Lebanon Borough Public School
Science
Curriculum Guide
Grades K-6

For adoption by all regular education program specified and for adoption or adaptation by all Special Education Programs in accordance with Board of Education Policy #2200

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Kindergarten- Science Pacing Guide		
Trimester 1 (September - December)	**Trimester 2 (December - March)**	**Trimester 3 (March - June)**
• Severe Weather • Plant and Animal Adventures	• Forces and Motions • Human Impact on Earth	• The Sun • Weather and Climate • Plant and Animal Needs

Science		Grade Kindergarten
Unit 1	**Severe Weather**	**7-10 days**
Essential Question	What types of severe weather can you name? How can you prepare for severe weather? Who helps us prepare for severe weather?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

K-PS2 Motion and Stability: Forces and Interactions K-PS3 Energy K-LS1 From Molecules to Organisms: Structures and Processes K-ESS2 Earth's Systems K-ESS3 Earth and Human Activity K-2 ETS1 Engineering Design
K-PS2 Motion and Stability: Forces and Interactions What happens if you push or pull an object harder? Students are able to apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution.
K-ESS2 Earth's Systems What is the weather like today and how is it different from yesterday?
	• **Big Idea**
	  ○ In a region, some kinds of severe weather are more likely than others. Forecasts allow communities to prepare for severe weather.
	• **Scientific Inquiry**
	  ○ Core Blizzards
	  ○ Activity Hurricanes
	  ○ Activity Tornadoes
	  ○ Activity Tornado Lab
	  ○ How to get ready for a big storm
	  ○ Supplemental Types of Weather
	  ○ Activity Weather Forecasting
	  ○ Activity Weather Tools
	  ○ Activity Air Pressure
	  ○ Activity Making a Barometer Lab National Weather Service
	  ○ Activity Sand Storms
	  ○ Activity Preparing for Severe Weather Activity
	• **Focus Areas**
	  ○ Knowledge
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

Students are expected to develop understanding of patterns and variations in local weather and the purpose of weather forecasting to prepare for, and respond to, severe weather. K-ESS3 Earth and Human Activity Where do animals live and why do they live there? Students are also expected to develop understanding of what plants and animals (including humans) need to survive and the relationship between their needs and where they live. K-ESS3.B Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. K-ESS3.A Asking questions, making observations, and gathering information are helpful in thinking about problems.	■ There are different types of severe weather. Where you live can determine what types of severe weather occurs. ■ Weather scientists help us prepare for severe weather. ■ We can prepare for severe weather. ○ **Skills** ■ There are different types of severe weather. ■ Where you live can determine what types of severe weather occurs. ■ Weather scientists help us prepare for severe weather. ■ We can prepare for severe weather. ○ **Understandings** ■ Ask questions to obtain information about the purpose of weather forecasting to prepare for,and respond to, severe weather.	

Science		Grade Kindergarten
Unit 2	**Plant and Animal Adventures**	**10-11 days**
Essential Questions	What features help plants and animals survive in different environments? How do plants and animals depend on the land,air,and water to survive? How do plants and animals change the environment to meet their needs?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

K-ESS2.E Plants and animals can change their environment. K-ESS3.A Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. K.MP.2 Reasons abstractly and quantitatively. K.MP.4 Model with mathematics. K.CC Counting and Cardinality K-PS2 Motion and Stability: Forces and Interactions K-PS3 Energy K-LS1 From Molecules to Organisms: Structures and Processes K-ESS2 Earth's Systems K-ESS3 Earth and Human Activity K-2 ETS1 Engineering Design K-PS2 Motion and Stability: Forces and Interactions What happens if you push or pull an object harder? Students are able to apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. K-ESS2 Earth's Systems What is the weather like today and how is it different from yesterday? Students are expected to develop understanding of patterns and variations in local weather and the purpose of weather forecasting to prepare for, and respond to, severe weather. K-ESS3 Earth and Human Activity Where do animals live	● **Big Idea** ○ Plants and animals can change their local environment. ○ Living things need water, air and resources from the land, and they live in places that have the things they need. ○ Humans use natural resources for everything they do. ● **Plant and Animal Environments** ○ What features help plants and animals survive in different environments? ○ How do plants and animals depend on the land,air,and water to survive? ○ How do plants and animals change the environment to meet their needs? ● **Scientific Inquiry** ○ Core Environment Activity ○ Transfer of Energy – Owl Activity Food Chain Activity ○ Ecosystem Animals Activity ○ Hibernation Activity ○ Migration Activity ○ Desert Environment Activities ○ Camouflage Activities- "Why are polar bears white?" ○ Winter Survival "Warmth" Lab Supplemental ○ Wetlands Activities ○ Forest Activities ○ Nature Walk Activity Transfer of Energy ○ Owl Activity Food Chain ○ Ecosystem Animals Activity ○ Desert Environment Activities ● **Cross Curricular** ○ Arctic Animals Informative Writing (Penguins, Polar Bears, Seals, Walruses) ● **Science and Engineering** ○ Obtaining, Evaluating, and Communicating Information: Read grade-appropriate texts and/or use media to obtain scientific and/or technical information to determine patterns in and/or evidence about the natural and designed world(s). ○ Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question and/or supporting a	Formative ● Check for Understanding (each lesson/module) ● Homework/Extra Practice (each lesson/module) ● Mystery Science Experiment Summative ● Mystery Science End of Unit Question answered through worksheets

and why do they live there? Students are also expected to develop understanding of what plants and animals (including humans) need to survive and the relationship between their needs and where they live. K-ESS3.B Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. K-ESS3.A Asking questions, making observations, and gathering information are helpful in thinking about problems. K.MP.2 Reasons abstractly and quantitatively. K.MP.4 Model with mathematics. K.CC Counting and Cardinality	scientific claim. ○ Communicate information or design ideas and/or solutions with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas. ● **Planning and Carrying Out Investigations** ○ Make observations (firsthand or from media) and/or measurements to collect data that can be used to make comparisons. ○ Make predictions based on prior experiences. ● **Analyzing and Interpreting Data** ○ Record information (observations, thoughts, and ideas). ○ Use and share pictures, drawings, and/or writings of observations. ○ Compare predictions (based on prior experiences) to what occurred (observable events). ● **Focus Areas** ○ **Knowledge** ■ How plants and animals can change their environment. ■ Living things need water, air, and resources from land to survive. ■ Living things live in places that have the things they need to survive. ■ Humans use natural resources from the environment. ■ Plants, animals and their surroundings make a system, they work together to meet needs. ■ Skills Diagram/explain how plants and animals can change their environment to meet their needs. ■ Diagram/explain the relationship between the needs of different plants or animals and the places they live. ■ Diagram/explain what features animals and plants have to survive in different environments. ■ Sketch/explain how humans use resources in different environments. ○ **Understandings** ■ Construct an argument supported by evidence for how plants and animals (including humans) can	

	change the environment to meet their needs. ■ Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.	

Science		Grade Kindergarten
Unit 3	**Forces and Motion**	**7-10 days**
Essential Question	Can pushes and pulls have different strengths and directions? What can increase the speed of an object or make the object turn?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
K-PS2.A Pushes and pulls can have different strengths and directions. K-PS2.A Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. K-PS2.B When objects touch or collide, they push on one another and can change motion. K-PS3.C A bigger push or pull makes things go faster. K-ETS1.A A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. K-ESS2.E Plants and animals can change their environment. K-ESS3.A Living things need water, air, and resources from the land, and they live in places that have the things they need.	● **Big Ideas** ○ Pushes and pulls can have different strengths and directions, and can change the speed or direction of its motion or start or stop it. ○ Bigger pushes and pulls cause bigger changes in an object's motion or shape. ● **Scientific Inquiry** ○ Core Pushes and Pulls Lab ○ Sink or Float ● **Forces and Motion** ○ Can pushes and pulls have different strengths and directions? ○ What can increase the speed of an object or make the object turn? ○ Sink or Float Experiment ○ Magnet Experiment ● **Supplemental Investigation and Analyzing Data** ○ Changing Direction (Problem Solving) Lab ○ Different Forces Lab ○ Transferring Energy – Types of Interactions Lab ○ Relationship of Energy and Force ○ Changing Speed Lab Investigation and Analyzing Data ○ Changing Speed (Problem Solving) Lab ● **Science and Engineering- Planning and Carrying Out**	Formative ● Check for Understanding (each lesson/module) ● Homework/Extra Practice (each lesson/module) ● Mystery Science Experiment Summative ● Mystery Science End of Unit Question answered through worksheets

Humans use natural resources for everything they do. K.MP.2 Reasons abstractly and quantitatively. K.MP.4 Model with mathematics. K.CC Counting and Cardinality K-PS2 Motion and Stability: Forces and Interactions K-PS3 Energy K-LS1 From Molecules to Organisms: Structures and Processes K-ESS2 Earth's Systems K-ESS3 Earth and Human Activity K-2 ETS1 Engineering Design K-PS2 Motion and Stability: Forces and Interactions What happens if you push or pull an object harder? Students are able to apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. K-ESS2 Earth's Systems What is the weather like today and how is it different from yesterday? Students are expected to develop understanding of patterns and variations in local weather and the purpose of weather forecasting to prepare for, and respond to, severe weather. K-ESS3 Earth and Human Activity Where do animals live and why do they live there? Students are also expected to develop understanding of what plants and animals (including humans) need to survive and the relationship between their needs	**Investigations** ○ With guidance, plan and conduct an investigation in collaboration with peers (for K). ○ Make predictions based on prior experiences. ○ Make observations (firsthand or from media) and/or measurements to collect data that can be used to make comparisons. ● **Analyzing and Interpreting Data** ○ Record information (observations, thoughts, and ideas). ○ Use and share pictures, drawings, and/or writings of observations. ○ Compare predictions (based on prior experiences) to what occurred (observable events). ○ Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and solve problems. ● **Focus Areas** ○ **Essential Knowledge** ■ Pushes and pulls can have different strengths and directions. ■ Pushing or pulling on an object can change the speed or direction of its motion and start or stop it. ■ When objects touch or collide, they push on one another and can change motion. ■ A larger push or pull makes things go faster ○ **Essential Skills** ■ With guidance, students will plan and conduct an investigation of forces and interactions, in collaboration with peers. ■ They will be able to design solutions (through engineering) to change the speed or direction of an object with pushes or pulls. ■ The students may include tools (such as a ramp or structure) to solve this problem. ■ Analyze data from force and interaction tests (with tools) to determine if plans work as intended. ○ **Understandings** ■ Plan and conduct an investigation to compare the effects of different strengths or different directions	

and where they live. K-ESS3.B Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. K-ESS3.A Asking questions, making observations, and gathering information are helpful in thinking about problems. K.MP.2 Reasons abstractly and quantitatively. K.MP.4 Model with mathematics. K.CC Counting and Cardinality	of pushes and pulls on the motion of an object. ■ Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.	

Science		Grade Kindergarten
Unit 4	**Human Impact on Earth**	**7-10 days**
Essential Questions	How do people affect the world around them? How can you help keep the Earth healthy? What can we do to reduce, reuse, and recycle our natural resources?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
K-ESS2.C Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. K-ESS3.B Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a	● **Big Ideas** ○ Things people do can affect the environment but they can make choices to reduce their impacts. ● **Human Impact on Earth** ○ How do people affect the world around them? ○ How can you help keep the Earth healthy? ○ What can we do to reduce, reuse, and recycle our natural resources? ● **Scientific Inquiry** ○ Core Earth Day Activities ○ Reduce, Reuse, Recycle	Formative ● Check for Understanding (each lesson/module) ● Homework/Extra Practice (each lesson/module) ● Mystery Science Experiment Summative

problem's solutions to other people. K-ESS3.A Asking questions, making observations, and gathering information are helpful in thinking about problems. K.MP.2 Reasons abstractly and quantitatively. K.MP.4 Model with mathematics. K.CC Counting and Cardinality	○ Recycling Sort Activity ○ Supplemental Soil Samples Lab Compost Activity ○ Recycling Activity Keeping Environment Clean Activity Plant a Tree Activity Cleaning Dirty Water Activity Human Impact Activity 1 Earth's Resources Activity 2 Reduce, Reuse, Recycle Activities 5-7 and Lab 3 What Can You Do? Activity 20 ● **Science and Engineering Practices** ○ Asking Questions and Defining Problems ■ Ask questions based on observations to find more information about the natural and/or designed world(s). ● **Focus Areas** ○ **Knowledge** ■ There are specific things that people do to live comfortably that can affect the world around them. ■ We need to reduce, reuse, and recycle our resources. ■ Water conservation is saving our natural resources. ■ We must try every day to conserve water. ■ Humans use natural resources for everything they do. ■ Resources are renewable or nonrenewable. ○ **Skills** ■ Identify and practice activities they can do to reduce their impact on land, water, air, and other living things. ■ Identify and use water conservation practices. ■ Explore and communicate solutions that will reduce the impact of humans in their local environment. ○ **Understandings** ■ Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. ■ Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment	● Mystery Science End of Unit Question answered through worksheets

Science		Grade Kindergarten
Unit 5	**The Sun**	
Essential Questions	What are the characteristics of the sun? Can structures reduce the warming effect of sunlight on Earth's surface?	
Standards	**Knowledge/Skills**	

K-ESS2.C Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things.
K-ESS3.B Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.
K-ESS3.A Asking questions, making observations, and gathering information are helpful in thinking about problems.
K.MP.2 Reasons abstractly and quantitatively.
K.MP.4 Model with mathematics.
K.CC Counting and Cardinality
	• **Big Ideas**
	  ○ Sunlight warms the earth's surface.
	• **Scientific Inquiry**
	  ○ Core Sun Protection Activity
	  ○ Supplemental Sun's Effect on Sand vs. Grass Lab
	  ○ Sun's Effect Hard Surfaces Lab
	  ○ Sun's Effect on Ocean's Surface Lab
	  ○ Sun's Effect on Water vs. Sand Lab
	  ○ Build a Solar Stove Lab
	  ○ "Does the sun give heat energy?" Lab
	  ○ Sun's Effect on Earth's Surface Lab
	  ○ Design Shade Structure Lab
	  ○ Build Shade Structure Lab
	• **Science and Engineering Practices**
	  ○ **Constructing Explanations and Designing Solutions**
	  ■ Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena.
	  ■ Generate and/or compare multiple solutions to a problem.
	  ■ What are the characteristics of the sun?
	  ■ Can structures reduce the warming effect of sunlight on Earth's surface?
	• **Focus Area**
	  ○ **Knowledge**
	  ■ How sunlight affects different surfaces on Earth. Use the terms warm, cool, and hot.
	  ○ **Skills**
	  ■ Describe the sun's characteristics
	  ■ Design and build a structure that will reduce the
		•

	warming effect of sunlight on Earth's surface. ■ They will choose materials for their design that will create shade. ○ **Understandings** ■ Make observations to determine the effect of sunlight on Earth's surface. ■ Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.	

Science		Grade Kindergarten
Unit 6	**Weather and Climate**	
Essential Questions	How can we record observations of the local weather and temperature? What patterns were observed in their observations? Does this pattern change with seasons?	
Standards	**Knowledge/Skills**	
K-ESS2.C Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things. K-ESS3.B Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. K-ESS3.A Asking questions, making observations, and gathering information are helpful in thinking about problems. K.MP.2 Reasons abstractly and	● BIG IDEAS Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region and time. People record weather patterns over time. SCIENTIFIC INQUIRY Core Weather Observation Activity Analyzing Data – Weather Journal Lab Brain Pop Jr. Fall, Winter, Spring, Summer Supplemental Describing Weather- Temperature Lab Describing Weather – Wind Speed Lab Describing Weather – Wind Direction Lab Describing Weather – Clouds Lab Describing Weather – Precipitation Lab ● Science and Engineering Practices Developing and Using Models: Develop and/or use a model to represent amounts, relationships, relative scales (bigger, smaller), and/or patterns in the natural and designed world(s). Analyzing and Interpreting Data: Record information (observations, thoughts, and ideas). Use and share pictures, drawings, and/or writings of observations. Use observations (firsthand or from media) to describe patterns and/or relationships in the natural and designed world(s) in order to answer scientific questions and	●

quantitatively. K.MP.4 Model with mathematics. K.CC Counting and Cardinality K-PS3.B Sunlight warms Earth's surface K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has “more of”/”less of” the attribute, and describe the difference. K-PS2 Motion and Stability: Forces and Interactions K-PS3 Energy K-LS1 From Molecules to Organisms: Structures and Processes K-ESS2 Earth’s Systems K-ESS3 Earth and Human Activity K-2 ETS1 Engineering Design K-PS2 Motion and Stability: Forces and Interactions What happens if you push or pull an object harder? Students are able to apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. K-ESS2 Earth’s Systems What is the weather like today and how is it different from yesterday? Students are expected to develop understanding of patterns and variations in local weather and the purpose of weather forecasting to prepare for, and respond to, severe weather. K-ESS3 Earth and Human Activity Where do animals live and why do they live there?	solve problems. Compare predictions (based on prior experiences) to what occurred (observable events). FOCUS AREAS Knowledge How to make qualitative and quantitative observations of the local weather and temperature. This will include descriptions of the weather (such as sunny, cloudy, rainy, warm). Skills Measure these conditions to describe and record the local weather. Use daily data of weather to notice patterns over time. Use daily data of weather to compare two different seasons. Understanding Use and share observations of local weather conditions to describe patterns over time.	

Students are also expected to develop understanding of what plants and animals (including humans) need to survive and the relationship between their needs and where they live. K-ESS3.B Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. K-ESS2.D Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time.		

Science		Grade Kindergarten
Unit 7	**Plant and Animal Needs**	
Essential Questions	What are the basic needs of plants and animals?	
Standards	**Knowledge/Skills**	

K-ESS2.C Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things.
K-ESS3.B Designs can be conveyed through sketches,
	• **Big Ideas**
	  ○ Animals obtain food they need from plants or other animals.
	  ○ Plants need water and light.
	• **Scientific Inquiry**
	  ○ Core Lima Bean Lab
	  ○ Animal needs: Eat like an animal
	  ○ Parts of a Plant Activity
		•

drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. K-ESS3.A Asking questions, making observations, and gathering information are helpful in thinking about problems. K.MP.2 Reasons abstractly and quantitatively. K.MP.4 Model with mathematics. K.CC Counting and Cardinality	○ Plant Needs Activity ○ Plant Life Cycle Activity ● **Supplemental** ○ Bird Seed Lab ○ Sweet Potato Lab ○ Carrot top Lab ○ Searching for Light Lab ○ Leaves & Buds Lab Celery Lab ○ Water & Leaves Lab ○ Sunlight Lab ○ Exploring Plants and Animals Activity ○ Animals Babies Needs Activity ● **Cross Curricular** ○ Zinnia's Flower Garden by Monica Wellington ○ The Tiny Seed by Eric Carle ● **Science and Engineering Planning and Carrying Out Investigations** ○ With guidance, plan and conduct an investigation in collaboration with peers ○ Make observations (firsthand or from media) and/or measurements to collect data that can be used to make comparisons ○ Make predictions based on prior experiences ● **Focus Areas** ○ **Knowledge** ■ All animals need food in order to live and grow. ■ They obtain their food from plants or other animals. ■ Different kinds of food are needed by different types of animals. ■ Plants need light and water to live and grow. ■ All living things need water. ○ **Skills** ■ Differentiate between the needs of animals and plants. ■ Recognize the basic needs of organisms.	

Appendix A	Core Instructional & Supplemental Materials	Grade Kindergarten

- Mystery Science website
- Mystery Science consumables
- Mystery Science lab activity kits and materials

Appendix B	Technology Integration	Grade Kindergarten

Standards	
8.1.2.E.1 8.1.2.B.1 8.1.2.E.1	• Use digital tools and online resources to explore a problem or issue. Illustrate and communicate original ideas and stories using multiple digital tools and resources. • Use digital tools and online resources to explore a problem or issue. ○ Activity: Students will watch and interact with Mystery Science

Appendix C	Interdisciplinary Connections	Grade Kindergarten

- 2-ESS2.B Maps show where things are located. One can map the shapes and kinds of land and water in any area. The Roles of Water in Earth's Surface
- ESS2.C Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.
- 2-ESS2.A Wind and water can change the shape of the land. Optimizing the Design Solution
- 2-ESS2.C Because there is always more than one possible solution to a problem, it is useful to compare and test designs.
- 2-ESS1.C Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.
- NBT.A.3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. Science example: Students write about a lake that is 550 feet deep, a river that is 687 miles long, a forest that began growing about 200 years ago, and soon.
- MD.B.5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. Science example: A gulley is 17 inches deep before a rainstorm and 42 inches deep after a rainstorm. How much deeper did it get during the rainstorm?
- NBT.A.11 Understand place value. Science example: As part of comprehending media to identify the varying timescales on which Earth events can occur, students understand that a period of thousands of years is much longer than a period of hundreds of years, which is in turn much longer than a period of tens of years.
- Treps
  - TREP$ is a 6 week educational program which empowers children by providing an engaging project-based learning experience which creatively integrates entrepreneurship education with the authentic opportunity to apply business, academic, and life skills.The benefits of teaching entrepreneurship using TREP$ are far-reaching. Children who participate in TREP$ provides a

	feeling of empowerment and confidence that comes with starting a business. During the workshops, the classroom takes on a professional environment as students are encouraged to develop leadership skills, practice critical thinking, solve problems creatively, demonstrate economic concepts, become risk takers, learn from the business community, and begin planning their own businesses. TREP$ is a situation where it is possible for all students to succeed. TREP$ rewards those students with passion, determination, and a strong work ethic to become entrepreneurs.

Appendix D	**Career Education Integration** Grade Kindergarten
Standards	
9.1.2.RM.1: Describe how valuable items might be damaged or lost and ways to protect them. 9.1.2.PB.1: Determine various ways to save and places in the local community that help people save and accumulate money over time. 9.1.2.PB.2: Explain why an individual would choose to save money. 9.1.2.FP.2: Differentiate between financial wants and needs. • 9.1.2.FP.3: Identify the factors that influence people to spend or save (e.g., commercials, family, culture, society). 9.1.2.FP.1: Explain how emotions influence whether a person spends or saves. 9.1.2. FI.1: Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards). 9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community. • 9.1.2.CR.2: List ways to give	• Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. Identify various life roles and civic and work-related activities in the school, home, and community. Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. Connection: Introduce students to the career of botanist, a type of biologist who studies plants. Students can become botanists during this unit with their own plants in the classroom (or school garden, if applicable). This will allow them hands-on experience of what it's like to work as this type of biologist. • Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. • Identify various life roles and civic and work-related activities in the school, home, and community. Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. • Connection: Students can learn about meteorologists and their role in the workplace. Create an activity in which students each get a chance to be the "meteorologist for the week". Each student ("Meteorologist") can report the weather forecast and conditions each day during morning meetings during their assigned week.

back, including making donations, volunteering, and starting a business. RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (2-PS1-4) • RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4) • RI.2.8 Describe how reasons support specific points the author makes in a text. (2-PS1-2), (2-PS1-4) New Jersey Department of Education December 2020 Page 37 of 200 Grade 2 • W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4) • W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-PS1-1), (2-PS1-2), (2-PS1-3) • W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1), (2-PS1-2), (2-PS1-3)	

MP.2 Reason abstractly and quantitatively. (2-PS1-2) MP.4 Model with mathematics. (2-PS1-1), (2-PS1-2) MP.5 Use appropriate tools strategically. (2-PS1-2) 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1), (2-PS1-2)	

Grade 1- Science Pacing Guide		
Trimester 1 (September - December)	**Trimester 2 (December - March)**	**Trimester 3 (March - June)**
• Spinning Sky: Sun, Moon, and Stars • Properties of Light and Sound	• Information Technologies • Plant and Animal Superpowers	• Plant and Animal Growth and Development • Animal Superpowers

Science		Grade # 1
Unit 1	**Spinning Sky: Sun, Moon, and Stars**	**7-10 days**
Essential Question	What is the pattern of the sun's movement? Does the Moon create its own light? What causes the seasons?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

1-PS4 Waves and their Applications in Technologies for Information Transfer
1-LS1 From Molecules to Organisms: Structures and Processes
1-LS3 Heredity: Inheritance and Variation of Traits
1-ESS1 Earth's Place in the Universe
1-PS4.A Wave Properties What happens when materials vibrate? Students are expected to develop understanding of the relationship between sound and vibrating materials as well as between the availability of light and ability to see objects.
1-PS4.B Electromagnetic Radiation What happens when
	• **Big Ideas**
	  ○ Patterns of movement of the sun, moon, and stars as seen from earth can be observed and predicted.
	• **Supplemental Resources**
	  ○ Leveled Readers Weather
	  ○ What is Weather
	  ○ Places in the World
	  ○ Day and Night Sky
	  ○ The Sky
	  ○ The Sun
	• **Scientific Inquiry**
	  ○ Core Could a Statue's Shadow Move Shining Moon Activity Seasons Activity Where Do the Stars Go? Lab Why do you have to go to bed early in the summer Supplemental Energy from the Sun Activity The Sun's Motion Lab Compass Rose Lab Moon Phase Activity Earth's Tilt Activity Seasonal Sun Lab Why do the stars come out at night
	• **Science and Engineering Practices Using Mathematics and Computational Thinking**
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

there is no light? The idea that light travels from place to place can be understood by students at this level through determining the effect of placing objects made with different materials in the path of a beam of light. 1-LS1.A-B Structure and Function & Growth and Development of Organisms What are some ways plants and animals meet their needs so that they can survive and grow? Students are also expected to develop understanding of how plants and animals use their external parts to help them survive, grow, and meet their needs as well as how behaviors of parents and offspring help the offspring survive. 1-LS3.A Inheritance of Traits How are parents and their children similar and different? The understanding is developed that young plants and animals are like, but not exactly the same as their parents. ESS1.A The Universe and Stars What objects are in the sky and how do they seem to move? Students are able to observe, describe, and predict some patterns of the movement of objects in the sky. 1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking	○ Use counting and numbers to identify and describe patterns in the natural and designed world(s). ● **Focus Areas** ○ **Knowledge** ■ How the Sun appears to travel across the sky and that this is due to the Earth's motion, not the Sun's. ■ The four cardinal directions. ■ Moons are objects that revolve around planets. ■ The Moon shines because it is reflecting sunlight. ■ The Moon appears to grow and shrink in the sky based on how much reflected sunlight we can see- the Sun is so close, its brightness keeps us from seeing other stars during the day. ■ Seasons are caused by the Earth's tilt. ■ The Sun appears to be higher in the sky during the summer and lower in the winter. ● **Skills** ○ Make predictions about the Sun's location at various times of the day. ○ Label a compass rose. ○ Explain how moons are different from planets. ○ Make predictions about the Moon's phases. ○ Explain how the Sun's presence during the day keeps other stars from being seen. ○ Explain how the Earth's tilt causes the seasons. ○ Compare and contrast the Sun's location in the sky during the summer and winter months. ● **Understandings** ○ Use observations of the sun, moon, and stars to describe patterns that can be predicted. ○ Make observations at different times of year to relate the amount of daylight to the time of year.	

apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem. MD.C.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.		

Science		Grade # 1
Unit 2	**Properties of Lights and Sounds**	**10-11 days**
Essential Questions	What is light? How does light travel?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

1-PS4.A Sound can make matter vibrate, and vibrating matter can make sound.
1-PS4.B Objects can be seen if light is available to illuminate them or if they give off their own light. 1-PS4.B Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam.
1.OA.A.1. Use addition and
	• **Big Ideas**
	  ○ Sound can make matter vibrate, and vibrating matter can make sound. Objects can be seen only when light is available to illuminate them.
	• **Supplemental Resources**
	  ○ **Leveled Readers**
	  ■ Learning About Energy
	  ■ Energy
	  ■ All About Electricity
	• **Scientific Inquiry**
	  ○ **Core**
	  ■ How could you send a secret message to someone far away?
	  ■ String Phone Lab
	  ■ Object's in Light's Path Lab
	  ■ Supplemental Light and Reflection Lab
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem. MD.C.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	● **Focus Areas** ○ **Knowledge** ■ Light is energy we see. ■ Shadows are areas of darkness behind an object that is illuminated. ■ Light travels in a straight line. ■ Natural sources include the sun while artificial sources include light bulbs and TV. ■ Illuminate means to light up. ■ Reflect means to bounce as seen when light hits a mirror and some metal objects. ■ Depending on how the light hits, depends on what kind of image is formed. ■ Transparent surfaces allow light to easily pass through like a window. ■ Translucent surfaces allow some light to pass through like wax paper. Opaque surfaces absorb light and reflect the color or colors we see such as a red apple. ■ Refraction is the bending of light as it passes through water as seen with rainbows and rulers in water. ○ **Skills** ■ Define and apply the terms opaque, transparent, translucent, refraction, and reflection. ■ Discover the differences between the terms opaque, transparent, translucent, refraction and reflection. ■ Discover differences in shadows. ■ Identify different sources of light. ■ Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light. ■ Use tools and materials to design and build a device that uses light or sound to solve the problem. ○ **Understandings** ■ Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.	

	■ Make observations to construct an evidence-based account that objects can be seen only when illuminated. ■ Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.	

Science		Grade # 1
Unit 3	**Information Technologies**	**7-10 days**
Essential Question	What devices are used to communicate long distances? What tools can be used to design or build a device that uses light or sound to solve a problem of communicating over a distance?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
PS4.CPeople also use a variety of devices to communicate (send and receive information) over long distances. 1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem. MD.C.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	● **Big Ideas** ○ People use devices and senses to send and receive information. ● **Supplemental Resources** ○ Leveled Readers ■ Movement and Sound ■ Forces and Sounds ■ Making Music ○ **Scientific Inquiry** ■ Core Braille Activity Supplemental ■ Think Like a Computer Activity ■ Flashlight Morse Code Marine Mammal Communication Activity ● **Science and Engineering** ○ Asking Questions and Defining Problems: Ask questions based on observations to find more information about the natural and/or designed world(s) ● **Focus Areas** ○ Essential Knowledge Devices that are used to communicate. Examples of devices they can design or build. ○ Technology is used to communicate by sending and	Formative ● Check for Understanding (each lesson/module) ● Homework/Extra Practice (each lesson/module) ● Mystery Science Experiment Summative ● Mystery Science End of Unit Question answered through worksheets

	receiving information. ● **Essential Skills** ○ Design or use tools to build a device that uses light or sound to solve a problem of communicating. ○ List devices that are used to communicate long distances. ● **Understandings** ○ Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.	

Science		Grade # 1
Unit 4	**Plant and Animal Superpowers**	**7-10 days**
Essential Questions	What is structure and function? How do animals use external structures to survive? What are some examples of external parts of a plant and animal?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
1-LS1.A All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. 1-LS1.D Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.	● **Big Ideas** ○ All organisms have external parts that they use to perform daily functions. Animals sense and communicate information and respond to inputs with behaviors that help them grow and survive. ● **Supplemental Resources** ○ Leveled Readers ■ Habitats ■ Places ■ Swamp LIfe ● **Scientific Inquiry** ○ Walking Field Trip ○ Parts of a plant ● **Supplemental** ○ Plant Response Demo ○ Design a Solution Activity ○ Build a Monster Activity ● **Science and Engineering** ○ Analyzing and Interpreting Data	Formative ● Check for Understanding (each lesson/module) ● Homework/Extra Practice (each lesson/module) ● Mystery Science Experiment Summative ● Mystery Science End of Unit Question answered through worksheets

1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem. MD.C.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.	■ Record Information (observations, thoughts, and ideas). ● **Focus Areas** ○ **Knowledge** ■ All organisms have external parts. ■ Different animals use their body parts in different ways to see, hear, grasp objects,protect themselves and survive. ■ Plants have different parts that help them survive and grow. ■ Plants and animals respond to their environments. ○ **Skills** ■ Describe how structure relates to function. ■ Describe/list external parts of an animal. ■ Explain how plants and animals respond to their environment to help them survive. ■ List parts of a plant (roots, stems, leaves, flowers and fruit). ○ **Understandings** ■ Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.	

Science		Grade #1
Unit 5	**Plant and Animal Growth and Development**	**7-10 days**
Essential Questions	How do plants grow and develop? How do plants and animals help their offspring survive?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
1-LS1.A All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from	● BIG IDEAS Parents and offspring often engage in behaviors that help the offspring survive. SUPPLEMENTAL RESOURCES Leveled Readers Living and Nonliving, Is it a Living Thing?, What We Need How Plants and Animals Live, Animals and Plants, Many Leaves Life Cycles, Living Things Grow and Change, Egg	Formative ● Check for Understanding (each lesson/module) ● Homework/Extra Practice (each lesson/module)

place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. 1-LS1.D Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. 1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem. MD.C.4. Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. LS1.BAdult plants and animals can have young. In many kinds of animals, parents and offspring themselves engage in behaviors that help the offspring to survive.	to Owl SCIENTIFIC INQUIRY Core Why do family members look similar to one another? Seed Lab Baby Robins Activity How Strong is an Egg? Activity Supplemental Egg Membrane Lab Plant Life Cycle ● Science and Engineering Obtaining, Evaluating, and Communication Information Communicate information or design ideas and/or solutions with others in oral and/or written forms using models, drawings, writing, or numbers that provide detail about scientific ideas, practices, and/or design ideas. ● FOCUS AREAS Knowledge Adult plants and animals can have young. Animals can develop by direct development or metamorphosis. Plant parents help their offspring by creating seed coats and dispersal methods. Animal parents help their offspring to survive in many ways. Skills Describe the stages of life for plants and animals. Describe how plants and animals grow and develop. Describe how plant and animal parents help their offspring survive. Understandings Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.	● Mystery Science Experiment Summative ● Mystery Science End of Unit Question answered through worksheets

Science		Grade #1
Unit 6		**7-10 days**
Essential Questions	How are young animals and plants like their parents? What are the similarities and differences between plants and animals of the same kind/breed? What characteristics do most plants and animals share?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
1-LS1.A All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. 1-LS1.D Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. 1.OA.A.1. Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem. MD.C.4. Organize, represent, and interpret data with up to three	• BIG IDEAS Young organisms are very much, but not exactly, like their parents and also resemble other organisms of the same kind. SUPPLEMENTAL RESOURCES Leveled Readers How Plants and Animals Live, Animals and Plants, Many Leaves Life Cycles, Living Things Grow and Change, Egg to Owl SCIENTIFIC INQUIRY Core Why don't trees blow down in the wind? Why do baby ducks follow their mother? Why do family members look similar to one another? • Science and Engineering Asking Questions and Defining Problems: Ask and/or identify questions that can be answered by an investigation. Planning and Carrying Out Investigations: With guidance, plan and conduct an investigation in collaboration with peers Engaging in Argument from Evidence Identify arguments that are supported by evidence. Distinguish between explanations that account for all gathered evidence and those that do not. Analyze why some evidence is relevant to a scientific question and some is not. Distinguish between opinions and evidence in one's own explanations. • FOCUS AREAS Knowledge Young animals are very much, but not exactly like their parents. Plants are very much, but not exactly, like their parents. Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. Skills Describe the difference between an adult animal and a baby animal of the same kind. Sort pictures of similar plants and/or animals. Describe the different features of plants of the same kind. Understandings Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.	Formative • Check for Understanding (each lesson/module) • Homework/Extra Practice (each lesson/module) • Mystery Science Experiment Summative • Mystery Science End of Unit Question answered through worksheets

categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. 1-LS3.A Young animals are very much, but not exactly like their parents. Plants also are very much, but not exactly, like their parents. 1-LS3.B Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways		

Appendix A	**Core Instructional & Supplemental Materials**	Grade # 1

- Mystery Science website
- Mystery Science consumables
- Mystery Science lab activity kits and materials

Appendix B	**Technology Integration**	Grade # 1

Standards	
8.1.2.E.1 8.1.2.B.1 8.1.2.A.4	● Use digital tools and online resources to explore a problem or issue. Illustrate and communicate original ideas and stories using multiple digital tools and resources. ● Use digital tools and online resources to explore a problem or issue. ● Demonstrate developmentally appropriate navigation skills in virtual environments (i.e. games, museums). ○ Activity: Students will watch the mystery science video on shadows, they will make predictions about “do our shadows move or is it the sun moving”. Students will then complete the shadow tracking lab from mystery science. Afterwards, observations will be recorded on the smartboard.

	○ Activity: Students will be introduced to Neil Armstrong. They will listen to the read aloud “Neil Armstrong ". After, the students will make predictions of what it is like to go on the moon. Students will take turns using virtual reality goggles to go on a moonwalk. They will then draw/write about what they saw on the moon.

Appendix C	**Interdisciplinary Connections**	Grade # 1

- 2-ESS2.C Because there is always more than one possible solution to a problem, it is useful to compare and test designs.
- 2-ESS1.C Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.
- NBT.A.3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. Science example: Students write about a lake that is 550 feet deep, a river that is 687 miles long, a forest that began growing about 200 years ago, and soon.
- MD.B.5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. Science example: A gulley is 17 inches deep before a rainstorm and 42 inches deep after a rainstorm. How much deeper did it get during the rainstorm?
- NBT.A.11 Understand place value. Science example: As part of comprehending media to identify the varying timescales on which Earth events can occur, students understand that a period of thousands of years is much longer than a period of hundreds of years, which is in turn much longer than a period of tens of years.
- Patterns; cause and effect; structure and function; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas.
- Patterns; cause and effect; structure and function; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas.
- Treps
    - TREP$ is a 6 week educational program which empowers children by providing an engaging project-based learning experience which creatively integrates entrepreneurship education with the authentic opportunity to apply business, academic, and life skills.The benefits of teaching entrepreneurship using TREP$ are far-reaching. Children who participate in TREP$ provides a feeling of empowerment and confidence that comes with starting a business. During the workshops, the classroom takes on a professional environment as students are encouraged to develop leadership skills, practice critical thinking, solve problems creatively, demonstrate economic concepts, become risk takers, learn from the business community, and begin planning their own businesses. TREP$ is a situation where it is possible for all students to succeed. TREP$ rewards those students with passion, determination, and a strong work ethic to become entrepreneurs.

Appendix D	Career Education Integration	Grade # 1
Standards		
9.1.2.RM.1: Describe how valuable items might be damaged or lost and ways to protect them. 9.1.2.PB.1: Determine various ways to save and places in the local community that help people save and accumulate money over time. 9.1.2.PB.2: Explain why an individual would choose to save money. 9.1.2.FP.2: Differentiate between financial wants and needs. • 9.1.2.FP.3: Identify the factors that influence people to spend or save (e.g., commercials, family, culture, society). 9.1.2.FP.1: Explain how emotions influence whether a person spends or saves. 9.1.2. FI.1: Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards). 9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community. • 9.1.2.CR.2: List ways to give back, including making donations, volunteering, and starting a business. RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (2-PS1-4) •	● Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. Identify various life roles and civic and work-related activities in the school, home, and community. Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. ○ Connection: Discuss the roles of biologists in the process of determining hereditary similarities and differences among different species. ● Science and Society ○ Dr. Shamim Rahman, NASA's Chief Engineer for the Propulsion Test Directorate at Stennis ○ Space Center. ○ Felix Alberto Soto Toro NASA design engineer for hardware and software automated systems who reviews, designs, builds, tests and implements engineering designs used in the Space Shuttle and Payload Operations Development Laboratories. ○ Sonia Ortega-National Science Foundation program director and a marine biologist ○ Dr. Winifred Goldring-New York State geologist and the first person to do exhaustive work on stromatolites ● Developing and Using Models ○ Develop a simple model based on evidence to represent a proposed object or tool. ● Constructing Explanations and Designing Solutions ○ Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena. ● Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. Identify various life roles and civic and work-related activities in the school, home, and community. Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. Connection: Discuss the roles of biologists in the process of determining hereditary similarities and differences among different species.	

RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4) • RI.2.8 Describe how reasons support specific points the author makes in a text. (2-PS1-2), (2-PS1-4) New Jersey Department of Education December 2020 Page 37 of 200 Grade 2 • W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4) • W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-PS1-1), (2-PS1-2), (2-PS1-3) • W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1), (2-PS1-2), (2-PS1-3) MP.2 Reason abstractly and quantitatively. (2-PS1-2) MP.4 Model with mathematics. (2-PS1-1), (2-PS1-2) MP.5 Use appropriate tools strategically. (2-PS1-2) 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit	

scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1), (2-PS1-2)	

Grade 2 - Science Pacing Guide		
Trimester 1 (September - December)	**Trimester 2 (December - March)**	**Trimester 3 (March - June)**
• Material Magic	• Animal Adventures • Work of Water	• Plant Adventures

Science		Grade # 2
	Material Magic	**7-10 days**
Essential Question	What are the different properties of matter? What are the differences between a solid, a liquid and a gas? How can a substance change?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. 2-PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. 2-PS1-3 Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. 2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. 2-PS1.A Different kinds of matter	**Focus Area: Matter exists as different substances that have observable different properties. Different properties are suited to different purposes. Objects can be built up from smaller units. Heating and cooling substances cause changes that are sometimes reversible and sometimes not.** • Knowledge Properties of matter such as strength, hardness, flexibility and texture. What materials are best suited for different purposes. An object built out of a small set of pieces can be deconstructed and built into a different object. • Properties of solids, liquids, and gas. Some substances can experience reversible changes and some cannot. Skills Determine different properties of objects. Group objects according to their properties. Construct an object out of a small set of pieces. • Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. • Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. • Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	Formative • Check for Understanding (each lesson/module) • Homework/Extra Practice (each lesson/module) • Mystery Science Experiment Summative • Mystery Science End of Unit Question answered through worksheets

exist and many of them can be either solid or liquid,depending on temperature. Matter can be described and classified by its observable properties. 2-PS1.A Different properties are suited to different purposes. P-PS1.A A great variety of objects can be built up from a small set of pieces. PS1.BHeating or cooling a substance may cause changes that can be observed.Sometimes these changes are reversible, and sometimes they are not.		

Science		Grade # 2
	Work of Water	**10-11 days**
Essential Questions	Where iswaterfoundonEarth? How can we find water on Earth? How does water cycle through its different forms? What are the effects of wind & water on the land? What are landforms that help prevent wind and water erosion? How can the effects of wind and water erosion be controlled or reduced? What types of events occur in cycles? What types of events on Earth happen very quickly or very slowly?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. 2-PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	**Focus Area: Maps show where things are located. One can map the shapes and kinds of land and water in any area. Water is found in many types of places and in different forms on earth. Wind and water change the shape of the land.** ● Water is found in oceans, rivers, lakes, and ponds ● We can use a map to find where water is located on Earth ● Water exists in liquid or ice forms. ● Water cycles through its different forms via the water cycle. What the effects of wind and water are on the land. ● How wind erosion creates landforms	Formative ● Check for Understanding (each lesson/module) ● Homework/Extra Practice (each lesson/module) ● Mystery Science Experiment Summative

2-PS1-3 Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. 2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	• How water erosion creates landforms • Animals use landforms forms as homes • Be able to describe events that occur in cycles, such as day and night • Identify events have a beginning and an end, like a volcanic eruption • Explain the impact of events that can happen very quickly. • Describing events can happen very slowly over a time period much longer than anyone can observe. • Describe some of the distinguishing characteristics of oceans, rivers, lakes, and ponds. • Recognize and name different bodies of water in pictures and on maps. • Describe where water may exist as a liquid or as a solid (ice). • Draw and discuss the steps of the water cycle. • Explain how wind shapes the land. • Explain how water shapes the land. • Describe how wind erosion is reduced • Describe how water erosion is reduced. • Describe what a cycle is and give examples. • Describe events that have a beginning and an end. • Describe events that happen quickly. • Describe events that happen very slowly. • Develop a model to represent the shapes and kinds of land and bodies of water in an area. • Obtain information to identify where water is found on Earth and that it can be solid or liquid. • Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. • Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	• Mystery Science End of Unit Question answered through worksheets

Science	Grade # 2	
	Animal Adventures	**7-10 days**
Essential Question	What is the relationship between producers, consumers and decomposers? What types of organisms live on land and water? How do organism structures relate to their ecosystem?	

Standards	**Knowledge/Skills**	**Evidence of Learning**
2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. 2-PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. 2-PS1-3 Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. 2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	**Focus Area: A range of different organisms live in different places.** ● The meaning of biodiversity. ● That biodiversity is key to the planet's health as a system. ● The roles of producers, consumers and decomposers on land and in water. ● Characteristics of several ecosystems. ● Organisms and their environments are directly related. ● How humans affect biodiversity. ● Identify traits of organisms which help them survive in their environment. ● Sort organisms into producers, consumers and decomposers. ● Sort animals into herbivores, carnivores and omnivores. ● Make observations of plants and animals to compare the diversity of life in different habitats.	Formative ● Check for Understanding (each lesson/module) ● Homework/Extra Practice (each lesson/module) ● Mystery Science Experiment Summative ● Mystery Science End of Unit Question answered through worksheets

Science		Grade # 2
	Plant Adventures	**7-10 days**
Essential Questions	What resources are needed for plants to grow? In what ways does an animal help disperse plant seeds? In what ways do animals help plants pollinate?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of	**Focus Area: Plants depend on water and light to grow, and also depend on animals for pollination or to move their seeds around.** ● Plants need water and light to grow.	Formative ● Check for Understanding (each lesson/module)

materials by their observable properties. 2-PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. 2-PS1-3 Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object. 2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	• Plan and conduct an investigation that determines plants need sunlight and water to grow • Describe what happens when plants do not get water. • Describe what happens when plants don't get sunlight. • Develop a simple model to show how animals disperse seeds or pollinate plants. • Plan and conduct an investigation to determine if plants need sunlight and water to grow. • Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	• Homework/Extra Practice (each lesson/module) • Mystery Science Experiment Summative • Mystery Science End of Unit Question answered through worksheets

Appendix A	**Core Instructional & Supplemental Materials**	Grade # 2
• Mystery Science website • Mystery Science consumables • Mystery Science lab activity kits and materials		

Appendix B	**Technology Integration**	Grade # 2
Standards		
8.1.2.E.1 8.1.2.B.1	Use digital tools and online resources to explore a problem or issue. Illustrate and communicate original ideas and stories using multiple digital tools and resources.	

Appendix C	Interdisciplinary Connections	Grade # 2

- 2-ESS2.B Maps show where things are located. One can map the shapes and kinds of land and water in any area. The Roles of Water in Earth's Surface
- ESS2.C Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.
- 2-ESS2.A Wind and water can change the shape of the land. Optimizing the Design Solution
- 2-ESS2.C Because there is always more than one possible solution to a problem, it is useful to compare and test designs.
- 2-ESS1.C Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.
- NBT.A.3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. Science example: Students write about a lake that is 550 feet deep, a river that is 687 miles long, a forest that began growing about 200 years ago, and soon.
- MD.B.5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. Science example: A gulley is 17 inches deep before a rainstorm and 42 inches deep after a rainstorm. How much deeper did it get during the rainstorm?
- NBT.A.11 Understand place value. Science example: As part of comprehending media to identify the varying timescales on which Earth events can occur, students understand that a period of thousands of years is much longer than a period of hundreds of years, which is in turn much longer than a period of tens of years.
- Treps
    - TREP$ is a 6 week educational program which empowers children by providing an engaging project-based learning experience which creatively integrates entrepreneurship education with the authentic opportunity to apply business, academic, and life skills.The benefits of teaching entrepreneurship using TREP$ are far-reaching. Children who participate in TREP$ provides a feeling of empowerment and confidence that comes with starting a business. During the workshops, the classroom takes on a professional environment as students are encouraged to develop leadership skills, practice critical thinking, solve problems creatively, demonstrate economic concepts, become risk takers, learn from the business community, and begin planning their own businesses. TREP$ is a situation where it is possible for all students to succeed. TREP$ rewards those students with passion, determination, and a strong work ethic to become entrepreneurs.

Appendix D	Career Education Integration	Grade # 2

Standards	
9.1.2.RM.1: Describe how valuable items might be damaged or lost and ways to protect them. 9.1.2.PB.1: Determine various ways to save and places in the local community that help people	• Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. Identify various life roles and civic and work-related activities in the school, home, and community. Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. Connection: Introduce students to the career of botanist, a type of biologist who studies plants. Students can become botanists during this unit with their own plants in the classroom (or school garden, if applicable). This will allow them hands-on experience of

save and accumulate money over time. 9.1.2.PB.2: Explain why an individual would choose to save money. 9.1.2.FP.2: Differentiate between financial wants and needs. • 9.1.2.FP.3: Identify the factors that influence people to spend or save (e.g., commercials, family, culture, society). 9.1.2.FP.1: Explain how emotions influence whether a person spends or saves. 9.1.2. FI.1: Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards). 9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community. • 9.1.2.CR.2: List ways to give back, including making donations, volunteering, and starting a business. RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (2-PS1-4) • RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4) • RI.2.8 Describe how reasons support specific points the author makes in a text. (2-PS1-2), (2-PS1-4) New Jersey Department of Education	what it's like to work as this type of biologist.

December 2020 Page 37 of 200 Grade 2 • W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4) • W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-PS1-1), (2-PS1-2), (2-PS1-3) • W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1), (2-PS1-2), (2-PS1-3) MP.2 Reason abstractly and quantitatively. (2-PS1-2) MP.4 Model with mathematics. (2-PS1-1), (2-PS1-2) MP.5 Use appropriate tools strategically. (2-PS1-2) 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1), (2-PS1-2)	

Grade 3- Science Pacing Guide		
Trimester 1 (September - December)	**Trimester 2 (December - March)**	**Trimester 3 (March - June)**
• Invisible Forces • Animals Through Time	• Stormy Skies	• Power of Flowers

Science		Grade # 3
Unit 1	**Invisible Forces**	**7-10 days**
Essential Question	How and why do objects move?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

3-LS1 From Molecules to Organisms: Structures and Processes
3-LS2 Ecosystems: Interactions, Energy, and Dynamics
3-LS3 Heredity: Inheritance and Variation of Traits
3-LS4 Biological Evolution: Unity andDiversity
3-ESS2 Earth's Systems
3-ESS3 Earth and Human Activity
3-PS2.A Forces and Motion How do equal and unequal forces on an object affect the object? Students are able to determine the effects of balanced and unbalanced forces on the motion of an object and the cause and effect relationships of electric or magnetic interactions between two objects not in contact with
	• **Big Ideas**
	  ○ The effect of unbalanced forces on an object results in a change of motion.
	  ○ Patterns of motion can be used to predict future motion. Some forces act through contact, some forces act even when the objects are not in contact.
	  ○ The gravitational force of earth acting on an object near earth's surface pulls that object toward the planet's center.
	• **Supplemental Resources**
	  ○ **Leveled Readers**
	  ■ Light
	  ■ How Bikes Work
	  ■ Everyday Reactions
	  ■ How Sound Works
	  ■ So Much Energy
	  ■ Sonic Booms
	  ■ How do Boats Float
	  ■ Everyday Reactions
	  ■ Matter: Solid, Liquid,or Gas
	  ■ Ways Matter Changes
	  ■ How Matter Works
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

each other. 3-PS2.B Types ofInteractions How can magnets be used? Apply their understanding of magnetic interactions to define a simple design problem that can be solved with magnets. 3-LS1.B Growth and Development ofOrganisms Students are expected to develop an understanding of the similarities and differences of organisms' life cycles. 3-LS2.DS Social Interactions and GroupBehavior What happens to organisms when their environment changes? Develop an understanding of the idea that when the environment changes some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. 3-LS3.B Variation of Traits How do organisms vary in their traits? An understanding that organisms have different inherited traits, and that the environment can also affect the traits that an organism develops, is acquired by students at this level. 3-LS4.A Evidence of Common Ancestry andDiversity How are plants, animals, and environments of the past similar or different from current plants, animals, and environments? Students are expected to develop an understanding of types of	■ Matter and its Properties ■ How Things Move ■ Changes in Matter ■ Energy Forces and Motion ■ Sound ● **Scientific Inquiry** ○ **Core** ■ How could you win a tug of war? ■ What makes bridges so strong? How can you go faster down a slide? ■ What can magnets do? ■ How can you unlock a door using a magnet? ■ Developing and using models – collaboratively ● **Science and Engineering Practices** ○ Developing and Using Models: Identify limitations of models. Collaboratively develop and/or revise a model based on evidence that shows the relationships among variables for frequent and regular occurring events. ○ Develop a model using an analogy, example, or abstract representation to describe a scientific principle or design solution. ○ Use a model to test cause and effect relationships or interactions concerning the functioning of a natural or designed system. ○ Constructing Explanations and Designing Solutions: Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem. ○ Apply scientific ideas to solve design problems. ○ Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution. ● **Focus Areas** ○ **Knowledge** ■ Forces are pushes and pulls. ■ Motion occurs in predictable patterns. ■ The cause and effect relationships of electric interactions. ■ The cause and effect relationships of magnetic interactions.	

organisms that lived long ago and also about the nature of their environments. 3-LS4.B Biodiversity and Humans Construct an explanation using evidence for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. ESS2.D Weather and Climate What is typical weather in different parts of the world and during different times of the year? Students are able to organize and use data to describe typical weather conditions expected during a particular season. ESS3.B Natural Hazards How can the impact of weather-related hazards be reduced? By applying their understanding of weather-related hazards, students are able to make a claim about the merit of a design solution that reduces the impacts of such hazards. 3-PS2.A Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. 3-PS2.A The patterns of an object's motion in various situations can be observed and	■ Magnets can be used to solve design problems. ○ **Skills** ■ Plan and conduct investigations about forces. ■ Make observations and measurements of motion. ■ Ask questions about electric and magnetic interactions. ■ Define a problem that can be solved with magnets ○ **Understandings** ■ Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. ■ Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. ■ Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. ■ Define a simple design problem that can be solved by applying scientific ideas about magnets.	

measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. 3-PS2.B Objects in contact exert forces on each other. 3-PS2.B Electric, and magnetic forces between a pair of objects do not require that the object be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.		

Science		Grade # 3
Unit 2	**Animals Through Time**	**10-11 days**
Essential Questions	What are the advantages and disadvantages of group living? How do animal groups differ from one another?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

3-LS2.D Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size.
3-LS4.C When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.
	• **Big Ideas**
	  ○ Being part of a group helps animals obtain food, defend themselves, and cope with changes.
	  ○ When the environment changes some organisms survive and reproduce, some move to new locations, some move into the transformed environment and some die.
	  ○ Some living organisms resemble organisms that once lived on earth.
	  ○ Different organisms vary in how they look and function because they have different inherited information; the environment also affects the traits that an organism develops.
	• **Supplemental Resources**
	  ○ **Leveled Readers**
	  ■ Owl Life
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

Some kinds of plants and animals that once lived on Earth are no longer found anywhere. 3-LS4.A Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. 3-LS4.B Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. 3-LS4.C For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. 3-LS4.D For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. 3-LS3.A Many characteristics of organisms are inherited from their parents. 3-LS3.A Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. 3-LS3.B Different organisms vary in how they look and function because they have different inherited information. 3-LS3.B The environment also affects the traits that an organism develops.	■ Polar Life ■ Exoskeleton ● **Scientific Inquiry** ○ **Core** ■ Can selection happen without people? ■ What kind of animals might there be in the future? ■ Where can you find a whale in a desert? ■ How do we know what dinosaurs looked like? ■ Can you outrun a dinosaur? ● **Science and Engineering Practices** ○ Planning and Carrying Out Investigations: Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. Test two different models of the same proposed object, tool, or process to determine which better meets criteria for success. ○ Engaging in Argument from Evidence: Distinguish among facts, reasoned judgment based on research findings, and speculation in an explanation. ● **Focus Areas** ○ **Knowledge** ■ Animals are either solitary or live in groups. ■ Animals cannot spend their entire lives alone; they need each other in order to breed. ■ Living in a group has advantages and disadvantages. ■ Animal groups form for different reasons. ■ Animal groups vary widely in size, even among the same species. ■ Habitats include biotic and abiotic factors. ■ Fossils indicate changes of environments on Earth. ■ Adaptations help organisms survive. ■ Environmental changes affect an organism's survival. ■ Predatory defense, foraging, raising young and other tasks can be shared in a group to help the species survive. ■ Solitary organisms have to collect resources and benefit particular organisms.	

3.NBT. Number and Operations in Base Ten. Science example: Be quantitative when describing the group behaviors of animals 3.MD.B.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. Science examples: (1) Given a bar graph showing the number of speeds of dinosaurs. Where would your speed fit on the graph. (2) Make a scaled bar graph to show the number of surviving individuals with and without an advantageous trait. How many more of the individuals with the advantageous trait survived? 3.MD.B.4.a Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters. Science example: Make a line plot to show the length of each classmates speed vs. dinosaurs speed. MD.B.4.b Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in	■ Reproduction is necessary for all organisms. ■ Variations in grouping affect the survival of organisms. ○ **Skills** ■ Understand advantages and disadvantages of group living through experience working in a group. ■ Explain some animal behavior in relation to group or solitary living. ■ Identify biotic and abiotic factors in the environment. ■ Analyze and interpret data to understand what has lived on Earth over time. ■ Identify and explain specific causes of environmental change; and the direct implications for species in that environment. ■ Define a problem and propose solutions for an environmental issue. ■ Analyze an organism and determine how their social behavior helps their survival ■ Ask questions about organisms and why they choose the social behavior they do. ○ **Understandings** ■ Construct an argument that some animals form groups that help members survive. ■ Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. ■ Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. ■ Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. ■ Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.	

appropriate units—whole numbers, halves, or quarters. Science examples: Make a line plot to show the height of each of a number of plants grown from a single parent. Observe that not all of the offspring are the same size. Compare the sizes of the offspring to the size of the parent. (2) Make a similar plot for plants grown with insufficient water.		

Science		Grade # 3
Unit 3	**Stormy Skies**	**7-10 days**
Essential Question	What factors affect daily weather? What factors affect an area's climate? How can data be used to determine the climate of various regions?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

3-ESS2.D Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.
3-ESS2.D Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.
ESS3.B A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts.
	• **Big Ideas**
	  ○ Climate describes patterns of typical weather conditions over different scales and variations.
	  ○ Historical weather patterns can be analyzed. A variety of hazards result from natural processes.
	  ○ Humans cannot eliminate hazards but can reduce their impacts.
	• **Supplemental Resources**
	  ○ **Leveled Readers**
	  ■ Weather
	  ■ Record Breakers
	  ■ Fertile Floods
	  ■ Earth's Natural Resources
	  ■ Follow a River
	  ■ Follow a Raindrop
	  ■ Water, Weather, Rocks, and Soil
	  ■ Natural Resources
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

3.MD.A.2.a Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).15 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.16 Science examples: (1) Estimate the mass of a large hailstone that damaged a car on a used-car lot. (2) Measure the volume of water in liters collected during a rainstorm. 3.MD.A.2.b Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).17 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. 18 MD.B.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in bar graphs. Science example: Make a picture graph or bar graph to show the number of days with high temperature below freezing	■ Changes on Earth ● **Scientific Inquiry** ○ **Core** ■ Where do clouds form? ■ How can we predict when it is going to storm? Why are some places always hot? ■ How can you keep a house from blowing away in a windstorm? ● **Science and Engineering Practices** ○ **Asking Questions and Defining Problems** ■ Ask questions about what would happen if a variable is changed. ■ Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships. ○ Using Mathematics and Computational Thinking ■ Organize simple data sets to reveal patterns that suggest relationships. ● **Focus Areas** ○ **Knowledge** ■ Weather includes temperature, precipitation, and wind on a day to day basis. ■ Climate is the typical weather patterns over many years. ■ How to use tools such as a thermometer, rain gauge, and wind vane to collect weather data. ■ Climates vary around the world due to different amounts of rain, varying temperatures, andwind patterns. ■ A natural hazard is an extreme event that occurs from natural processes. ■ Natural hazards cannot be prevented. ■ The damage from natural hazards can be minimized. ○ **Skills** ■ Predict weather conditions based on information collected. ■ Analyze and interpret data to understand what is the climate in different parts of the world ■ Ask questions about what caused changes in	

in December, January, February, and March. How many days were below freezing this winter? MD.C.5. Recognize area as an attribute of plane figures and understand concepts of area measurement. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of a square unit. MD.C.6. Measure areas by counting unit squares (square cm, square m, square in, square ft., and improvised units).	weather patterns. ■ Collect data using tools such as thermometers, rain gauge, and a wind vane. ■ Describe different natural hazards. ■ Analyze methods for reducing damage caused by natural hazards. ○ **Understandings** ■ Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. ■ Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.	

Science		Grade # 3
Unit 4	**Power of Flowers**	**7-10 days**
Essential Questions	What is a life cycle? What changes do organisms go through during their life cycle? Is a plant life cycle similar and different compared to an animal’s life cycle?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
LS1.B Reproduction is essential to the continued existence of every kind of organism.Plants and animals have unique and diverse life cycles. 3.NF. Number andOperations—Fractions NBT. Number and Operations in Base Ten Science example: Be	● BIG IDEAS Reproduction is essential to every kind of organism. Organisms have unique and diverse life cycles. ● SUPPLEMENTAL RESOURCES Leveled Readers PlantsandHowTheyGrow PlantsandTreesGrowing TreeLife SCIENTIFIC INQUIRY Core Why do plants grow flowers? Why do plants give us fruit? Why are some apples red and some green? How could you make the biggest fruit in the world? ● Science and Engineering Practices Analyzing and Interpreting Data: Compare and contrast data collected by different groups in	Formative ● Check for Understanding (each lesson/module) ● Homework/Extra Practice (each lesson/module) ● Mystery Science Experiment Summative

quantitative when describing the life cycles of organisms, such as their varying lifespans (e.g., ranging from a fraction of a year up to thousands of years) and their varying reproduction (e.g., ranging from a handful of offspring to thousands). 3.MD.A.2.a Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).15 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.16 Science examples: (1) Estimate the mass of a large hailstone that damaged a car on a used-car lot. (2) Measure the volume of water in liters collected during a rainstorm. 3.MD.A.2.b Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).17 Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. 18 MD.B.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several	order to discuss similarities and differences in their findings. Obtaining, Evaluating, and Communicating Information: Read and comprehend grade-appropriate complex texts and/or other reliable media to summarize and obtain scientific and technical ideas and describe how they are supported by evidence. Communicate scientific and/or technical information orally and/or in written formats, including various forms of media and may include tables, diagrams, and charts. ● FOCUS AREAS Knowledge The pattern of life cycles includes birth, growth, reproduction, and death. Plant life cycles start with a seed. Plants develop different parts as they grow. Plants and animals reproduce to create more plants and animals. Plants and animals die. Skills Sort plants based on similar traits. Determine the sweetness of different apple varieties. Determine if a food is a science fruit or vegetable. Create a model of flowering plant life cycle. Understandings Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	● Mystery Science End of Unit Question answered through worksheets

categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in bar graphs. Science example: Make a picture graph or bar graph to show the number of days with high temperature below freezing in December, January, February, and March. How many days were below freezing this winter? MD.C.5. Recognize area as an attribute of plane figures and understand concepts of area measurement. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of a square unit. MD.C.6. Measure areas by counting unit squares (square cm, square m, square in, square ft., and improvised units).		

Appendix A	Core Instructional & Supplemental Materials	Grade # 3

- Mystery Science website
- Mystery Science consumables
- Mystery Science lab activity kits and materials

Appendix B	Technology Integration	Grade # 3

Standards	
8.1.2.E.1 8.1.2.B.1 8.1.5.F.1 8.1.5.A.2 8.1.5.A.6 8.1.5.B.1	• Use digital tools and online resources to explore a problem or issue. Illustrate and communicate original ideas and stories using multiple digital tools and resources. • Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems. Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures. • Apply digital tools to collect, organize, and analyze data that support a scientific finding. • Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures. • Export data from a database into a spreadsheet; analyze and produce a report that explains the analysis of the data. • Collaborative to produce a digital story about a significant local event or issue based on first-person interviews. • Use a graphic organizer to organize information about a problem or issue. • Graph data using a spreadsheet, analyze and produce a report that explains the analysis of the data. • Create and use a database to answer basic questions.

Appendix C	Interdisciplinary Connections	Grade # 3

- 2-ESS2.B Maps show where things are located. One can map the shapes and kinds of land and water in any area. The Roles of Water in Earth's Surface
- ESS2.C Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.
- 2-ESS2.A Wind and water can change the shape of the land. Optimizing the Design Solution
- 2-ESS2.C Because there is always more than one possible solution to a problem, it is useful to compare and test designs.
- 2-ESS1.C Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.
- NBT.A.3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. Science example: Students write about a lake that is 550 feet deep, a river that is 687 miles long, a forest that began growing about 200 years ago, and soon.
- MD.B.5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. Science example: A gulley is 17 inches deep before a rainstorm and 42 inches deep after a rainstorm. How much deeper did it get during the rainstorm?
- NBT.A.11 Understand place value. Science example: As part of comprehending media to identify the varying timescales on which Earth events can occur, students understand that a period of thousands of years is much longer than a period of hundreds of years, which is in turn much longer than a period of tens of years.
- Patterns; cause and effect; scale, proportion, and quantity; systems and system models;interdependence of science, engineering, and technology; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas.
- Treps

- TREP$ is a 6 week educational program which empowers children by providing an engaging project-based learning experience which creatively integrates entrepreneurship education with the authentic opportunity to apply business, academic, and life skills.The benefits of teaching entrepreneurship using TREP$ are far-reaching. Children who participate in TREP$ provides a feeling of empowerment and confidence that comes with starting a business. During the workshops, the classroom takes on a professional environment as students are encouraged to develop leadership skills, practice critical thinking, solve problems creatively, demonstrate economic concepts, become risk takers, learn from the business community, and begin planning their own businesses. TREP$ is a situation where it is possible for all students to succeed. TREP$ rewards those students with passion, determination, and a strong work ethic to become entrepreneurs.

Appendix D	**Career Education Integration** Grade # 3
Standards	
9.1.2.RM.1: Describe how valuable items might be damaged or lost and ways to protect them. 9.1.2.PB.1: Determine various ways to save and places in the local community that help people save and accumulate money over time. 9.1.2.PB.2: Explain why an individual would choose to save money. 9.1.2.FP.2: Differentiate between financial wants and needs. • 9.1.2.FP.3: Identify the factors that influence people to spend or save (e.g., commercials, family, culture, society). 9.1.2.FP.1: Explain how emotions influence whether a person spends or saves. 9.1.2. FI.1: Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards).	● Science and Society- set-up discussions with the following professionals in their fields: ○ Joseph B. Strauss- Chief Engineer of Golden Gate Bridge ○ Dr. Tod Campbell Green- Anole Expert ○ Lt. Col. William Rankin- Naval Pilot caught in storm cloud ○ Dr. Elissa Levine- Soil Scientist, NASA ● Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. ● Identify various life roles and civic and work-related activities in the school, home, and community. ● Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. ○ Connection: Writing assignment about a day in the career of a biologist who studies plant development and growth. Students can complete activities where they become botanists and study plants.

9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community. • 9.1.2.CR.2: List ways to give back, including making donations, volunteering, and starting a business. RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (2-PS1-4) • RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4) • RI.2.8 Describe how reasons support specific points the author makes in a text. (2-PS1-2), (2-PS1-4) New Jersey Department of Education December 2020 Page 37 of 200 Grade 2 • W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4) • W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-PS1-1), (2-PS1-2), (2-PS1-3) • W.2.8 Recall information from	

experiences or gather information from provided sources to answer a question. (2-PS1-1), (2-PS1-2), (2-PS1-3) MP.2 Reason abstractly and quantitatively. (2-PS1-2) MP.4 Model with mathematics. (2-PS1-1), (2-PS1-2) MP.5 Use appropriate tools strategically. (2-PS1-2) 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1), (2-PS1-2)	

Pacing Guide		
Trimester 1 (September - December)	**Trimester 2 (December - March)**	**Trimester 3 (March - June)**
• Earth's Changing Surface • Natural Hazards	• The History of Planet Earth • Energy and Natural Resources	• Molecules to Organisms • Waves and Light • Energy and Motion • Technology and Design

Science		Grade # 4
	Earth's Changing Surface	**7-10 days**
Essential Question	What are tectonic plates and what causes many of Earth's surface features? What is chemical weathering and erosion and how do they affect the environment? How does rainfall affect the environment?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object. 4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. 4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide. 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.* 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.	• Earth's physical features occur in patterns, as do earthquakes and volcanoes. Maps can be used to locate features and determine patterns in those events. Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, organisms, and gravity break rocks, soils and sediments into smaller pieces and move them around.
	• PRIMARY RESOURCE
	  ○ Pearson Leveled Readers Earth's Resources
	  ○ Types of Rocks and Minerals
	  ○ Mining for Rocks and Minerals
	• SCIENTIFIC INQUIRY
	  ○ Core Mineral Lab Sediment Rate of Deposition Lab Rock Layers Lab Plate Tectonics Lab Chemical Weathering Lab Glacial Weathering and Erosion Lab
	• Science and Engineering
	  ○ Developing and Using Models: Develop and/or use models to describe and/or predict phenomena
	• FOCUS AREAS
	  ○ Knowledge
	  ■ The layer of Earth that tells us the most about
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. [4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.* 4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. 4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. 4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. 4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features. 4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.*	Earth's history is the crust. ■ Earth's crust is made up of tectonic plates that float on the mantle and interact at their boundaries. ■ Many of the features on Earth's surface exist at tectonic plate boundaries. ■ Weathering is the breakdown or dissolving of rocks on Earth's surface. ■ Chemical weathering is when chemicals change the materials that make up a rock. ■ Erosion is the movement of broken down rocks. ■ Rainfall impacts what an environment is like and what organisms live there. ○ Skills ■ Create a model of sedimentary rock formation. Identify rock layers in a sedimentary rock model and use this information to determine the step-by-step process of rock formation. ■ Collaborate to build a model of one type of plate boundary. ■ Map earthquakes and plate boundary locations and determine the connections between their locations. ■ Create a model of ice weathering a rock and relate it to weathering in nature. ■ Create a model of water weathering a rock and relate it to weathering in nature. ■ Create a model of erosion and relate it to erosion in nature. ■ Create a model of weathering and erosion and relate it to weathering and erosion in nature. ■ Identify chemical versus physical weathering. ■ Distinguish between weathering and erosion. ■ Identify the effects of weathering and erosion in the environment around their school. ■ Understanding, analyzing and interpreting data from maps to describe patterns of Earth's features. ■ Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or	

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. 4-ESS2.B The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features of Earth. ESS2.A Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around.	vegetation.	

	Natural Hazards	10-11 days
Essential Questions	How are natural hazards created and how can humans reduce the impact of creating natural hazards?	

Standards	Knowledge/Skills	Evidence of Learning

4-ESS3.B A variety of hazards result from natural processes (e.g., earthquakes,tsunamis, volcanic eruptions). Humans cannot eliminate the hazards but can take steps to reduce their impacts.
ETS1.B Testing a solution involves investigating how well it performs under a range of likely conditions.
4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object. 4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. 4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide. 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.* 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.
4-PS4-1. Develop a model of waves to describe patterns in
	• BIG IDEAS
	  ○ A variety of hazards result from natural processes. Humans cannot eliminate hazards but can reduce their impacts.
	• PRIMARY RESOURCE
	  ○ Pearson Interactive Science, 2016 Chapter 6: Earth's Resources
	• SECONDARY RESOURCES
	  ○ Pearson Leveled Readers Earth's Resources
	  ○ Types of Rocks and Minerals
	  ○ Mining for Rocks and Minerals
	• SUPPLEMENTAL RESOURCES
	  ○ Smithsonian Institute Global Volcanism Program
	• SCIENTIFIC INQUIRY
	  ○ Core Volcano Lab Earthquake Epicenter Lab
	• Science and Engineering
	  ○ Obtaining, Evaluating and Communicating Information:
	  ○ Read and comprehend grade-appropriate complex text and/or other reliable media to summarize and obtain scientific and technical ideas and describe how they are supported by evidence.
	• FOCUS AREAS
	  ○ Knowledge
	  ■ Over time, people's needs and wants change, as do their demands for new and improved technologies.
	  ■ Cause and effect relationships are routinely identified and used to explain change.
	  ○ Skills
	  ■ Obtain and combine information from books and other reliable media to explain phenomena.
	  ■ Generate and compare multiple solutions to a problem based on how well they meet the criteria
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

terms of amplitude and wavelength and that waves can cause objects to move. [4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.* 4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. 4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. 4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. 4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features. 4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.* 3-5-ETS1-1. Define a simple design problem reflecting a need	and constraints of the design solution. ○ Understanding ■ Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.	

or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. 4-ESS2.B The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features of Earth. ESS2.A Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around.		

	The History of Planet Earth	7-10 days
Essential Question	What can rock formations teach us about the history of Earth? What can fossils teach us about the history of Earth? How can living things affect the physical characteristics of their regions?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object. 4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. 4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide. 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.* 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. 4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. [4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.* 4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. 4-LS1-1. Construct an argument that plants and animals	• BIG IDEAS
	  ○ Certain features on earth can be used to order events that have occurred in a landscape.
	  ○ Scientists analyze and interpret data from fossils to learn about the past.
	  ○ Living things can affect the physical characteristics of their environments.
	• PRIMARY RESOURCE
	  ○ Pearson Leveled Readers Ecosystems
	  ○ Ecosystem Life
	  ○ Life in a Pond
	• SCIENTIFIC INQUIRY
	  ○ Core Relative Dating with Fossils Lab
	• FOCUS AREAS
	  ○ Knowledge
	  ■ Sedimentary rocks form in layers and fossils in these layers can help geologists determine how old the rocks are relative to one another.
	  ■ All living things affect the physical characteristics of their environment.
	  ○ Skills
	  ■ Create a model of fossils in sedimentary rock layers.
	  ■ Determine what the youngest and oldest layer of a rock is based on the Law of Superposition.
	  ■ Understanding Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape overtime.
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

have internal and external structures that function to support survival, growth, behavior, and reproduction. 4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. 4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. 4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features. 4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.* 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and		

failure points are considered to identify aspects of a model or prototype that can be improved. 4-ESS2.B The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features of Earth. ESS2.A Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. 4-ESS1.C Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed. ESS2.E Living things affect the physical characteristics of their regions.		

Science		Grade # 4
	Energy and Natural Resources	**7-10 days**

Essential Questions	What is renewable energy and what is nonrenewable energy? What is the difference between nonrenewable and renewable energy? How does human energy impact the environment?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object. 4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. 4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide. 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.* 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. 4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. [4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.* 4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support	• BIG IDEAS
	  ○ Energy and fuels humans use are derived from natural sources and their use affects the environment. Some resources are renewable over time, others are not. Plants capture energy from sunlight, which can later be used as fuel or food.
	• PRIMARY RESOURCE
	  ○ Pearson Interactive Science
	  ○ Ecosystems
	• SECONDARY RESOURCES
	  ○ Pearson Leveled Readers Ecosystems
	  ○ Ecosystem Life
	  ○ Life in a Pond
	• Science and Engineering
	  ○ Engaging in Argument from Evidence
	  ○ Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.
	• FOCUS AREAS
	  ○ Knowledge
	  ■ Humans use energy and fuels derived from natural sources.
	  ■ Devices must be designed, tested, and refined in order to convert energy.
	  ■ Renewable energy is energy that comes from a source that replenishes quickly and will not be used up before more is created.
	  ■ Non-renewable energy is energy that comes from a source that is very slow to replenish and can be used up.
	  ■ Human energy use has many impacts on the environment.
	  ○ Skills
	  ■ Build a device that converts energy from one form to another by following instructions.
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

survival, growth, behavior, and reproduction. 4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. 4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. 4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features. 4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.* 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or	■ Design and build a simple device that converts energy from one form to another. ■ Define a simple engineering problem related to constraints due to materials, cost, ourtime. ■ Explain one energy type in depth, including where the energy is found, what it is used for,and how it impacts the environment. ■ Analyze a combination of information they have collected about one type of energy. ○ Understanding ■ Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	

prototype that can be improved. 4-ESS2.B The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features of Earth. ESS2.A Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. 4-ESS3.A Energy and fuels that humans use are derived from natural sources. ETS1.A Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.		

Science		Grade # 4
	Molecules to Organisms	**7-10 days**
Essential Questions	How do systems within organisms interact to fulfill life processes? How do senses function to help animals survive? How do internal and external structures function to support the survival of plants and animals?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object. 4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. 4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide. 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.* 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. 4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. [4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.* 4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to	• BIG IDEAS
	  ○ Organisms have both internal and external macroscopic structures that allow for growth, survival, behavior, and reproduction.
	  ○ Different sense receptors are specialized for particular kinds of information; animals use their perceptions and memories to guide their actions.
	• PRIMARY RESOURCE
	  ○ Ecosystems
	  ○ Ecosystem Life
	  ○ Life in a Pond
	  ○ Plants and Animals
	  ○ Animal and Plant Classification
	  ○ Strange Plants
	• SCIENTIFIC INQUIRY
	  ○ Core Permeability Lab
	  ○ Camouflage Frogs
	  ○ Hunt Frog
	  ○ Extinction Activity Video
	  ○ The Last Frog Maze Test (Information Processing?
	• Science and Engineering
	  ○ Analyzing and Interpreting Data
	  ■ Compare and contrast data collected by different groups in order to discuss similarities and differences in their findings.
	• FOCUS AREAS
	  ○ Knowledge
	  ■ Systems interact to fulfill growth, development, and reproduction, responding to change and using energy.
	  ■ Examples of how plant and animal structures, both
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

be seen. 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. 4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. 4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. 4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features. 4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.* 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3. Plan and	internally and externally, function to fulfill life processes. ■ The difference between instincts and behavior with examples. ■ How senses benefit animals in respect to how they respond to their environment. ○ Skills ■ Analyze a plant or animal and explain how the internal and external features support their survival. ■ Model how senses are used in respect to the brain in order to respond to their environment. ■ Use a model to describe that animals receive different types of information through their senses, process the information in their brains, and respond to the information in different ways. ○ Understanding ■ Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways	

carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. 4-ESS2.B The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features of Earth. ESS2.A Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. 4-LS1.A Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. LS1.DDifferent sense receptors are specialized for particular kinds of information, which may be then processed by the animal's brain. Animals are able to use their perceptions and memories to guide their actions.		

Science		Grade # 4
	Waves and Light	**7-10 days**
Essential Questions	What are waves, what are they caused by, and how do scientists describe waves? How does light allow us to see and why do we see colors? How do plane mirrors reflect light and how is light refracted?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object. 4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. 4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide. 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.* 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. 4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. [4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.* 4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to	• BIG IDEAS Waves are regular patterns of motion, which can be made in water by disturbing the surface. Waves of the same type can differ in amplitude and wavelength. Waves can make objects move. Objects can be seen when light reflected from their surface enters our eyes. PRIMARY RESOURCE Pearson Leveled Readers EnergyandHeat • WhatisLight? Electricity's Power SCIENTIFIC INQUIRY Core Transverse and Longitudinal Waves Lab Reflection and Refraction Lab • Science and Engineering Using Mathematics and Computational Thinking: Organize simple data sets to reveal patterns that suggest relationships. FOCUS AREAS Knowledge Waves are regular patterns of motion caused by a disturbance. In longitudinal waves, particles move in the same or opposite direction of the wave. In transverse waves, particles move up or down as the wave moves right or left. In order for us to see, light must reflect off of objects. We see colors when they are reflected and other colors are absorbed. When we see white, we are seeing all the colors reflected. When we see black, all the colors are absorbed. A plane mirror reflects light at the same angle it hits it and reflects an object the same distance away as it is from the mirror. Light bends as it passes from one material to another. Skills: Create a wave and explain how to manipulate various characteristics of the wave (like amplitude or wavelength) Create a simple device to transfer sound waves and explain why it can do so. Relate amplitude and wavelength to volume and pitch. Model changes in amplitude and wavelength on a one-string guitar. Explain how mirrors reflect objects and light. Use patterns to create a code to transfer information. Understanding Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. Develop	Formative • Check for Understanding (each lesson/module) • Homework/Extra Practice (each lesson/module) • Mystery Science Experiment Summative • Mystery Science End of Unit Question answered through worksheets

be seen. 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. 4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. 4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. 4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features. 4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.* 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3. Plan and	a model to describe that light reflecting from objects and entering the eye allows objects to be seen.	

carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. 4-ESS2.B The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features of Earth. ESS2.A Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around. 4-PS4.A Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; there is no net motion in the direction of the wave except when the water meets a beach. 4-PS4.A Waves of the same type can differ in amplitude (height of the wave) and wavelength (distance between wave crests). PS4.BAn object can be seen		

when light reflected from its surface enters the eyes.		

Science		Grade # 4
	Energy and Motion	**7-10 days**
Essential Questions	What are the various forms of energy? What is the difference between kinetic and potential energy and how does energy shift from kinetic to potential energy? What is the law of conservation of energy and what is force? How do they relate? How can energy be converted from one form to another?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
4-PS3.A The faster a given object is moving, the more energy it possesses. 4-PS3.A Energy can be moved from place to place by moving objects or through sound,light, or electric currents 4-PS3.B Energy is present whenever there are moving objects, sound, light, or heat. 4-PS3.B When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air; as a result, the air gets heated and sound is produced. 4-PS3.B Light also transfers energy from place to place. 4-PS3-2 Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, orlight. 4-PS3-4 The currents may have	• BIG IDEAS Moving objects contain energy, the faster the object moves, the more energy it has. Energy can be moved from place to place by moving objects, or through sound, light, or electrical currents. Energy can be converted from one form to another form. Energy can be “produced”, “used”, or “released” by converting stored energy. When objects collide, contact forces transfer energy so as to change the object’s motion. PRIMARY RESOURCE Pearson Leveled Readers EnergyandHeat WhatisLight? Electricity’s Power ObjectsinMotion LearningAboutMotion Isaac Newton Gravity SCIENTIFIC INQUIRY Core Pendulum Lab Potential and Kinetic Energy Lab Heat Transfer Lab • Science and Engineering Planning and Carrying Out Investigations: Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. Make predictions about what would happen if a variable changes. Test two different models of the same proposed object, tool, or process to determine which better meets criteria for success. • FOCUS AREAS Knowledge Energy is an objects’ ability to do work. Energy can be kinetic or potential, and has many different forms. Energy shifts between kinetic and potential. Energy is not created or destroyed. Energy is transferred among its various forms. Force is a way that energy can be transferred. Producing	Formative • Check for Understanding (each lesson/module) • Homework/Extra Practice (each lesson/module) • Mystery Science Experiment Summative • Mystery Science End of Unit Question answered through worksheets

been produced to begin with by transforming the energy of motion into electrical energy. 4-PS3.C When objects collide, the contact forces transfer energy so as to change the objects' motions. PS3.D The expression "produce energy" typically refers to the conversion of stored energy into a desired form for practical use. 4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object. 4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. 4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide. 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.* 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. 4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. [4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.* 4-PS4-2. Develop a model to describe that	energy refers to converting energy from one form to another so that it can be used for practical purposes. Skills Predict how changes in speed affect an object's energy. Observe how energy can be transferred among its various forms and explain what is happening using scientific vocabulary. Predict changes in energy that will occur as a result of objects colliding. Test and refine devices that convert energy from one form to another. Understanding Use evidence to construct an explanation relating the speed of an object to the energy of that object. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. Ask questions and predict outcomes about the changes in energy that occur when objects collide. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.	

light reflecting from objects and entering the eye allows objects to be seen. 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. 4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. 4-ESS2-1. Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. 4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features. 4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.* 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet		

the criteria and constraints of the problem. 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. 4-ESS2.B The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features of Earth. ESS2.A Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around.		

Science		Grade # 4
	Technology and Design	**7-10 days**
Essential Questions	How Does Technology Affect Our life? How Can Technology Be Used To Solve Problems? How can patterns encode, send,receive, and decode information? What Are The Steps In The Design Process, and how are they used?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

4-PS4.C Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. 4-ETS1.A Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. 4-ETS1.B Testing a solution involves investigating how well it performs under a range of likely conditions. PS4.CDigitized information can be transmitted over long distances without significant degradation. High-tech devices, such as computers or cell phones, can receive and decode information—convert it from digitized form to voice—and vice versa. 4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object. 4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. 4-PS3-3. Ask questions	• BIG IDEAS Technology is the knowledge, processes, and products that solve problems and make work easier. Technology can be used to solve problems. Patterns can encode, send, receive and decode information. The design process is a set of steps for developing products and processes that solve problems. PRIMARY RESOURCE Pearson Leveled Readers TechnologyandDesign Technology & Design atWork UsingNatureforDesign SCIENTIFIC INQUIRY Core Design Challenge • Science and Engineering Constructing Explanations and Designing Solutions: Apply scientific ideas to solve design problems. Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution. • FOCUS AREAS Knowledge Technology solves problems and makes life easier. Different solutions need to be tested to see which best solves a given problem. Possible solutions to a problem are limited by available materials and resources. Digitized information can be transmitted over long distances (computers, cell phones,GPS). Skills Analyze ways in which technology can be used to solve problems. Communicate and use the steps in the design process. Research and design ways to load cargo onto a cart. Decode a set of digitized information. Understanding Generate and compare multiple solutions that use patterns to transfer information. Apply the steps in the design process to design, test, and refine a vehicle that will carry cargo best.	Formative • Check for Understanding (each lesson/module) • Homework/Extra Practice (each lesson/module) • Mystery Science Experiment Summative • Mystery Science End of Unit Question answered through worksheets

and predict outcomes about the changes in energy that occur when objects collide. 4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.* 4-ESS3-1. Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. 4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. [4-PS4-3. Generate and compare multiple solutions that use patterns to transfer information.* 4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen. 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. 4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. 4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. 4-ESS2-1. Make observations and/or		

measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. 4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features. 4-ESS3-2. Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.* 3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. 3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. 3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved. 4-ESS2.B The locations of mountain ranges, deep ocean trenches, ocean floor structures, earthquakes, and volcanoes occur in patterns. Most earthquakes and volcanoes occur in bands that are often along the boundaries between continents and oceans. Major mountain chains form inside continents or near their edges. Maps can help locate the different land and water features of Earth.		

ESS2.A Rainfall helps to shape the land and affects the types of living things found in a region. Water, ice, wind, living organisms, and gravity break rocks, soils, and sediments into smaller particles and move them around.		

Appendix A	Core Instructional & Supplemental Materials	Grade # 4
• Mystery Science website • Mystery Science consumables • Mystery Science lab activity kits and materials		

Appendix B	Technology Integration	Grade # 4
Standards		
8.1.2.E.1 8.1.2.B.1 8.1.5.F.1	• Use digital tools and online resources to explore a problem or issue. Illustrate and communicate original ideas and stories using multiple digital tools and resources. • Apply digital tools to collect, organize, and analyze data that support a scientific finding.	

Appendix C	Interdisciplinary Connections	Grade # 4
• 2-ESS2.C Because there is always more than one possible solution to a problem, it is useful to compare and test designs. • 2-ESS1.C Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. • NBT.A.3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. Science example: Students write about a lake that is 550 feet deep, a river that is 687 miles long, a forest that began growing about 200 years ago, and soon. • Patterns; cause and effect; energy and matter systems and system models; interdependence of science, engineering, and technology; an influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. • MD.B.5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using		

drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. Science example: A gulley is 17 inches deep before a rainstorm and 42 inches deep after a rainstorm. How much deeper did it get during the rainstorm?

- NBT.A.11 Understand place value. Science example: As part of comprehending media to identify the varying timescales on which Earth events can occur, students understand that a period of thousands of years is much longer than a period of hundreds of years, which is in turn much longer than a period of tens of years.
- Treps
    - TREP$ is a 6 week educational program which empowers children by providing an engaging project-based learning experience which creatively integrates entrepreneurship education with the authentic opportunity to apply business, academic, and life skills.The benefits of teaching entrepreneurship using TREP$ are far-reaching. Children who participate in TREP$ provides a feeling of empowerment and confidence that comes with starting a business. During the workshops, the classroom takes on a professional environment as students are encouraged to develop leadership skills, practice critical thinking, solve problems creatively, demonstrate economic concepts, become risk takers, learn from the business community, and begin planning their own businesses. TREP$ is a situation where it is possible for all students to succeed. TREP$ rewards those students with passion, determination, and a strong work ethic to become entrepreneurs.

Appendix D	**Career Education Integration**	Grade # 4
Standards		
9.1.2.RM.1: Describe how valuable items might be damaged or lost and ways to protect them. 9.1.2.PB.1: Determine various ways to save and places in the local community that help people save and accumulate money over time. 9.1.2.PB.2: Explain why an individual would choose to save money. 9.1.2.FP.2: Differentiate between financial wants and needs. • 9.1.2.FP.3: Identify the factors that influence people to spend or save (e.g., commercials, family, culture, society). 9.1.2.FP.1: Explain how emotions influence whether a person	• Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. Identify various life roles and civic and work-related activities in the school, home, and community. Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. Connection: Introduce the description of a geologist's career and the different roles they play in society. Discuss the importance of this career. • Joanne Simpsom- Meteorologist/Pilot who tested ideas about weather patterns by flying through weather systems • Doug Ming- NASA scientist who studied soil and hope to grow plants in extreme conditions like Mars and the Moon • Rachel Carson- scientist and writer who learned that a chemical called DDT was destroying many ecosystems	

spends or saves. 9.1.2. FI.1: Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards). 9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community. • 9.1.2.CR.2: List ways to give back, including making donations, volunteering, and starting a business. RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (2-PS1-4) • RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4) • RI.2.8 Describe how reasons support specific points the author makes in a text. (2-PS1-2), (2-PS1-4) New Jersey Department of Education December 2020 Page 37 of 200 Grade 2 • W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4) • W.2.7 Participate in shared research and writing projects (e.g., read a number of	

books on a single topic to produce a report; record science observations). (2-PS1-1), (2-PS1-2), (2-PS1-3) • W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1), (2-PS1-2), (2-PS1-3) MP.2 Reason abstractly and quantitatively. (2-PS1-2) MP.4 Model with mathematics. (2-PS1-1), (2-PS1-2) MP.5 Use appropriate tools strategically. (2-PS1-2) 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1), (2-PS1-2)	

Grade 5- Science Pacing Guide		
Trimester 1 (September - December)	**Trimester 2 (December - March)**	**Trimester 3 (March - June)**
• Structure and Property Matters • Matter and Energy in Organisms and Ecosystems	• Earth's Systems • Space Systems: Stars and the Solar System	• Engineering and Design

Science		Grade # 5
	Structure and Property Matters	**7-10 days**
Essential Question	What are the properties of matter and what happens when matter changes state? When two substances are mixed, what is formed and is it always something new?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
MP.2 Reason abstractly andquantitatively. (5-PS1-1),(5-PS1-2),(5-PS1-3) MP.4 Model with mathematics.(5-PS1-1),(5-PS1-2) ,(5-PS1-3) MP.5 Use appropriate tools strategically.(5-PS1-2),(5-PS1-3) 5.NBT.A.1 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.(5-PS1-1) 5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.(5-PS1-1) 5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step,	● BIG IDEAS ○ Because matter exists as particles that are too small to see, matter is always conserved even if it seems to disappear. ○ Measurements of observable properties can be used to identify particular materials. ○ Chemical reactions that occur when substances are mixed can be identified by the emergence of substances with different properties; the total mass remains the same. ● PRIMARY RESOURCE ○ Leveled Readers ○ Matter and Its Properties ○ Properties of Matter ○ Pioneers of Physics ○ Changes in Matter ○ Baking Chemistry ● SCIENTIFIC INQUIRY ○ Core Properties of solids, liquids and gasses inquiry lab ○ Conservation of matter and chemical reaction inquiry lab Particles in matter lab ● Supplemental ○ How are weight and volume affected when objects are combined? ○ What are some ways to separate a mixture? ● Science and Engineering ○ Asking Questions and Defining Problems: Ask questions about what would happen if a variable is changed. ○ Developing and Using Models: Use a model to test cause and effect relationships or interactions concerning the	Formative ● Check for Understanding (each lesson/module) ● Homework/Extra Practice (each lesson/module) ● Mystery Science Experiment Summative ● Mystery Science End of Unit Question answered through worksheets

real-world problems. (5-PS1- 2) 5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. (5-PS1-1) MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft., and non- standard units. (5-PS1-1) 5-PS1-1 Develop a model to describe that matter is made of particles too small to be seen. [Clarification Statement: Examples of evidence could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water.] [Assessment Boundary: Assessment does not include the atomic-scale mechanism of evaporation and condensation or defining the unseen particles.] 5-PS1-2 Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. [Clarification Statement: Examples of reactions or changes could include phase changes, dissolving, and mixing that forms new substances.] [Assessment Boundary: Assessment does not include distinguishing mass and weight.] 5-PS1-3 Make observations and measurements to identify materials based on their	functioning of a natural or designed system. Planning and ○ Carrying Out Investigations: Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. Make predictions about what would happen if a variable changes. ● Test two different models of the same proposed object, tool, or process to determine which better meets criteria for success. ● Constructing Explanations and Designing Solutions: Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem. ● Engaging in Argument from Evidence: Distinguish among facts, reasoned judgment based on research findings, and speculation in an explanation. ● Construct and/or support an argument with evidence, data, and/or a model. Use data to evaluate claims about cause and effect. ● Obtaining, Evaluating, and Communicating Information: Read and comprehend grade-appropriate complex texts and/or other reliable media to summarize and obtain scientific and technical ideas and describe how they are supported by evidence. ● Compare and/or combine across complex texts and/or other reliable media to support the engagement in other scientific and/or engineering practices. ● Communicate scientific and/or technical information orally and/or in written formats, including various forms of media and may include tables, diagrams, and charts. ● FOCUS AREAS ○ Knowledge ■ Matter is a term that applies to all of the stuff around us and it is made of particles that are too small to see. ■ When substances are heated, cooled, or mixed the total weight before and after is always the same. ■ Substances can be identified based on observable and measurable properties. ■ Sometimes when two substances are mixed, each of the substances keeps its original properties and	

properties. [Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.] [Assessment Boundary: Assessment does not include density or distinguishing mass and weight.] 5-PS1-4 Conduct an investigation to determine whether the mixing of two or more substances results in new substances. RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.(5-PS1-1) Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.(5-PS1-2),(5-PS1-3),(5-PS1-4) Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources.(5-PS1-2),(5-PS1-3),(5-PS1-4) Draw evidence from literary or	sometimes a new substance is formed. ○ Skills ○ Give an example of what is important. ○ Describe how gasses are made from matter particles that are too small to be seen. (Ex: an inflated balloon) ○ Measure and graph the weights of matter before and after being heated, cooled, or mixed. ○ Identify materials based on various observable properties. ○ Determine whether the mixing of two substances always results in the formation of new substances or not and provide examples. ○ Identify the differences between soluble and insoluble solutions. ● Understandings ○ Develop a model to describe that matter is made of particles too small to be seen. ○ Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling. ○ Make observations and measurements to identify materials based on their properties. ○ Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	

informational texts to support analysis, reflection, and research.(5-PS1-2),(5-PS1-3),(5-PS1-4) 5-PS1.A Structure and Properties of Matter Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gasses are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon; the effects of air on larger particles or objects. (5-PS1-1) The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2) Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (5-PS1-3) 5-PS1.B Chemical Reactions When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4) No matter what reaction or change in properties occurs, the total weight of the substances does not change.		

(Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2) 5-PS2.B Types of Interactions The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1) 5-PS3.D Energy in Chemical Processes and Everyday Life The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1) 5-LS1.C Organization for Matter and Energy Flow inOrganisms Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary to 5-PS3-1) 5-LS1.C Organization for Matter and Energy Flow inOrganisms Plants acquire their material for growth chiefly from air and water. (5-LS1-1) 5-LS2.A Interdependent Relationships inEcosystems The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as		

“decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1) 5-LS2.B Cycles of Matter and Energy Transfer inEcosystems Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gasses, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1) 5-ESS1.A The Universe and its Stars The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (5-ESS1-1) 5-ESS1.B Earth and the Solar System The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun,		

moon, and stars at different times of the day, month, and year. (5-ESS1-2) 5-ESS2.A Earth Materials and Systems Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1) 5-ESS2.C The Roles of Water in Earth's SurfaceProcesses Nearly all of Earth's available water is in the ocean. Most freshwater is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2) 5-ETS1.A Defining and Delimiting Engineering Problems Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or		

how well each takes the constraints into account. (3-5-ETS1-1) 5-ETS1.B Developing Possible Solutions Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2) At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2) Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3) ETS1.C Optimizing the Design Solution Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)		

Science		Grade # 5
	Matter and Energy in Organisms and Ecosystems	**10-11 days**
Essential Questions	From where do living things get their energy and what do they do with it? How does the sun(or the lack of sun)affect all living things? Whatistheeffectonafood webwhenonemember'sroleischangedordeleted? Whatarethedifferentrolesinan ecosystem and the factors allow a population to maintain or have its population threatened?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

5-PS3-1 Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.[Clarification Statement: Examples of models could include diagrams, and flow charts.] 5-LS1-1 Support an argument that plants get the materials they need for growth chiefly from air and water. [Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.] 5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.] 5-PS1.A Structure and Properties of Matter Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gasses are made from matter particles that are too small to see and are	• BIG IDEAS
	  ○ Food provides animals with the materials and energy they need for body repair, growth, warmth, and motion.
	  ○ Plants acquire material for growth chiefly from air, water, and process matter and obtain energy from sunlight, which is used to maintain conditions necessary for survival.
	  ○ Energy can be "produced," "used," or "released" by converting stored energy.
	  ○ Plants capture energy from sunlight, which can later be used as fuel or food.
	  ○ The food of almost any animal can be traced back to plants.
	  ○ Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants, while decomposers restore some materials back to the soil.
	  ○ Matter cycles between the air and soil and among organisms as they live and die.
	• PRIMARY RESOURCE
	  ○ Leveled Readers
	  ○ Changing Forms of Energy
	  ○ How Energy Changes
	• SCIENTIFIC INQUIRY
	  ○ Core
	  ■ Where does food energy come from?
	  ■ What do plants need to grow?
	  ■ How does matter get reused in an ecosystem?
	  ○ Supplemental
	  ■ What is a local ecosystem?
	  ■ What do some molds need to grow?
	  ■ Which materials break down fastest in the soil?
	• Science and Engineering
	  ○ Planning and Carrying Out Investigations
	  ■ Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.
	  ■ Make predictions about what would happen if a variable changes. Test two different models of the
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		Summative
		• Mystery Science End of Unit Question answered through worksheets

moving freely around in space can explain many observations, including the inflation and shape of a balloon; the effects of air on larger particles or objects. (5-PS1-1) The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2) Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (5-PS1-3) 5-PS1.B Chemical Reactions When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4) No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2) 5-PS2.B Types of Interactions The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1) 5-PS3.D Energy in Chemical Processes and Everyday Life The energy released [from] food was once energy from the sun that was captured by plants in the	same proposed object, tool, or process to determine which better meets criteria for success. ○ Engaging in Argument from Evidence ■ Distinguish among facts, reasoned judgment based on research findings, and speculation in an explanation. ■ Obtaining, Evaluating, and Communicating Information ● Read and comprehend grade-appropriate complex texts and/or other reliable media to summarize and obtain scientific and technical ideas and describe how they are supported by evidence. ● Compare and/or combine across complex texts and/or other reliable media to support the engagement in other scientific and/or engineering practices. ● Communicate scientific and/or technical information orally and/or in written formats, including various forms of media and may include tables, diagrams, and charts. ■ Asking Questions and Defining Problems ● Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. ● FOCUS AREAS ○ Knowledge ■ The sun is the primary source of energy for both plants and animals. ■ Plants get the materials they need for growth from the air and water. ■ Food that animals consume provides energy for body growth, body repair, motion, and warmth. ■ The process of photosynthesis is a chemical process that converts the energy of the sun into food for plants and animals. ■ All food webs rely on the sun for its energy source and producers to create their own food.	

chemical process that forms plant matter (from air and water). (5-PS3-1) 5-LS1.C Organization for Matter and Energy Flow inOrganisms Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary to 5-PS3-1) 5-LS1.C Organization for Matter and Energy Flow inOrganisms Plants acquire their material for growth chiefly from air and water. (5-LS1-1) 5-LS2.A Interdependent Relationships inEcosystems The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as "decomposers." Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1) 5-LS2.B	■ Energy and mass are transferred from one organism to the next as it is eaten. ■ Decomposers take dead material and recycle it back into usable material. ■ Ecosystems are very fragile and require a perfect balance of predator and prey. ○ Skills ■ Describe/chart the flow of energy from the sun, through plants, andanimals. ■ Explain that without the sun's energy animal growth and body repair would not be possible. Identify the properties of the sun and how they affect both plants and animals. ■ Explain how plants convert energy from the sun into food for plants and animals. ■ Create a food web. ■ Explain the importance of producers, consumers and decomposers in an ecosystem. ■ Observe and analyze factors that aid decomposition. ■ Describe the flow of energy and mass through a food web. ■ Make conclusions about an ecosystem's chances for survival based on factors such as overpopulation or overhunting. ○ Understanding ■ Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. ■ Support an argument that plants get the materials they need for growth chiefly from air and water. Develop a model to describe the movement of matter among plants, animals,decomposers, and the environment.	

Cycles of Matter and Energy Transfer inEcosystems Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gasses, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1) 5-ESS1.A The Universe and its Stars The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (5-ESS1-1) 5-ESS1.B Earth and the Solar System The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. (5-ESS1-2) 5-ESS2.A Earth Materials and Systems Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean		

supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1) 5-ESS2.C The Roles of Water in Earth's SurfaceProcesses Nearly all of Earth's available water is in the ocean. Most freshwater is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2) 5-ETS1.A Defining and Delimiting Engineering Problems Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5-ETS1-1) 5-ETS1.B Developing Possible Solutions Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2) At whatever stage, communicating with peers about proposed solutions is an		

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Science		Grade # 5
	Earth's Systems	**7-10 days**
Essential Question	Where is most of the Earth's water that is usable to humans? What are the four major systems that make up the Earth and how do they interact? What are the four layers of the Earth and what are the characteristics of each? How do humans impact the Earth and how can we reduce it? What is global change?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

5-PS1.A Structure and Properties of Matter Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model that shows that gasses are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon; the effects of air on	• Rainfall helps to shape the land and affects the types of living things found in a region.
	• Water, ice, wind, organisms, and gravity break rocks, soils, and sediments into small pieces and move them around.
	• Most of earth's water is in the ocean, in glaciers or underground. Societal activities have had major effects on the land, ocean, atmosphere and even outer space.
	• Societal activities can also help protect earth's resources and environments.
	• PRIMARY RESOURCE
	  ○ Leveled Readers
	  ■ Changing World
	  ■ Water
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

larger particles or objects. (5-PS1-1) The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2) Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (5-PS1-3) 5-PS1.B Chemical Reactions When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4) No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2) 5-PS2.B Types of Interactions The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1) 5-PS3.D Energy in Chemical Processes and Everyday Life The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1) 5-LS1.C Organization for Matter and Energy Flow	■ Earth ■ Earth's Water ■ Our Changing Earth ■ Earth's Changing Surface ■ Protecting Earth's Resources ■ Earth's Natural Resources ■ Green Gardening ○ SCIENTIFIC INQUIRY ■ Core ● How do the spheres interact? Compare freshwater and saltwater distribution. ● How can you protect Earth's resources and environment? ● Supplemental: How accurate is the weather forecast? Does a cloud form? ● Science and Engineering ○ Planning and Carrying Out Investigations ■ Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. ■ Make predictions about what would happen if a variable changes. ■ Test two different models of the same proposed object, tool, or process to determine which better meets criteria for success. ○ Engaging in Argument from Evidence ■ Distinguish among facts, reasoned judgment based on research findings, and speculation in an explanation. ○ Obtaining, Evaluating, and Communicating Information ■ Read and comprehend grade-appropriate complex texts and/or other reliable media to summarize and obtain scientific and technical ideas and describe how they are supported by evidence. ■ Compare and/or combine across complex texts and/or other reliable media to support the engagement in other scientific and/or engineering practices. ■ Communicate scientific and/or technical	

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microbes as these organisms live and die. Organisms obtain gasses, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1) 5-ESS1.A The Universe and its Stars The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (5-ESS1-1) 5-ESS1.B Earth and the Solar System The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. (5-ESS1-2) 5-ESS2.A Earth Materials and Systems Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the	■ Differentiate between the different layers of the Earth based on distinct characteristics. ■ Explain the relationship between plants and animals when it comes to the production of oxygen and carbon dioxide. ■ Describe how life on Earth would be different if the ozone layer continues to be depleted. ■ Interpret and create graphs that represent the location of both salt and freshwater on Earth. ■ Analyze lab results that suggest that areas near water will see milder temperature fluctuations than areas that are further inland. ● Describe humans' impact on Earth systems. ● Explain the impact that increasing human populations have on natural resources. ● Identify changes humans can make to lessen their impact on the Earth's systems. ● Understanding ○ Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. ○ Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. ○ Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.	

atmosphere interact with the landforms to determine patterns of weather. (5-ESS2-1) 5-ESS2.C The Roles of Water in Earth's SurfaceProcesses Nearly all of Earth's available water is in the ocean. Most freshwater is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2) 5-ETS1.A Defining and Delimiting Engineering Problems Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5-ETS1-1) 5-ETS1.B Developing Possible Solutions Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2) At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2) Tests are often		

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Science		Grade # 5
	Space Systems: Stars and the Solar System	**7-10 days**
Essential Questions	What are some observable patterns on Earth throughout a day, month, and year? Why do some stars appear brighter than others and can only be seen during different times in a month or year? What changes can be made on two or more objects that can have an effect on the gravity between those objects? What is the gravitational force of the Earth and what is its effect on objects of differing sizes and shapes?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

5-PS1.A Structure and Properties of Matter Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model showing that gasses are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon; the effects of air on larger particles or objects. (5-PS1-1) The amount (weight) of	• BIG IDEAS
	  ○ Stars range greatly in size and distance from earth and this can explain their relative brightness.
	  ○ The earth's orbit and rotation, and the orbit of the moon around the earth cause observable patterns.
	  ○ The effect of unbalanced forces on an object results in a change of motion.
	  ○ Patterns of motion can be made used to predict future motion.
	  ○ Some forces act through contact, some forces act even when the objects are not in contact.
	  ○ The gravitational force of earth acting on an object toward the planet's center.
	• PRIMARY RESOURCE
	  ○ Leveled Readers
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2) Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (5-PS1-3) 5-PS1.B Chemical Reactions When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4) No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2) 5-PS2.B Types of Interactions The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1) 5-PS3.D Energy in Chemical Processes and Everyday Life The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1) 5-LS1.C Organization for Matter and Energy Flow inOrganisms Food provides animals with the materials they	■ Stars and Galaxies ■ Exploring the Universe ■ Telescopes ■ Earth in Space ■ The Earth and Its Neighbors ■ Moon Landings ■ Forces ■ Motion ■ Objects on the Move ■ Building Science ● SCIENTIFIC INQUIRY ○ Core ■ Which direction does gravity pull? ● How does location affect a star's appearance? How do the stars change with the seasons? Supplemental What does a spiral galaxy look like from different angles? ● Science and Engineering ○ Planning and Carrying Out Investigations ■ Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. ■ Make predictions about what would happen if a variable changes. ■ Test two different models of the same proposed object, tool, or process to determine which better meets criteria for success. ○ Engaging in Argument from Evidence ■ Distinguish among facts, reasoned judgment based on research findings, and speculation in an explanation. ○ Obtaining, Evaluating, and Communicating Information ■ Read and comprehend grade-appropriate complex texts and/or other reliable media to summarize and obtain scientific and technical ideas and describe how they are supported by evidence. ■ Compare and/or combine across complex texts and/or other reliable media to support the engagement in other scientific and/or engineering practices.	

need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary to 5-PS3-1) 5-LS1.C Organization for Matter and Energy Flow inOrganisms Plants acquire their material for growth chiefly from air and water. (5-LS1-1) 5-LS2.A Interdependent Relationships inEcosystems The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1) 5-LS2.B Cycles of Matter and Energy Transfer inEcosystems Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain	■ Communicate scientific and/or technical information orally and/or in written formats, including various forms of media and may include tables, diagrams, and charts. ○ Developing and Using Models ■ Collaboratively develop and/or revise a model based on evidence that shows the relationships among variables for frequent and regular occurring events. ■ Develop and/or use models to describe and/or predict phenomena. ● FOCUS AREAS ○ Knowledge ■ That a star’s distance from Earth affects how bright it appears to be. ■ That the length of shadows decrease during the day until they reach a certain point, then the shadows gradually start to get larger. ■ That the rotation of Earth causes night and day. ■ That the path of the sun changes from month to month. ■ Support an argument that the gravitational force exerted by Earth on objects is directed down. ■ That the locations of constellations change due to the rotation and revolution of Earth. ■ The history of our understanding of gravity. ■ Where the center of mass of a sphere is. ■ How mass and distance relate to the force of gravity. ■ That an object’s mass does not influence the force of Earth’s gravity on it. ○ Skills ■ Create an argument that relative brightness of the Sun compared to other stars is a function of the distance to those stars. ■ Explain how day turns into night ■ Explain why the sun casts different sized shadows. ■ Explain that the location of constellations in the night sky appear in different locations due to the	

gasses, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1) 5-ESS1.A The Universe and its Stars The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth. (5-ESS1-1) 5-ESS1.B Earth and the Solar System The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. (5-ESS1-2) 5-ESS2.A Earth Materials and Systems Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. Winds and clouds in the atmosphere interact with the landforms to determine patterns	rotation and revolution of Earth. ■ Show experimentally that things fall down because Earth's gravitational force is down. ■ Explain the balance of the Sun's gravitational force on Earth, and the Earth's momentum causes the revolution of the Earth around the Sun. ■ Show experimentally that objects fall at the same rate. ■ Understanding supports an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth. ■ Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	

of weather. (5-ESS2-1) 5-ESS2.C The Roles of Water in Earth's SurfaceProcesses Nearly all of Earth's available water is in the ocean. Most freshwater is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2) 5-ETS1.A Defining and Delimiting Engineering Problems Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5-ETS1-1) 5-ETS1.B Developing Possible Solutions Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2) At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2) Tests are often designed to identify failure points or difficulties, which suggest the		

elements of the design that need to be improved. (3-5-ETS1-3) ETS1.C Optimizing the Design Solution Different solutions need to be tested in order to determine which of them best solves the problem, given the criteria and the constraints. (3-5-ETS1-3)		

Science		Grade # 5
	Engineering Design	**7-10 days**
Essential Questions	What Is Science? How Does Technology Affect Our Lives? What Do You Already Know About the Engineering Design process? What Do Already Know about Human impacts on Earth Systems?	
Standards	**Knowledge/Skills**	**Evidence of Learning**

5-PS1.A Structure and Properties of Matter Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. A model that shows that gasses are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon; the effects of air on larger particles or objects. (5-PS1-1) The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish. (5-PS1-2) Measurements of a variety of properties can be used to identify materials. (Boundary:	• BIG IDEAS
	  ○ Even though students have grown up surrounded by high-tech gadgets, they may not be aware of the connection between technology and science.
	  ○ Science is the study of the natural world to understand how it functions.
	  ○ Technology changes or modifies the natural world to meet human needs or solve problems.
	  ○ Advances in technology contribute to advances in science.
	• FOCUS AREAS
	  ○ Knowledge
	  ■ Students define a problem using criteria for success and constraints or limits of solutions.
	  ■ Students research and consider multiple possible solutions to a given problem.
	  ■ Generating and testing solutions also becomes more rigorous as the students learn to optimize solutions by revising them several times to obtain the best possible design.
	  ○ Skills
		Formative
		• Check for Understanding (each lesson/module)
		• Homework/Extra Practice (each lesson/module)
		• Mystery Science Experiment
		
		Summative
		• Mystery Science End of Unit Question answered through worksheets

At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.) (5-PS1-3) 5-PS1.B Chemical Reactions When two or more different substances are mixed, a new substance with different properties may be formed. (5-PS1-4) No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.) (5-PS1-2) 5-PS2.B Types of Interactions The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center. (5-PS2-1) 5-PS3.D Energy in Chemical Processes and Everyday Life The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). (5-PS3-1) 5-LS1.C Organization for Matter and Energy Flow inOrganisms Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion. (secondary to 5-PS3-1) 5-LS1.C Organization for Matter and Energy Flow inOrganisms	■ Plan and create an investigation ■ Design a model ■ Test model ■ Develop a presentation ■ Communicate findings ○ Understanding ■ Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. ■ Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. ■ Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design problem.	

Plants acquire their material for growth chiefly from air and water. (5-LS1-1) 5-LS2.A Interdependent Relationships inEcosystems The food of almost any kind of animal can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants. Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as “decomposers.” Decomposition eventually restores (recycles) some materials back to the soil. Organisms can survive only in environments in which their particular needs are met. A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. Newly introduced species can damage the balance of an ecosystem. (5-LS2-1) 5-LS2.B Cycles of Matter and Energy Transfer inEcosystems Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gasses, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1) 5-ESS1.A The Universe and its Stars The sun is a star that		

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tiny fraction is in streams, lakes, wetlands, and the atmosphere. (5-ESS2-2) 5-ETS1.A Defining and Delimiting Engineering Problems Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (3-5-ETS1-1) 5-ETS1.B Developing Possible Solutions Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions. (3-5-ETS1-2) At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. (3-5-ETS1-2) Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved. (3-5-ETS1-3) ETS1.C Optimizing the Design Solution Different solutions need to be tested in order to determine which of them best solves the		

problem, given the criteria and the constraints. (3-5-ETS1-3)		

Appendix A	Core Instructional & Supplemental Materials	Grade # 5

- Mystery Science website
- Mystery Science consumables
- Mystery Science lab activity kits and materials

Appendix B	Technology Integration	Grade # 5

Standards	
8.1.2.E.1 8.1.2.B.1 8.1.5.F.1	• Use digital tools and online resources to explore a problem or issue. Illustrate and communicate original ideas and stories using multiple digital tools and resources. • Apply digital tools to collect, organize, and analyze data that support a scientific finding. Graph data using a spreadsheet, analyze and produce a report explains the analysis of the data. Create and use a database to answer basic questions. • Export data from a database into a spreadsheet; analyze and produce a report that explains the analysis of the data. ○ Activity: Students will collect data on the varying environmental impact of farm animals using spreadsheets. They will then manage the farm using a set number of resources. Finally students will analyze the data to make informed decisions when creating a solution. Students may use graphs created within the database to support their analysis.

Appendix C	Interdisciplinary Connections	Grade # 5

- Cause and effect relationships are routinely identified, tested, and used to explain change.
- Scale, Proportion, and Quantity Natural objects exist from the very small to the immensely large.
- Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume. Energy and Matter
- Energy can be transferred in various ways and between objects.
- Matter is transported into, out of, and within systems.
- Patterns Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural

phenomena.

- Systems and System Models- A system can be described in terms of its components and their interactions.
- Influence of Science, Engineering, and Technology on Society and the Natural World People's needs and wants change over time, as do their demands for new and improved technologies.
- Engineers improve existing technologies or develop new ones to increase their benefits, decrease known risks, and meet societal demands.
- Connections to Nature of Science Scientific Knowledge Assumes an Order and Consistency in Natural Systems
- Science assumes consistent patterns in natural systems.
- Science Addresses Questions About the Natural and Material World.
- Science findings are limited to questions that can be answered with empirical evidence.
- NBT.A.3. Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. Science example: Students write about a lake that is 550 feet deep, a river that is 687 miles long, a forest that began growing about 200 years ago, and soon.
- MD.B.5. Use addition and subtraction within 100 to solve word problems involving lengths that are given in the same units, e.g., by using drawings (such as drawings of rulers) and equations with a symbol for the unknown number to represent the problem. Science example: A gulley is 17 inches deep before a rainstorm and 42 inches deep after a rainstorm. How much deeper did it get during the rainstorm?
- NBT.A.11 Understand place value. Science example: As part of comprehending media to identify the varying timescales on which Earth events can occur, students understand that a period of thousands of years is much longer than a period of hundreds of years, which is in turn much longer than a period of tens of years.
- Treps
    - TREP$ is a 6 week educational program which empowers children by providing an engaging project-based learning experience which creatively integrates entrepreneurship education with the authentic opportunity to apply business, academic, and life skills.The benefits of teaching entrepreneurship using TREP$ are far-reaching. Children who participate in TREP$ provides a feeling of empowerment and confidence that comes with starting a business. During the workshops, the classroom takes on a professional environment as students are encouraged to develop leadership skills, practice critical thinking, solve problems creatively, demonstrate economic concepts, become risk takers, learn from the business community, and begin planning their own businesses. TREP$ is a situation where it is possible for all students to succeed. TREP$ rewards those students with passion, determination, and a strong work ethic to become entrepreneurs.

Appendix D	**Career Education Integration** Grade # 5
Standards	
MP.2 Reason abstractly and quantitatively. (5-LS1-1), (5-LS2-1) MP4 Model with mathematics. (5-LS1-1), (5-LS2-1) MP.5 Use appropriate	• Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. Identify various life roles and civic and work-related activities in the school, home, and community. Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. Connection: Introduce students to the career of botanist, a type of biologist who studies plants. Students can become botanists during this unit with their own

tools strategically. (5-LS1-1) MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real world problems. (5-LS1-1) RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-LS1-1) RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-PS3-1), (5-LS2-1) RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-LS1-1) W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. (5-LS1-1) SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5-PS3-1),(5-LS2- 1) 9.1.2.RM.1: Describe how valuable items might be damaged or lost and ways to protect them. 9.1.2.PB.1: Determine various ways to save and places in the local community that help people	plants in the classroom (or school garden, if applicable). This will allow them hands-on experience of what it's like to work as this type of biologist. ● Earth and Space: Florence Bascom- first female geologist ● Earth and Space: ○ Caroline Herschel- astronomer who discovered many comets ○ Isacc Newton, "Father of Science", telescope ○ Galilei Galileo, "Father of Modern Science", telescope ● Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals. ● Identify various life roles and civic and work-related activities in the school, home, and community. Investigate both traditional and nontraditional careers and relate information to personal likes and dislikes. ● Explain why knowledge and skills acquired in the elementary grades lay the foundation for future academic and career success. ● Connection: Assign a project in which students research a scientist who has made contributions to the advancement of technology. Provide a list of scientists and discuss the importance of their careers. ● Engineering: ○ Charles Babbage, originated the idea of programmable computer ○ Karl Benz, internal combustible engine for automobiles

save and accumulate money over time. 9.1.2.PB.2: Explain why an individual would choose to save money. 9.1.2.FP.2: Differentiate between financial wants and needs. • 9.1.2.FP.3: Identify the factors that influence people to spend or save (e.g., commercials, family, culture, society). 9.1.2.FP.1: Explain how emotions influence whether a person spends or saves. 9.1.2. FI.1: Differentiate the various forms of money and how they are used (e.g., coins, bills, checks, debit and credit cards). 9.1.2.CR.1: Recognize ways to volunteer in the classroom, school and community. • 9.1.2.CR.2: List ways to give back, including making donations, volunteering, and starting a business. RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (2-PS1-4) • RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4) • RI.2.8 Describe how reasons support specific points the author makes in a text. (2-PS1-2), (2-PS1-4) New Jersey Department of Education	

December 2020 Page 37 of 200 Grade 2 • W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4) • W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-PS1-1), (2-PS1-2), (2-PS1-3) • W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1), (2-PS1-2), (2-PS1-3) MP.2 Reason abstractly and quantitatively. (2-PS1-2) MP.4 Model with mathematics. (2-PS1-1), (2-PS1-2) MP.5 Use appropriate tools strategically. (2-PS1-2) 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1), (2-PS1-2)	

Grade 6 - Science Pacing Guide		
Trimester 1 (September - December)	**Trimester 2 (December - March)**	**Trimester 3 (March - June)**
• Unit1: Growth, Development, and Reproduction of Organisms. • Unit 2: Matter and Energy in Organisms and Ecosystems	• Unit 3: Interdependent Relationships in Ecosystems • Unit 4: Forces and Motion/Types of Interactions	• Unit 5: Astronomy • Unit 6: Weather, Climate, and Climate Change

Science	Grade 6	
	Growth, Development, and Reproduction of Organisms	**Pacing:** 30 - 45 days
Essential Question	• Why do some organisms have identical offspring and others have offspring that exhibit variation? • How do both environmental and genetic factors influence the growth of organisms?	

Standards	Knowledge/Skills	Evidence of Learning
MS-LS3-2: Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. ***MS-LS1-5*** Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. **MS-ETS1-1:** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. **MS-ETS1-2:** Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. **MS-ETS1-3:** Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. **MS-ETS1-4:** Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. **<u>ELA Companion Standards</u>** **English/Language Arts** **RI.6.1** Cite specific textual	**Genetic Variation** ● Vocabulary: protein, chromosomes, asexual reproduction, sexual reproduction, trait, gene. ● identical v variation of offspring ● organisms can reproduce sexually or asexually, leading to different amounts of genetic variation. ● Punnett Squares ○ analyze dominant and recessive genes ○ apply knowledge to solve a hypothetical problem. **Genetics v Environment** ● Vocabulary: gene, environment, trait, genetics, nutrition, stress ● Research and communicate understanding that traits are influenced by both genetics and environment. ● Identify and describe possible causes and effects of genetic conditions on the growth of organisms. ● Determine foundations of nature v. nurture ● Engineer a Solution to an Environmental Issue that Impacts Genetics (e.g. design a solution to the issue of inequitable access to nutrition for children around the globe.) **Cross Cutting Concepts** ● Cause and Effect: Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability. (MS-LS1-5) ● Cause and effect relationships may be used to predict phenomena in natural systems. (MS-LS3-2)	**Formative:** episode questions, exit tickets, lab/hands-on activities and experiments, evidence collection, analytics of data **Summative Assessment:** ● Episode quizzes ● Unit assessment **Alternative Assessment** ● PBL result (e.g. Students genetically engineer a solution to a hypothetical alien problem, create a presentation -oral with visual support). ● PBL result (e.g. create a solution to the issue of inequitable access to nutrition for children around the globe.)

evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions (MS-PS1-2), (MS-PS1-3), (MS-PS2-1), (MS-PS2-3), (MS-PS3-1), (MS-PS3-5), (MS-LS2-1), (MS-LS2-2), (MS-LS2-4), (MS-ESS2-2), (MS-ESS2-3), (MS-ESS2-5),(MS-ESS1-3), (MS-ESS1-4), (MS-ESS3-1), (MS-ESS3-2), (MS-ESS3-4), (MS-ESS3-5), (MS-ETS1-1), (MS-ETS1-2), (MS-ETS1-3). **RI.6.3** Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. (MS-PS1-6), (MS-PS2-1), (MS-PS2-2), (MS-PS2-5),(MS-PS3-3), (MS-PS3-4). **RI.6.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics. (MS-LS3-1), (MS-LS3-2) **RI.6.7** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). (MS-PS1-1), (MS-PS1-2), (MS-PS1-4), (MS-PS1-5), (MS-PS3-1),		

(MS-LS2-1),(MS-ESS1-3), (MS-ESS2-3) (MS-ESS3-2), (MS-ETS1-3), (MS-LS3-1), (MS-LS3-2) **RI.6.8** Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. (MS-LS2-5). **RI.6.9** Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. (MS-ESS2-3), (MS-ESS2-5),(MS-ETS1-2), (MS-ETS1-3) • **W.6.1** Write arguments focused on discipline-specific content. (MS-PS2-4), (MS-PS3-5), (MS-LS2-4), (MS-ESS3-4) **W.6.2** Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. (MS-LS2-2), (MS-ESS1-4), (MS-ESS2-2), (MS-ESS3-1) **W.6.7** Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. (MS-PS1-6), (MS-PS2-1), (MS-PS2-2), (MS-PS2-5), (MS-PS3-3), (MS-PS3-4), (MS-ESS3-3), (MS-ETS1-2).		

W.6.8 Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. (MS-PS1-3), (MS-ESS2-5),(MS-ESS3-3), (MS-ETS1-1). **W.6.9** Draw evidence from literary or informational texts to support analysis, reflection, and research. (MS-LS2-2), (MS-LS2-4), (MS-ESS3-1), (MS-ESS3-4), (MS-ETS1-2). **SL.6.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly. (MS-LS2-2), **SL.6.4** Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation. (MS-LS2-2) **SL.6.5** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. (MS-PS3-2),		

(MS-LS2-3), (MS-LS3-1), (MS-LS3-2), (MS-ESS1-1), (MS-ESS1-2), (MS-ESS2-1), (MS-ESS2-2), (MS-ESS2-6), (MS-ETS1-4).		

Science		Grade 6
	Matter and Energy in Organisms and Ecosystems	**Pacing:** 25-35 days
Essential Questions	• How and why do organisms interact with their environment and what are the effects of these interactions? • How do changes in the availability of matter and energy affect populations in an ecosystem? • How do relationships among organisms, in an ecosystem, affect populations? • How can you explain the stability of an ecosystem by tracing the flow of matter and energy?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
MS-LS2-1: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. **MS-LS2-2:** Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. **MS-LS2-3.**Develop a model to describe phenomena the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. **MS-LS2-4:**Construct an oral and written argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. **MS-ETS1-1:** Define the criteria and constraints of a design problem with sufficient precision to ensure a	**Food Webs** • Vocabulary: ecosystem, predator, producer, primary consumer, decomposer, secondary consumer • focus on interactions in the environment (e.g. relationship between four organisms in a food chain) • design their own food web to show feeding relationships between the organisms in an environment. • evaluate predator-prey relationships • analyze transfer of energy within an ecosystem. • create a solution that reduces the amount of waste a cafeteria sends to the local landfill. **Interaction of Organisms**	**Formative Assessment** • episode questions, exit tickets, lab/hands-on activities and experiments, evidence collection, analytics of data **Summative Assessment:** • Concept attainment quiz, per episode • Unit assessment **Alternative Assessment** • PBL result (e.g. Engineer a Solution to a Food Waste Problem) • PBL result (e.g. draw a technical sketch or build a model of a solution to

successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. **MS-ETS1-2:** Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. **MS-ETS1-3:** Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. **MS-ETS1-4:** Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. **<u>ELA Companion Standards</u>** **English/Language Arts** **RI.6.1** Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions (MS-PS1-2), (MS-PS1-3), (MS-PS2-1), (MS-PS2-3), (MS-PS3-1), (MS-PS3-5), (MS-LS2-1), (MS-LS2-2), (MS-LS2-4), (MS-ESS2-2), (MS-ESS2-3), (MS-ESS2-5),(MS-ESS1-3), (MS-ESS1-4), (MS-ESS3-1), (MS-ESS3-2), (MS-ESS3-4), (MS-ESS3-5), (MS-ETS1-1), (MS-ETS1-2), (MS-ETS1-3). **RI.6.3** Follow precisely a	● Vocabulary: ecosystem, predation, mutualism, competition, abiotic, biotic ● Understand a variety of relationships that exist among organisms in an ecosystem, including competition, predation, and mutualism. ● Evaluation the interaction of organisms using a creative presentation. ● Create a solution to control an issue created by an invasive species. **Cross Cutting Concepts** ● Patterns can be used to identify cause and effect relationships. (MS-LS2-2) ● Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-LS2-1) ● The transfer of energy can be tracked as energy flows through a natural system. (MS-LS2-3) ● Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation. (MS-LS2-3)	control an issue created by an invasive species.)

multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. (MS-PS1-6), (MS-PS2-1), (MS-PS2-2), (MS-PS2-5),(MS-PS3-3), (MS-PS3-4). **RI.6.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics. (MS-LS3-1), (MS-LS3-2) **RI.6.7** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). (MS-PS1-1), (MS-PS1-2), (MS-PS1-4), (MS-PS1-5), (MS-PS3-1), (MS-LS2-1),(MS-ESS1-3), (MS-ESS2-3) (MS-ESS3-2), (MS-ETS1-3), (MS-LS3-1), (MS-LS3-2) **RI.6.8** Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. (MS-LS2-5). **RI.6.9** Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. (MS-ESS2-3), (MS-ESS2-5),(MS-ETS1-2), (MS-ETS1-3)		

W.6.1 Write arguments focused on discipline-specific content. (MS-PS2-4), (MS-PS3-5), (MS-LS2-4), (MS-ESS3-4) **W.6.2** Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. (MS-LS2-2), (MS-ESS1-4), (MS-ESS2-2), (MS-ESS3-1) **W.6.7** Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. (MS-PS1-6), (MS-PS2-1), (MS-PS2-2), (MS-PS2-5), (MS-PS3-3), (MS-PS3-4), (MS-ESS3-3), (MS-ETS1-2). **W.6.8** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. (MS-PS1-3), (MS-ESS2-5),(MS-ESS3-3), (MS-ETS1-1). **W.6.9** Draw evidence from literary or informational texts to support analysis, reflection, and research. (MS-LS2-2), (MS-LS2-4),		

(MS-ESS3-1), (MS-ESS3-4), (MS-ETS1-2). **SL.6.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly. (MS-LS2-2), **SL.6.4** Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation. (MS-LS2-2) **SL.6.5** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. (MS-PS3-2), (MS-LS2-3), (MS-LS3-1), (MS-LS3-2), (MS-ESS1-1), (MS-ESS1-2), (MS-ESS2-1), (MS-ESS2-2), (MS-ESS2-6), (MS-ETS1-4).		

Science	Grade 6	
	Interdependent Relationships in Ecosystems	**Pacing:** 40-50 days
Essential Question	• What happens to ecosystems when the environment changes? • How can a single change to an ecosystem disrupt the whole system?	

	● What limits the number and variety of living things in an ecosystem?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
MS-LS2-3: Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. **MS-LS2-4:**Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations. **MS-LS2-5:** Evaluate competing design solutions for maintaining biodiversity and ecosystem services.* [Clarification Statement: Examples of ecosystem services could include water purification, nutrient recycling, and prevention of soil erosion. Examples of design solution constraints could include scientific, economic, and social considerations.] **MS-ETS1-1:** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. **MS-ETS1-2:** Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. **MS-ETS1-3:** Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be	**Biodiversity** ● Vocabulary: ecosystem, predator, population, biodiversity, endangered species, species, trophic cascade ● Understand factors that affect biodiversity, ● Determine how to identify biodiversity in an area ● evaluate competing design solutions that preserve biodiversity and ecosystem services. ● Analyze trophic cascade and increasing wolf populations ● Evaluate pros and cons and discover that sometimes there is more than one solution to a problem ● work as field biologists to discover the biodiversity of their schoolyard ecosystem. ● explore the connections between species. ● explore an environmental stressor and how it could impact the biodiversity in an ecosystem (climate change). ● compare biodiversity before and after the environmental stressor. ● construct food webs to investigate the cycling of matter and energy in the savanna, ocean, and desert ecosystems. ● analyze major ecosystem disruptions to support or refute the claim that an event occuring in one part of the ecosystem will not impact the region's biodiversity. ● Create a proposal that preserves the biodiversity and ecosystem services of their chosen ecosystem. ● Research a chosen ecosystem/biome; create a written report on characteristics of the ecosystem and its interactions; indicate how climate change affects this ecosystem. **Cross Cutting Concepts** ● Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation. (MS-LS2-3) ● Small changes in one part of a system might cause large changes in another part. (MS-LS2-4),(MS-LS2-5)	**Formative Assessment** ● episode questions, exit tickets, lab/hands-on activities and experiments, evidence collection, analytics of data **Summative Assessment:** ● Concept attainment quiz, per episode ● Unit assessment ● Ecosystem/Biome Research report and model **Alternative Assessment** ● PBL Result (e.g. develop and design a proposal that preserves the biodiversity and ecosystem services of their chosen ecosystem.)

combined into a new solution to better meet the criteria for success. **MS-ETS1-4:** Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. **<u>ELA Companion Standards</u>** **English/Language Arts** **RI.6.1** Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions (MS-PS1-2), (MS-PS1-3), (MS-PS2-1), (MS-PS2-3), (MS-PS3-1), (MS-PS3-5), (MS-LS2-1), (MS-LS2-2), (MS-LS2-4), (MS-ESS2-2), (MS-ESS2-3), (MS-ESS2-5),(MS-ESS1-3), (MS-ESS1-4), (MS-ESS3-1), (MS-ESS3-2), (MS-ESS3-4), (MS-ESS3-5), (MS-ETS1-1), (MS-ETS1-2), (MS-ETS1-3). **RI.6.3** Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. (MS-PS1-6), (MS-PS2-1), (MS-PS2-2), (MS-PS2-5),(MS-PS3-3), (MS-PS3-4). **RI.6.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics. (MS-LS3-1),	● The use of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time. (MS-LS2-5)	

(MS-LS3-2) **RI.6.7** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). (MS-PS1-1), (MS-PS1-2), (MS-PS1-4), (MS-PS1-5), (MS-PS3-1), (MS-LS2-1),(MS-ESS1-3), (MS-ESS2-3) (MS-ESS3-2), (MS-ETS1-3), (MS-LS3-1), (MS-LS3-2) **RI.6.8** Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. (MS-LS2-5). **RI.6.9** Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. (MS-ESS2-3), (MS-ESS2-5),(MS-ETS1-2), (MS-ETS1-3) • **W.6.1** Write arguments focused on discipline-specific content. (MS-PS2-4), (MS-PS3-5), (MS-LS2-4), (MS-ESS3-4) **W.6.2** Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. (MS-LS2-2), (MS-ESS1-4), (MS-ESS2-2), (MS-ESS3-1) **W.6.7** Conduct short research projects to answer a question		

(including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. (MS-PS1-6), (MS-PS2-1), (MS-PS2-2), (MS-PS2-5), (MS-PS3-3), (MS-PS3-4), (MS-ESS3-3), (MS-ETS1-2). **W.6.8** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. (MS-PS1-3), (MS-ESS2-5),(MS-ESS3-3), (MS-ETS1-1). **W.6.9** Draw evidence from literary or informational texts to support analysis, reflection, and research. (MS-LS2-2), (MS-LS2-4), (MS-ESS3-1), (MS-ESS3-4), (MS-ETS1-2). **SL.6.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly. (MS-LS2-2), **SL.6.4** Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence,		

sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation. (MS-LS2-2) **SL.6.5** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. (MS-PS3-2), (MS-LS2-3), (MS-LS3-1), (MS-LS3-2), (MS-ESS1-1), (MS-ESS1-2), (MS-ESS2-1), (MS-ESS2-2), (MS-ESS2-6), (MS-ETS1-4).		

Science		Grade 6
	Forces and Motion/Types Of Interactions	**Pacing:** 30-35 days
Essential Question	● How can we predict the motion of an object? ● How does Newton's Third Law Affect Us? ● Why does mass matter? ● Is it possible to exert force on an object without touching it?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
MS-PS2-1: Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.* [Clarification Statement: Examples of practical problems could include the impact of collisions between two cars, between a car and stationary objects, and	**Force and Motion** ● Vocabulary: motion, friction, gravity, applied force ● Investigate Newton's three laws of motion using real world situations ● Analyze Newton's laws and apply knowledge to create and build a shopping cart that minimizes injuries. ● Understand how force and mass impact motion.	**Formative Assessment** ● episode questions, exit tickets, lab/hands-on activities and experiments, evidence collection, analytics of data

between a meteor and a space vehicle.] [Assessment Boundary: Assessment is limited to vertical or horizontal interactions in one dimension.] **MS-PS2-2:** Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. **MS-PS2-3:**Ask questions about data to determine the factors that affect the strength of electric and magnetic forces. **MS-PS2-4:** Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. **MS-PS2-5:** Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. **MS-ETS1-1:** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. **MS-ETS1-2:** Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. **MS-ETS1-3:** Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be	● Present digital evidence collected from each investigation in order to validate each of Newton's Laws. ● Create and test a new shopping cart that can withstand collisions to keep precious cargo safe inside. **Electricity and Magnetism** ● Understand the theory of electrical current ● Analyze how open circuits and closed circuits change the flow of electrical currents. ● Compare conductive vs. non-conductive liquids, and the relationship between electricity and magnetism. ● explore magnetic and electromagnetic interactions to design a more "attractive" performance ● Create a visual model that compares the flow of electric current through fresh water and a salt water solution. ● Understand that magnetic fields that exist around wires that conduct electricity. ● Determine how to avoid the negative impacts of exposure to this magnetism ● Create an advocacy campaign that educates homeowners about how electricity and magnetism around power lines work. **Cross Cutting Concepts** ● Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-PS2-3),(MS-PS2-5) ● Models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy and matter flows within systems. (MS-PS2-1),(MS-PS2-4) ● Explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and forces at different scales. (MS-PS2-2) ● The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. (MS-PS2-1)	**Summative Assessment:** ● Concept attainment quiz, per episode ● Unit assessment **Alternative Assessment** ● PBL Result (e.g.

combined into a new solution to better meet the criteria for success. **MS-ETS1-4:** Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. **<u>ELA Companion Standards</u>** **English/Language Arts** **RI.6.1** Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions (MS-PS1-2), (MS-PS1-3), (MS-PS2-1), (MS-PS2-3), (MS-PS3-1), (MS-PS3-5), (MS-LS2-1), (MS-LS2-2), (MS-LS2-4), (MS-ESS2-2), (MS-ESS2-3), (MS-ESS2-5),(MS-ESS1-3), (MS-ESS1-4), (MS-ESS3-1), (MS-ESS3-2), (MS-ESS3-4), (MS-ESS3-5), (MS-ETS1-1), (MS-ETS1-2), (MS-ETS1-3). **RI.6.3** Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. (MS-PS1-6), (MS-PS2-1), (MS-PS2-2), (MS-PS2-5),(MS-PS3-3), (MS-PS3-4). **RI.6.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics. (MS-LS3-1),		

(MS-LS3-2) **RI.6.7** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). (MS-PS1-1), (MS-PS1-2), (MS-PS1-4), (MS-PS1-5), (MS-PS3-1), (MS-LS2-1),(MS-ESS1-3), (MS-ESS2-3) (MS-ESS3-2), (MS-ETS1-3), (MS-LS3-1), (MS-LS3-2) **RI.6.8** Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. (MS-LS2-5). **RI.6.9** Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. (MS-ESS2-3), (MS-ESS2-5),(MS-ETS1-2), (MS-ETS1-3) • **W.6.1** Write arguments focused on discipline-specific content. (MS-PS2-4), (MS-PS3-5), (MS-LS2-4), (MS-ESS3-4) **W.6.2** Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. (MS-LS2-2), (MS-ESS1-4), (MS-ESS2-2), (MS-ESS3-1) **W.6.7** Conduct short research projects to answer a question		

(including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. (MS-PS1-6), (MS-PS2-1), (MS-PS2-2), (MS-PS2-5), (MS-PS3-3), (MS-PS3-4), (MS-ESS3-3), (MS-ETS1-2). **W.6.8** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. (MS-PS1-3), (MS-ESS2-5),(MS-ESS3-3), (MS-ETS1-1). **W.6.9** Draw evidence from literary or informational texts to support analysis, reflection, and research. (MS-LS2-2), (MS-LS2-4), (MS-ESS3-1), (MS-ESS3-4), (MS-ETS1-2). **SL.6.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly. (MS-LS2-2), **SL.6.4** Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence,		

sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation. (MS-LS2-2) **SL.6.5** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. (MS-PS3-2), (MS-LS2-3), (MS-LS3-1), (MS-LS3-2), (MS-ESS1-1), (MS-ESS1-2), (MS-ESS2-1), (MS-ESS2-2), (MS-ESS2-6), (MS-ETS1-4).		

Science		Grade 6
	Astronomy	**Pacing:** 40-50 days
Essential Question	• What pattern in the Earth–sun–moon system can be used to explain lunar phases, eclipses of the sun and moon, and seasons? • What is the role of gravity in the motions within galaxies and the solar system? • What are the scale properties of objects in the solar system?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
MS-ESS1-1: Develop and use a model of the Earth sun moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. **ESS1.A:** The Universe and Its Stars Patterns of the apparent motion of	**Scale in the Solar System** • Vocabulary: distance, astronomical unit (au), mars, star, orbit, scale • Understand the scale properties of objects in the solar system and how this affects the brightness of stars. • Understand that the size of surface features of far-away planets,	**Formative Assessment** • episode questions, exit tickets, lab/hands-on activities and experiments, evidence collection, analytics of data

the sun, the moon, and stars in the sky can be observed, described, predicted, and explained with models. **ESS1.B:** Earth and the Solar System This model of the solar system can explain eclipses of the sun and the moon. Earth's spin axis is fixed in direction over the short-term but tilted relative to its orbit around the sun. The seasons are a result of that tilt and are caused by the differential intensity of sunlight on different areas of Earth across the year. **MS-ESS1-2:** Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. **MS-ESS1-3:** Analyze and interpret data to determine scale properties of objects in the solar system. **MS-ETS1-1:** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. **MS-ETS1-2:** Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. **MS-ETS1-3:** Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. **MS-ETS1-4:** Develop a model to generate data for iterative testing and modification of a proposed object,	such as canyons, can be determined based on satellite photos and their distance from the Earth. ● Create a project based on scale and physical properties of the planets ● Create a to-scale constellation in a box. **Sun-Earth System and Solar System Gravity** ● Vocabulary: earth, angle of sunlight, equator, heat, poles, season, sun ● Understand planetary distance and gravity in the solar system, as well as the tilt of the Earth, its rotation around the Sun and how those affect the sunlight and heating of different regions. ● Investigate and analyze the patterns of lunar phases. ● Understand orbital patterns of the Earth around the Sun and the role of gravity in the solar system. ● Demonstrate understanding of light distribution and heat intensity ● Explain how Earth's tilt and the angle of the sun's rays relate to seasons. ● Develop and use a model of the Sun-Earth-Moon system to describe the cyclic patterns of lunar phases, and eclipses of the sun and the moon. **Cross Cutting Concepts** ● Patterns can be used to identify cause-and-effect relationships. (MS-ESS1-1) ● Patterns in rates of change and other numerical relationships can provide information about natural systems. (MS-ESS2-3) ● Graphs, charts, and images can be used to identify patterns in data. (MS-ESS3-2) ● Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small. (MS-ESS1-3),(MS-ESS1-4) ● Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small. (MS-ESS2-2) ● Models can be used to represent systems and their interactions. (MS-ESS1-2)	**Summative Assessment:** ● Concept attainment quiz, per episode ● Unit assessment **Alternative Assessment** ● PBL Result (e.g.students discover the scale of planet diameter and their distance from the sun, then design a planet amusement park based on an accurate scale distance.)

tool, or process such that an optimal design can be achieved. **<u>ELA Companion Standards</u>** **English/Language Arts** **RI.6.1** Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions (MS-PS1-2), (MS-PS1-3), (MS-PS2-1), (MS-PS2-3), (MS-PS3-1), (MS-PS3-5), (MS-LS2-1), (MS-LS2-2), (MS-LS2-4), (MS-ESS2-2), (MS-ESS2-3), (MS-ESS2-5),(MS-ESS1-3), (MS-ESS1-4), (MS-ESS3-1), (MS-ESS3-2), (MS-ESS3-4), (MS-ESS3-5), (MS-ETS1-1), (MS-ETS1-2), (MS-ETS1-3). **RI.6.3** Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. (MS-PS1-6), (MS-PS2-1), (MS-PS2-2), (MS-PS2-5),(MS-PS3-3), (MS-PS3-4). **RI.6.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics. (MS-LS3-1), (MS-LS3-2) **RI.6.7** Integrate quantitative or technical information expressed	● Models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy, matter, and information flows within systems. (MS-ESS2-6) ● Engineering advances have led to important discoveries in virtually every field of science and scientific discoveries have led to the development of entire industries and engineered systems. (MS-ESS1-3) ● Science assumes that objects and events in natural systems occur in consistent patterns that are understandable through measurement and observation. (MS-ESS1-1),(MS-ESS1-2) ● Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-ESS2-5) ● Relationships can be classified as causal or correlational, and correlation does not necessarily imply causation. (MS-ESS3-3) ● Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-ESS3-1),(MS-ESS3-4) ● Within a natural or designed system, the transfer of energy drives the motion and/or cycling of matter. (MS-ESS2-4) ● Explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and processes at different scales, including the atomic scale. (MS-ESS2-1) ● Stability might be disturbed either by sudden events or gradual changes that accumulate over time. (MS-ESS3-5) ● All human activity draws on natural resources and has both short and long-term consequences, positive as well as negative, for the health of people and the natural environment. (MS-ESS3-1),(MS-ESS3-4) ● The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions. Thus technology use varies from region to region and over time. (MS-ESS3-2),(MS-ESS3-3) ● Scientific knowledge can describe the consequences of actions but does not necessarily prescribe the decisions that society takes. (MS-ESS3-4)	

in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). (MS-PS1-1), (MS-PS1-2), (MS-PS1-4), (MS-PS1-5), (MS-PS3-1), (MS-LS2-1),(MS-ESS1-3), (MS-ESS2-3) (MS-ESS3-2), (MS-ETS1-3), (MS-LS3-1), (MS-LS3-2) **RI.6.8** Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. (MS-LS2-5). **RI.6.9** Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. (MS-ESS2-3), (MS-ESS2-5),(MS-ETS1-2), (MS-ETS1-3) • **W.6.1** Write arguments focused on discipline-specific content. (MS-PS2-4), (MS-PS3-5), (MS-LS2-4), (MS-ESS3-4) **W.6.2** Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. (MS-LS2-2), (MS-ESS1-4), (MS-ESS2-2), (MS-ESS3-1) **W.6.7** Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional		

related, focused questions that allow for multiple avenues of exploration. (MS-PS1-6), (MS-PS2-1), (MS-PS2-2), (MS-PS2-5), (MS-PS3-3), (MS-PS3-4), (MS-ESS3-3), (MS-ETS1-2). **W.6.8** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. (MS-PS1-3), (MS-ESS2-5),(MS-ESS3-3), (MS-ETS1-1). **W.6.9** Draw evidence from literary or informational texts to support analysis, reflection, and research. (MS-LS2-2), (MS-LS2-4), (MS-ESS3-1), (MS-ESS3-4), (MS-ETS1-2). **SL.6.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly. (MS-LS2-2), **SL.6.4** Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact,		

adequate volume, and clear pronunciation. (MS-LS2-2) **SL.6.5** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. (MS-PS3-2), (MS-LS2-3), (MS-LS3-1), (MS-LS3-2), (MS-ESS1-1), (MS-ESS1-2), (MS-ESS2-1), (MS-ESS2-2), (MS-ESS2-6), (MS-ETS1-4).		

Science		Grade 6
	Weather, Climate and Climate Change	**Pacing:** 30-45 days
Essential Question	How does the water cycle impact climate and weather? What factors interact and influence weather and climate? How can understanding Earth's systems help us predict future severe weather? How does the ocean affect climate? How is climate change impacting Earth's systems, weather and water?	
Standards	**Knowledge/Skills**	**Evidence of Learning**
MS-ESS2-4: Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. [Clarification Statement: Emphasis is on the ways water changes its state as it moves through the multiple pathways of the hydrologic cycle. Examples of models can be conceptual or physical.] [Assessment Boundary: A quantitative understanding of the latent heats of vaporization and fusion is not assessed.]	**Water Cycle** ● Vocabulary: precipitation, evaporation, transpiration, condensation, sublimation ● Use real life cases (e.g. acid rain) to discover/analyze the concepts and processes of the water cycle, including where water comes from and where water goes. ● Identify three states of water. ● Understand how animals and plants contribute to the water cycle. ● Analyze the role of the sun and gravity in the water cycle. ● Draw conclusions about the stages of the water cycle from a demonstration. Stages include: boiling, evaporation, melting, condensation, and precipitation. 2. Experience the water cycle by	**Formative Assessment** ● episode questions, exit tickets, lab/hands-on activities and experiments, evidence collection, analytics of data **Summative Assessment:** ● Concept attainment quiz, per episode ● Unit assessment **Alternative Assessment**

MS-ESS2-5: Collect data to provide evidence for how the motions and complex interactions of air masses result in changes in weather conditions.[Assessment Boundary: Assessment does not include recalling the names of cloud types or weather symbols used on weather maps or the reported diagrams from weather stations.] **MS-ESS2-6:** Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates. [Assessment Boundary: Assessment does not include the dynamics of the Coriolis effect.] **MS-ETS1-1:** Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. **MS-ETS1-2:** Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. **MS-ETS1-3:** Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. **MS-ETS1-4:** Develop a model to	taking a journey through its multiple paths. 3. Create an annotated diagram demonstrating possible paths of water through the water cycle. **Weather** ● Vocabulary:temperature, weather front, humidity, air mass, precipitation, wind speed, sun angle ● Explore temperature and humidity in air masses. ● Understand what happens when air masses collide. ● Use an air mass map to identify the names of different air masses. ● SW use a weather map to investigate and predict weather using six factors that impact weather: temperature, humidity, air pressure and wind, ocean current temperature, landforms, and weather fronts. **Oceans and Climate** ● Vocabulary: climate, climate change, latitude, coriolis effect, density, ocean currents, salinity ● Understand how objects lost at sea can travel across coastlines due to ocean currents. 3. ● Communicate understanding that ocean currents are impacted by a variety of factors, including the earth's rotation, wind, density of ocean water (due to temperature and salinity gradients), and land masses. ● Determine that ocean currents move in a predictable pattern as cold water generally moves in the direction of pole to equator, while warm water moves from equator to pole ● Analyze whether it's possible for two cities at the same latitude to have different climates; determine the impact that latitude, ocean currents, heat, and geography have on a region's climate. **Cross Cutting Concepts** ● Patterns in rates of change and other numerical relationships can provide information about natural systems. (MS-ESS2-6).	● PBL Result A (e.g. design a water conservation solution for one of our country's states that is experiencing a severe drought.) ● PBL Result B(e.g. choose a city,research the past five days of weather in that region; based on past weather factors for that region, make a prediction for the weather on day 6. OR choose a type of weather front and create a play, narrating and acting out the various factors that cause it. ● PBL Result C (e.g. using knowledge gained from the unit, develop and design a device capable of harnessing energy from the ocean.)

generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved. **<u>ELA Companion Standards</u>** **English/Language Arts** **RI.6.1** Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions (MS-PS1-2), (MS-PS1-3), (MS-PS2-1), (MS-PS2-3), (MS-PS3-1), (MS-PS3-5), (MS-LS2-1), (MS-LS2-2), (MS-LS2-4), (MS-ESS2-2), (MS-ESS2-3), (MS-ESS2-5),(MS-ESS1-3), (MS-ESS1-4), (MS-ESS3-1), (MS-ESS3-2), (MS-ESS3-4), (MS-ESS3-5), (MS-ETS1-1), (MS-ETS1-2), (MS-ETS1-3). **RI.6.3** Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks. (MS-PS1-6), (MS-PS2-1), (MS-PS2-2), (MS-PS2-5),(MS-PS3-3), (MS-PS3-4). **RI.6.4** Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics. (MS-LS3-1),	● Cause and effect relationships may be used to predict phenomena in natural or designed systems. (MS-ESS2-5). ● Models can be used to represent systems and their interactions— such as inputs, processes and outputs—and energy, matter, and information flows within systems. (MS-ESS2-6). ● Within a natural or designed system, the transfer of energy drives the motion and/or cycling of matter. (MS-ESS2-4) . ● Explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and processes at different scales, including the atomic scale. (MS-ESS2-4,MS-ESS2-5, MS-ESS2-6).	

(MS-LS3-2) **RI.6.7** Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). (MS-PS1-1), (MS-PS1-2), (MS-PS1-4), (MS-PS1-5), (MS-PS3-1), (MS-LS2-1),(MS-ESS1-3), (MS-ESS2-3) (MS-ESS3-2), (MS-ETS1-3), (MS-LS3-1), (MS-LS3-2) **RI.6.8** Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. (MS-LS2-5). **RI.6.9** Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. (MS-ESS2-3), (MS-ESS2-5),(MS-ETS1-2), (MS-ETS1-3) • **W.6.1** Write arguments focused on discipline-specific content. (MS-PS2-4), (MS-PS3-5), (MS-LS2-4), (MS-ESS3-4) **W.6.2** Write informative/explanatory texts, including the narration of historical events, scientific procedures/ experiments, or technical processes. (MS-LS2-2), (MS-ESS1-4), (MS-ESS2-2), (MS-ESS3-1) **W.6.7** Conduct short research projects to answer a question		

(including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. (MS-PS1-6), (MS-PS2-1), (MS-PS2-2), (MS-PS2-5), (MS-PS3-3), (MS-PS3-4), (MS-ESS3-3), (MS-ETS1-2). **W.6.8** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. (MS-PS1-3), (MS-ESS2-5),(MS-ESS3-3), (MS-ETS1-1). **W.6.9** Draw evidence from literary or informational texts to support analysis, reflection, and research. (MS-LS2-2), (MS-LS2-4), (MS-ESS3-1), (MS-ESS3-4), (MS-ETS1-2). **SL.6.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly. (MS-LS2-2), **SL.6.4** Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence,		

sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation. (MS-LS2-2) **SL.6.5** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. (MS-PS3-2), (MS-LS2-3), (MS-LS3-1), (MS-LS3-2), (MS-ESS1-1), (MS-ESS1-2), (MS-ESS2-1), (MS-ESS2-2), (MS-ESS2-6), (MS-ETS1-4).		

Appendix A	**Core Instructional & Supplemental Materials**	Grade 6
Mosa Mack - Online Curriculum https://mosamack.com/home# Wolves of Yellowstone (PBS Learning)		

Appendix B	**Technology Integration (Computer Science and Design Thinking)**	Grade 6
Standards		
8.2.8.ED.1: Evaluate the function, value, and aesthetics of a technological product or system, from the perspective of the user and the producer. **8.2.8.ED.2:** Identify the steps in the design process that could be used to	**Engineering Design** ● Engineering design is a systematic, creative, and iterative process used to address local and global problems. The process includes generating ideas, choosing the best solution, and making, testing, and redesigning models or prototypes. ● Engineering design requirements and specifications involve making trade-offs between competing requirements and desired design features.	

solve a problem. **8.2.8.ED.3:** Develop a proposal for a solution to a real-world problem that includes a model (e.g., physical prototype, graphical/technical sketch). **8.2.8.ED.4:** Investigate a malfunctioning system, identify its impact, and explain the step-by-step process used to troubleshoot, evaluate, and test options to repair the product in a collaborative team. **8.2.8.ED.5:** Explain the need for optimization in a design process. **8.2.8.ED.6:** Analyze how trade-offs can impact the design of a product. **8.2.8.ED.7:** Design a product to address a real-world problem and document the iterative design process, including decisions made as a result of specific constraints and trade-offs (e.g., annotated sketches). **8.2.8.ITH.1:** Explain how the development and use of technology influences economic, political, social, and cultural issues. **8.2.8.ITH.2:** Compare how technologies have influenced society over time. **8.2.8.ITH.3:** Evaluate the impact of sustainability on the development of a designed product or system. **8.2.8.ITH.4:** Identify technologies that have been designed to reduce the negative consequences of other technologies and explain the change in impact. **8.2.8.ITH.5:** Compare the impacts of a given technology on different societies, noting factors that may make a technology appropriate and sustainable in one society but not in another. **8.2.8.ETW.1:** Illustrate how a product	**Interaction of Technology and Humans** ● Economic, political, social and cultural aspects of society drive development of new technological products, processes, and systems. ● Technology interacts with society, sometimes bringing about changes in a society's economy, politics, and culture, and often leading to the creation of new needs and wants. ● New needs and wants may create strains on local economies and workforces. ● Improvements in technology are intended to make the completion of tasks easier, safer, and/or more efficient.

is upcycled into a new product and analyze the short- and long-term benefits and costs. **8.2.8.ETW.2:** Analyze the impact of modifying resources in a product or system (e.g., materials, energy, information, time, tools, people, capital). **8.2.8.ETW.3:** Analyze the design of a product that negatively impacts the environment or society and develop possible solutions to lessen its impact. **8.2.8.ETW.4:** Compare the environmental effects of two alternative technologies devised to address climate change issues and use data to justify which choice is best. **8.2.8.EC.1:** Explain ethical issues that may arise from the use of new technologies. **8.2.8.EC.2:** Examine the effects of ethical and unethical practices in product design and development.	**Effects of Technology on the Natural World** ● Resources need to be utilized wisely to have positive effects on the environment and society. Some technological decisions involve tradeoffs between environmental and economic needs, while others have positive effects for both the economy and environment **Ethics and Culture** ● Technological disparities have consequences for public health and prosperity.

Appendix C	Interdisciplinary Connections	Grade 6

Mathematics
Reason abstractly and quantitatively. (MS-PS1-1), (MS-PS1-2), (MS-PS1-5), (MS-PS2-1), (MS-PS2-2), (MS-PS2-3), (MS-PS3-1), (MS-PS3-4), (MS-PS3-5), (MS-ESS1-3), (MS-ESS2-2), (MS-ESS2-3), (MS-ESS2-5), (MS-ESS3-2), (MS-ESS3-5), (MS-ETS1-1), (MS-ETS1-2), (MS-ETS1-3), (MS-ETS1-4).

Model with mathematics. (MS-PS1-1), (MS-PS1-5), (MS-LS2-5), (MS-LS3-2), (MS-ESS1-1), (MS-ESS1-2)

6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. (MS-PS1-4), (MS-PS2-1), (MS-ESS2-5),

6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots. (MS-PS1-2).

6.SP.B.5 Summarize numerical data sets in relation to their context (MS-PS1-2), (MS-LS2-2), (MS-PS3-4), (MS-LS2-2), (MS-LS3-2), (MS-ESS2-2), (MS-ESS2-3).

6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers. (MS-PS2-1), (MS-PS2-2).

6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. (MS-ESS1-2), (MS-ESS1-4), (MS-ESS3-1), (MS-ESS3-2), (MS-ESS3-3), (MS-ESS3-4), (MS-ESS3-5).

6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables and relate these to the equation. (MS-LS2-3).

6.RP.A.1 Understand the concept of ratio and use ratio language to describe a ratio relationship between two quantities. (MS-PS3-1), (MS-PS3-5), (MS-ESS1-1), (MS-ESS3-3), (MS-ESS3-4),

6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio a:b with b ≠ 0, and use rate language in the context of a ratio relationship. (MS-PS3-1), (MS-ESS1-2), (MS-ESS1-3).

6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems. (MS-PS1-1), (MS-PS1-2), (MS-PS1-5), (MS-LS2-5).

Social Studies
6.3.5.CivicsPD.1: Develop an action plan that addresses issues related to climate change and share with school and/or community members.

6.3.5.GeoHE.1: Plan and participate in an advocacy project to inform others about the impact of climate change at the local or state level and propose possible solutions.

6.3.5.GeoGI.1: Use technology to collaborate with others who have different perspectives to examine global issues, including climate change and propose possible solutions.

Appendix D	**Career Education Integration** Grade 6
Standards	
9.4.8.CI.1: Assess data gathered on varying perspectives on causes of climate change and determine how the data can best be used to design	**Critical Thinking** ● Multiple solutions often exist to solve a problem. ● Gathering and evaluating knowledge and information from a variety of sources, including global perspectives, fosters creativity and innovative thinking.

multiple potential solutions. **9.4.8.CI.2:** Repurpose an existing resource in an innovative way **9.4.8.CI.3:** Examine challenges that may exist in the adoption of new ideas **9.4.8.CI.4:** Explore the role of creativity and innovation in career pathways and industries. **9.4.8.CT.1:** Evaluate diverse solutions proposed by a variety of individuals, organizations, and/or agencies to a local or global problem, such as climate change, and use critical thinking skills to predict which one(s) are likely to be effective. **9.4.8.CT.2:** Develop multiple solutions to a problem and evaluate short- and long-term effects to determine the most plausible option. **9.4.8.DC.1:** Analyze the resource citations in online materials for proper use. **9.4.8.DC.2:** Provide appropriate citation and attribution elements when creating media products **9.4.8.TL.1:** Construct a spreadsheet in order to analyze multiple data sets, identify relationships, and facilitate data-based decision-making. **9.4.8.TL.2:** Gather data and digitally represent information to communicate a real-world problem. **9.4.8.TL.3:** Select appropriate tools to organize and present information digitally. **9.4.8.TL.4:** Synthesize and publish information about a local or global issue or event. **9.4.8.TL.5:** Compare the process and effectiveness of synchronous collaboration and asynchronous	**Digital Citizenship** ● Detailed examples exist to illustrate crediting others when incorporating their digital artifacts in one's own work. (Biome/Ecosystem Research Report) **Technology Literacy** ● Some digital tools are appropriate for gathering, organizing, analyzing, and presenting information, while other types of digital tools are appropriate for creating text, visualizations, models, and communicating with others. ● Digital tools allow for remote collaboration and rapid sharing of ideas unrestricted by geographic location or time.

collaboration. **9.4.8.TL.6:** Collaborate to develop and publish work that provides perspectives on a real-world problem. **9.4.8.IML.1:** Critically curate multiple resources to assess the credibility of sources when searching for information. **9.4.8.IML.2:** Identify specific examples of distortion, exaggeration, or misrepresentation of information. **9.4.8.IML.3:** Create a digital visualization that effectively communicates a data set using formatting techniques such as form, position, size, color, movement, and spatial grouping **9.4.8.IML.4:** Ask insightful questions to organize different types of data and create meaningful visualizations. **9.4.8.IML.5:** Analyze and interpret local or public data sets to summarize and effectively communicate the data **9.4.8.IML.7:** Use information from a variety of sources, contexts, disciplines, and cultures for a specific purpose **9.4.8.IML.8:** Apply deliberate and thoughtful search strategies to access high-quality information on climate change. **9.4.8.IML.12:** Use relevant tools to produce, publish, and deliver information supported with evidence for an authentic audience. **9.4.8.IML.14:** Analyze the role of media in delivering cultural, political, and other societal messages.	**Information and Media Literacy** ● Increases in the quantity of information available through electronic means have heightened the need to check sources for possible distortion, exaggeration, or misrepresentation. ● Digital tools make it possible to analyze and interpret data, including text, images, and sound. These tools allow for broad concepts and data to be more effectively communicated. ● Sources of information are evaluated for accuracy and relevance when considering the use of information. ● There is a need to produce and publish media that has information supported with quality evidence and is intended for authentic audiences.

SPECIAL EDUCATION	ELA	MATH	SCI	SS	HLTH & PE	WRLD LANG	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
CONTENT/MATERIAL							
Access to accurate notes	Y	Y	Y	Y	Y	Y	Y
Provide copy of class notes	Y	Y	Y	Y	Y	Y	Y
Additional time to complete tasks/long-term projects with adjusted due dates	Y	Y	Y	Y	Y	Y	Y
Adjust number of items student is expected to complete	Y	Y	Y	Y	Y	Y	Y
Limit number of items student is expected to learn at one time	Y	Y	Y	Y	Y	Y	Y
Allow extra time for task completion	Y	Y	Y	Y	Y	Y	Y
Allow verbal rather than written responses	Y	Y	Y	Y	Y	Y	Y
Modify curriculum content based on student's ability level	Y	Y	Y	Y	Y	Y	Y
Reduce readability level of materials	Y	Y	Y	Y	Y	Y	Y
Allow typed rather than handwritten responses	Y	Y	Y	Y	Y	Y	Y
Use of calculator	N/A	Y	Y	Y	Y	Y	N/A
Use of a math grid	N/A	Y	Y	Y	Y	Y	N/A
Access to electronic text (e.g. Downloaded books)	Y	Y	Y	Y	Y	Y	Y
Provide books on tape, CD or read aloud computer software	Y	Y	Y	Y	Y	Y	Y
Modified homework assignments (modify content, modify amount, as appropriate)	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y
ORGANIZATION							
Assistance with organization of planner/schedule	Y	Y	Y	Y	Y	Y	Y
Assistance with organization of materials/notebooks	Y	Y	Y	Y	Y	Y	Y
Use a consistent daily routine	Y	Y	Y	Y	Y	Y	Y
Assist student in setting short-term goals	Y	Y	Y	Y	Y	Y	Y

	ELA	MATH	SCI	SS	HLTH & PE	WRLD LANG	VIS & PERF ARTS
SPECIAL EDUCATION	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Break down tasks into manageable units	Y	Y	Y	Y	Y	Y	Y
Provide benchmarks for long-term assignments and/or projects	Y	Y	Y	Y	Y	Y	Y
Use of checklists	Y	Y	Y	Y	Y	Y	Y
Use of an assignment notebook or planner	Y	Y	Y	Y	Y	Y	Y
Check homework on a daily basis	Y	Y	Y	Y	Y	Y	Y
Provide timelines for work completion	Y	Y	Y	Y	Y	Y	Y
Develop monthly calendars with assignment due dates marked	Y	Y	Y	Y	Y	Y	Y
Provide organizational support through teacher websites	Y	Y	Y	Y	Y	Y	Y
Enlarge work space areas	Y	Y	Y	Y	Y	Y	Y
Provide organizers/study guides	Y	Y	Y	Y	Y	Y	Y
Require classroom notebooks and/or folders	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y
INSTRUCTION							
Frequently check for understanding	Y	Y	Y	Y	Y	Y	Y
Color code important information	Y	Y	Y	Y	Y	Y	Y
Simplify task directions	Y	Y	Y	Y	Y	Y	Y
Provide hands-on learning activities	Y	Y	Y	Y	Y	Y	Y
Provide modeling	Y	Y	Y	Y	Y	Y	Y
Provide guided instruction	Y	Y	Y	Y	Y	Y	Y
Modify pace of instruction to allow additional processing time	Y	Y	Y	Y	Y	Y	Y
Provide small group instruction	Y	Y	Y	Y	Y	Y	Y

SPECIAL EDUCATION	ELA	MATH	SCI	SS	HLTH & PE	WRLD LANG	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Present information via the visual modality(written material to supplement oral explanation, models, illustrations, assignments written on board)	Y	Y	Y	Y	Y	Y	Y
Provide outline in advance of lecture	Y	Y	Y	Y	Y	Y	Y
Demonstrate directions and provide a model or example of completed task	Y	Y	Y	Y	Y	Y	Y
Emphasize multi-sensory presentation of data	Y	Y	Y	Y	Y	Y	Y
Encourage use of mnemonic devices	Y	Y	Y	Y	Y	Y	Y
Provide oral as well as written instructions/directions	Y	Y	Y	Y	Y	Y	Y
Allow for repetition and/or clarification of directions, as needed	Y	Y	Y	Y	Y	Y	Y
Reinforce visual directions with verbal cues	Y	Y	Y	Y	Y	Y	Y
Give direct and uncomplicated directions	Y	Y	Y	Y	Y	Y	Y
Orient to task and provide support to complete task	Y	Y	Y	Y	Y	Y	Y
Provide easier tasks first	Y	Y	Y	Y	Y	Y	Y
Help to develop metacognitive skills (self-talk and self-correction)	Y	Y	Y	Y	Y	Y	Y
Directions repeated, clarified or reworded	Y	Y	Y	Y	Y	Y	Y
Have student demonstrate understanding of instructions/task before beginning assignment	Y	Y	Y	Y	Y	Y	Y
Allow wait time for processing before calling on student for response	Y	Y	Y	Y	Y	Y	Y
Read directions aloud	Y	Y	Y	Y	Y	Y	Y
Administer work in small segments	Y	Y	Y	Y	Y	Y	Y
Provide visual models of completed tasks	Y	Y	Y	Y	Y	Y	Y
Give verbal as well as written directions	Y	Y	Y	Y	Y	Y	Y
Use interests to increase motivation	Y	Y	Y	Y	Y	Y	Y

SPECIAL EDUCATION	ELA	MATH	SCI	SS	HLTH & PE	WRLD LANG	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Use marker (e.g. index card, ruler) for visual tracking	Y	Y	Y	Y	Y	Y	Y
Enlarge print	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y
ASSESSMENT							
Modified grading	Y	Y	Y	Y	Y	Y	Y
Additional time to complete classroom tests/quizzes	Y	Y	Y	Y	Y	Y	Y
Announce test with adequate prep time	Y	Y	Y	Y	Y	Y	Y
Small group administration of classroom tests/quizzes	Y	Y	Y	Y	Y	Y	Y
Provide larger white work space on quizzes and tests, particularly in math	Y	Y	Y	Y	Y	Y	Y
Modified tests/quizzes	Y	Y	Y	Y	Y	Y	Y
Modify the number of choices on tests/quizzes	Y	Y	Y	Y	Y	Y	Y
Modify length of test	Y	Y	Y	Y	Y	Y	Y
Modify the content of tests/quizzes	Y	Y	Y	Y	Y	Y	Y
Adjust test format to student's ability level	Y	Y	Y	Y	Y	Y	Y
Provide manipulative examples	Y	Y	Y	Y	Y	Y	Y
Develop charts, visual outlines, diagrams, etc.	Y	Y	Y	Y	Y	Y	Y
Verbally guide student through task steps	Y	Y	Y	Y	Y	Y	Y
Allow for oral rather than written responses on tests	Y	Y	Y	Y	Y	Y	Y
Allow for oral follow-up for student to expand on written response	Y	Y	Y	Y	Y	Y	Y
Allow use of a computer	Y	Y	Y	Y	Y	Y	Y
Provide a word bank for fill-in-the blank tests	Y	Y	Y	Y	Y	Y	Y
Allow dictated responses in lieu of written responses	Y	Y	Y	Y	Y	Y	Y
Do not penalize for spelling errors	Y	Y	Y	Y	Y	Y	Y
Allow typed rather than handwritten responses	Y	Y	Y	Y	Y	Y	Y

SPECIAL EDUCATION	ELA	MATH	SCI	SS	HLTH & PE	WRLD LANG	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Allow student to circle responses directly on test rather than use Scantron	Y	Y	Y	Y	Y	Y	Y
Provide word banks for recall tests	Y	Y	Y	Y	Y	Y	Y
Read test aloud	Y	Y	Y	Y	Y	Y	Y
Allow student to make test corrections for credit	Y	Y	Y	Y	Y	Y	Y
Mark answers in test booklet	Y	Y	Y	Y	Y	Y	Y
Point to response	Y	Y	Y	Y	Y	Y	Y
Alternate test-taking site	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y
ATTENTION/FOCUS							
Seat student near front of room	Y	Y	Y	Y	Y	Y	Y
Preferential seating	Y	Y	Y	Y	Y	Y	Y
Monitor on-task performance	Y	Y	Y	Y	Y	Y	Y
Arrange private signal to cue student to off-task behavior	Y	Y	Y	Y	Y	Y	Y
Establish and maintain eye contact when giving oral directions	Y	Y	Y	Y	Y	Y	Y
Stand in proximity to student to focus attention	Y	Y	Y	Y	Y	Y	Y
Provide short breaks when refocusing is needed	Y	Y	Y	Y	Y	Y	Y
Use study carrel	Y	Y	Y	Y	Y	Y	Y
Arrange physical layout to limit distractions	Y	Y	Y	Y	Y	Y	Y
Frequently ask questions to engage student	Y	Y	Y	Y	Y	Y	Y
Refocusing and redirection	Y	Y	Y	Y	Y	Y	Y
Behavior/time management system	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y
WRITTEN LANGUAGE							

SPECIAL EDUCATION	ELA	MATH	SCI	SS	HLTH & PE	WRLD LANG	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Include brainstorming as a pre-writing activity	Y	Y	Y	Y	Y	Y	Y
Edit written work with teacher guidance	Y	Y	Y	Y	Y	Y	Y
Allow use of word processor	Y	Y	Y	Y	Y	Y	Y
Use graphic organizers	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y
SOCIAL/BEHAVIORAL							
Discuss behavioral issues privately with student	Y	Y	Y	Y	Y	Y	Y
Provide opportunities for peer interactions	Y	Y	Y	Y	Y	Y	Y
Utilize student in development of tasks/goals	Y	Y	Y	Y	Y	Y	Y
Encourage student to self-advocate	Y	Y	Y	Y	Y	Y	Y
Minimize negative behavior	Y	Y	Y	Y	Y	Y	Y
Present alternatives to negative behavior	Y	Y	Y	Y	Y	Y	Y
Establish positive scripts	Y	Y	Y	Y	Y	Y	Y
Desensitize student to anxiety causing events	Y	Y	Y	Y	Y	Y	Y
Monitor for overload, excess stimuli	Y	Y	Y	Y	Y	Y	Y
Identify triggers	Y	Y	Y	Y	Y	Y	Y
Help student manage antecedents	Y	Y	Y	Y	Y	Y	Y
Develop signal for when break is needed	Y	Y	Y	Y	Y	Y	Y
Give student choices to allow control	Y	Y	Y	Y	Y	Y	Y
Provide positive reinforcement	Y	Y	Y	Y	Y	Y	Y
Provide consistent praise to elevate self-esteem	Y	Y	Y	Y	Y	Y	Y
Model and role play problem solving	Y	Y	Y	Y	Y	Y	Y
Provide counseling	Y	Y	Y	Y	Y	Y	Y
Use social skills group to teach skills and provide feedback	Y	Y	Y	Y	Y	Y	Y

ENGLISH LANGUAGE LEARNERS	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
GRADING							
Standard Grades vs Pass/Fail	Y	Y	Y	Y	Y	Y	Y
CONTINUUM OF ENGLISH LANGUAGE DEVELOPMENT							
PreK-K WIDA CAN DO Descriptors	Y	Y	Y	Y	Y	Y	Y
Grades 1-2 WIDA CAN DO Descriptors	Y	Y	Y	Y	Y	Y	Y
Grades 3-5 WIDA CAN DO Descriptors	Y	Y	Y	Y	Y	Y	Y
Grades 6-8 WIDA CAN DO Descriptors	Y	Y	Y	Y	Y	Y	Y
SIOP COMPONENTS AND FEATURES							
PREPARATION							
Write content objectives clearly for students	Y	Y	Y	Y	Y	Y	Y
Write language objectives clearly for students	Y	Y	Y	Y	Y	Y	Y
Choose content concepts appropriate for age and educational background levels of students	Y	Y	Y	Y	Y	Y	Y

ENGLISH LANGUAGE LEARNERS	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Identify supplementary materials to use	Y	Y	Y	Y	Y	Y	Y
Adapt content to all levels of students proficiency	Y	Y	Y	Y	Y	Y	Y
Plan meaningful activities that integrate lesson concepts with language practices opportunities for reading, writing, listening, and/or speaking	Y	Y	Y	Y	Y	Y	Y
BUILDING BACKGROUND							
Explicitly link concepts to students' backgrounds and experiences	Y	Y	Y	Y	Y	Y	Y
Explicitly link past learning and new concepts	Y	Y	Y	Y	Y	Y	Y
Emphasize key vocabulary for students	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y
COMPREHENSIBLE INPUT							
Use speech appropriate for students' proficiency level	Y	Y	Y	Y	Y	Y	Y
Explain academics tasks clearly	Y	Y	Y	Y	Y	Y	Y
Use a variety of techniques to make content concepts clear (e.g. modeling, visuals, hands-on activities, demonstrations, gestures, body language)	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y
STRATEGIES							
Provide ample opportunities for students to use strategies (e.g. problem solving, predicting, organizing, summarizing, categorizing, evaluating, self-monitoring)	Y	Y	Y	Y	Y	Y	Y
Use scaffolding techniques consistently throughout lesson	Y	Y	Y	Y	Y	Y	Y
Use a variety of question types including those that promote higher-order thinking skills throughout the lesson	Y	Y	Y	Y	Y	Y	Y

ENGLISH LANGUAGE LEARNERS	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
INTERACTION							
Provide frequent opportunities for interaction and discussion between teacher/students and among students about lessons concepts, and encourage elaborated responses	Y	Y	Y	Y	Y	Y	Y
Use group configurations that support language and content objectives of the lesson	Y	Y	Y	Y	Y	Y	Y
Provide sufficient wait time for student responses consistently	Y	Y	Y	Y	Y	Y	Y
Give ample opportunities for students to clarify key concepts in LI as needed with aide, peer, or LI text	Y	Y	Y	Y	Y	Y	Y
PRACTICE/APPLICATION							
Provide hands-on materials and/ manipulatives for students to practice using new content knowledge	Y	Y	Y	Y	Y	Y	Y
Provide activities for students to apply content and language knowledge in the classroom	Y	Y	Y	Y	Y	Y	Y
Provide activities that integrate all language skills	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y
LESSON DELIVERY							
Support content objectives clearly	Y	Y	Y	Y	Y	Y	Y
Support language objectives clearly	Y	Y	Y	Y	Y	Y	Y
Engage students approximately 90-100% of the period	Y	Y	Y	Y	Y	Y	Y
Pace the lesson appropriately to the students' ability level	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y
REVIEW/EVALUATION							

ENGLISH LANGUAGE LEARNERS	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Give a comprehensive review of key vocabulary	Y	Y	Y	Y	Y	Y	Y
Give a comprehensive review of key content concepts	Y	Y	Y	Y	Y	Y	Y
Provide feedback to students regularly on their output	Y	Y	Y	Y	Y	Y	Y
Conduct assessments of students comprehension and learning throughout lesson and all lesson objectives	Y	Y	Y	Y	Y	Y	Y

STUDENTS AT RISK OF SCHOOL FAILURE (I&RS Resource Manual)	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
ACADEMICS							
Provide necessary services (Lit Support, Math Support, OT, PT, speech, etc.)	Y	Y	Y	Y	Y	Y	Y
Prompt before directions/questions are verbalized with visual cue between teacher and student	Y	Y	Y	Y	Y	Y	Y
Task list laminated and placed on desk for classroom routines and organization	Y	Y	Y	Y	Y	Y	Y
Preferential seating	Y	Y	Y	Y	Y	Y	Y
Provide structure and positive reinforcements	Y	Y	Y	Y	Y	Y	Y
Sustained working time connected to reward (If/Then statement)	Y	Y	Y	Y	Y	Y	Y
Frequently check for understanding	Y	Y	Y	Y	Y	Y	Y
Graphic organizers	Y	Y	Y	Y	Y	Y	Y

STUDENTS AT RISK OF SCHOOL FAILURE (I&RS Resource Manual)	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Tracker	Y	Y	Y	Y	Y	Y	Y
Slant board	Y	Y	Y	Y	Y	Y	Y
Access to accurate notes	Y	Y	Y	Y	Y	Y	Y
Additional time to complete tasks/long-term projects with adjusted due dates	Y	Y	Y	Y	Y	Y	Y
Limit number of items student is expected to learn at one time	Y	Y	Y	Y	Y	Y	Y
Break down tasks into manageable units	Y	Y	Y	Y	Y	Y	Y
Directions repeated, clarified, or reworded	Y	Y	Y	Y	Y	Y	Y
Frequent breaks during class	Y	Y	Y	Y	Y	Y	Y
Allow verbal rather than written responses	Y	Y	Y	Y	Y	Y	Y
Modify curriculum content based on student's ability level	Y	Y	Y	Y	Y	Y	Y
Reduce readability level of materials	Y	Y	Y	Y	Y	Y	Y
Allow typed rather than handwritten responses	Y	Y	Y	Y	Y	Y	Y
Use of calculator	N/A	Y	Y	Y	Y	Y	N/A
Use of a math grid	N/A	Y	Y	Y	Y	Y	N/A
Provide models/organizers to break down independent tasks	Y	Y	Y	Y	Y	Y	Y
Access to electronic text (e.g. Downloaded books)	Y	Y	Y	Y	Y	Y	Y
Provide books on tape, CD, or read aloud computer software	Y	Y	Y	Y	Y	Y	Y
Provide opportunities for using a Chromebook as well as assistive technologies	Y	Y	Y	Y	Y	Y	Y
Provide buddy system	Y	Y	Y	Y	Y	Y	Y
Adjust activity, length of assignment, and/or number of problems, including homework	Y	Y	Y	Y	Y	Y	Y

STUDENTS AT RISK OF SCHOOL FAILURE (I&RS Resource Manual)	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Provide assessments in a small group setting	Y	Y	Y	Y	Y	Y	Y
Educate/train relevant staff with regards to the signs/symptoms, promote tolerance of needs, and/or providing assistance	Y	Y	Y	Y	Y	Y	Y
Communication with parents	Y	Y	Y	Y	Y	Y	Y
Gradual release of responsibility related to writing prompts (Proximity, Sentence Starter, Attempt independently)	Y	N/A	Y	Y	Y	Y	Y
Rubric-based checklist	Y	Y	Y	Y	Y	Y	Y
Target specific number of details and focus on organization with post-its	Y	Y	Y	Y	Y	Y	Y
Accept late work/homework without penalty	Y	Y	Y	Y	Y	Y	Y
Previewing material (access to PowerPoint slides, novels, syllabus, study guides when available)	Y	Y	Y	Y	Y	Y	Y
SOCIAL/EMOTIONAL							
Children's books addressing presenting problem	Y	Y	Y	Y	Y	Y	Y
Student jots down presenting problem and erase when it goes away	Y	Y	Y	Y	Y	Y	Y
Meet with social worker	Y	Y	Y	Y	Y	Y	Y
Student jots down presenting problem and erase when it goes away	Y	Y	Y	Y	Y	Y	Y
Utilize nurse during episodes of presenting problem	Y	Y	Y	Y	Y	Y	Y
Provide short breaks	Y	Y	Y	Y	Y	Y	Y
Attendance plan	Y	Y	Y	Y	Y	Y	Y
Communication with parents	Y	Y	Y	Y	Y	Y	Y
Assign "jobs" to reduce symptoms	Y	Y	Y	Y	Y	Y	Y

STUDENTS AT RISK OF SCHOOL FAILURE (I&RS Resource Manual)	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Counseling check-ins	Y	Y	Y	Y	Y	Y	Y
Praise whenever possible	Y	Y	Y	Y	Y	Y	Y
	Y	Y	Y	Y	Y	Y	Y
ATTENTION/FOCUS							
Seat student near front of room	Y	Y	Y	Y	Y	Y	Y
Preferential seating	Y	Y	Y	Y	Y	Y	Y
Monitor on-task performance	Y	Y	Y	Y	Y	Y	Y
Arrange private signal to cue student to off-task behavior	Y	Y	Y	Y	Y	Y	Y
Establish and maintain eye contact when giving oral directions	Y	Y	Y	Y	Y	Y	Y
Stand in proximity to student to focus attention	Y	Y	Y	Y	Y	Y	Y
Provide short breaks when refocusing is needed	Y	Y	Y	Y	Y	Y	Y
Use study carrel	Y	Y	Y	Y	Y	Y	Y
Arrange physical layout to limit distractions	Y	Y	Y	Y	Y	Y	Y
Frequently ask questions to engage student	Y	Y	Y	Y	Y	Y	Y
Refocusing and redirection	Y	Y	Y	Y	Y	Y	Y
Behavior/time management system	Y	Y	Y	Y	Y	Y	Y
Group directions 1 step at a time	Y	Y	Y	Y	Y	Y	Y
Assign "jobs" to reduce symptoms	Y	Y	Y	Y	Y	Y	Y
Arrange physical layout to limit distractions	Y	Y	Y	Y	Y	Y	Y
Frequently ask questions to engage student	Y	Y	Y	Y	Y	Y	Y
Educate/train relevant staff with regards to the signs/symptoms, promote tolerance of needs, and/or providing assistance	Y	Y	Y	Y	Y	Y	Y
Extended time on assignments/assessments	Y	Y	Y	Y	Y	Y	Y

STUDENTS AT RISK OF SCHOOL FAILURE (I&RS Resource Manual)	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Provide assessments in a small group setting	Y	Y	Y	Y	Y	Y	Y
Provide buddy system	Y	Y	Y	Y	Y	Y	Y
Establish and maintain eye contact when giving oral directions	Y	Y	Y	Y	Y	Y	Y
Permit the use of headphones while working	Y	Y	Y	Y	Y	Y	Y

GIFTED AND TALENTED STUDENTS	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
CURRICULUM							
Acceleration	Y	Y	Y	Y	Y	Y	Y
Compacting	Y	Y	Y	Y	Y	Y	Y
INSTRUCTION							
Grouping	Y	Y	Y	Y	Y	Y	Y
Independent Study	Y	Y	Y	Y	Y	Y	Y
Differentiated Conferencing	Y	Y	Y	Y	Y	Y	Y
Project-Based Learning	Y	Y	Y	Y	Y	Y	Y
Competitions	Y	Y	Y	Y	Y	Y	Y
Differentiated Instruction	Y	Y	Y	Y	Y	Y	Y
Summer Work	Y	Y	Y	Y	Y	Y	Y
Parent Communication	Y	Y	Y	Y	Y	Y	Y

STUDENTS WITH 504 PLANS	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
ACADEMICS							
Provide necessary services (Lit Support, Math Support, OT, PT, speech, etc.)	Y	Y	Y	Y	Y	Y	Y
Preferential seating	Y	Y	Y	Y	Y	Y	Y
Provide structure and positive reinforcements	Y	Y	Y	Y	Y	Y	Y
Frequently check for understanding	Y	Y	Y	Y	Y	Y	Y
Graphic organizers	Y	Y	Y	Y	Y	Y	Y
Tracker	Y	Y	Y	Y	Y	Y	Y
Slant board	Y	Y	Y	Y	Y	Y	Y
Access to accurate notes	Y	Y	Y	Y	Y	Y	Y
Provide enlarged copies of notes/textbooks	Y	Y	Y	Y	Y	Y	Y
Access to notes ahead of time	Y	Y	Y	Y	Y	Y	Y
Provide a print out of weekly assignments	Y	Y	Y	Y	Y	Y	Y
Additional time to complete tasks/long-term projects with adjusted due dates	Y	Y	Y	Y	Y	Y	Y
Limit number of items student is expected to learn at one time	Y	Y	Y	Y	Y	Y	Y
Break down tasks into manageable units	Y	Y	Y	Y	Y	Y	Y
Directions repeated, clarified, or reworded	Y	Y	Y	Y	Y	Y	Y
Frequent breaks during class	Y	Y	Y	Y	Y	Y	Y
Provide books on tape, CD, read aloud computer software, or electronic text	Y	Y	Y	Y	Y	Y	Y
Provide opportunities for using a Chromebook as well as assistive technologies	Y	Y	Y	Y	Y	Y	Y
Use of closed captioned videos/film/television	Y	Y	Y	Y	Y	Y	Y
Provide buddy system	Y	Y	Y	Y	Y	Y	Y
Modify schedule	Y	Y	Y	Y	Y	Y	Y

	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
STUDENTS WITH 504 PLANS	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Modify deadlines	Y	Y	Y	Y	Y	Y	Y
Adjust activity, length of assignment, and/or number of problems, including homework	Y	Y	Y	Y	Y	Y	Y
Modification in grading system	Y	Y	Y	Y	Y	Y	Y
Educate/train relevant staff with regards to the signs/symptoms, promote tolerance of needs, and/or providing assistance	Y	Y	Y	Y	Y	Y	Y
Communication with parents	Y	Y	Y	Y	Y	Y	Y
Recommended use of Tutorial Center/Extra help from teachers	Y	Y	Y	Y	Y	Y	Y
Allow verbal rather than written responses	Y	Y	Y	Y	Y	Y	Y
Modify curriculum content based on student's ability level	Y	Y	Y	Y	Y	Y	Y
Reduce readability level of materials	Y	Y	Y	Y	Y	Y	Y
Allow typed rather than handwritten responses	Y	Y	Y	Y	Y	Y	Y
Use of calculator	N/A	Y	Y	Y	Y	Y	N/A
Use of a math grid	N/A	Y	Y	Y	Y	Y	N/A
ASSESSMENTS							
Utilize dictionary on assessments	Y	Y	Y	Y	Y	Y	Y
Use paper-based assessments or assignments	Y	Y	Y	Y	Y	Y	Y
Provide assessments in a small group setting	Y	Y	Y	Y	Y	Y	Y
Provide oral assessments	Y	Y	Y	Y	Y	Y	Y
Permission to elaborate orally on written assessments	Y	Y	Y	Y	Y	Y	Y
Permit use of scrap paper on assessments	Y	Y	Y	Y	Y	Y	Y
Permit to write directly on assessments in lieu of using Scantron forms	Y	Y	Y	Y	Y	Y	Y

	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
STUDENTS WITH 504 PLANS	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Option to retake assessments	Y	Y	Y	Y	Y	Y	Y
Provide a study guide	Y	Y	Y	Y	Y	Y	Y
Modify spatial layout of assessments	Y	Y	Y	Y	Y	Y	Y
SOCIAL/EMOTIONAL							
Children's books addressing presenting problem	Y	Y	Y	Y	Y	Y	Y
Student jots down presenting problem and erase when it goes away	Y	Y	Y	Y	Y	Y	Y
Meet with guidance counselor	Y	Y	Y	Y	Y	Y	Y
Student jots down presenting problem and erase when it goes away	Y	Y	Y	Y	Y	Y	Y
Attendance plan	Y	Y	Y	Y	Y	Y	Y
Utilize nurse/Health Office/counselor/SAC during episodes of presenting problem	Y	Y	Y	Y	Y	Y	Y
Provide short breaks	Y	Y	Y	Y	Y	Y	Y
Attendance plan	Y	Y	Y	Y	Y	Y	Y
Communication with parents	Y	Y	Y	Y	Y	Y	Y
Assign "jobs" to reduce symptoms	Y	Y	Y	Y	Y	Y	Y
Behavior management system	Y	Y	Y	Y	Y	Y	Y
ATTENTION/FOCUS							
Seat student near front of room	Y	Y	Y	Y	Y	Y	Y
Preferential seating	Y	Y	Y	Y	Y	Y	Y
Monitor on-task performance	Y	Y	Y	Y	Y	Y	Y
Arrange private signal to cue student to off-task behavior	Y	Y	Y	Y	Y	Y	Y

	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
STUDENTS WITH 504 PLANS	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Establish and maintain eye contact when giving oral directions	Y	Y	Y	Y	Y	Y	Y
Stand in proximity to student to focus attention	Y	Y	Y	Y	Y	Y	Y
Provide short breaks when refocusing is needed	Y	Y	Y	Y	Y	Y	Y
Use study carrel	Y	Y	Y	Y	Y	Y	Y
Arrange physical layout to limit distractions	Y	Y	Y	Y	Y	Y	Y
Frequently ask questions to engage student	Y	Y	Y	Y	Y	Y	Y
Refocusing and redirection	Y	Y	Y	Y	Y	Y	Y
Behavior/time management system	Y	Y	Y	Y	Y	Y	Y
Group directions 1 step at a time	Y	Y	Y	Y	Y	Y	Y
Assign "jobs" to reduce symptoms	Y	Y	Y	Y	Y	Y	Y
Arrange physical layout to limit distractions	Y	Y	Y	Y	Y	Y	Y
Frequently ask questions to engage student	Y	Y	Y	Y	Y	Y	Y
Educate/train relevant staff with regards to the signs/symptoms, promote tolerance of needs, and/or providing assistance	Y	Y	Y	Y	Y	Y	Y
Extended time on assignments/assessments	Y	Y	Y	Y	Y	Y	Y
Provide assessments in a small group setting	Y	Y	Y	Y	Y	Y	Y
Provide buddy system	Y	Y	Y	Y	Y	Y	Y
Establish and maintain eye contact when giving oral directions	Y	Y	Y	Y	Y	Y	Y
PHYSICAL							
Preferential seating	Y	Y	Y	Y	Y	Y	Y
Arrange physical layout	Y	Y	Y	Y	Y	Y	Y

STUDENTS WITH 504 PLANS	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
Educate/train relevant personnel with regards to the signs/symptoms, promote tolerance of needs, and/or providing assistance	Y	Y	Y	Y	Y	Y	Y
Utilize nurse during episodes of presenting problem	Y	Y	Y	Y	Y	Y	Y
Attendance plan	Y	Y	Y	Y	Y	Y	Y
Communication with parents	Y	Y	Y	Y	Y	Y	Y
Use of alternative settings	Y	Y	Y	Y	Y	Y	Y
Excessive physical activities kept to a minimum	Y	Y	Y	Y	Y	Y	Y
Excused from activities that affect presenting issue	Y	Y	Y	Y	Y	Y	Y
Include in emergency plans of presenting issue	Y	Y	Y	Y	Y	Y	Y
Allow use of assistive devices	Y	Y	Y	Y	Y	Y	Y
Monitor presenting issue	Y	Y	Y	Y	Y	Y	Y

CAREER EDUCATION	ELA	MATH	SCI	SS	WRLD LANG	HLTH & PE	VIS & PERF ARTS
	K-6	K-6	K-6	K-6	K-6	K-6	K-6
CRP1. Act as a responsible and contributing citizen and employee.	Y	Y	Y	Y	Y	Y	Y
CRP2. Apply appropriate academic and technical skills.	Y	Y	Y	Y	Y	Y	Y
CRP3. Attend to personal health and financial well-being.	Y	Y	Y	Y	Y	Y	Y
CRP4. Communicate clearly and effectively and with reason.	Y	Y	Y	Y	Y	Y	Y
CRP5. Consider the environmental, social and economic impacts of decisions.	Y	Y	Y	Y	Y	Y	Y
CRP6. Demonstrate creativity and innovation.	Y	Y	Y	Y	Y	Y	Y

CRP7. Employ valid and reliable research strategies.	Y	Y	Y	Y	Y	Y	Y
CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.	Y	Y	Y	Y	Y	Y	Y
CRP9. Model integrity, ethical leadership and effective management.	Y	Y	Y	Y	Y	Y	Y
CRP10. Plan education and career paths aligned to personal goals.	Y	Y	Y	Y	Y	Y	Y
CRP11. Use technology to enhance productivity.	Y	Y	Y	Y	Y	Y	Y
CRP12. Work productively in teams while using cultural global competence.	Y	Y	Y	Y	Y	Y	Y