



Week	Title	Standards Covered	
	Unit 1: Introduction to Science and Engineering		
1	Science and Engineering		
2	Scientists and Engineers Use the Five Senses	Nature of Science	
3	You Can be a Scientist or Engineer		
4	The Engineering Design Process	<ul> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>	
	Unit 2: I	Forces and Interactions: Pushes and Pulls	
5	Structure and Function	Crosscutting Concepts	
6	Motion		
7	What is a Push?	<b>K-PS2-1</b> Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.	
8	What is a Pull?		
9	Engineering: Push and Pull	<ul> <li>K-PS2-2* Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.</li> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>	
Unit 3:	Unit 3: Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment		
10	Measurement and Data	Nature of Science	
11	Living and Nonliving Things	Nature of Science	
12	Plants Have Needs		
13	Animals Have Needs	<b>K-LS1-1</b> Use observations to describe patterns of what plants and animals (including humans) need to survive.	
14	Humans Have Needs		



Week	Title	Standards Covered
15	Engineering: Needs	<ul> <li>K-LS1-1 Use observations to describe patterns of what plants and animals (including humans) need to survive.</li> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>
16	Cause and Effect	Crosscutting Concepts
17	Plants Change the Environment	
18	Animals Change the Environment	<b>K-ESS2-2</b> Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
19	Humans Change the Environment	
20	Engineering: Change	<ul> <li>K-ESS2-2 Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.</li> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>
21	Models	Nature of Science K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
22	Food Chains	<b>K-ESS3-1</b> Use a model to represent the relationship between the needs of
23	Habitats	different plants or animals (including humans) and the places they live.
24	Engineering: Protect a Habitat	<ul> <li>K-ESS3-3* Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.</li> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>



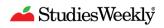


Week	Title	Standards Covered	
	Unit 4: Weather and Climate		
25	Patterns	Crosscutting Concepts	
26	The Sun	K-PS3-1 Make observations to determine the effect of sunlight on Earth's	
27	Sun Protection	surface.	
28	Engineering: Sun Protection	<ul> <li>K-PS3-2* Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.</li> <li>K-PS3-1 Make observations to determine the effect of sunlight on Earth's surface.</li> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>	
29	What is Weather?	<b>K-ESS2-1</b> Use and share observations of local weather conditions to describe	
30	Weather Has Patterns	patterns over time.	
31	Severe Weather	<b>K-ESS3-2*</b> Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.	
32	Engineering: Weather	<ul> <li>K-ESS3-2* Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.</li> <li>K-ESS2-1 Use and share observations of local weather conditions to describe patterns over time.</li> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>	

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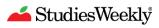


Week	Title	Standards Covered	
	Unit 1: Introduction to Science and Engineering		
1	Science and Engineering		
2	You Can Be a Scientist or Engineer!	Nature of Science	
3	Teamwork		
4	Patterns	Crosscutting Concepts	
5	The Engineering Design Process	<ul> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>	
		Unit 2: Waves: Light and Sound	
6	Cause and Effect	Crosscutting Concepts	
7	What is Sound?	1-PS4-1 Plan and conduct investigations to provide evidence that vibrating	
8	Features of Sound	materials can make sound and that sound can make materials vibrate.	
9	What is Light?	1-PS4-2 Make observations to construct an evidence-based account that	
10	Sources of Light	objects can be seen only when illuminated.	
11	Light On Materials	<b>1-PS4-3</b> Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.	
12	Sound and Light	<b>1-PS4-4*</b> Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.	
13	Engineering: Sound and Light	1-PS4-4* Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.  K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.  K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.  K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	
	Unit 3: Structure, Function, and Information Processing		
14	Structure and Function	Crosscutting Concepts  K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	





Week	Title	Standards Covered
15	Animals Have Parts That Help Them	
16	Animals Live In Many Places	1-LS1-1* Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow,
17	Plants Have Parts That Help Them	and meet their needs.
18	Plants Live In Many Places	
19	Engineering: Animals & Plants	<ul> <li>1-LS1-1* Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</li> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>
20	Models	Nature of Science
21	Animal Offspring	<b>1-LS1-2</b> Read texts and use media to determine patterns in behavior of parents
22	Plant Offspring	and offspring that help offspring survive.
23	Animals and their Offspring	1-LS3-1 Make observations to construct an evidence-based account that young
24	Plants and their Offspring	plants and animals are like, but not exactly like, their parents.
25	Engineering: Learning from Offspring	<ul> <li>1-LS3-1 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.</li> <li>1-LS1-1* Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.</li> <li>1-LS1-2 Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.</li> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>



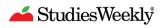


Week	Title	Standards Covered	
	Unit 4: Space Systems: Patterns and Cycles		
26	Measurement and Data	Nature of Science	
27	Objects in Space		
28	Daytime Sky	<b>1-ESS1-1</b> Use observations of the sun, moon, and stars to describe patterns	
29	Nighttime Sky	that can be predicted.	
30	Phases of the Moon		
31	Seasons	<b>1-ESS1-2</b> Make observations at different times of year to relate the amount of daylight to the time of year.	
32	Engineering Design: Sundial	1-ESS1-2 Make observations at different times of year to relate the amount of daylight to the time of year.  K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.  K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.  K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	

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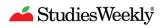


Week	Title	Standards Covered	
	Unit 1: Introduction to Science and Engineering		
1	What is Science? What is Engineering?		
2	What is Science? What is Engineering?	Nature of Science	
3	Working Together		
4	The Engineering Design Process	<ul> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>	
5	Crosscutting Concepts	Crosscutting Concepts	
6	Measurement and Data	Nature of Science	
	Unit 2: Structure and Properties of Matter		
7	States of Matter		
8	Properties of Matter	2-PS1-1 Plan and conduct an investigation to describe and classify different	
9	Investigating Matter: Part 1	kinds of materials by their observable properties.	
10	Investigating Matter: Part 2	<ul> <li>2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</li> <li>2-PS1-2* Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.</li> </ul>	
11	Engineering Design: Catapults	<ul> <li>2-PS1-2* Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.</li> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>	
12	Assembly and Disassembly	<b>2-PS1-3</b> Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.	





Week	Title	Standards Covered
13	Changes in States of Matter	<b>2-PS1-4</b> Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.
	Unit 3: In	terdependent Relationships in Ecosystems
14	Germination and Plant Growth	<b>2-LS2-1</b> Plan and conduct an investigation to determine if plants need sunlight and water to grow.
15	Plant Parts and Functions	<ul> <li>2-LS2-1 Plan and conduct an investigation to determine if plants need sunlight and water to grow.</li> <li>2-LS2-2* Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.</li> </ul>
16	Pollination	2-LS2-2* Develop a simple model that mimics the function of an animal in
17	Seed Dispersal	dispersing seeds or pollinating plants.
18	Engineering Design: Seed Dispersal or Pollination	<ul> <li>2-LS2-2* Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.</li> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>
19	Rainforest and Temperate Forest Habitats	
20	Tundra, Grassland, and Desert Habitats	<b>2-LS4-1</b> Make observations of plants and animals to compare the diversity of life in different habitats.
21	Saltwater and Freshwater Habitats	
22	Human Impacts on Habitats	This week is optional.
Unit 4: Earth's Systems: Processes that Shape the Earth		
23	Earth's Surface Changes Quickly	<b>2-ESS1-1</b> Use information from several sources to provide evidence that Earth
24	Earth's Surface Changes Slowly	events can occur quickly or slowly.
25	Natural Disaster Safeguards	<b>2-ESS2-1*</b> Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.



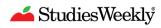


Week	Title	Standards Covered
26	Engineering Design: Protection Against Flooding	2-ESS2-1* Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.  K-2-ETS1-1 Ask questions, make observations, and gather information about a
27	Engineering Design: Protection Against High Winds	situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.  K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.  K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
28	Landforms	<b>2-ESS2-2</b> Develop a model to represent the shapes and kinds of land and bodies of water in an area.
29	Bodies of Water	<ul> <li>2-ESS2-2 Develop a model to represent the shapes and kinds of land and bodies of water in an area.</li> <li>2-ESS2-3 Obtain information to identify where water is found on Earth and that it can be solid or liquid.</li> </ul>
30	Water Cycle	<b>2-ESS2-3</b> Obtain information to identify where water is found on Earth and that it can be solid or liquid.
31	Engineering Design: My Community's Landforms and Bodies of Water	<ul> <li>2-ESS2-2 Develop a model to represent the shapes and kinds of land and bodies of water in an area.</li> <li>K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.</li> <li>K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.</li> <li>K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</li> </ul>
32	Weather	This week is optional.

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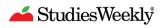


Week	Title	Standards Covered	
	Unit 1: Introduction to Science and Engineering		
1	Who Are Scientists and Engineers?	Nature of Science	
2	Big Ideas of Science and Engineering	Crosscutting Concepts	
3	Measurement and Data	Nature of Science	
4	The Engineering Design Process	<ul> <li>3-5 ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>	
		Unit 2: Forces and Interactions	
5	Forces	<b>3-PS2-1</b> Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.	
6	Patterns in Forces	<b>3-PS2-2</b> Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.	
7	Engineering Design: Why do I move when the car stops?	<ul> <li>3-PS2-1 Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.</li> <li>3-PS2-2 Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.</li> <li>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.</li> </ul>	
8	Magnetic Forces		
9	Electromagnets	<b>3-PS2-3</b> Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.	
10	Electric Forces	23 magnetic man additional and adjusted man additional and additional additional and additional add	
11	Engineering Design: Magnetic and Electric Forces	<ul> <li>3-PS2-4* Define a simple design problem that can be solved by applying scientific ideas about magnets.</li> <li>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.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>	





Week	Title	Standards Covered	
Unit 3: Interdependent Relationships in Ecosystems			
12	Surviving in a Group	<b>3-LS2-1</b> Construct an argument that some animals form groups that help members survive.	
13	Fossils	<b>3-LS4-1</b> Analyze and interpret data from fossils to provide evidence of the	
14	Clues from the Past	organisms and the environments in which they lived long ago.	
15	Organisms in their Habitats	<b>3-LS4-3</b> Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.	
16	Engineering Design: The Big Mix up	<ul> <li>3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.</li> <li>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.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>	
17	Changing Ecosystems	<b>3-LS4-4</b> * Make a claim about the merit of a solution to a problem caused when	
18	People and the Ocean	the environment changes and the types of plants and animals that live there may change.	
19	Engineering Design: Water Collection	<ul> <li>3-LS4-4* Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.</li> <li>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.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>	
	Unit 4: Inheritance and Variation of Traits: Life Cycles and Traits		
20	Life Cycles	<b>3-LS1-1</b> Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.	
21	Inheriting Traits	<b>3-LS3-1</b> Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a	
22	Families	group of similar organisms.	



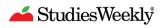


Week	Title	Standards Covered
23	Adaptations	<ul> <li>3-LS3-2 Use evidence to support the explanation that traits can be influenced by the environment.</li> <li>3-LS4-2 Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.</li> </ul>
24	Are an Organism's Traits Influenced by the Environment?	<b>3-LS3-2</b> Use evidence to support the explanation that traits can be influenced by the environment.
25	Variation Helps Organisms Survive	<b>3-LS4-2</b> Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.
		Unit 5: Weather and Climate
26	What Will the Weather Be Today?	<b>3-ESS2-1</b> Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.
27	Weather vs Climate	<b>3-ESS2-2</b> Obtain and combine information to describe climates in different regions of the world.
28	Weather Hazards	<ul> <li>3-ESS3-1* Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.</li> <li>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.</li> </ul>
29	Engineering Design: Can We Control the Weather?	<ul> <li>3-ESS3-1* Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.</li> <li>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.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>
30	Matter	
31	What is Energy?	These weeks are optional.
32	Engineering Design: Heat Transfer	

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Week	Title	Standards Covered	
	Unit 1: Introduction to Science and Engineering		
1	Measurement	Nature of Osiones	
2	Data and Graphing	Nature of Science	
3	The Engineering Design Process	<ul> <li>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.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>	
4	Crosscutting Concepts	Crosscutting Concepts	
5	Mindsets	Nature of Science	
		Unit 2: Energy	
6	Sound Energy	4-PS3-1 Use evidence to construct an explanation relating the speed of an	
7	Let's Play Ball!	object to the energy of that object.	
8	Law of Conservation of Energy	<b>4-PS3-2</b> Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.	
9	Electricity	<b>4-PS3-2</b> Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. <b>3-5 ETS1-3</b> 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.	
10	The Energy of Collision	<ul> <li>4-PS3-3 Ask questions and predict outcomes about the changes in energy that occur when objects collide.</li> <li>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.</li> </ul>	
11	Types of Energy	<b>4-PS3-4*</b> Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.	
12	Engineering Design: Rube Goldberg Machine	<ul> <li>4-PS3-4* Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.</li> <li>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.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>	





Week	Title	Standards Covered	
13	Nonrenewable Energy	<b>4-ESS3-1</b> Obtain and combine information to describe that energy and fuels are derived from natural resources and that their uses affect the environment.	
14	Renewable Energy		
	Unit 3: Waves: Waves and Information		
15	What Causes Changes in the Wavelength of a Wave?	<b>4-PS4-1</b> Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.	
16	How Much Energy is in a Wave?		
17	Transferring Data	<b>4-PS4-3*</b> Generate and compare multiple solutions that use patterns to transfer information.	
	Unit 4: Structure, Function, and Information Processing		
18	The Science of Eyesight	<b>4-PS4-2</b> Develop a model to describe that light reflecting from objects and	
19	Phases of the Moon	entering the eye allows objects to be seen.	
20	What Is So Special About Leaves?	<b>4-LS1-1</b> Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and	
21	Biodiversity	reproduction.	
22	Engineering Design: Hermit Crabs	<ul> <li>4-LS1-1 Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.</li> <li>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.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>	
23	Animal Senses	<b>4-LS1-2</b> Use a model to describe that animals receive different types of	
24	The Five Senses	information through their senses, process the information in their brain, and	
25	Adaptation	respond to the information in different ways.	
Unit 5: Earth's Systems: Processes that Shape the Earth			
26	What is a Fossil?	<b>4-ESS1-1</b> Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.	
27	The Rock Cycle	<b>4-ESS1-1</b> Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. <b>3-5 ETS1-3</b> 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.	

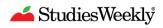


Week	Title	Standards Covered
28	Weathering and Erosion	<b>4-ESS2-1</b> Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.
29	Maps are Models	<b>4-ESS2-2</b> Analyze and interpret data from maps to describe patterns of Earth's
30	Volcanoes	features.
31	Engineering Design: Natural Disasters	<ul> <li>4-ESS3-2* Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.</li> <li>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.</li> </ul>
32	Stopping the Impact!	<b>4-ESS3-2*</b> Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

<sup>\*</sup>The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea.

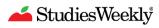


Week	Title	Standards Covered	
	Unit 1: Introduction to Science and Engineering		
1	Metric System and Measurement	Nature of Science	
2	Crosscutting Concepts	Crosscutting Concepts	
3	The Engineering Design Process	<ul> <li>3-5 ETS1-1 Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>	
	Unit 2: Structure and Properties of Matter		
4	What is Matter?	<b>5-PS1-1</b> Develop a model to describe that matter is made of particles too small to be seen.	
5	States of Matter	<b>5-PS1-2</b> Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the	
6	Law of Conservation of Mass	total weight of matter is conserved.	
7	Properties of Matter - Part 1	<b>5-PS1-3</b> Make observations and measurements to identify materials based on	
8	Properties of Matter - Part 2	their properties.	
9	Engineering Design: Fixing Potholes	<ul> <li>5-PS1-4 Conduct an investigation to determine whether the mixing of two or more substances results in new substances.</li> <li>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.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>	
Unit 3: Matter and Energy in Organisms and Ecosystems			
10	Matter Flow in Ecosystems	<ul> <li>5-PS3-1 Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.</li> <li>5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.</li> </ul>	





Week	Title	Standards Covered
11	Photosynthesis	<b>5-LS1-1</b> Support an argument that plants get the materials they need for
12	Plants	growth chiefly from air and water.
13	Invasive Species	<b>5-LS2-1</b> Develop a model to describe the movement of matter among plants,
14	The Carbon Connection	animals, decomposers, and the environment.
Unit 4: Earth's Systems		
15	Hydrosphere	
16	Geosphere	<b>5-ESS2-1</b> Develop a model using an example to describe ways the geosphere,
17	Atmosphere	biosphere, hydrosphere, and/or atmosphere interact.
18	Biosphere	
19	Engineering Design: Building Dams	<ul> <li>5-ESS2-1 Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.</li> <li>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.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>
20	Types of Water	<b>5-ESS2-2</b> Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth. <b>5-ESS3-1</b> Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.
21	The Role of Water	<b>5-ESS2-2</b> Describe and graph the amounts of salt water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.
22	Engineering Design: Oil Spill	<ul> <li>5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.</li> <li>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.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>
23	Protecting the Earth	<b>5-ESS3-1</b> Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.





Week	Title	Standards Covered
24	Engineering Design: Landfills	<ul> <li>5-ESS3-1 Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.</li> <li>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.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>
Unit 5: Space Systems: Stars and the Solar System		
25	What is Gravity?	<b>5-PS2-1</b> Support an argument that the gravitational force exerted by Earth on
26	Gravity in Space	objects is directed down.
27	Engineering Design: Mission to Mars	<ul> <li>5-PS2-1 Support an argument that the gravitational force exerted by Earth on objects is directed down.</li> <li>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.</li> <li>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.</li> <li>3-5 ETS1-3 Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.</li> </ul>
28	What is a Star?	<b>5-ESS1-1</b> Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.
29	Shadows	
30	The Earth	<b>5-ESS1-2</b> Represent data in graphical displays to reveal patterns of daily
31	The Moon	changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.
32	The Seasons	