

Week	Title	Standards Covered
<b>Unit 1: Introduction to Science and Engineering</b>		
1	Science and Engineering	Nature of Science
2	Scientists and Engineers Use the Five Senses	
3	You Can be a Scientist or Engineer	
4	The Engineering Design Process	<p><b>K-2-ETS1-1</b> 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.</p> <p><b>K-2-ETS1-2</b> 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.</p> <p><b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>
<b>Unit 2: Forces and Interactions: Pushes and Pulls</b>		
5	Structure and Function	Crosscutting Concepts
6	Motion	<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.
7	What is a Push?	
8	What is a Pull?	
9	Engineering: Push and Pull	<p><b>K-PS2-2*</b> 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.</p> <p><b>K-2-ETS1-1</b> 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.</p> <p><b>K-2-ETS1-2</b> 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.</p> <p><b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>
<b>Unit 3: Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment</b>		
10	Measurement and Data	Nature of Science
11	Living and Nonliving Things	Nature of Science
12	Plants Have Needs	<b>K-LS1-1</b> Use observations to describe patterns of what plants and animals (including humans) need to survive.
13	Animals Have Needs	
14	Humans Have Needs	

Week	Title	Standards Covered
15	Engineering: Needs	<p><b>K-LS1-1</b> Use observations to describe patterns of what plants and animals (including humans) need to survive.</p> <p><b>K-2-ETS1-1</b> 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.</p> <p><b>K-2-ETS1-2</b> 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.</p> <p><b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>
16	Cause and Effect	Crosscutting Concepts
17	Plants Change the Environment	<p><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.</p>
18	Animals Change the Environment	
19	Humans Change the Environment	
20	Engineering: Change	<p><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.</p> <p><b>K-2-ETS1-1</b> 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.</p> <p><b>K-2-ETS1-2</b> 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.</p> <p><b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>
21	Models	<p>Nature of Science</p> <p><b>K-2-ETS1-2</b> 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.</p>
22	Food Chains	<p><b>K-ESS3-1</b> Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.</p>
23	Habitats	
24	Engineering: Protect a Habitat	<p><b>K-ESS3-3*</b> Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.</p> <p><b>K-2-ETS1-1</b> 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.</p> <p><b>K-2-ETS1-2</b> 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.</p> <p><b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>

Week	Title	Standards Covered
<b>Unit 4: Weather and Climate</b>		
25	Patterns	Crosscutting Concepts
26	The Sun	<b>K-PS3-1</b> Make observations to determine the effect of sunlight on Earth's surface.
27	Sun Protection	
28	Engineering: Sun Protection	<b>K-PS3-2*</b> Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. <b>K-PS3-1</b> Make observations to determine the effect of sunlight on Earth's surface. <b>K-2-ETS1-1</b> 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. <b>K-2-ETS1-2</b> 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. <b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
29	What is Weather?	<b>K-ESS2-1</b> Use and share observations of local weather conditions to describe patterns over time.
30	Weather Has Patterns	
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	<b>K-ESS3-2*</b> Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. <b>K-ESS2-1</b> Use and share observations of local weather conditions to describe patterns over time. <b>K-2-ETS1-1</b> 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. <b>K-2-ETS1-2</b> 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. <b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

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

Week	Title	Standards Covered
<b>Unit 1: Introduction to Science and Engineering</b>		
1	Science and Engineering	Nature of Science
2	You Can Be a Scientist or Engineer!	
3	Teamwork	
4	Patterns	Crosscutting Concepts
5	The Engineering Design Process	<b>K-2-ETS1-1</b> 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. <b>K-2-ETS1-2</b> 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. <b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
<b>Unit 2: Waves: Light and Sound</b>		
6	Cause and Effect	Crosscutting Concepts
7	What is Sound?	<b>1-PS4-1</b> Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
8	Features of Sound	
9	What is Light?	<b>1-PS4-2</b> Make observations to construct an evidence-based account that objects can be seen only when illuminated.
10	Sources of Light	
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	<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. <b>K-2-ETS1-1</b> 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. <b>K-2-ETS1-2</b> 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. <b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
<b>Unit 3: Structure, Function, and Information Processing</b>		
14	Structure and Function	Crosscutting Concepts <b>K-2-ETS1-2</b> 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	<b>1-LS1-1*</b> 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.
16	Animals Live In Many Places	
17	Plants Have Parts That Help Them	
18	Plants Live In Many Places	
19	Engineering: Animals & Plants	<p><b>1-LS1-1*</b> 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.</p> <p><b>K-2-ETS1-1</b> 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.</p> <p><b>K-2-ETS1-2</b> 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.</p> <p><b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>
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 and offspring that help offspring survive.
22	Plant Offspring	
23	Animals and their Offspring	<b>1-LS3-1</b> Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
24	Plants and their Offspring	
25	Engineering: Learning from Offspring	<p><b>1-LS3-1</b> Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.</p> <p><b>1-LS1-1*</b> 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.</p> <p><b>1-LS1-2</b> Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.</p> <p><b>K-2-ETS1-1</b> 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.</p> <p><b>K-2-ETS1-2</b> 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.</p> <p><b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>

Week	Title	Standards Covered
<b>Unit 4: Space Systems: Patterns and Cycles</b>		
26	Measurement and Data	Nature of Science
27	Objects in Space	<b>1-ESS1-1</b> Use observations of the sun, moon, and stars to describe patterns that can be predicted.
28	Daytime Sky	
29	Nighttime Sky	
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	<b>1-ESS1-2</b> Make observations at different times of year to relate the amount of daylight to the time of year. <b>K-2-ETS1-1</b> 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. <b>K-2-ETS1-2</b> 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. <b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

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

Week	Title	Standards Covered
<b>Unit 1: Introduction to Science and Engineering</b>		
1	What is Science? What is Engineering?	Nature of Science
2	What is Science? What is Engineering?	
3	Working Together	
4	The Engineering Design Process	<p><b>K-2-ETS1-1</b> 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.</p> <p><b>K-2-ETS1-2</b> 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.</p> <p><b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>
5	Crosscutting Concepts	Crosscutting Concepts
6	Measurement and Data	Nature of Science
<b>Unit 2: Structure and Properties of Matter</b>		
7	States of Matter	<p><b>2-PS1-1</b> Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</p>
8	Properties of Matter	
9	Investigating Matter: Part 1	
10	Investigating Matter: Part 2	<p><b>2-PS1-1</b> Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.</p> <p><b>2-PS1-2*</b> Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.</p>
11	Engineering Design: Catapults	<p><b>2-PS1-2*</b> Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.</p> <p><b>K-2-ETS1-1</b> 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.</p> <p><b>K-2-ETS1-2</b> 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.</p> <p><b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.</p>
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.
<b>Unit 3: Interdependent Relationships in Ecosystems</b>		
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	<b>2-LS2-1</b> Plan and conduct an investigation to determine if plants need sunlight and water to grow. <b>2-LS2-2*</b> Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
16	Pollination	<b>2-LS2-2*</b> Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.
17	Seed Dispersal	
18	Engineering Design: Seed Dispersal or Pollination	<b>2-LS2-2*</b> Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants. <b>K-2-ETS1-1</b> 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. <b>K-2-ETS1-2</b> 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. <b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
19	Rainforest and Temperate Forest Habitats	<b>2-LS4-1</b> Make observations of plants and animals to compare the diversity of life in different habitats.
20	Tundra, Grassland, and Desert Habitats	
21	Saltwater and Freshwater Habitats	
22	Human Impacts on Habitats	This week is optional.
<b>Unit 4: Earth's Systems: Processes that Shape the Earth</b>		
23	Earth's Surface Changes Quickly	<b>2-ESS1-1</b> Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
24	Earth's Surface Changes 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	<b>2-ESS2-1*</b> Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. <b>K-2-ETS1-1</b> 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. <b>K-2-ETS1-2</b> 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. <b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
27	Engineering Design: Protection Against High Winds	
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	<b>2-ESS2-2</b> Develop a model to represent the shapes and kinds of land and bodies of water in an area. <b>2-ESS2-3</b> Obtain information to identify where water is found on Earth and that it can be solid or liquid.
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	<b>2-ESS2-2</b> Develop a model to represent the shapes and kinds of land and bodies of water in an area. <b>K-2-ETS1-1</b> 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. <b>K-2-ETS1-2</b> 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. <b>K-2-ETS1-3</b> Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
32	Weather	This week is optional.

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

Week	Title	Standards Covered
<b>Unit 1: Introduction to Science and Engineering</b>		
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	<p><b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.</p> <p><b>3-5 ETS1-2</b> 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.</p> <p><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.</p>
<b>Unit 2: Forces and Interactions</b>		
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?	<p><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.</p> <p><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.</p> <p><b>3-5 ETS1-2</b> 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.</p>
8	Magnetic Forces	<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.
9	Electromagnets	
10	Electric Forces	
11	Engineering Design: Magnetic and Electric Forces	<p><b>3-PS2-4*</b> Define a simple design problem that can be solved by applying scientific ideas about magnets.</p> <p><b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.</p> <p><b>3-5 ETS1-2</b> 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.</p> <p><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.</p>

Week	Title	Standards Covered
<b>Unit 3: Interdependent Relationships in Ecosystems</b>		
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 organisms and the environments in which they lived long ago.
14	Clues from the Past	
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	<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. <b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. <b>3-5 ETS1-2</b> 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. <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.
17	Changing Ecosystems	<b>3-LS4-4*</b> 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.
18	People and the Ocean	
19	Engineering Design: Water Collection	<b>3-LS4-4*</b> 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. <b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. <b>3-5 ETS1-2</b> 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. <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.
<b>Unit 4: Inheritance and Variation of Traits: Life Cycles and Traits</b>		
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 group of similar organisms.
22	Families	

Week	Title	Standards Covered
23	Adaptations	<b>3-LS3-2</b> Use evidence to support the explanation that traits can be influenced by the environment. <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.
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.
<b>Unit 5: Weather and Climate</b>		
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	<b>3-ESS3-1*</b> Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. <b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
29	Engineering Design: Can We Control the Weather?	<b>3-ESS3-1*</b> Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. <b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. <b>3-5 ETS1-2</b> 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. <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.
30	Matter	These weeks are optional.
31	What is Energy?	
32	Engineering Design: Heat Transfer	

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

Week	Title	Standards Covered
<b>Unit 1: Introduction to Science and Engineering</b>		
1	Measurement	Nature of Science
2	Data and Graphing	
3	The Engineering Design Process	<b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. <b>3-5 ETS1-2</b> 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. <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.
4	Crosscutting Concepts	Crosscutting Concepts
5	Mindsets	Nature of Science
<b>Unit 2: Energy</b>		
6	Sound Energy	<b>4-PS3-1</b> Use evidence to construct an explanation relating the speed of an object to the energy of that object.
7	Let's Play Ball!	
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	<b>4-PS3-3</b> Ask questions and predict outcomes about the changes in energy that occur when objects collide. <b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
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	<b>4-PS3-4*</b> Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. <b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. <b>3-5 ETS1-2</b> 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. <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
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 entering the eye allows objects to be seen.
19	Phases of the Moon	
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 reproduction.
21	Biodiversity	
22	Engineering Design: Hermit Crabs	<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 reproduction. <b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. <b>3-5 ETS1-2</b> 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. <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.
23	Animal Senses	<b>4-LS1-2</b> 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.
24	The Five Senses	
25	Adaptation	
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 features.
30	Volcanoes	
31	Engineering Design: Natural Disasters	<b>4-ESS3-2*</b> Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. <b>3-5 ETS1-2</b> 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.
32	Stopping the Impact!	<b>4-ESS3-2*</b> Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.

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



Week	Title	Standards Covered
<b>Unit 1: Introduction to Science and Engineering</b>		
1	Metric System and Measurement	Nature of Science
2	Crosscutting Concepts	Crosscutting Concepts
3	The Engineering Design Process	<p><b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.</p> <p><b>3-5 ETS1-2</b> 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.</p> <p><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.</p>
<b>Unit 2: Structure and Properties of Matter</b>		
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 total weight of matter is conserved.
6	Law of Conservation of Mass	
7	Properties of Matter - Part 1	<b>5-PS1-3</b> Make observations and measurements to identify materials based on their properties.
8	Properties of Matter - Part 2	
9	Engineering Design: Fixing Potholes	<p><b>5-PS1-4</b> Conduct an investigation to determine whether the mixing of two or more substances results in new substances.</p> <p><b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.</p> <p><b>3-5 ETS1-2</b> 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.</p> <p><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.</p>
<b>Unit 3: Matter and Energy in Organisms and Ecosystems</b>		
10	Matter Flow in Ecosystems	<p><b>5-PS3-1</b> 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.</p> <p><b>5-LS2-1</b> Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.</p>

Week	Title	Standards Covered
11	Photosynthesis	<b>5-LS1-1</b> Support an argument that plants get the materials they need for growth chiefly from air and water.
12	Plants	
13	Invasive Species	<b>5-LS2-1</b> Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
14	The Carbon Connection	
Unit 4: Earth's Systems		
15	Hydrosphere	<b>5-ESS2-1</b> Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
16	Geosphere	
17	Atmosphere	
18	Biosphere	
19	Engineering Design: Building Dams	<b>5-ESS2-1</b> Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. <b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. <b>3-5 ETS1-2</b> 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. <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.
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	<b>5-ESS3-1</b> Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment. <b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. <b>3-5 ETS1-2</b> 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. <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.
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	<p><b>5-ESS3-1</b> Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.</p> <p><b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.</p> <p><b>3-5 ETS1-2</b> 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.</p> <p><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.</p>
<b>Unit 5: Space Systems: Stars and the Solar System</b>		
25	What is Gravity?	<b>5-PS2-1</b> Support an argument that the gravitational force exerted by Earth on objects is directed down.
26	Gravity in Space	
27	Engineering Design: Mission to Mars	<p><b>5-PS2-1</b> Support an argument that the gravitational force exerted by Earth on objects is directed down.</p> <p><b>3-5 ETS1-1</b> Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.</p> <p><b>3-5 ETS1-2</b> 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.</p> <p><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.</p>
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	<b>5-ESS1-2</b> Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.
30	The Earth	
31	The Moon	
32	The Seasons	