School District of Jefferson Course Guide

Course Title: K-5 Science

Shortcuts to specific grade:

Course Description: Science is defined as an academic discipline encompassing the study of the natural world and engineering. At the elementary level, students also have opportunities to engage in rigorous scientific investigation and argumentation from evidence. SDoJ engages students in content that excites children about the “wow” in the world around them. Students craft explanations around real kid questions. Students actively learn through discussion, building and observing hands-on models, and by writing about what they learn.

Science Process Journal: Common SDoJ Science Journal used to support student analysis of observations/data and to document thinking.

Kindergarten

Adopted Course Primary Resource	Supplementary Resources
• Mystery Science Curriculum	• PebbleGo, BrainPopJr., YouTube Videos, Benchmark Advance Big Books, Mystery Doug mini-lessons, BookFlix

Standards Addressed In The Course (Note Essential Standards)		
Life Sciences (LS)	SCI.LS1.C.K	Students obtain information through observations of different animal behaviors. They use evidence from their observations to argue for their explanation of why animals are acting in these ways. Students act out the behaviors of different animals. Students plan and carry out an investigation to determine how light affects plant growth. They grow radish plants in light and

		dark conditions for four days and then analyze their data. Using this data, students engage in an argument from evidence about which plant is healthier and why
Physical Science (PS)	SCI.PS2.A.K	Pushes and pulls can have different strengths and directions, and can change the speed or direction of an object's motion, or start or stop it. A bigger push or pull makes things speed up or slow down more quickly.
	SCI.PS2.B.K	When objects touch or collide, they push on one another and can result in a change of motion.
	SCI.PS3.C.K	Bigger pushes and pulls cause bigger changes in an object's motion or shape.
Earth & Space Science (ESS)	SCI.ESS1.A.1	Patterns of movement of the sun, moon, and stars, as seen from Earth, can be observed, described, and predicted.
	SCI.ESS2.D.K	Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region and time. People record weather patterns over time.
	SCI.ESS2.E.K	Plants and animals can change their local environment.
	SCI.ESS3.B.K	In a region, some kinds of severe weather are more likely than others. Forecasts allow communities to prepare for severe weather.
	SCI.ESS3.C.K	Things people do can affect the environment but they can make choices to reduce their impacts.
Engineering, Technology, and the Application of Science-Engineering Design (ETS)	SCI.ETS1.A.K-2	A situation that people want to change or create can be approached as a problem to be solved through engineering. Asking questions, making observations, and gathering information are helpful in thinking about problems. Before beginning to design a solution, it is important to clearly understand the problem
	SCI.ETS1.B.K-2	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.
	SCI.ETS1.C.2	Because there is more than one possible solution to a problem, it is useful to compare and test designs.
Cross-Cutting Concepts (CCC)	SCI.LS1.C.K	Students study animal behaviors to identify the pattern that all animals have behaviors that include seeking out food to survive.
	SCI.LS1.C.K	Students study plant growth under different conditions to identify the pattern that all plants have survival needs.
	SCI.CC2.K-2	Students learn that events have causes that generate observable patterns. They design simple tests to gather evidence to support or refute their own ideas about causes.
	SCI.CC6.K-2	Students observe the shape and stability of structures of natural and designed objects are related to their function(s)

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	SCI.CC4.K-2	Students understand objects and organisms can be described in terms of their parts and that systems in the natural and designed world have parts that work together.
Science & Engineering Practices (SEP)	SCI.SEP1.A.K-2	Students ask simple descriptive questions that can be tested. This includes the following: Ask questions based on observations to find more information about the natural world. Ask or identify questions that can be answered by an investigation.
	SCI.SEP1.B.K-2	Students define simple problems that can be solved through the development of a new or improved object or tool.
	SCI.SEP2.K-2	Students use and develop models (i.e., diagrams, drawings, physical replicas, dioramas, dramatizations, or storyboards) that represent concrete events or design solutions. This includes the following: Distinguish between a model and the actual object, process, or events the model represents. Compare models to identify common features and differences. Develop or use models to represent amounts, relationships, relative scales (bigger, smaller), and patterns in the nature. Develop a simple model based on evidence to represent a proposed object or tool.
	SCI.SEP3.K-2	Students plan and carry out simple investigations, based on fair tests, which provide data to support explanations or design solutions. This includes the following: With guidance, plan and conduct an investigation in collaboration with peers (for K). Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. Evaluate different ways of observing and measuring a phenomenon to determine which way can answer the question being studied. Make observations (firsthand or from media) and measurements to collect data that can be used to make comparisons. Make observations (firsthand or from media) and measurements of a proposed object or tool or solution to determine if it solves a problem or meets a goal.
	SCI.SEP4.K-2	Students collect, record, and share observations. This includes the following: Record information (observations, thoughts, and ideas). Use and share pictures, drawings, or writings of observations. Use observations (firsthand or from media) to describe patterns or relationships in the natural and designed worlds in order to answer scientific questions and solve problems. Compare predictions (based on prior experiences) to what occurred. Analyze data from tests of an object or tool to determine if the object or tool works as intended.
	SCI.SEP6.A.K-2	Students use evidence and ideas in constructing evidence-based accounts of natural phenomena. This includes the following: Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena.
	SCI.SEP6.B.K-2	Students use evidence and ideas in designing solutions. This includes the following: Use tools and materials to design and/or build a device that solves a specific problem or a solution to a specific problem. Generate and compare multiple solutions to a problem.
	SCI.SEP7.K-2	Students compare ideas and representations about the natural and designed world. This includes the following: 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. Listen actively to arguments to indicate agreement or disagreement based on evidence, or to retell the main points of the argument. Construct an argument with evidence to support a claim. Make a claim about the effectiveness of an object, tool, or solution that is supported by relevant evidence.
	SCI.SEP8.K-2	Students use observations and texts to communicate new information. This includes the following: Read developmentally appropriate texts or use media to obtain scientific and technical information. Use the information to determine patterns in or evidence about the natural and designed worlds. Describe how specific images (e.g., a diagram showing how a machine works) support a scientific or engineering idea. 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 scientific questions or supporting scientific claims. Communicate information or design ideas and solutions with others in oral or written forms. Use models, drawings, writing, or numbers that provide detail about scientific ideas, practices, or design ideas.,

Units of Study (Sequenced)	**Standards Associated**	**Key Learning Targets, Essential Vocabulary, & Essential Question(s)**	**Supplementary Resources & Activities for Unit**	**Common Assessment**	**Pacing**
		Key Learning Targets: ● Vocabulary: Essential Question:		Anecdotal notes on students focusing on learner behaviors per K-5 report cards.	__ Days/ Weeks
Weather Patterns	K.ESS2-1 K.ESS2-2	Key Learning Targets: ● In this unit, students gather evidence in order to identify daily and seasonal weather patterns. They use those patterns to explain mysteries like why you might lose your jacket during the day or why birds lay their eggs at certain times of the year. Vocabulary: ● patterns ● seasons ● temperature ● changes Essential Questions: ● How do you know what to wear for the weather? ● What will the weather be like on your birthday?	LBD Big Book *The Four Boxes* BrainPop - Seasons BrainPop Jr. - Seasons PebbleGo - Seasons Jack Hartmann - 4 Seasons Song Mystery Doug- Why do leaves change colors in the fall? Mystery Doug- Why Don't All Trees Lose Their Leaves in Fall?		3 weeks

		• Why do birds lay eggs in the spring?	Mystery Doug- Why do bears hibernate? Mystery Doug- Where do bugs go in winter? SciShow-Seasons SciShow-Winter SciShow-Spring SciShow-Summer SciShow-Fall BrainPop - Hibernation PebbleGo - Hibernation ABCya - Dress for the Weather ABCya - Seasonal Shuffle		
Pushes and Pulls	K.PS2-1 K.PS2-2 K2.ETS1-1 K2.ETS1-2 K2.ETS1-3	Key Learning Targets: • In this unit, students are introduced to pushes and pulls and how those affect the motion of objects. Students observe and investigate the effects of what happens when the strength or direction of those pushes and pulls are changed. Vocabulary: • pushes • pulls • motion • machines • forces • strength • direction • larger • smaller • faster • slower • speed	Mystery Doug - Why don't people fall out of rollercoasters when they go upside down? PebbleGo - Important Inventions Mystery Doug - Videos of Inventions (Bicycles, traffic lights, football, the alphabet…) Mystery Doug- How do you build a bridge that lasts 100 years? SciShow-Let's Get Rolling SciShow-Physics Bookflix- Backhoes		3 weeks

		• inventor Essential Questions: • What's the biggest excavator? • Why do builders need so many big machines? • How can you knock down a wall made of concrete? • How can you knock down the most bowling pins? • How can we protect a mountain town from falling rocks? • How could you invent a trap?	Bookflix- Garbage Trucks YouTube: Jack Hartmann: Forces Can Push or Pull BrainPop Jr. - Pushes & Pulls		
Sunlight and Warmth	K.PS3-1 K.PS3-2 K2.ETS1-1 K2.ETS1-2 K2. ETS1-3	Key Learning Targets: • In this unit, students make observations to explore how sunlight warms the Earth's surface. The Sun's energy heats up the pavement, keeps us warm, and can even melt marshmallows. Using what they learn, students think about ways that shade and structures can reduce the warming effect of the Sun. Vocabulary: • surface • reflect • opaque • transparent • melting • shade • sunlight Essential Questions: • How could you walk barefoot across hot pavement without burning your feet? • How could you warm up a frozen playground? • Why does it get cold in winter?	LBD Big Book *My Favorite Star* Mystery Doug- How is a Rainbow Made? SciShow-Sun Mystery Doug- Why is the sky blue? Mystery Doug- How Dangerous is it to Look at the Sun? BrainPop - Temperature Bookflix- *All the Colors of the Rainbow*		2 weeks
Severe Weather	K.ESS3-2 K.ESS2-1	Key Learning Targets: • In this unit, students explore storms and severe weather! They obtain information from weather forecasts to prepare for storms and stay safe. They also practice describing the various characteristics of weather (wind, clouds,	Mystery Doug - What's worse: a hurricane or a tornado? Mystery Doug - Why are tornadoes so hard to predict? Mystery Doug - What makes		2 weeks

		temperature, and precipitation) in order to make their own predictions about storms. Vocabulary: ● storm ● hurricane ● tornado ● blizzard ● safety ● wind ● temperature ● cloud Essential Questions: ● How can you get ready for a big storm? ● Have you ever watched a storm? ● How many different kinds of weather are there?	hurricanes so dangerous? PebbleGo - Severe Weather Safety BrainPop - Thunderstorms BrainPop - Tornadoes BrainPop - Hurricanes BrainPop - Wind BrainPop - Floods SciShow-Tornado SciShow-Thunder and Lightning Bookflix- *Rainy Weather Days*		
Plants and Animals	K.LS1-1 K.ESS3-1 K.ESS2-2 K.ESS3-3	Key Learning Targets: ● In this unit, students use observations to understand what animals and plants need to survive. Students explore how animals need things to eat and a safe place to live. They also investigate the needs of plants and how those might be different from the needs of animals. Vocabulary: ● shelter ● resources ● survive ● system ● environment ● habitat Essential Questions: ● Why do woodpeckers peck wood? ● Where do animals live?	LBD Big Book- *See What It Will Be* LBD Big Book- *A Picture Dictionary of Mammals* Mystery Doug- Why are flamingoes pink? Mystery Doug- Why do zebras have stripes? Mystery Doug- How do flowers bloom in spring? Mystery Doug- Why do animals come back after flying to warm places in winter? Mystery Doug- Do Fish Sleep? Mystery Doug- Why do beavers		3 weeks

		• How can you find animals in the woods? • How do animals make their homes in the forest? • How do plants and trees grow? • Why would you want an old log in your backyard?	build dams? Mystery Doug- Why do snakes shed their skin? Mystery Doug- How do scientists learn about wild animals? Mystery Doug- Could a Turtle live outside its shell? SciShow-Plants SciShow-Guess the Animal BookFlix - *Seed to Plant* BookFlix - *It Could Still Be a Flower* SeeSaw- Parts of Plant label activity SeeSaw Activity- Seed to plant sequencing The Needs of a Plant Video		

Intervention	Adult support during investigations, reteaching during WIN
Enrichment	Additional Mystery Science activities or Mystery Dougs during WIN and science centers

Report Card

	Trimester 1	Trimester 2	Trimester 3
Life Sciences	Not Assessed	Not Assessed	Assessed
Physical Science	Not Assessed	Assessed	Not Assessed

Earth & Space Science	Assessed	Assessed	Not Assessed
Engineering, Technology, and the Application of Science	Not Assessed	Assessed	Not Assessed
Science Inquiry Practices and Processes (CC & SEP)	Assessed	Assessed	Assessed

If left blank, the standard is not assessed at this time.

1st Grade

Adopted Course Primary Resource	Supplementary Resources
• Mystery Science	• PebbleGo, BrainPopJr., YouTube Videos, EPIC Reading, SeeSaw Activities

Standards Addressed In The Course (Note Essential Standards)		
Life Science (LS)	SCI.LS1.A.1 Structure and Function	All organisms have external parts that they use to perform daily functions.
	SCI.LS1.B.1 Growth and Development of Organisms	Parents and offspring often engage in behaviors that help the offspring survive
	SCI.LS1.D.1 Information Processing	Animals sense and communicate information and respond to inputs with behaviors that help them grow and survive.
	SCI.LS3.A.1 Inheritance of Traits	Young organisms are very much, but not exactly, like their parents, and also resemble other organisms of the same kind.
	SCI.LS3.B.1 Variation of Traits	Individuals of the same kind of plant or animal are recognizable as similar, but can also vary in many ways.

Physical Science (PS)	SCI.PS4.A.1 Wave Properties	Sound can make matter vibrate, and vibrating matter can make sound.
	SCI.PS4.B.1 Electromagnetic Radiation	Objects can be seen only when light is available to illuminate them.
	SCI.PS4.C.1 Information Technologies and Instrumentation	People use devices to send and receive information.
Earth and Space Science (ESS)	SCI.ESS1.A.1 The Universe and Its Stars	Patterns of movement of the sun, moon, and stars, as seen from Earth, can be observed, described, and predicted
	SCI.ESS1.B.1 Earth and the Solar System	Seasonal patterns of sunrise and sunset can be observed, described, and predicted.
Crosscutting Concepts (CC)	Patterns SCI.CC1.K-2	Students recognize that patterns in the natural and human-designed world can be observed, used to describe phenomena, and used as evidence.
	Cause and Effect SCI.CC2.K-2	Students learn that events have causes that generate observable patterns. They design simple tests to gather evidence to support or refute their own ideas about causes.
	Structure and Function SCI.CC6.K-2	Students observe the shape and stability of structures of natural and designed objects are related to their function(s).

Science & Engineering Practices (SEPs) PebbleGo Science and Engineering Methods Main Page BrainPopJr. Scientific Method BrainPopJr. Making Observations BrainPopJr. Making and Testing Predictions	Asking Questions SCI.SEP1.A.K-2	Students ask simple descriptive questions that can be tested. This includes the following: Ask questions based on observations to find more information about the natural world. Ask or identify questions that can be answered by an investigation.
	Defining Problems SCI.SEP1.B.K-2	Students define simple problems that can be solved through the development of a new or improved object or too
	Developing and Using Models SCI.SEP2.K-2	Students use and develop models (i.e., diagrams, drawings, physical replicas, dioramas, dramatizations,or storyboards) that represent concrete events or design solutions. This includes the following: Distinguish between a model and the actual object, process, or events the model represents. Compare models to identify common features and differences. Develop or use models to represent amounts, relationships, relative scales (bigger, smaller), and patterns in the natural and designed world(s). Develop a simple model based on evidence to represent a proposed object or tool.
	Planning and Conducting Investigations SCI.SEP3.K-2	Students plan and carry out simple investigations, based on fair tests, which provide data to support explanations or design solutions. This includes the following: With guidance, plan and conduct an investigation in collaboration with peers (for K). Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. Evaluate different ways of observing and measuring a phenomenon to determine which way can answer the question being studied. Make observations (firsthand or from media) and measurements to collect data that can be used to make comparisons. Make observations (firsthand or from media) and measurements of a proposed object or tool or solution to determine if it solves a problem or meets a goal.
	Analyzing and Interpreting Data SCI.SEP4.K-2	Students collect, record, and share observations. This includes the following: Record information (observations, thoughts, and ideas). Use and share pictures, drawings, or writings of observations. Use observations (firsthand or from media) to describe patterns or relationships in the natural and designed worlds in order to answer scientific questions and solve problems. Compare predictions (based on prior experiences) to what occurred (observable events). Analyze data from tests of an object or tool to determine if the object or tool works as intended.
	Constructing an Explanation SCI.SEP6.A.K-2	Students use evidence and ideas in constructing evidence-based accounts of natural phenomena. This includes the following: Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena
	Designing Solutions SCI.SEP6.B.K-2	Students use evidence and ideas in designing solutions. This includes the following: Use tools and materials to design and/or build a device that solves a specific problem or a solution to a specific problem. Generate and compare multiple solutions to a problem
	Arguing from Evidence	Students compare ideas and representations about the natural and designed world. This includes the following: Identify arguments that are supported by evidence. Distinguish between explanations that account for all gathered

	SCI.SEP7.K-2	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. Listen actively to arguments to indicate agreement or disagreement based on evidence, or to retell the main points of the argument. Construct an argument with evidence to support a claim. Make a claim about the effectiveness of an object, tool, or solution that is supported by relevant evidence.
	Obtaining, Evaluating, and Communicating Information SCI.SEP8.K-2	Students use observations and texts to communicate new information. This includes the following: Read developmentally appropriate texts or use media to obtain scientific and technical information. Use the information to determine patterns in or evidence about the natural and designed worlds. Describe how specific images (e.g., a diagram showing how a machine works) support a scientific or engineering idea. 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 scientific questions or supporting scientific claims. Communicate information or design ideas and solutions with others in oral or written forms. Use models, drawings, writing, or numbers that provide detail about scientific ideas, practices, or design ideas.
Engineering, Technology, and the Application of Science-Engineering Design (ETS) BrainPopJr. Engineer and Design Process	SCI.ETS1.A.K-2 Defining and Delimiting Engineering Problems	A situation that people want to change or create can be approached as a problem to be solved through engineering. Asking questions, making observations, and gathering information are helpful in thinking about problems. Before beginning to design a solution, it is important to clearly understand the problem.
	SCI.ETS1.B.K-2 Developing Possible Solutions	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.
	SCI.ETS1.C.K-2 Optimizing the Design Solution	Because there is more than one possible solution to a problem, it is useful to compare and test designs.

Units of Study (Sequenced)	**Standards Associated**	**Key Learning Targets, Essential Vocabulary, & Essential Question(s)**	**Supplementary Resources for unit**	**Common Assessment**	**Pacing**
		Key Learning Targets: Vocabulary: Essential Question:		CFA Assessment Class Checklist/Rubric Science & Engineering practices are evaluated throughout each unit.	__ Days/ Weeks

Sun & Shadows/Moon & Stars: This unit will help students develop the idea that the Sun, Moon, and stars change position in the sky in ways that are fun to watch and predict.	1-ESS1.A.1 1-ESS1.B.1 1-ESS1.C.2	Key Learning Targets: • Patterns of movement of the sun, moon, and stars, as seen from Earth, can be observed, described, and predicted • Seasonal patterns of sunrise and sunset can be observed, described, and predicted • Some events on Earth occur very quickly; others can occur very slowly Vocabulary: • patterns • movement • shadow • sun • moon • phases • stars • Earth • sunrise • sunset • cycle • East • West • constellation • Big Dipper • North Star • Full Moon Essential Questions: • Could a statue's shadow move? • What does your shadow do when you're not looking? • How can the sun help you if you're lost? • Why do you have to go to bed early in the summer? • When can you see the full moon? • Why do the stars come out at night? • How can stars help you if you get lost? • Where will the sun be? • What can I see in the sky?	Epic Books: Playing with Light and Shadows Epic Books: Full Steam Ahead Day and Night StoryBots Sun/Moon/Stars PebbleGo The Moon PebbleGo Moon Phases BrainPopJr. Moon Epic Books: The Night Sky PebbleGo The Sun BrainPopJr. The Sun PebbleGo The Earth BrainPopJr. Earth PebbleGo Stars/Constellations Mystery Doug Who Created Constellations Sun & Shadows Lesson 1 Assessment Sun & Shadows Lesson 2 Assessment Sun & Shadows Lesson 3 Assessment Moon & Stars Lesson 1 Assessment Moon & Stars Lesson 2	Scientific Method:MS shadow experiment Sun & Shadows Pattern CFA Sun & Shadows Season Patterns CFA Sun & Shadows Performance Task Assessment CFA Moon Phases CFA	6 Weeks

			Assessment Moon & Stars Lesson 3 Assessment Moon & Stars Performance Task Assessment		
Lights & Sounds: This unit will develop the idea that by exploring the properties of light and sound, human beings create fun and useful things	SCI.PS4.A SCI.PS4.B SCI.PS4.C	Key Learning Targets: • Sound can make matter vibrate, and vibrating matter can make sound. • Objects can only be seen when light is available to illuminate them • People use devices to send and receive information Vocabulary • vibration • pitch • volume • transparent • translucent • opaque • illuminate/illuminated • communicate/communication Essential Questions: • How do they make silly sounds in cartoons? • Where do sounds come from? • What if there were no windows? • Can you see in the dark? • How could you send a secret message to someone far away? • How do boats find their way in the fog?	PebbleGo Light BrainPopJr. Light PebbleGo Sound BrainPopJr. Sound Epic Books Sound Epic Books: How Does Sound Change? Epic Books: The Science of Light Waves Epic Books: Light Lights and Sounds MS Lesson 5 & 6 Assessment CFAEnergy We Can See Epic Books Sending Messages with Light and Sound Youtube PBS video of kids using flashlights to send messages Lights & Sounds Lesson 1 Assessment	Scientific Method:Vase water/no water =high pitch/low pitch Sounds CFA Lights & Sounds MS Lesson 4 Assessment CFA ***Could print back-to-back, unless you want to glue into notebook*** Lights and Sounds MS Lesson 5 & 6 Assessment CFA	4 Weeks

			Lights & Sounds Lesson 2 Assessment Lights & Sounds Lesson 3 Assessment		
Animal Superpowers & Plant Superpowers: This unit will help students develop the idea that, like a superhero has special powers, every animal and plant has special parts and behaviors that help them to grow and meet their needs.	SCI.LS1.A.1 SCI.LS1.B.1 SCI.LS1.D.1 SCI.LS3.A.1 SCI.LS3.B.1	Key Learning Targets: • All organisms have external parts that they use to perform daily functions. • Parents and offspring engage in behaviors that help the offspring survive • Animals sense and communicate information and respond to inputs with behaviors that help them grow and survive • Young organisms are very much, but not exactly, like their parent, and also resemble other organisms of the same kind • Individuals of the same kind of plant or animal are recognizable as similar, but can also vary in many ways. Vocabulary: • offspring • survive/survival • adapt/adaptation • camouflage • prey • predators • characteristics Essential Questions: • How can you help a lost baby animal find its parents? • Why do birds have beaks? • Why do baby ducks follow their mother? • Why are polar bears white? • Why do family members look alike? • What will a baby plant look like when it	Animal Superpowers Lesson 4 Assessment Animal Superpowers Lesson 5 Assessment Animal Superpowers Performance Task Assessment Animal Camo YouTube video Can you Spot the Animal Hiding? YouTube video Plant Superpowers Lesson 2 Assessment Plant Superpowers Lesson 3 Assessment Plant Adaptations Matching Game Epic Books: National Geographic Animal Armor Epic Books: Traits for Survival Epic Books: Hidden in Plain Sight Animal Camouflage Epic Books: Animal Communication	Scientific Method:MS bird beak experiment Animal Superpowers MS Lesson 2 Assessment CFA Animal Superpowers MS Lesson 3 Assessment CFA Deer Communication CFA Animal Parent & Offspring Similarities & Differences CFA Plant Parts Cut & Paste & Label Plant Part Functions ***Print Double-Sided*** SANDY Parts of Plants Real Life Picture Sort CFA Plant Adaptation Sort CFA	5 Weeks

		grows up? • Why don't trees blow down in the wind? • What do sunflowers do when you're not looking? • How do animals take care of their babies?	Epic Books: How Do Baby Animals Learn? PebbleGo Animals PebbleGo Animal Adaptations PebbleGo Animal Communication PebbleGo Animal Heredity BrainPopJr. Camouflage Epic Books: From Seed to Plant Epic Books: Plants Epic Books: Plant adaptations PebbleGo Plants BrainPopJr. Parts of a Plant BrainPopJr. Plant Adaptations BrainPopJr. Plant Life Cycle		

Intervention	Adult support during investigations, reteaching during WIN, reteaching stations during science (workshop model), SeeSaw Activities
Enrichment	Additional Mystery Science activities during WIN, enrichment stations during science (workshop model), SeeSaw Activities

Report Card

	Trimester 1	Trimester 2	Trimester 3
Life Sciences	Not Assessed	Not Assessed	Assessed

Physical Science	Assessed	Not Assessed	Not Assessed
Earth & Space Science	Not Assessed	Assessed	Not Assessed
Engineering, Technology, and the Application of Science	Assessed	Not Assessed	Assessed
Science Inquiry Practices and Processes (CC & SEP)	Assessed	Assessed	Assessed

If left blank, the standard is not accessed at this time.

2nd Grade

Adopted Course Primary Resource	Supplementary Resources
• Mystery Science	• PebbleGo, BrainPopJr., YouTube Videos, Books

Standards Addressed In The Course (Note Essential Standards)		
Engineering, Technology, and Society (ETS)	SCI.ETS1.A. K-2	A situation that people want to change or create can be approached as a problem to be solved through engineering. Asking questions, making observations, and gathering information are helpful in thinking about problems. Before beginning to design a solution, it is important to clearly understand the problem.
	SCI.ETS1.B. K-2	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.
	SCI.ETS2.B. K-2	Every human-made product is designed by applying some knowledge of the natural world and is built by using natural materials. Taking natural materials to make things impacts the environment.
	SCI.ETS1.C. 2	Because there is more than one possible solution to a problem, it is useful to compare and test designs.
Earth and Space Science (ESS)	SCI.ESS1.C. 2	Some events on Earth occur very quickly; others can occur very slowly.
	SCI.ESS2.A. 2	Wind and water change the shape of the land.
	SCI.ESS2.B. 2	Maps show where things are located. One can map the shapes and kinds of land and water in any area.
	SCI.ESS2.C. 2	Water is found in many types of places and in different forms on Earth.
	SCI.ESS2.E. K	Plants and animals can change their local environment.

	SCI.ESS3.A.K	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.
	SCI.ESS3.B.K	In a region, some kinds of severe weather are more likely than others. Forecasts allow communities to prepare for severe weather.
	SCI.ESS3.C.K **(covered in supplemental Earth Day lessons)**	Things people do can affect the environment but they can make choices to reduce their impacts.
Physical Science (PS)	SCI.PS1.A.2	Matter exists as different substances that have different observable properties. Different properties are suited to different purposes. Objects can be built up from smaller parts.
	SCI.PS1.B.2	Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.
	SCI.PS3.D.K	Sunlight warms Earth's surface
	SCI.PS2.A.K **(Both Covered in Bk 2 UoS writing)** SCI.PS3.C.K	Pushes and pulls can have different strengths and directions, and can change the speed or direction of an object's motion, or start or stop it. A bigger push or pull makes things speed up or slow down more quickly. Bigger pushes and pulls cause bigger changes in an object's motion or shape.
Life Science (LS)	SCI.LS2.A.2	Plants depend on water and light to grow. Plants depend on animals for pollination or to move their seeds around.
	SCI.LS1.C.K	Animals obtain food they need from plants or other animals. Plants need water and light.
	SCI.LS1.D.1	Animals sense and communicate information and respond to inputs with behaviors that help them grow and survive.
	SCI.LS1.D.2	There are many different kinds of living things in any area, and they exist in different places on land and in water.
Crosscutting Concepts (CC	SCI.CC1.K-2	Students recognize that patterns in the natural and human-designed world can be observed, used to describe phenomena, and used as evidence.

	SCI.CC2.K-2	Students learn that events have causes that generate observable patterns. They design simple tests to gather evidence to support or refute their own ideas about causes.
	SCI.CC3.K-2	Students use relative scales (e.g., bigger and smaller, hotter and colder, faster and slower) to describe objects. They use standard units to measure length.
	SCI.CC4.K-2	Students understand objects and organisms can be described in terms of their parts and that systems in the natural and designed world have parts that work together.
	SCI.CC5.K-2	Students observe objects may break into smaller pieces, be put together into larger pieces, or change shapes.
	SCI.CC6.K-2	Students observe the shape and stability of structures of natural and designed objects are related to their function(s).
	SCI.CC7.K-2	Students observe some things stay the same while other things change, and things may change slowly or rapidly.
Science and Engineering Practices (SEP)	SCI.SEP1.A.K-2	Students ask simple descriptive questions that can be tested. This includes the following: Ask questions based on observations to find more information about the natural world. Ask or identify questions that can be answered by an investigation.
	SCI.SEP1.B.K-2	Students define simple problems that can be solved through the development of a new or improved object or tool.
	SCI.SEP2.K-2	Students use and develop models (i.e., diagrams, drawings, physical replicas, dioramas, dramatizations, or storyboards) that represent concrete events or design solutions. This includes the following: Distinguish between a model and the actual object, process, or events the model represents. Compare models to identify common features and differences. Develop or use models to represent amounts, relationships, relative scales (bigger, smaller), and patterns in the natural and designed world(s).
	SCI.SEP2.K-2	Develop a simple model based on evidence to represent a proposed object or tool.
	SCI.SEP3.K-2	Make observations (firsthand or from media) and measurements to collect data that can be used to make comparisons. Make observations (firsthand or from media) and measurements of a proposed object or tool or solution to determine if it solves a problem or meets a goal.
	SCI.SEP4.K-2	Students collect, record, and share observations. This includes the following: Record information (observations, thoughts, and ideas). Use and share pictures, drawings, or writings of observations. Use observations (firsthand or from media) to describe patterns or relationships in the natural and designed worlds in order to answer scientific questions and solve problems. Compare predictions (based on prior experiences) to what occurred (observable events).
	SCI.SEP 4.K-2	Analyze data from tests of an object or tool to determine if the object or tool works as intended.

	SCI.SEP 5.K-2	Students recognize that mathematics can be used to describe the natural and designed world. This includes the following: Use counting and numbers to identify and describe patterns in the natural and designed worlds. Describe, measure, or compare quantitative attributes of different objects and display the data using simple graphs. Use qualitative and/or quantitative data to compare two alternative solutions to a problem.
	SCI.SEP6.A. K-2	Students use evidence and ideas in constructing evidence-based accounts of natural phenomena. This includes the following: Use information from observations (firsthand and from media) to construct an evidence-based account for natural phenomena.
	SCI.SEP6.B. K-2	Students use evidence and ideas in designing solutions. This includes the following: Use tools and materials to design and/or build a device that solves a specific problem or a solution to a specific problem. Generate and compare multiple solutions to a problem.
	SCI.SEP 7.K-2	Students compare ideas and representations about the natural and designed world. This includes the following: 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. Listen actively to arguments to indicate agreement or disagreement based on evidence, or to retell the main points of the argument.
	SCI.SEP7.K-2	Construct an argument with evidence to support a claim. Make a claim about the effectiveness of an object, tool, or solution that is supported by relevant evidence.
	SCI.SEP8.K-2	Students use observations and texts to communicate new information. This includes the following: Read developmentally appropriate texts or use media to obtain scientific and technical information. Use the information to determine patterns in or evidence about the natural and designed worlds. Describe how specific images (e.g., a diagram showing how a machine works) support a scientific or engineering idea
	SCI.SEP8.K-2	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 scientific questions or supporting scientific claims. Communicate information or design ideas and solutions with others in oral or written forms. Use models, drawings, writing, or numbers that provide detail about scientific ideas, practices, or design ideas.

Units of Study (Sequenced)	Standards Associated	Key Learning Targets, Essential Vocabulary, & Essential Question(s)	Supplementary Resources for unit	Common Assessment	Pacing
Material Magic (6 lessons)	2-PS1-1 2-PS1-2 2-PS1-3 2-PS1-4 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	Key Learning Targets: ● Materials have a set of unique properties that determine their use. ● One interesting property of materials is whether they are an insulator (a material that does not allow the movement of heat) or a conductor (a material that moves heat easily). ● Another property of materials is if they are meltable or not. ● Over time, inventions of materials with new properties have helped solve problems. New materials are constantly being invented and made into products that could be available in the future. ● Building materials--like wood, concrete, and steel-- all share an important property, strength. Paper doesn't seem like it has the right properties for building--it's flexible and isn't strong. Surprisingly, you can change the properties of paper to make it stronger and a better building material. ● The properties of mud depend on the properties of the soil that it's made from. Vocabulary: ● classifying / categorize, material, properties ● matter, phases, invention ● liquid, gas, solid Essential Questions: ● Why do we wear clothes? ● Can you really fry an egg on a hot sidewalk? ● Why are so many toys made out of plastic? ● What materials might be invented in the future? ● Could you build a house out of paper? ● How do you build a city out of mud?		Exit slips after lessons 1, 3, 5. Mystery Science Unit Assessment at the end of Unit.	3 Weeks
Animal Adventures (4 lessons)	2-LS4-1 K-2-ETS1-1 K-2-ETS1-2	Key Learning Targets: ● There are *so many* different kinds of animals--even today, we haven't discovered all of them!		Exit slips after lessons 1, 3.	3 Weeks

	K-2-ETS1-3	• There are *many* different kinds of habitats--deserts, oceans, rainforests, even playgrounds. • The variety of frog species in a habitat, depends on the amount of resources a habitat has. The more resources, the more types of frogs! • Different bird feeders attract different bird species. Vocabulary: • nourished, farming, maintain • bounty, various, produce Essential Questions: • How many different kinds of animals are there? • Why would a wild animal visit a playground? • Why do frogs say “ribbit”? • How could you get more birds to visit a bird feeder?		Mystery Science Unit Assessment at the end of Unit.	
Work of Water (5 lessons)	2-ESS1-1 2-ESS2-1 2-ESS2-2 2-ESS2-3 K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	Key Learning Targets: • If we looked at a map with texture we’d see that rivers begin at points of high land, flow to points of low land and then into the ocean. • As the rivers flow toward the ocean, rocks collide into one another causing them to break into smaller pieces. By the time those rocks reach the end of the river, they are *tiny* rocks - or sand! • Several factors contribute to flash floods including the shape of the land, the type of soil in an area, and the frequency of heavy rainstorms. • Water is incredibly powerful - even powerful enough to move the earth’s surface! Heavy rains wash away dirt and rocks, creating canyons - this process is called erosion. • Landslides - when the earth loosens and is washed away down a hill - is more likely to happen after a wildfire! Vocabulary: • precipitation, drought, parched • droplet, transform, stage • cause, critical, terrain Essential Questions: • If you floated down a river, where would you end up?		Exit slips after lessons 2, 4. Mystery Science Unit Assessment at the end of Unit.	3 Weeks

		● Why is there sand at the beach? ● Where do flash floods happen? ● What's strong enough to make a canyon? ● How can you stop a landslide?			
Plant Adventures (5 lessons)	2-LS2-1 2-LS2-2 2-LS4-1	Key Learning Targets: ● Plants depend on wind, water, and animals to disperse their seeds. ● Although seeds can sprout without sunlight, they need light to be healthy and survive. Plants need sunlight and water to grow. ● Trees compete for sunlight, so their leaves are at the top of the tree and they grow as tall as possible. ● All plants need sunlight and water to survive, but they don't need the *same* amount of them. ● Knowing a plant's needs helps gardeners and farmers grow plants. Vocabulary: ● disperse, environment, minerals ● nutrients, habitats, survive Essential Questions: ● How did a tree travel halfway around the world? ● Could a plant survive without light? ● Why do trees grow so tall? ● Should you water a cactus? ● Where do plants grow best? :		*Since this is our last unit of the year we are doing the assessments in a similar way to the way the 3rd graders do theirs. Mystery Science Lesson Assessments after lessons1, 2, 3, 4 and 5. Mystery Science Unit Assessment at the end of Unit.	3 Weeks

Intervention	
Enrichment	

Report Card

	Trimester 1	Trimester 2	Trimester 3
Life Sciences	Assessed	Not Assessed	Assessed
Physical Science	Assessed	Not Assessed	Not Assessed
Earth & Space Science	Not Assessed	Assessed	Not Assessed
Engineering, Technology, and the Application of Science	Assessed	Assessed	Not Assessed
Science Inquiry Practices and Processes (CC & SEP)	Assessed	Assessed	Assessed

If left blank, the standard is not assessed at this time.

3rd Grade

Adopted Course Primary Resource	Supplementary Resources
• Mystery Science	• You Tube videos • BrainPop Jr. • National Geographic Videos

Standards Addressed In The Course (Note Essential Standards)		
Life Science	LS1.B.3	Reproduction is essential to every kind of organism. Organisms have unique and diverse life cycles.
	LS3.A.3	Many characteristics of organisms are inherited from their parents. Other characteristics result from individuals' interactions with the environment. Many characteristics involve both inheritance and environment. 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.
Physical Science	PS2.A.3	Qualities of motion and changes in motion require description of both size and direction. The effect of unbalanced forces on an object results in a change of motion. Patterns of motion can be used to predict future motion.
	PS2.B.3	Some forces act through contact, some forces (e.g. magnetic, electrostatic) act even when the objects are not in contact.
Earth & Space Science	ESS2.D.3	Climate describes patterns of typical weather conditions over different scales and variations. Historical weather patterns can be analyzed.
	ESS3.B.3	A variety of hazards result from natural processes; humans cannot eliminate hazards but can reduce their impacts.
Engineering, Technology, and the Application of Science	ETS1.A.3	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.
	ETS1.B.3	Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.

		At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs. Tests are often designed to identify failure points or difficulties, which suggest the elements of the design that need to be improved.
	ETS2.A.3	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

Units of Study (Sequenced)	**Standards Associated**	**Key Learning Targets, Essential Vocabulary, & Essential Question(s)**	**Supplementary Resources for unit**	**Common Assessment**	**Pacing**
Weather & Climate	ESS2.D.3 ESS3.B.3 ETS1.A.3 ETS1.B.3 ETS2.A.3	Key Learning Targets: ● Students investigate and make predictions about the weather through careful observation of the clouds and wind. Students also learn to differentiate between weather and climate and use models to reveal global climate patterns. Vocabulary: ● Clouds ● Stratus ● Stratonimbus ● Cumulus ● Cumulonimbus ● Water cycle ● Precipitation ● Evaporation ● Condensation ● meteorologist Essential Question: -Where do clouds come from? -How can we predict when it's going to storm? - Where's the best place to build a snow fort? -Why are some places always hot? -How can you keep a house from blowing away?		Weather and Climate Mystery quizzes	4-5 weeks
Forces, Motion, & Magnets	PS2.A.3 PS2.B.3 ETS1.A.3 ETS1.B.3 ETS2.A.3	Key Learning Targets: ● Students explore the forces all around them. They investigate the effects of balanced and unbalanced forces, the pushes and pulls of bridge structures, and the effects of friction on the motion of objects. Students also explore the power of		Forces, Motion & magnets quizzes link	5-6 weeks

		magnetic forces and investigate firsthand how these forces can be used to help us in our everyday lives. Vocabulary: ● Force ● Motion ● Push ● Pull ● Friction ● Magnet ● Attract ● Repel ● Gravity ● Isaac Newton Essential Question: How could you win a tug-of-war against a bunch of adults? What makes bridges so strong? How high can you swing on a flying trapeze? What can magnets do? How can you unlock a door using a magnet?			
Fossils and changing Environments	3-LS4-1	Key Learning Targets: ● Students develop an understanding of how animals and their environments change through time. Fossils provide a window into the animals and habitats of the past. Analyzing the traits of animals provides evidence for how those traits vary, how they are inherited, and how they have changed over time. Students also examine how the environment can affect inherited traits and determine which animals will survive in a particular environment. Vocabulary: ● Fossils ● Extinct ● Mammal ● Carnivores ● Herbivores ● Omnivores Essential Question: Where can you find whales in the desert? How do we know what dinosaurs looked like? Can you outrun a dinosaur?		Animals Through time quizzes link	5-6 weeks

Fates of Traits	3-LS2-1 3-LS3-1 3-LS3-2 3-LS4-2 3-LS4-3	Key Learning Targets: ● Students compare the structures and functions of traits that enable organisms to survive in a specific environment. Analyzing the traits of animals provides evidence for how those traits vary, how they are inherited, and how they have changed over time through selection. Students also examine how the environment can affect inherited traits and determine which animals will survive in a particular environment. Vocabulary: ● Artificial selection ● Acquired Trait ● Environment ● Behavior ● Communicate ● Evidence ● Observe ● Social Behavior ● Adaptation ● Extinct ● Generation ● Inherit ● Seed ● Fruit ● Inherited trait ● Species ● Population ● Predator ● Species ● Survive ● Trait ● Variation ● Variety Essential Question: How could you make the biggest fruit in the world? What kinds of animals might there be in the future? Can selection happen without people? Why do dogs wag their tails? How long can people (and animals) survive in outer space?		Life cycles quizzes link	2-3 weeks

Circle of Life	LS1.B.3 LS3.A.3 3-5-ETS1-1 3-5-ETS1-2 3-LS1-1 3-LS4-4	Key Learning Targets: • Students discover how plants reproduce by exploring the process of pollination and fruiting. They also investigate how plant traits are inherited from parent plants, and how favorable plant traits can be enhanced by humans via artificial selection. Vocabulary: • Seeds • Pollen • Pollen duster • Stigma • Nectar • Pollination • Inherit • Traits • Life cycle • Predict Essential Question: How is your life like an alligator's life? What's the best way to get rid of mosquitos? Why do plants grow flowers? Why do plants give us fruit? Why are there so many different kinds of flowers?		Power of flowers quizzes link	4-5 weeks

Intervention	
Enrichment	

Report Card

	Trimester 1	Trimester 2	Trimester 3
Life Sciences	Not Assessed	Assessed	Assessed
Physical Science	Not Assessed	Assessed	Not Assessed
Earth & Space Science	Assessed	Not Assessed	Not Assessed

Engineering, Technology, and the Application of Science	Assessed	Not Assessed	Not Assessed
Science Inquiry Practices and Processes (CC & SEP)	Assessed	Assessed	Assessed

If left blank, the standard is not accessed at this time.

4th Grade

Adopted Course Primary Resource	Supplementary Resources
• Mystery Science	• Brain Pop JR, Varsity Tutors, Truflix

Standards Addressed In The Course (Note Essential Standards)		
Life Science (LS)	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-LS-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.
Physical Science (PS)	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-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-PS4-2	Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.
	4-PS4-3	Generate and compare multiple solutions that use patterns to transfer information.
Earth and Space Science (ESS)	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-ESS2-2	Analyze and interpret data from maps to describe patterns of Earth's features.
	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-ESS3-2	Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

Engineering Technology and Society (ETS)	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-ETS-1-2	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-ETS-1-3	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.

Units of Study (Sequenced)	**Standards Associated**	**Key Learning Targets, Essential Vocabulary, & Essential Question(s)**	**Supplementary Resources for unit**	**Common Assessment**	**Pacing**
Human Machine	4-LS1-1 4-LS1-2 4-PS4-2	Key Learning Targets: ● Like a machine or robot, the body has parts, or structures, for moving around (e.g. the limbs). In order to move (one of the body's functions), the body needs at least two things: muscles and bones. The contraction of your muscles pulls on tendons, which in turn pull on the bones, causing you to move. Your external parts (such as appendages) are controlled by your brain like a marionette puppet ● Continuing the analogy of the body as a machine or robot, we now consider its "sensors"--the sensory organs, in this lesson focusing specifically on the eyes.Students discover the basics of how their eyes work,and figure out some of the causes of vision problems. ● Students delve further into the workings of the eye, exploring the function of their iris and pupil. ● Continuing the analogy of the body as a machine or robot, we finally consider the body's 'built-in computer' or central processor: the brain, and its accompanying nerves. Students explore the brain's role in receiving information from the senses, processing that information, and controlling the muscles to enable movement. Vocabulary: bones, joints,muscle,tendons biceps,blind, pupil, iris, nocturnal, sensory Quizlet HM Essential Question: 1. Why do your biceps bulge? 2. What do people who are blind see?	Question of the day spiral concept review Mini Mystery: Week 1: Why Do Our Skeletons Have So Many Bones? Mini Mystery: Week 2: Why Do We Have Tears When We Cry? Mini Mystery: Week 3: Why Are Butterflies so Colorful? Mini Mystery Week 4: What Would Happen If You Didn't Have a Skull?	Human Machine Unit Test Paper Test Performance Task: How are animals and plants like machines? STEM: Animal Adaptations Bonus Animal Adaptations Mini Mystery: Which animal has the biggest heart?	4-8 Weeks

		3. How can some animals see in the dark? 4. How does your brain control your body?			
Birth of Rocks	4-ESS1-1 4-ESS2-2 4-ESS2-1 4-ESS3-2	Key Learning Targets: ● Rocks begin as lava--volcanic rocks are lava that has been frozen in time. Volcanoes don't just exist--they form, or 'pop up'. There is a pattern to where most volcanoes exist today on the earth. And yet dead volcanoes--and volcanic rock they erupted--can be found in lots of places. (So the pattern today isn't necessarily what it used to be.) You can look for volcanic rocks near you. ● Volcanic rocks are lava frozen in time. There are two primary types of lava, each of whose thickness explains two major differences in a volcano's shape & style of eruption. These two lavas also account for two commonly observed volcanic rocks that you might find. ● Rock does not stay as massive monoliths of volcanoes--it tends to get broken into smaller pieces ("sediments") over time due to natural forces ("weathering"), and tumble downhill. You can look for evidence of this where you live. ● The weathering process is not benign; it creates some of the worst natural hazards, including rock falls, landslides, and debris flows. If we are to be safe from these hazards, we have to design solutions to protect us. Vocabulary: Lava, shield volcano. cone volcano, explode, erupt, landslides, Ring of Fire, basalt, falsite, pressure Quizlet BOR Essential Question: 1. Could a volcano pop up where you live? 2. Why do volcanoes explode? 3. Will a mountain last forever? 4. How could you survive a landslide?	Mini Mystery Week 1: Could a Mountain Turn Into a Volcano? Mini Mystery Week 2: Can you make lava? Mini Mystery Week 3: How old is the Earth? Mini Mystery Week 4: Why Does This Rock Look Like a Sponge?	Birth of Rocks Test Paper Test Performance Task: How can you figure out where a rock came from? STEM Activity: Build a model of Earth's atmosphere	4-8 weeks
Energizing Everything	4-PS3-1 4-PS3-4 4-PS3-3 3-5-ETS1-1 3-5-ETS1-2 3-5-ETS1-3 4-PS3-2	Key Learning Targets: ● When something is moving, it has energy. Moving things get their energy from stored energy, and energy can be stored in different ways (gasoline, batteries, food, springs, and rubber bands). Students discover that the faster an object is moving, the more energy it has. They compare models that use thin rubber bands and thick rubber bands to determine how differences in stored energy directly relate to the speed of the	Mini Mystery Week 1: Why did Elon Musk Launch his Car into Space? Mini Mystery Week 2: How Do Batteries Work?	Energizing Everything Test Paper Test Performace Task: Can you turn on a flashlight without touching it?	8-16 weeks

		object. ● Giving something “height” (putting it up high) is another way to store energy. When the object falls or drops, that stored energy is released: this explains why roller coasters work, but also bicycling downhill or skiing. The higher up you place an object, the more energy you store in it, and the faster it goes when released or dropped. When an object collides with another object, some of its energy is transferred to the object and some is transferred to the air ● Something that’s falling only has as much energy as was stored in it in the first place. This is why you can notice a pattern with roller coasters - the first hill is always the highest. When an object collides with another object, some of its energy is transferred to the object and some is transferred to the air. ● We can invent devices that convert stored energy into movement, and transfer that energy to various other objects along a pathway. ● Engineers are people who design or invent solutions to problems by using knowledge of science. All engineers think about what their goal is, come up with multiple ideas, test those ideas out, and repeatedly fail until they figure out what works. ● Electricity--the stuff from our outlets and batteries--is a form of energy that we use to produce movement, but also light, heat, and more. Just like the energy in a chain reaction machine, electricity moves along a path and so can be transferred from one place to another. We can use such knowledge about electrical energy to design solutions to problems (such as flashlights for seeing in the dark). ● The invention of the engine was a monumental step forward for human transportation; it used heat energy released from burning fuel to move people and goods over long distances much more safely, cheaply, and quickly. Engines are chain reaction machines--heat is transferred through a device to create movement! ● Some natural resources such as wood, coal, and natural gases can be burned to release energy. Unfortunately, burnable sources of energy release smoke and cause air pollution. Many scientists are exploring alternative natural sources of energy such as solar, wind, and water. These natural sources don’t require burning to release energy. Vocabulary: energy, electricity, momentum, fuel, stored energy, chain	Mini Mystery Week 3: Why Don’t People Fall out of Roller Coasters When they Go Upside Down? Mini Mystery Week 4: What’s the tallest skyscraper you can build? Mini Mystery Week 5: What was the first cartoon? Mini Mystery Week 6: What causes Northern Lights? Mini Mystery Week 7: Why can’t airplanes fly to space? Mini Mystery Week 8: How is plastic made?	STEM Activity: Exploding Pop Rockets	

		reaction, heat energy, sound energy, light energy, battery Quizlet EE Essential Question: 1. How is your body similar to a car? 2. What makes roller coasters go so fast? 3. Why is the first hill of a roller coaster always the highest? 4. Could you knock down a building using only dominoes? 5. Can you build a chain reaction machine? 6. What if there were no electricity? 7. How long did it take to travel across the country before cars and planes? 8. Where does energy come from?			

Intervention	
Enrichment	

Report Card

	Trimester 1	Trimester 2	Trimester 3
Life Sciences	Assessed	Not Assessed	Not Assessed
Physical Science	Assessed	Assessed	Not Assessed
Earth & Space Science	Not Assessed	Not Assessed	Not Assessed
Engineering, Technology, and the Application of Science	Not Assessed	Not Assessed	Assessed
Science Inquiry Practices and Processes (CC & SEP)			

If left blank, the standard is not accessed at this time.

5th Grade

Adopted Course Primary Resource	Supplementary Resources
• Mystery Science	• Youtube Videos • BrainPop Jr.

Standards Addressed In The Course (Note Essential Standards)		
Domain Life Science	Standard call #	Standard language *List all standards addressed and color all ELOs red.
	5-LS1-1	**Support an argument that plants get the materials they need for growth chiefly from air and water.**
	5-LS2-1	**Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.**
Engineering Design	3-5-ETS 1-1	**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-ETS 1-3	**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.**
Earth and Space Science	5-ESS1-1	**Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth.**
	5-ESS2-2	**Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.**

	5-ESS3-1	**Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.**
Physical Science	5-PS1-1	**Develop a model to describe that matter is made of particles too small to be seen.**
	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.**
	5-PS1-3	**Make observations and measurements to identify materials based on their properties.**
	5-PS1-4	**Conduct an investigation to determine whether the mixing of two or more substances results in new substances.**
	5-PS2-1	**Support an argument that the gravitational force exerted by Earth on objects is directed down.**
	5-PS3-1	**Use models to describe that energy in animals' food (used for body repair, growth, and motion and to maintain body warmth) was once energy from the sun.**

Units of Study (Sequenced)	**Standards Associated**	**Key Learning Targets, Essential Vocabulary, & Essential Question(s)**	**Supplementary Resources for unit**	**Common Assessment**	**Pacing**
Ecosystems and The Food Web - Web of Life	**5-LS2-1** **5-LS1-1** **5-PS3-1**	Key Learning Targets: • In this unit, students explore how organisms depend on one another and form an interconnected ecosystem. Students investigate food chains, food webs, and the importance of producers, consumers, and decomposers. Vocabulary: - carnivores - ecosystem - organisms - herbivores - terrarium - producers - consumers Essential Question: **Why would a hawk move to New York City?**		Web Of Life Unit Assessment	6 Weeks

		What do plants eat? **Where do fallen leaves go?** **Do worms really eat dirt?** **Why do you have to clean out a fish tank, but not a pond?** **Why did dinosaurs go extinct?**			
Water Cycle and Earth's Systems - Watery Planet	**3-5-ETS1-2** **3-5-ETS1-1** **5-ESS2-2** **5-ESS3-1** **5-PS1-2** **3-5-ETS1-3** **5-ESS2-1**	Key Learning Targets: • In this unit, students consider the profound importance of water as a natural resource. Students investigate the distribution of water, how it cycles through Earth's systems, and explore how it affects human societies. Vocabulary: - Evaporation - Condensation - Precipitation - Hydrosphere - Atmosphere - Wet Land - Flooded Area - Salt Water - Fresh Water Essential Question: - How much water is in the world? - How much salt is in the Ocean? - When you turn off the facet, where does your water come from? - Can we make it rain? - How can you save a town from a hurricane?		Watery Planet Unit Assessment	5 Weeks
Stars and The Solar System -	**3-5-ETS1-2** **5-PS2-1** **3-5-ETS1-1**	Key Learning Targets: • In this unit, students explore the Earth, Sun, Moon, and stars using observations of shadows and changing patterns in the sky. Students also explore the planets of		Spaceship Earth Unit Assessment	8 Weeks

Spaceship Earth (8 Lessons)	**5-ESS1-1** **5-ESS1-2**	our Solar System and begin to consider what might lie beyond. Vocabulary: - Shadows - 4 Seasons - Orbit - Sun's Reflection - Hemispheres - Constellations - Gravity - 8 Planets - Mercury, Venus, Earth, Mars,Jupiter, Saturn, Uranus, Neptune - Habitable Zone Essential Question: - How fast does the Earth spin? - Who set the first clock? - How can the sun tell you the season? - Why do stars change with the seasons? - Why does the moon change shape? - What are wandering stars? - Why is gravity different on other planets? - Could there be life on other planets?			
Chemical Reactions and Properties of Matter - Chemical Magic (5 Lessons)	5-PS1-1 5-PS1-3 5-PS1-4 5-PS1-2	Key Learning Targets: ● In this unit, students investigate the properties of matter by dissolving everyday chemicals to make solutions and by exploring simple yet surprising chemical reactions. Through these investigations, students begin to build conceptual models for the particulate nature of matter. Vocabulary: - Solution - Chemical reaction - Alchemist - Acids - Particle model - Dissolving -		Chemical Magic Unit Assessment	5 Weeks

		Essential Question: Are magic potions real? Could you transform something worthless into gold? What would happen if you drank a glass of acid? What do fireworks, rubber and silly putty have in common? Why do some things explode? What happened to the stone gargoyles over time?			

Intervention	
Enrichment	

Report Card

	Trimester 1	Trimester 2	Trimester 3
Life Sciences	Assessed	Not Assessed	Not Assessed
Physical Science	Not Assessed	Not Assessed	Assessed
Earth & Space Science	Not Assessed	Assessed	Not Assessed
Engineering, Technology, and the Application of Science	Assessed	Not Assessed	Assessed
Science Inquiry Practices and Processes (CC & SEP)	Not Assessed	Assessed	Assessed

If left blank, the standard is not accessed at this time.