 Lesson #2 SE: 691 Lesson #3 SE: 700 Lesson #4 SE: 705 Lab 701	Monitor one's own thinking as understandings of scientific concepts are refined.
Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lesson #2 SE: 692 Chapter Opener 683 Lab 701, 706-707	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Lesson #1 SE: 687 Lab 701, 706-707	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lab 701, 706-707	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lab 701, 706-707	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.

Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lesson #1 SE: 687 Lesson #4 SE: 704 Lab 701, 706-707	Demonstrate how to safely use tools, instruments, and supplies.
Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: E. Forces and Motion: It takes energy to change the motion of objects. The energy change is understood in terms of forces.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: An object is in motion when its position is changing. The speed of an object is defined by how far it travels divided by the amount of time it took to travel that far.	
5.2.8.E.1 Lesson #1 SE: 685-686	Calculate the speed of an object when given distance and time.
Content Statement: Forces have magnitude and direction. Forces can be added. The net force on an object is the sum of all the forces acting on the object. An object at rest will remain at rest unless acted on by an unbalanced force. An object in motion at constant velocity will continue at the same velocity unless acted on by an unbalanced force.	
5.2.8.E.2 Lesson #4 SE: 702-705 Chapter Closer 710 Lab 706-707	Compare the motion of an object acted on by balanced forces with the motion of an object acted on by unbalanced forces in a given specific scenario.

Standard: 5. 4 Earth Systems Science: All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.	
Strand: A. Objects in the Universe: Our universe has been expanding and evolving for 13.7 billion years under the influence of gravitational and nuclear forces. As gravity governs its expansion, organizational patterns, and the movement of celestial bodies, nuclear forces within stars govern its evolution through the processes of stellar birth and death. These same processes governed the formation of our solar system 4.6 billion years ago.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Gravitation is a universal attractive force by which objects with mass attract one another. The gravitational force between two objects is proportional to their masses and inversely proportional to the square of the distance between the objects.	
5.4.8.A.3 Lesson #3 SE: 696 Lesson #4 SE: 704-705	Predict how the gravitational force between two bodies would differ for bodies of different masses or bodies that are different distances apart.
Content Statement: The regular and predictable motion of objects in the solar system (Kepler's Laws) is explained by gravitational forces.	
5.4.8.A.4 Lesson #4 SE: 704	Analyze data regarding the motion of comets, planets, and moons to find general patterns of orbital motion.
Essential Questions: • How can speed, velocity, and acceleration be used to describe the motion of an object? • What is Newton's first law? • What is Newton's second law? • What is Newton's third law?	

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Chapter Title: Chapter 24 Energy and Energy Resources

Chapter Question: What is energy, and how is it transferred from one place to another?

Chapter Overview Template	
Content Area: Science	
Target Course/Grade Level: Science Grades 6-8	
21st Century Themes **Global Awareness** **21st Century Skills** **Creativity and Innovation – Critical Thinking and Problem Solving – Communication and Collaboration – Information Literacy Media Literacy – ICTY Literacy – Life and Career skills**	
Learning Targets	
Standard: 5.1 Science Practices: All students will understand that science is both a body of knowledge and an evidence-based, model-building enterprise that continually extends, refines, and revises knowledge. The four Science Practices strands encompass the knowledge and reasoning skills that students must acquire to be proficient in science.	
Strand: A. Understand Scientific Explanations: Students understand core concepts and principles of science and use measurement and observation tools to assist in categorizing, representing, and interpreting the natural and designed world.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Core scientific concepts and principles represent the conceptual basis for model-building and facilitate the generation of new and productive questions.	
5.1.8.A.1 Lesson #2 SE: 723 Lab 728, 738-739	Demonstrate understanding and use interrelationships among central scientific concepts to revise explanations and to consider alternative explanations.
Content Statement: Results of observation and measurement can be used to build conceptual-based models and to search for core explanations.	
5.1.8.A.2 Lesson #2 SE: 722 Chapter Opener 715	Use mathematical, physical, and computational tools to build conceptual-based models and to pose theories.

Content Statement: Predictions and explanations are revised based on systematic observations, accurate measurements, and structured data/evidence.	
5.1.8.A.3 Lesson #2 SE: 722-723 Chapter Opener 715 Lab 728, 738-739	Use scientific principles and models to frame and synthesize scientific arguments and pose theories.
Strand: B. Generate Scientific Evidence Through Active Investigations: Students master the conceptual, mathematical, physical, and computational tools that need to be applied when constructing and evaluating claims.	
Content Statement: Mathematical tools and technology are used to gather, analyze, and communicate results.	
5.1.8.B.2 Lesson #3 SE: 733 Chapter Opener 715 Lab 728, 738-739	Gather, evaluate, and represent evidence using scientific tools, technologies, and computational strategies.
Content Statement: Carefully collected evidence is used to construct and defend arguments.	
5.1.8.B.3 Lesson #2 SE: 723 Lesson #3 SE: 733 Chapter Opener 715 Lab 728	Use qualitative and quantitative evidence to develop evidence-based arguments.
Strand: C. Reflect on Scientific Knowledge: Scientific knowledge builds on itself over time.	
Content Statement: Scientific models and understandings of fundamental concepts and principles are refined as new evidence is considered.	
5.1.8.C.1 Lesson #1 SE: 720 Lesson #2 SE: 722, 727 Lesson #3 SE: 733 Chapter Closer 743 Lab 728, 739	Monitor one's own thinking as understandings of scientific concepts are refined.

Content Statement: Predictions and explanations are revised to account more completely for available evidence.	
5.1.8.C.2 Lesson #3 SE: 733 Chapter Opener 715 Lab 738-739	Revise predictions or explanations on the basis of discovering new evidence, learning new information, or using models.
Content Statement: Science is a practice in which an established body of knowledge is continually revised, refined, and extended.	
5.1.8.C.3 Lesson #3 SE: 733 Lab 738-739	Generate new and productive questions to evaluate and refine core explanations.
Strand: D. Participate Productively in Science: The growth of scientific knowledge involves critique and communication, which aresocial practices that are governed by a core set of values and norms.	
Content Statement: Science involves practicing productive social interactions with peers, such as partner talk, whole-group discussions, and small-group work.	
5.1.8.D.1 Lesson #3 SE: 733 Lab 728, 739	Engage in multiple forms of discussion in order to process, make sense of, and learn from others' ideas, observations, and experiences.
Content Statement: In order to determine which arguments and explanations are most persuasive, communities of learners work collaboratively to pose, refine, and evaluate questions, investigations, models, and theories (e.g., argumentation, representation, visualization, etc.).	
5.1.8.D.2 Lesson #3 SE: 733 Lab 728, 739	Engage in productive scientific discussion practices during conversations with peers, both face-to-face and virtually, in the context of scientific investigations and model-building.
Content Statement: Instruments of measurement can be used to safely gather accurate information for making scientific comparisons of objects and events.	
5.1.8.D.3 Lesson #3 SE: 733 Chapter Opener 715	Demonstrate how to safely use tools, instruments, and supplies.

Standard: 5.2 Physical Science: All students will understand that physical science principles, including fundamental ideas about matter, energy, and motion, are powerful conceptual tools for making sense of phenomena in physical, living, and Earth systems science.	
Strand: C. Forms of Energy: Knowing the characteristics of familiar forms of energy, including potential and kinetic energy, is useful in coming to the understanding that, for the most part, the natural world can be explained and is predictable.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Energy is transferred from place to place. Light energy can be thought of as traveling in rays. Thermal energy travels via conduction and convection.	
5.2.8.C.2 Lesson #3 SE: 733-734 Lab 738-739	Model and explain current technologies used to capture solar energy for the purposes of converting it to electrical energy.
Strand: D. Energy Transfer and Conservation: The conservation of energy can be demonstrated by keeping track of familiar forms of energy as they are transferred from one object to another.	
Content Statement: When energy is transferred from one system to another, the quantity of energy before transfer equals the quantity of energy after transfer. As an object falls, its potential energy decreases as its speed, and consequently its kinetic energy, increases. While an object is falling, some of the object's kinetic energy is transferred to the medium through which it falls, setting the medium into motion and heating it.	
5.2.8.D.1 Lesson #2 SE: 721-722	Relate the kinetic and potential energies of a roller coaster at various points on its path.
Content Statement: Nuclear reactions take place in the Sun. In plants, light energy from the Sun is transferred to oxygen and carbon compounds, which in combination, have chemical potential energy (photosynthesis).	
5.2.8.D.2 Lesson #3 SE: 729-730	Describe the flow of energy from the Sun to the fuel tank of an automobile.

Standard: 5.3 Life Science: All students will understand that life science principles are powerful conceptual tools for making sense of the complexity, diversity, and interconnectedness of life on Earth. Order in natural systems arises in accordance with rules that govern the physical world, and the order of natural systems can be modeled and predicted through the use of mathematics.	
Strand: A. Organization and Development: Living organisms are composed of cellular units (structures) that carry out functions required for life. Cellular units are composed of molecules, which also carry out biological functions.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: During the early development of an organism, cells differentiate and multiply to form the many specialized cells, tissues, and organs that compose the final organism. Tissues grow through cell division.	
5.3.8.A.2 Lesson #2 SE: 723-725	Relate the structures of cells, tissues, organs, and systems to their functions in supporting life.
Standard: 5.4 Earth Systems Science: All students will understand that Earth operates as a set of complex, dynamic, and interconnected systems, and is a part of the all-encompassing system of the universe.	
Strand: D. Tectonics: The theory of plate tectonics provides a framework for understanding the dynamic processes within and on Earth.	
CPI #	**Cumulative Progress Indicator (CPI)**
Content Statement: Earth is layered with a lithosphere, a hot, convecting mantle, and a dense, metallic core.	
5.4.8.D.1 Lesson #3 SE: 729	Model the interactions between the layers of Earth.
Strand: G. Biogeochemical Cycles: The biogeochemical cycles in the Earth systems include the flow of microscopic and macroscopic resources from one reservoir in the hydrosphere, geosphere, atmosphere, or biosphere to another, are driven by Earth's internal and external sources of energy, and are impacted by human activity.	
Content Statement: Investigations of environmental issues address underlying scientific causes and may inform possible solutions.	
5.4.8.G.2 Lab 738-739	Investigate a local or global environmental issue by defining the problem, researching possible causative factors, understanding the underlying science, and evaluating the benefits and risks of alternative solutions.
Essential Questions: • What are the different forms of energy? • How is energy transformed? • What are the various sources of energy, and how are they transformed into useful forms of energy?	