

Kenilworth Public Schools

Curriculum Guide

Content Area: Science

Grade: 5

BOE Approved: 7/11/2016

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Submitted by: Renee Jernigan

BOE Revision Approved: 2/14/22

Science- Grade 5 Scope and Sequence

Unit 1- Earth and Space Science	Unit 2- Physical Science	Unit 3- Life Science
6 Weeks	6 Weeks	5 Weeks
<i>Unit Description:</i> The interactions between Earth, the Sun, and the Moon reveal predictable patterns. The constant renewal of water on Earth's land surfaces by the activities in the atmosphere is one of the defining characteristics of Earth, the water planet.	<i>Unit Description:</i> Chemistry is the study of the structure of matter and the changes or transformations that take place within those structures.	<i>Unit Description:</i> Earth is the interaction of four Earth systems or subsystems- the geosphere, the atmosphere, the hydrosphere, and the biosphere.

<p><i>Unit Targets:</i></p> <ul style="list-style-type: none"> ● Shadows are the dark areas that result when light is blocked. ● Shadows change during the day because the position of the Sun changes in the sky. ● The length and direction of a shadow depend on the Sun's position in the sky. ● Day is the half of Earth's surface being illuminated by sunlight; night is the half of Earth's surface in its own shadow. ● The cyclical change between day and night is the result of Earth's rotating around the stationary Sun ● The solar system includes the Sun and the objects that orbit it, including Earth, the Moon, seven other planets, their satellites, and smaller objects. ● The Moon is much smaller than Earth and orbits at a distance equal to about 30 Earth diameters. ● The Sun is 12,000 Earth diameters away from Earth and is more than 100 times larger than Earth. ● The pulling force of gravity keeps the planets and other objects in orbit by continuously changing their direction of travel. 	<p><i>Unit Targets:</i></p> <ul style="list-style-type: none"> ● A mixture is two or more materials intermingled. ● An aqueous solution is a mixture in which a substance dissolves in water to make a clear liquid. ● Mixtures can be separated into their constituents by using screens, filters, and evaporation. ● The mass of a mixture is equal to the mass of its constituents. ● 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). ● Models are explanations of objects, events, or systems that cannot be observed directly. ● Models are representations used for communicating and testing. ● Developing a model is an iterative process, which may involve observing, constructing, analyzing, evaluating, and revising. ● Melting is a change in a single substance from solid to liquid caused by heat (energy transfer). 	<p><i>Unit Targets:</i></p> <ul style="list-style-type: none"> ● A system is a collection of interacting objects, ideas, and/or procedures that together define a physical entity or process. ● Earth can be described as the interaction of four earth systems: the rocky part (the geosphere), the atmosphere, the water (the hydrosphere), and the complexity of living organisms (the biosphere). ● Food webs are made up of producers (organisms that make their own food), consumers (organisms that eat other organisms to obtain food), and decomposers (organisms that consume and recycle dead organisms and organic waste). ● A kelp forest has similarities to a rain forest (vertical layering). Phytoplankton is the major producer in most aquatic systems (both marine and freshwater). ● Food webs and competition for resources exist in marine systems. ● Yeast is a single-celled fungus. Dormant yeast cells can become active when provided with water, warmth, and sugar as a food source. Carbon dioxide is a waste by-product of yeast metabolism. ● Chlorophyll is the green pigment that absorbs sunlight in the cells of producer organisms.
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<ul style="list-style-type: none"> ● A great deal of light travels through space to Earth from the Sun and from distant stars. ● Stars are at different distances from Earth. ● Stars are different sizes and have different levels of brightness. ● Air is a mixture of gases held by gravity near Earth's surface. ● Air has mass, takes up space, and is compressible. ● Most of Earth's air resides in the troposphere, the layer of the atmosphere closest to Earth's surface. ● Weather happens in the troposphere. ● Weather is the condition of Earth's atmosphere at a given time in a given place. ● Meteorology is the science of weather, and meteorologists are the scientists who study Earth's weather. ● Weather is described in terms of several variables. ● The Sun is the major source of energy that heats Earth. ● The different energy-transferring properties of earth materials (soil and water) can lead to uneven heating of Earth's surface. ● The atmosphere is heated by conduction between 	<ul style="list-style-type: none"> ● The amount of matter is conserved when it changes form. ● Concentration is the amount of dissolved solid material per unit volume of water. ● Solutions with a lot of solid dissolved in a volume of water are concentrated; solutions with little solid dissolved in a volume of water are dilute. ● When equal volumes of two salt solutions are weighed, the heavier one is more concentrated. ● Density is mass per unit volume. ● More concentrated salt solutions are denser. ● Solutions form layers based on density. ● A substance is a single, pure material. ● Solutions are composed of a solvent (liquid) and a solute (solid), which is dissolved in the solvent. ● Solubility is the property that indicates how readily a solute dissolve in a solvent. ● A solution is saturated when as much solid material as possible has dissolved in the liquid. ● Solubility varies from substance to substance. 	<ul style="list-style-type: none"> ● A nutrient is a substance, such as sugar or starch, that is used by a cell to produce the energy needed to perform the functions of life. ● Plants make their own food by photosynthesis. Green plant cells make sugar (food) from carbon dioxide and water in the presence of sunlight, and release oxygen. ● Animals obtain nutrients by eating other organisms. ● Digestion is the process used by animals to break down complex food items into simple nutrients. ● In vascular plants, xylem tubes carry water and minerals from the plant's roots to all the cells in a one-way flow; phloem tubes carry sugar from the leaves to all the cells that need it. ● Vascular bundles are arranged in predictable patterns of veins in the leaves of vascular plants. ● In the human circulatory system, blood transports resources to the cells and waste from the cells. ● In humans, the respiratory system transports oxygen to the blood and carbon dioxide from the blood. ● All cells have basic needs: water, food, gas exchange, and waste disposal. Multicellular organisms have systems for transporting nutrients and wastes.
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<ul style="list-style-type: none"> ● Earth's surfaces and air particles as a result of contact, and by absorption of energy radiated directly from the Sun and reradiated from Earth's surfaces. ● Convection is the circulation of fluid (liquid or gas) that results in energy transfer. Convection currents are driven by uneven heating of the Earth's surface. ● A solar water heater is a system that uses solar energy to heat water. ● Evaporation and condensation contribute to the movement of water through the water cycle, redistributing water over Earth's surface. ● As temperature increases, the rate of evaporation increases. ● Most of Earth's water (97%) is salt water in the ocean; Earth's freshwater is found in the atmosphere, lakes and rivers, soil, ground ice, groundwater, and glaciers. ● The Sun's energy drives weather. ● Climate is the average or typical weather that can be expected to occur in a region of Earth's surface. 	<ul style="list-style-type: none"> ● Substances form predictable, identifiable crystals. ● Engineers plan designs, select materials, construct products, evaluate results, and improve ideas. ● Some mixtures result in a chemical reaction. ● During reactions, starting substances (reactants) change into new substances (products). ● A gas or precipitate is evidence of a reaction. ● Some products of reactions are soluble and can be identified by crystal structure after evaporation. ● Calcium carbonate reacts with acid. 	<ul style="list-style-type: none"> ● A stimulus is something that triggers (starts) a response. A stimulus is often information received through the senses. ● A response is a reaction of a living thing to a stimulus. ● Animal adaptations include patterns and colors that attract attention to warn predators off or to attract a mate. ● Animals communicate to warn others of danger, scare predators away, or locate others of their kind, including family members. ● Instinctive behaviors, such as knowing what to eat, how to find shelter, and how to migrate, help organisms survive. ● Marine ecosystems have biotic (living) and abiotic (nonliving parts). The ocean plays an important role in the carbon cycle.
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Science- Grade 5 Earth and Space Science Unit

Unit title: Earth and Space Science	
Unit summary: The interactions between Earth, the Sun, and the Moon reveal predictable patterns. The constant renewal of water on Earth’s land surfaces by the activities in the atmosphere is one of the defining characteristics of Earth, the water planet.	
Primary interdisciplinary connections: RI.5.1; RI.5.7; RI.5.8; RI.5.9; W.5.1; W.5.8; W.5.9; MP.2; MP.4; MP.5; 5.NBT.A.2; SL.5.5; 5.G.A.2; 3-5.OA	
Career Readiness, Life Literacies, and Key Skills: 9.4.5.C1.1, 9.4.5.C1.2, 9.4.5.C1.3, 9.4.5.TL.5	
Learning Targets	
NJSLS Standards: 5-ESS1-1; 5-ESS1-2; 5-ESS2-1; 5-ESS2-2; 5-ESS3-1; 5-PS1-1; 5-PS2-1	
Computer Science and Design Thinking Standards: 8.1.5.DA.1, 8.1.5.DA.3	
Climate Change Standards: 3-ESS3-1, 4 - ESS3-1, 4-ESS3-2	
Content Statements:	
1	The Universe and Its Stars (ESS1.A)
2	Earth and the Solar System (ESS1.B)
3	Earth Materials and Systems (ESS2.A)
4	The Roles of Water in Earth’s Surface Processes (ESS2.C)
5	Human Impacts on Earth Systems (ESS3.C)
6	Defining and Delimiting Engineering Problems (ETS1.A)
7	Developing Possible Solutions (ETS1.B)
8	Optimizing the Design Solution (ETS1.C)
Big Idea: Daily length and direction of shadows, day and night, and the seasonal appearance of stars in the night sky are all predictable patterns as a result of the interactions of Earth, the Sun, and the Moon.	
Unit Essential Questions: <ul style="list-style-type: none"> ● What causes day and night? ● How does gravity keep the planets and other objects in orbit? ● What are some properties of air and where does it reside? ● How does energy transfer to the air? 	Unit Enduring Understandings: <ul style="list-style-type: none"> ● The cyclical change between day and night is the result of Earth’s rotating around the stationary Sun. ● The pulling force of gravity keeps the planets and other objects in orbit by continuously changing their direction of travel. ● Air is a mixture of gases held by gravity near the Earth’s surface. It has mass, takes up

space, and is compressible. Most of Earth's air resides in the troposphere.

- The atmosphere is heated by conduction between Earth's surfaces and air particles as a result of contact, and by absorption of energy radiated directly from the Sun and reradiated from Earth's surfaces.

Unit Learning Targets

Students will develop an understanding that...

- Shadows are the dark areas that result when light is blocked.
- Shadows change during the day because the position of the Sun changes in the sky.
- The length and direction of a shadow depend on the Sun's position in the sky.
- The day is the half of Earth's surface being illuminated by sunlight; night is the half of Earth's surface in its own shadow.
- The cyclical change between day and night is the result of Earth's rotating around the stationary Sun
- The solar system includes the Sun and the objects that orbit it, including Earth, the Moon, seven other planets, their satellites, and smaller objects.
- The Moon is much smaller than Earth and orbits at a distance equal to about 30 Earth diameters.
- The Sun is 12,000 Earth diameters away from Earth and is more than 100 times larger than Earth.
- The pulling force of gravity keeps the planets and other objects in orbit by continuously changing their direction of travel.
- A great deal of light travels through space to Earth from the Sun and from distant stars.
- Stars are at different distances from Earth.
- Stars are different sizes and have different levels of brightness.
- Air is a mixture of gases held by gravity near the Earth's surface.
- Air has mass, takes up space, and is compressible.
- Most of Earth's air resides in the troposphere, the layer of the atmosphere closest to Earth's surface.
- Weather happens in the troposphere.
- Weather is the condition of Earth's atmosphere at a given time in a given place.
- Meteorology is the science of weather, and meteorologists are the scientists who study Earth's weather.
- Weather is described in terms of several variables.
- The Sun is the major source of energy that heats Earth.
- The different energy-transferring properties of earth materials (soil and water) can lead to uneven heating of the Earth's surface.
- The atmosphere is heated by conduction between
- Earth's surfaces and air particles as a result of contact, and by absorption of energy radiated directly from the Sun and reradiated from Earth's surfaces.

- Convection is the circulation of fluid (liquid or gas) that results in energy transfer. Convection currents are driven by uneven heating of the Earth's surface.
- A solar water heater is a system that uses solar energy to heat water.
- Evaporation and condensation contribute to the movement of water through the water cycle, redistributing water over Earth's surface.
- As temperature increases, the rate of evaporation increases.
- Most of Earth's water (97%) is salt water in the ocean; Earth's freshwater is found in the atmosphere, lakes and rivers, soil, ground ice, groundwater, and glaciers.
- The Sun's energy drives weather.
- Climate is the average or typical weather that can be expected to occur in a region of Earth's surface.

Evidence of Learning

Summative Assessment: Unit/Chapter Test, I-Checks, Formal Lab Report

Formative Assessments:

- Foss Investigation 1.4
- Foss Investigation 2.6
- Foss Investigation 3.4
- Foss Investigation 4.5
- Foss Investigation 5.5
- Mystery Science Lesson Assessments

Lesson Plans

<i>Activities</i>	<i>Timeframe</i>
<ul style="list-style-type: none"> ● Foss Investigation- <i>The Sun</i>: 1.1-1.3 ● Foss Investigation- <i>Planetary Systems</i>: 2.1-2.5 ● Foss Investigation-<i>Earth's Atmosphere</i>: 3.1-3.3 ● Foss Investigation- <i>Heating Earth</i>: 4.1-4.4 ● Foss Investigation- <i>Water Planet</i>: 5.1-5.4 ● Mystery Science Spaceship Earth Lessons 1- 8 	6 weeks
<i>Teacher Resources</i>	<i>Teacher Note</i>
<ul style="list-style-type: none"> ● FOSS Kit Investigation Guide ● Mystery Science Webpage https://mysteryscience.com/astromy/stars-the-solar-system ● Technology tools such as Google Classroom, BrainPOP, FlipGrid, Kahoot, Quizizz 	Utilize the Foss resource books to enrich vocabulary.

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Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:

- Use of visual and multisensory formats
- Use of assisted technology
- Use of prompts
- Modification of content and student products
- Testing accommodations
- Authentic assessments

Examples of Strategies and Practices that Support Gifted & Talented Students:

- Adjusting the pace of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills
- Interest-based content
- Student-driven instruction
- Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:

- Pre-teaching of vocabulary and concepts
- Visual learning, including graphic organizers
- Use of cognates to increase comprehension
- Teacher modeling
- Pairing students with beginning English language skills with students who have more advanced English language skills
- Scaffolding
- Word walls
- Sentence frames
- Think-pair-share
- Cooperative learning groups

Science- Grade 5 Life Science Unit

Unit title: Living Systems	
Unit summary: Earth is the interaction of four Earth systems or subsystems- the geosphere, the atmosphere, the hydrosphere, and the biosphere.	
Primary interdisciplinary connections: RI.5.1; RI.5.7; RI.5.9; W.5.1; W.5.7; W.5.8; W.5.9; MP.2; MP.4; MP.5; SL.5.5; 3-5.OA; 5.MD.A.1	
Career Readiness, Life Literacies, and Key Skills: 9.4.5.C1.1; 9.4.5.C1.2; 9.4.5.C1.3; 9.4.5.CT.1; 9.4.5.CT.2; 9.4.5.DC.8	
Learning Targets	
NJSLS Standards: 5-LS1-1; 5-LS1-2; 5-LS2-1; 5-ESS2-1; 5-ESS3-1; 5-PS3-1	
Computer Science and Design Thinking Standards: 8.1.5.DA.1, 8.1.5.DA.3, 8.1.5.DA.4, 8.1.5.DA.5	
Climate Change Standards: 3-LS4-4, 3-ESS2-2, 5-LS2-1, 5-ESS2-1	
Content Statements:	
1	Organization for Matter and Energy Flow in Organisms (LS1.C)
2	Interdependent Relationships in Ecosystems (LS2.A)
3	Cycles of Matter and Energy Transfer in Ecosystems (LS2.B)
4	Defining and Delimiting Engineering Problems (ETS1.A)
5	Developing Possible Solutions (ETS1.B)
6	Optimizing the Design Solution (ETS1.C)
Big Idea: Plants get the materials they need for growth primarily from water and air. The energy in animals' food was once energy from the Sun. Human activities can have major effects on living systems.	
Unit Essential Questions: <ul style="list-style-type: none"> ● How can you identify a system? ● How do plants and animals get the nutrients they need? ● How are nutrients transported to cells in plants and humans? ● What are some different ways animals survive in the wild? 	Unit Enduring Understandings: <ul style="list-style-type: none"> ● A system is a collection of interacting parts that work together to make a whole or produce an action. ● Plants need light to produce food to provide nutrients to their cells, while animals acquire nutrients by eating and digesting food. ● Multicellular organisms have systems for transporting nutrients and wastes. ● Animals are able to survive in the wild through communication with one another,

adaptations, and instinctive behaviors (sensory systems).

Unit Learning Targets

Students will develop an understanding that...

- A system is a collection of interacting objects, ideas, and/or procedures that together define a physical entity or process.
- Earth can be described as the interaction of four earth systems: the rocky part (the geosphere), the atmosphere, the water (the hydrosphere), and the complexity of living organisms (the biosphere).
- Food webs are made up of producers (organisms that make their own food), consumers (organisms that eat other organisms to obtain food), and decomposers (organisms that consume and recycle dead organisms and organic waste).
- A kelp forest has similarities to a rain forest (vertical layering). Phytoplankton are the major producers in most aquatic systems (both marine and freshwater).
- Food webs and competition for resources exist in marine systems.
- Yeast is a single-celled fungus. Dormant yeast cells can become active when provided with water, warmth, and sugar as a food source. Carbon dioxide is a waste by-product of yeast metabolism.
- Chlorophyll is the green pigment that absorbs sunlight in the cells of producer organisms.
- A nutrient is a substance, such as sugar or starch, that is used by a cell to produce the energy needed to perform the functions of life.
- Plants make their own food by photosynthesis. Green plant cells make sugar (food) from carbon dioxide and water in the presence of sunlight and release oxygen.
- Animals obtain nutrients by eating other organisms.
- Digestion is the process used by animals to break down complex food items into simple nutrients.
- In vascular plants, xylem tubes carry water and minerals from the plant's roots to all the cells in a one-way flow; phloem tubes carry sugar from the leaves to all the cells that need it.
- Vascular bundles are arranged in predictable patterns of veins in the leaves of vascular plants.
- In the human circulatory system, blood transports resources to the cells and wastes from the cells.
- In humans, the respiratory system transports oxygen to the blood and carbon dioxide from the blood.
- All cells have basic needs: water, food, gas exchange, and waste disposal. Multicellular organisms have systems for transporting nutrients and wastes.
- A stimulus is something that triggers (starts) a response. A stimulus is often information received through the senses.
- A response is a reaction of a living thing to a stimulus.
- Animal adaptations include patterns and colors that attract attention to warn predators off or to attract a mate.

- Animals communicate to warn others of danger, scare predators away, or locate others of their kind, including family members.
- Instinctive behaviors, such as knowing what to eat, how to find shelter, and how to migrate, help organisms survive.
- Marine ecosystems have biotic (living) and abiotic (nonliving parts). The ocean plays an important role in the carbon cycle.

Evidence of Learning

Summative Assessment: Unit/Chapter Test, I-Checks, Formal Lab Report

Formative Assessments:

- Foss Investigation 1.5
- Foss Investigation 2.4
- Foss Investigation 3.4
- Foss Investigation 4.5
- Mystery Science Lesson Assessments

Lesson Plans

<i>Activities</i>	<i>Timeframe</i>
<ul style="list-style-type: none"> ● Foss Investigation- <i>Systems</i>: 1.1-1.4 ● Foss Investigation- <i>Nutrient Systems</i>: 2.1-2.3 ● Foss Investigation-<i>Transport Systems</i>: 3.1-3.3 ● Foss Investigation- <i>Sensory Systems</i>: 4.1-4.4 ● Mystery Science Web of Life Lessons 1-6 	5 weeks
<i>Teacher Resources</i>	<i>Teacher Note</i>
<ul style="list-style-type: none"> ● FOSS Investigation Guide ● Mystery Science Website - https://mysteryscience.com/ecosystems/ecosystems-the-food-web ● Technology tools such as Google Classroom, BrainPOP, FlipGrid, Kahoot, Quizizz 	Utilize Foss books to enrich vocabulary.

Differentiating Instruction: Students with Disabilities, English Language Learners, and Gifted & Talented Students

Examples of Strategies and Practices that Support Students with Disabilities:

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- Use of assisted technology
- Use of prompts

- Modification of content and student products
- Testing accommodations
- Authentic assessments

Examples of Strategies and Practices that Support Gifted & Talented Students:

- Adjusting the pace of lessons
- Curriculum compacting
- Inquiry-based instruction
- Independent study
- Higher-order thinking skills
- Interest-based content
- Student-driven instruction
- Real-world problems and scenarios

Examples of Strategies and Practices that Support English Language Learners:

- Pre-teaching of vocabulary and concepts
- Visual learning, including graphic organizers
- Use of cognates to increase comprehension
- Teacher modeling
- Pairing students with beginning English language skills with students who have more advanced English language skills
- Scaffolding
- Word walls
- Sentence frames
- Think-pair-share
- Cooperative learning groups

Science- Grade 5 Physical Science Unit

Unit title: Physical Science: Mixtures and Solutions	
Unit summary: Chemistry is the study of the structure of matter and the changes or transformations that take place within those structures.	
Primary interdisciplinary connections: RI.5.1; RI.5.7; RI.5.9; W.5.1; W.5.7; W.5.8; W.5.9; MP.2; MP.4; MP.5; 5.NBT.A.1; 5.NF.B.7; 5.MD.A.1; 5.MD.C.3; 5.MD.C.4; SL.5.5; 3-5.OA	
Career Readiness, Life Literacies and Key Skills : 9.4.5.c1.3; 9.4.5.c1.4; 9.4.5.CT.1; 9.4.5.CT.2; 9.4.5.TL.5	
Learning Targets	
NJSLS Standards: 5-PS1-1; 5-PS1-2; 5-PS1-3; 5-PS1-4; 3-5-ETS1-1; 3-5-ETS1-2; 3-5-ETS1-3	
Computer Science and Design Thinking Standards: 8.1.5.DA.1	
Climate Change Standards: 3-5 ETS 1-3; 3-5 ETS1-1; 3-5 ETS1 - 2	
Content Statements:	
1	Structures and Properties of Matter (PS1.A)
2	Chemical Reactions (PS1.B)
3	Types of Interactions (PS2.B)
4	Energy in Chemical Processes and Everyday Life (PS3.D)
5	Organization for Matter and Energy Flow in Organisms (LS1.C)
6	Defining and Delimiting Engineering Problems (ETS1.A)
7	Developing Possible Solutions (ETS1.B)
8	Optimizing the Design Solution (ETS1.C)
Big Idea: Matter is made of particles too small to be seen and is conserved when it changes state, when it dissolves in another substance, and when it is part of a chemical reaction.	
Unit Essential Questions: <ul style="list-style-type: none"> ● What is a mixture and how can it be separated? ● What is the difference between dissolving and melting? ● What is the relationship between salt-solution concentration and density? ● What is the effect of mixing different substances with water? 	Unit Enduring Understandings: <ul style="list-style-type: none"> ● A mixture is two or more materials intermingled and can be separated into their constituents by using screens, filters, and evaporation. ● Dissolving is an interaction between two or more substances, while melting is a change in a single substance from solid to liquid caused by heat. ● More concentrated salt solutions are denser.

- Some mixtures result in a chemical reaction.

Unit Learning Targets

Students will develop an understanding that...

- A mixture is two or more materials intermingled.
- An aqueous solution is a mixture in which a substance dissolves in water to make a clear liquid.
- Mixtures can be separated into their constituents by using screens, filters, and evaporation.
- The mass of a mixture is equal to the mass of its constituents.
- 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).
- Models are explanations of objects, events, or systems that cannot be observed directly.
- Models are representations used for communicating and testing.
- Developing a model is an iterative process, which may involve observing, constructing, analyzing, evaluating, and revising.
- Melting is a change in a single substance from solid to liquid caused by heat (energy transfer).
- The amount of matter is conserved when it changes form.
- Concentration is the amount of dissolved solid material per unit volume of water.
- Solutions with a lot of solid dissolved in a volume of water are concentrated; solutions with little solid dissolved in a volume of water are dilute.
- When equal volumes of two salt solutions are weighed, the heavier one is more concentrated.
- Density is mass per unit volume.
- More concentrated salt solutions are denser.
- Solutions form layers based on density.
- A substance is a single, pure material.
- Solutions are composed of a solvent (liquid) and a solute (solid), which is dissolved in the solvent.
- Solubility is the property that indicates how readily a solute dissolves in a solvent.
- A solution is saturated when as much solid material as possible has dissolved in the liquid.
- Solubility varies from substance to substance.
- Substances form predictable, identifiable crystals.
- Engineers plan designs, select materials, construct products, evaluate results, and improve ideas.
- Some mixtures result in a chemical reaction.
- During reactions, starting substances (reactants) change into new substances (products).

- A gas or precipitate is evidence of a reaction.
- Some products of reactions are soluble and can be identified by crystal structure after evaporation.
- Calcium carbonate reacts with acid.

Evidence of Learning

Summative Assessment: Unit/Chapter Test, I-Checks, Formal Lab Report

Formative Assessments:

- Foss Investigation 1.5
- Foss Investigation 2.4
- Foss Investigation 3.5
- Foss Investigation 4.5
- Foss Investigation 5.4
- Mystery Science Lesson Assessments
1 - 5

Lesson Plans

<i>Activities</i>	<i>Timeframe</i>
<ul style="list-style-type: none"> ● Foss Investigation- <i>Separating Mixtures</i>: 1.1-1.4 ● Foss Investigation- <i>Developing Models</i>: 2.1-2.3 ● Foss Investigation- <i>Concentration</i>: 3.1-3.4 ● Foss Investigation- <i>Reaching Saturation</i>: 4.1-4.4 ● Foss Investigation- <i>Fizz Quiz</i>: 5.1-5.3 ● Mystery Science Chemical Science Lessons 1 -5 	6 weeks
<i>Teacher Resources</i>	<i>Teacher Note</i>
<ul style="list-style-type: none"> ● Foss Kit Investigation Guide ● FOSS Web Resource ● Mystery Science Website - https://mysteryscience.com/chemistry/chemical-reactions-properties-of-matter ● Technology tools such as Google Classroom, BrainPOP, FlipGrid, Kahoot, Quizizz 	

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