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Unit Title: **Grade 3 - Unit 1: Weather and Climate**

What is the typical weather near our home?

How can we protect people from weather-related hazards?

In this unit of study, students organize and use data to describe typical weather conditions expected during a particular season. By applying their understanding of weather-related hazards, students are able to make a claim about the merit of a design solution that reduces the impacts of such hazards. The crosscutting concepts of patterns, cause and effect, and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in asking questions and defining problems, analyzing and interpreting data, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas.

This unit is based on 3-ESS2-1, 3-ESS2-2, 3-ESS3-1, and 3-5-ETS1-1.

Stage 1: Desired Results

Standards & Indicators:

- **NJSLS – Science**
  - **Science and Engineering Practices (SEP)**
    - Planning and Carrying Out Investigations
      - Plan and conduct investigations collaboratively to produce evidence to answer a question. (1PS4-1),(2-LS2-1)
    - Analyzing and Interpreting Data
      - Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. (3-ESS2-1)

      Engaging in Argument from Evidence
      - Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. (3-ESS3-1)
    - Obtaining, Evaluating, and Communicating Information
      - Obtain and combine information from books and other reliable media to explain phenomena. (3-ESS2-2)
  - **Disciplinary Core Ideas (DCI)**
    - ESS2.D: Weather and Climate
      - Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. (3-ESS2-1)
      - Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years. (3-ESS2-2)
    - ESS3.B: Natural Hazards
      - A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. (3-ESS3-1) (Note: This Disciplinary Core Idea is also addressed by 4-ESS3-2.)
  - **Crosscutting Concepts (CCC)**
    - Patterns
      - Patterns of change can be used to make predictions. (3-ESS2-1),(3-ESS2-2)
    - Cause and Effect

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- Cause and effect relationships are routinely identified, tested, and used to explain change. (3-ESS3-1)
- Connections to Engineering, Technology, and Applications of Science
  - Influence of Engineering, Technology, and Science on Society and the Natural World
    - Engineers improve existing technologies or develop new ones to increase their benefits (e.g., better artificial limbs), decrease known risks (e.g., seatbelts in cars), and meet societal demands (e.g., cell phones). (3-ESS3-1)
- Connections to Nature of Science
  - Science is a Human Endeavor
    - Science affects everyday life. (3-ESS3-1)

Central Idea / Enduring Understanding:

- In this unit of study, students organize and use data to describe typical weather conditions expected during a particular season. By applying their understanding of weather-related hazards, students are able to make a claim about the merit of a design solution that reduces the impacts of such hazards. The crosscutting concepts of patterns, cause and effect, and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in asking questions and defining problems, analyzing and interpreting data, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Essential/Guiding Question:

- What is the typical weather near our home?
- How can we protect people from weather-related hazards?
- Can we predict the kind of weather that we will see in the spring, summer, autumn, or winter?
- How can climates in different regions of the world be described?
- How can we protect people from natural hazards such as flooding, fast wind, or lightning?

Content:

- Patterns of change can be used to make predictions.
- People record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.
- Climate describes the range of an area's typical weather conditions and the extent to which those conditions vary over years.
- Cause-and-effect relationships are routinely identified, tested, and used to explain change.

Skills (Student Learning Objectives):

- Develop a model using an analogy, to describe how weather and climate are related. (ESS2.D) [Note: This SLO is based on the disciplinary core ideas found in the Framework. It is intended to serve as a scaffold to 3-ESS2-1.]
- Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. [Clarification Statement: Examples of data could include average temperature,

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• Science affects everyday life. • People's needs and wants change over time, as do their demands for new and improved technologies. • A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts. • Humans cannot eliminate natural hazards but can take steps to reduce their impacts. • Engineers improve technologies or develop new ones to increase their benefits (e.g., better artificial limbs), decrease known risks (e.g., seatbelts in cars), and meet societal demands (e.g., cell phones). • Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). • Different proposals for solutions can be compared on the basis of how well each one meets the criteria for success or how well each takes the constraints into account.	precipitation, and wind direction.] [Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.] (3-ESS2-1) • Obtain and combine information to describe climates in different regions of the world. (3-ESS2-2) • Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard. [Clarification Statement: Examples of design solutions to weather-related hazards could include barriers to prevent flooding, wind resistant roofs, and lightning rods.] (3-ESS3-1)

Interdisciplinary Connection(s):

- **NJSLS – Math**
  - MP.2: Reason abstractly and quantitatively.
  - MP.4: Model with mathematics.
  - MP.5: Use appropriate tools strategically.
  - 3.M.A.2: Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Clarification: "Measure and estimate liquid volumes and masses" excludes compound units such as cm3 and finding the geometric volume of a container. "Multiplying to solve one-step word problems" excludes multiplicative comparison problems (problems involving "times as much"; See Glossary, Tables 2a-2d))
  - 3.DL.B.3: Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.
- **NJSLS – English Language Arts**
  - RI.CR.3.1.: Ask and answer questions and make relevant connections to demonstrate understanding of an informational text, referring explicitly to textual evidence as the basis for the answers.

- RI.CT.3.8: Compare, contrast the elements of informational text regarding the most important points and key details presented in two texts on the same topic.
- W.AW.3.1.: Write opinion texts to present an idea with reasons and information.
- W.WR.3.5.: Generate questions about a topic and independently locate related information from at least two reference sources (print and non-print) to obtain information on that topic.
- W.SE.3.6.: Use discussion, books, or media resources to gather ideas, outline them, and prioritize the information to include while planning to write about a topic.

- **NJSLS - Career Readiness, Life Literacies, and Key Skills**
  - 9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
  - 9.4.5.CI.1: Use appropriate communication technologies to collaborate with individuals with diverse perspectives about a local and/or global climate change issue and deliberate about possible solutions.
  - 9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue.
  - 9.4.5.CT.3: Describe how digital tools and technology may be used to solve problems.
  - 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.
  - 9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social.

Stage 2: Assessment Evidence

Performance Task(s):

- "Inquiry labs"
- STEM activities
- Formative assessment: "Lesson Check" blackline masters
- "Got It?" self-assessments in each lesson
- Complete graphic organizers
- Complete Science Careers
- Performance Expectation Activities
- Performance Based Assessment
- Unit Assessment

Other Evidence:

- Post-activity discussion questions
- Review Vocabulary Smart Cards
- Students elaborate in "Science Notebooks"
- Students make connections to the "Unlock the Big ?" in each lesson.
- Have students restate or contrast topics in each lesson

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Pearson Chapter 6

- **Inquiry/Engagement:**
  - Students observe and describe how water temperature affects evaporation.
  - Students will design a dam and use a stream table to test their designs.

Resources:

Pearson Chapter 6

- **Inquiry/Engagement:**
  - How does water temperature affect evaporation? Try It! SE/TE p.248
  - STEM Activity-Runaway Water! SE/TE pp.250-253

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Pearson Chapter 6 - Lesson 1: What is the water cycle? ● **Engage:** ○ Activate prior knowledge ● **Explore:** ○ Students will create a real-life diagram of the water cycle on a sandwich bag. ● **Explain:** ○ Have students read *Water on Earth* and answer the guided questions. ● **Elaborate:** ○ **Science Notebook** - Have students write about why the water cycle never stops. ● **Evaluate:** ○ Formative Assessment	**Pearson Chapter 6 - Lesson 1** ● **Engage:** ○ Envision It! Activity SE/TE pp. 254-255 ● **Explore:** ○ Explore It! Lab - What is the water cycle? (See additional resources -- Water Cycle Lab) ● **Explain:** ○ SE/TE pp. 255-257 ● **Elaborate:** ○ TE p.257 ● **Evaluate:** ○ Got it SE/TE p. 257 Lesson Check TE p. 257b
Pearson Chapter 6 - Lesson 2: What are weather and climate? ● **Engage:** ○ Activate prior knowledge ● **Explore:** ○ Students learn how temperature patterns are an element of climate. ● **Explain:** ○ Have students read *Weather, Climate, Factors That Affect Climate, and Seasonal Weather Patterns* and answer the guided questions. ● **Elaborate:** ○ **Science Notebook** - Have students write a climate profile and make a chart for a location of their choice. ● **Evaluate:** ○ Formative Assessment	**Pearson Chapter 6 - Lesson 2** ● **Engage:** ○ Envision It! Activity SE/TE pp. 258-259 ● **Explore:** ○ Explore It! Lab - What is the daily temperature? TE p. 258B SE p. 258 ● **Explain:** ○ SE/TE pp. 259-264 ● **Elaborate:** ○ TE p.261 ● **Evaluate:** ○ Got it SE/TE p. 265 Lesson Check TE p. 265b
Pearson Chapter 6 - Lesson 3: What tools are used to measure weather? ● **Engage:** ○ Activate prior knowledge	**Pearson Chapter 6 - Lesson 3** ● **Engage:** ○ Envision It! Activity SE/TE pp. 266-267

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● **Explore:** ○ Students learn about the tools meteorologists use to study weather. ● **Explain:** ○ Have students read *Why We Measure Weather and Tools for Measuring Weather* and answer the guided questions. ● **Elaborate:** ○ **Science Notebook** - Have students draw pictures of their favorite weather and write paragraphs explaining what measurements could be taken. ● **Evaluate:** ○ Formative Assessment	● **Explore:** ○ Explore It! Lab - How does an anemometer work? Blackline Master TE p. 269a SE/TE p. 266 ● **Explain:** ○ SE/TE pp. 267-269 ● **Elaborate:** ○ TE p.269 ● **Evaluate:** ○ Got it SE/TE p. 269 Lesson Check TE p. 269b
Pearson Chapter 6 - Lesson 4: How can you stay safe in severe weather? ● **Engage:** ○ Activate prior knowledge ● **Explore:** ○ Students learn that severe weather can be dangerous, so it is important to be prepared. ● **Explain:** ○ Have students read *Thunderstorms, Tornadoes, and Hurricanes* and answer the guided questions. ● **Elaborate:** ○ **Science Notebook** - Have students recall safety rules for each type of severe weather and record them in their Science Notebook. ● **Evaluate:** ○ Formative Assessment ● **Unit Cumulative Activities** ○ Performance Expectation Activities ○ Performance-Based Assessment ○ Inquiry-Investigate It! ○ Inquiry-Apply It!	**Pearson Chapter 6 - Lesson 4** ● **Engage:** ○ Envision It! Activity SE/TE pp. 270-271 ● **Explore:** ○ Explore It! Lab - What do tornadoes look like? Blackline Master TE p. 275a SE/TE p. 270 ● **Explain:** ○ SE/TE pp. 271-275 ● **Elaborate:** ○ TE p.273 ● **Evaluate:** ○ Got it SE/TE p. 274 Lesson Check TE p. 275b ● **Unit Cumulative Activities** ○ TE pp. 289a, 289b, 289c ○ SE/TE pp.288-289 ○ SE/TE pp. 276-277 ○ SE/TE pp.286-287
Additional learning opportunities/strategies: ● Utilize Teacher Background pages	**Additional resources:** ● TE pp. 246C-247D

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• Utilize Vocabulary Smart Cards • Utilize online resources, leveled content readers, and web links to support learning. • Additional websites	• Cards are located at the end of the chapter in student text • Pearsonrealize.com • Water Cycle Lab • Weather Science content for Kids and Teens • NOAA Education Resources • https://kids.usa.gov/science/index.shtml • Bozemanscience.com • http://ngss.nsta.org/ • https://www.teachingchannel.org/ngss

Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation.

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Advanced Leveled Content Reader Use project-based science learning to connect science with observable phenomena.	On-Level Content Reader Use project-based science learning to connect science with observable phenomena. Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.	Below-Level Content Reader Use project-based science learning to connect science with observable phenomena. Utilize the If/Then strategies in the RTI section of the lesson/chapter Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).	Below-Level Content Reader Utilize the support flaps in the leveled readers to provide support before-reading support (KWL charts, word webs), during-reading support (visual vocabulary support, strategies to determine word meanings, questioning while reading), and after-reading support (summative assessment, activity). Utilize the ELL lesson plan to identify content and language objectives. Use project-based science learning to connect science with observable phenomena. When using the write-in student edition, refer to graphic organizers, photographs, illustrations, and models Use Envision it! to frontload the lesson by activating prior

			knowledge and building background knowledge. Utilize the ELL handbook for best practices and instructional strategies. Follow the specific "ELL Support" for each chapter in the TE. Support is given through scripted text, graphic organizers, etc.

Unit Title: Grade 3 - Unit 2: Force and Motion

How do equal and unequal forces on an object affect the object?

In this unit of study, students are able to determine the effects of balanced and unbalanced forces on the motion of an object. The crosscutting concepts of patterns and cause and effect are identified as organizing concepts for these disciplinary core ideas. In the third-grade performance expectations, students are expected to demonstrate grade-appropriate proficiency by planning and carrying out investigations. Students are expected to use these practices to demonstrate understanding of the core ideas.

Stage 1: Desired Results

Standards & Indicators:

- **NJSLS – Science**
  - **Science and Engineering Practices (SEP)**
    - Planning and Carrying Out Investigations
      - Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (3-PS2-1)
      - Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (3-PS2-2)
  - **Disciplinary Core Ideas (DCI)**
    - PS2.A: Forces and Motion
      - Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.) (3-PS21)
      - The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the

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concept that some quantities need both size and direction to be described is developed.) (3-PS2-2)
    - PS2.B: Types of Interactions
        - Objects in contact exert forces on each other. (3PS2-1)
- **Crosscutting Concepts (CCC)**
    - Cause and Effect
        - Cause and effect relationships are routinely identified. (3-PS2-1) Patterns
        - Patterns of change can be used to make predictions. (3-PS2-2) -
    - Connections to Nature of Science
        - Science Knowledge is Based on Empirical Evidence
            - Science findings are based on recognizing patterns. (3-PS2-2)
        - Scientific Investigations Use a Variety of Methods
            - Science investigations use a variety of methods, tools, and techniques. (3-PS2-1)

Central Idea / Enduring Understanding:

In this unit of study, students are able to determine the effects of balanced and unbalanced forces on the motion of an object. The crosscutting concepts of patterns and cause and effect are identified as organizing concepts for these disciplinary core ideas. In the third-grade performance expectations, students are expected to demonstrate grade-appropriate proficiency by planning and carrying out investigations. Students are expected to use these practices to demonstrate understanding of the core ideas.

Essential/Guiding Question:

- How do equal and unequal forces on an object affect the object?
- How do scientists play soccer?
- Can we use patterns that we observed to predict the future?

Content:

- Science investigations use a variety of methods, tools, and techniques.
- Cause-and-effect relationships are routinely identified.
- Objects in contact exert forces on each other.
- Each force that acts on a particular object has both strength and a direction.
- An object at rest typically has multiple forces acting on it, but they add to zero net force on the object.
- Forces that do not sum to zero can cause changes in the object's speed or direction of motion. (Qualitative and conceptual, but not quantitative, addition of forces are used at this level.)

Skills (Student Learning Objectives):

- Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. [Clarification Statement: Examples could include an unbalanced force on one side of a ball can make it start moving; and, balanced forces pushing on a box from both sides will not produce any motion at all.] [Assessment Boundary: Assessment is limited to one variable at a time: number, size, or direction of forces. Assessment does not include quantitative force size, only qualitative and relative. Assessment is limited to gravity being addressed as a force that pulls objects down.] (3-PS2-1)
- Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

	[Clarification Statement: Examples of motion with a predictable pattern could include a child swinging in a swing, a ball rolling back and forth in a bowl, and two children on a see-saw.] [Assessment Boundary: Assessment does not include technical terms such as period and frequency.] (3-PS2-2)

Interdisciplinary Connection(s):

- **NJSLS – Math**
  - MP.2: Reason abstractly and quantitatively.
  - MP.5: Use appropriate tools strategically.
  - 3.DL.A.2: 2: Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Clarification: “Measure and estimate liquid volumes and masses” excludes compound units such as cm3 and finding the geometric volume of a container. “Multiplying to solve one-step word problems” excludes multiplicative comparison problems (problems involving “times as much”; See Glossary, Tables 2a-2d))
- **NJSLS – English Language Arts**
  - RI.CR.3.1.: Ask and answer questions and make relevant connections to demonstrate understanding of an informational text, referring explicitly to textual evidence as the basis for the answers.
  - W.WR.3.5.: Generate questions about a topic and independently locate related information from at least two reference sources (print and non-print) to obtain information on that topic.
  - W.SE.3.6.: Use discussion, books, or media resources to gather ideas, outline them, and prioritize the information to include while planning to write about a topic.
- **NJSLS – Career Readiness, Life Literacies, and Key Skills**
  - 9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
  - 9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one’s thinking about a topic of curiosity.
  - 9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social.

Stage 2: Assessment Evidence

Performance Task(s):	**Other Evidence:**
● “Inquiry labs” ● STEM activities ● Read and complete - Biography ● Formative assessment: “Lesson Check” blackline masters ● “Got It?” self-assessments in each lesson ● Complete graphic organizers ● Unit Assessment	● Post-activity discussion questions ● Review Vocabulary Smart Cards ● Students elaborate in “Science Notebooks” ● Students make connections to the “Unlock the Big ?” in each lesson. ● Have students restate or contrast topics in each lesson

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Stage 3: Learning Plan

Learning Opportunities/Strategies:	Resources:
Pearson Chapter 1 ● **Inquiry/Engagement:** ○ Students will test objects with a magnet to observe the effects of magnetic force. ○ Students will design, build, and a test a pulley lifter with one or two wheels.	**Pearson Chapter 1** ● **Inquiry/Engagement:** ○ What can magnetic force move? Try It! SE/TE p.2 ○ STEM Activity-Heave Ho! SE/TE pp.4-7
Pearson Chapter 1 - Lesson 1: What is motion? ● **Engage:** ○ Activate prior knowledge ● **Explore:** ○ My Planet Diary ● **Explain:** ○ Have students read *When Objects Move, An Object's Position, Positions of Moving Objects and How Fast Objects Move* and answer the guided questions. ● **Elaborate:** ○ **Science Notebook** - Have students draw and label a map and write directions from their home to school. ● **Evaluate:** ○ Formative Assessment	**Pearson Chapter 1 - Lesson 1** ● **Engage:** ○ Envision It! Activity SE/TE pp. 8-9 ● **Explore:** ○ Voices from History SE/TE p. 8 Blackline Master TE p. 13a ● **Explain:** ○ SE/TE pp. 9-13 ● **Elaborate:** ○ TE p.11 ● **Evaluate:** ○ Got it SE/TE p. 13 Lesson Check TE p. 13b
Pearson Chapter 1 - Lesson 2: How does force affect motion? ● **Engage:** ○ Activate prior knowledge ● **Explore:** ○ Students learn how mass and force affects an object's motion. ● **Explain:** ○ Have students read *Causes of Motion, Effects of Mass and Friction, Motion and Combined Froces and Magnetism* and answer the guided questions. ● **Elaborate:** ○ **Science Notebook** - Have students write an example of how friction slows a moving object down.	**Pearson Chapter 1 - Lesson 2** ● **Engage:** ○ Envision It! Activity SE/TE pp. 14-15 ● **Explore:** ○ Explore It! Lab - How does mass affects motion? TE p. 21a SE p. 14 ● **Explain:** ○ SE/TE pp. 15-21 ● **Elaborate:** ○ TE p.17

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• **Evaluate:**
  ○ Formative Assessment
 	
Pearson Chapter 1 - Lesson 3: What is gravity?
• **Engage:**
  ○ Activate prior knowledge
• **Explore:**
  ○ Students will demonstrate that gravity pulls an object in free fall straight down.
• **Explain:**
  ○ Have students read *Law of Gravity* and *Gravity and Weight* and answer the questions that follow.
• **Elaborate:**
  ○ **Science Notebook** - Have students research the effects of low gravity that astronauts must deal with in space and write a summary of their findings.
• **Evaluate:**
  ○ Formative Assessment
 	
• **Unit Cumulative Activities**
  ○ Inquiry-Investigate It!
  ○ Performance Expectation Activity
 	
Additional learning opportunities/strategies:
• Utilize Teacher Background pages
• Utilize Vocabulary Smart Cards
 	
• Utilize online resources, leveled content readers, and web links to support learning.
• Additional Websites
	• **Evaluate:**
	  ○ Got it SE/TE p. 21 Lesson Check TE p. 21b
	
	Pearson Chapter 1 - Lesson 3
	• **Engage:**
	  ○ Envision It! Activity SE/TE pp. 22-23
	• **Explore:**
	  ○ Explore It! Lab - How does gravity pull on an object? TE p. 25a SE p. 22
	
	• **Explain:**
	  ○ SE/TE pp. 23-25
	
	• **Elaborate:**
	  ○ TE p.24
	
	• **Evaluate:**
	  ○ Got it SE/TE p. 25 Lesson Check TE p. 25b
	
	• **Unit Cumulative Activities**
	  ○ SE/TE pp. 26-27
	  ○ TE pp. 99a, 99b, 99c, 99d
	
	Additional resources:
	• TE pp.1C-1D
	• Cards are located at the end of the chapter in student text
	• Pearsonrealize.com
	
	• https://kids.usa.gov/science/index.shtml
	• http://www.learner.org/interactives/parkphysics/index.html
	• http://interactivesites.weebly.com/physics-and-motion.html
	• Bozemanscience.com
	• http://ngss.nsta.org/
	• https://www.teachingchannel.org/ngss

Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation.	

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High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Advanced Leveled Content Reader Use project-based science learning to connect science with observable phenomena.	On-Level Content Reader Use project based science learning to connect science with observable phenomena. Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.	Below-Level Content Reader Use project-based science learning to connect science with observable phenomena. Utilize the If/Then strategies in the RTI section of the lesson/chapter Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).	Below-Level Content Reader Utilize the support flaps in the leveled readers to provide support before-reading support (KWL charts, word webs), during-reading support (visual vocabulary support, strategies to determine word meanings, questioning while reading), and after-reading support (summative assessment, activity). Utilize the ELL lesson plan to identify content and language objectives. Use project-based science learning to connect science with observable phenomena. When using the write-in student edition, refer to graphic organizers, photographs, illustrations, and models Use Envision it! to frontload the lesson by activating prior knowledge and building background knowledge. Utilize the ELL handbook for best practices and instructional strategies. Follow the specific "ELL Support" for each chapter in the TE. Support is given through scripted text, graphic organizers, etc.

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Unit Title: Grade 3 - Unit 3: The Electrical Magnetic Forces

How can we use our understandings about magnets be used to solve problems?

In this unit of study, students determine the effects of balanced and unbalanced forces on the motion of an object and the cause-and-effect relationships of electrical or magnetic interactions to define a simple design problem that can be solved with magnets. The crosscutting concept of cause and effect, and the interdependence of science, engineering, and technology, and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems. Students are also expected to use these practices to demonstrate understanding of the core ideas.

This unit is based on 3-PS2-3, 3-PS2-4, and 3-5-ETS1-1.

Stage 1: Desired Results

Standards & Indicators:

- **NJSLS – Science**
  - **Science and Engineering Practices (SEP)**
    - Analyzing and Interpreting Data
      - Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS3-1)
    - Asking Questions and Defining Problems
      - Ask questions that can be investigated based on patterns such as cause and effect relationships. (3-PS2-3)
      - Define a simple problem that can be solved through the development of a new or improved object or tool. (3-PS2-4)
      - Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)
  - **Disciplinary Core Ideas (DCI)**
    - PS2.B: Types of Interactions
      - Electric and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other. (3-PS2-3),(3-PS2-4)
    - ETS1.A: Defining and Delimiting Engineering Problems
      - Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (35-ETS1-1)
  - **Crosscutting Concepts (CCC)**
    - Cause and Effect
      - Cause and effect relationships are routinely identified, tested, and used to explain change. (3PS2-3)
    - Connections to Engineering, Technology, and Applications of Science
      - Interdependence of Science, Engineering, and Technology

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Scientific discoveries about the natural world can often lead to new and improved technologies, which are developed through the engineering design process. (3-PS2-4)

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Central Idea / Enduring Understanding:

In this unit of study, students determine the effects of balanced and unbalanced forces on the motion of an object and the cause-and-effect relationships of electrical or magnetic interactions to define a simple design problem that can be solved with magnets. The crosscutting concept of cause and effect, and the interdependence of science, engineering, and technology, and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems. Students are also expected to use these practices to demonstrate understanding of the core ideas.

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Essential/Guiding Question:

How can we use our understandings about magnets be used to solve problems?
What are the relationships between electrical and magnetic forces?
How can we use our understandings about magnets be used to solve problems?

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Content:

Cause-and-effect relationships are routinely identified, tested, and used to explain change.
Electric and magnetic forces between a pair of objects do not require that the objects be in contact.
The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.

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Skills (Student Learning Objectives):

Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. [Clarification Statement: Examples of an electric force could include the force on hair from an electrically charged balloon and the electrical forces between a charged rod and pieces of paper; examples of a magnetic force could include the force between two permanent magnets, the force between an electromagnet and steel paperclips, and the force exerted by one magnet versus the force exerted by two magnets. Examples of cause and effect relationships could include how the distance between objects affects strength of the force and how the orientation of magnets affects the direction of the magnetic force.] [Assessment Boundary: Assessment is limited to forces produced by objects that can be manipulated by students, and electrical interactions are limited to static electricity.] (3-PS2-3)
Define a simple design problem that can be solved by applying scientific ideas about

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	magnets.* [Clarification Statement: Examples of problems could include constructing a latch to keep a door shut and creating a device to keep two moving objects from touching each other.] (3-PS2-4) ● Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)

Interdisciplinary Connection(s):

- **NJSLS – Math**
  - MP.2: Reason abstractly and quantitatively.
  - MP.5: Use appropriate tools strategically.
  - 3.L.A.2: Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Clarification: "Measure and estimate liquid volumes and masses" excludes compound units such as cm3 and finding the geometric volume of a container. "Multiplying to solve one-step word problems" excludes multiplicative comparison problems (problems involving "times as much"; See Glossary, Tables 2a-2d))
- **NJSLS – English Language Arts**
  - RI.CR.3.1.: Ask and answer questions and make relevant connections to demonstrate understanding of an informational text, referring explicitly to textual evidence as the basis for the answers.
  - W.WR.3.5.: Generate questions about a topic and independently locate related information from at least two reference sources (print and non-print) to obtain information on that topic.
  - W.SE.3.6.: Use discussion, books, or media resources to gather ideas, outline them, and prioritize the information to include while planning to write about a topic.
- **NJSLS – Career Readiness, Life Literacies, and Key Skills**
  - 9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
  - 9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.
  - 9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social.

Stage 2: Assessment Evidence

Performance Task(s):	Other Evidence:
● "Inquiry labs" ● STEM activities ● Complete Science Careers ● Formative assessment: "Lesson Check" blackline masters ● "Got It?" self-assessments in each lesson	● Post-activity discussion questions ● Review Vocabulary Smart Cards ● Students elaborate in "Science Notebooks" ● Students make connections to the "Unlock the Big ?" in each lesson.

• Complete graphic organizers • Performance Expectation Activities • Performance Based Assessment • Unit Assessment	• Have students restate or contrast topics in each lesson

Stage 3: Learning Plan

Learning Opportunities/Strategies:	Resources:

Pearson Chapter 2
• **Inquiry/Engagement:**
  ○ Students will build a model to illustrate the concepts of potential and kinetic energy
  ○ Students will design a way to direct the maximum amount of sunlight onto a dummy solar panel and evaluate their results by measuring the temperature of the panel's surface.
	Pearson Chapter 2
	• **Inquiry/Engagement:**
	  ○ How can energy of motion change? Try It! SE/TE p.40
	  ○ STEM Activity-Sun, Light, Energy SE/TE pp.42-45

Pearson Chapter 2 - Lesson 1: What are some forms of energy?
• **Engage:**
  ○ Activate prior knowledge
• **Explore:**
  ○ My Planet Diary
• **Explain:**
  ○ Have students read *Energy, Energy at Home, Stored Energy,* and *Energy of Motion* and answer the questions.
• **Elaborate:**
  ○ **Science Notebook** - Have students identify objects that use energy and the type of energy they use in a room at school
• **Evaluate:**
  ○ Formative Assessment
	Pearson Chapter 2 - Lesson 1
	• **Engage:**
	  ○ Envision It! Activity SE/TE pp. 46-47
	• **Explore:**
	  ○ Let's Blog! SE/TE p. 46 Blackline Master TE p. 51a
	• **Explain:**
	  ○ SE/TE pp. 47-51
	• **Elaborate:**
	  ○ TE p.48
	• **Evaluate:**
	  ○ Got it SE/TE p. 51 Lesson Check TE p. 51b

Pearson Chapter 2 - Lesson 6: What is electrical energy?
• **Engage:**
  ○ Activate prior knowledge
• **Explore:**
  ○ Students will assemble and explore a closed circuit.
	Pearson Chapter 2 - Lesson 6
	• **Engage:**
	  ○ Envision It! Activity SE/TE pp. 76-77
	• **Explore:**
	  ○ Explore It! Lab - How can you control electrical energy? Blackline Master TE p. 81a SE/TE p. 76

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• **Explain:**
  ○ Have students read *Electric Charges, Electric Currents and Circuits, Closed Circuits, and Open Circuits and Conductors and Insulators* answer the guided questions.
• **Elaborate:**
  ○ **Science Notebook** - Have students write a paragraph explaining the path electric current takes in a flashlight.
• **Evaluate:**
  ○ Formative Assessment
 	
• **Unit Cumulative Activities**
  ○ Careers - NASA Electrical Engineer
  ○ Electrical Energy Conservation - Go Green!
  ○ Performance-Based Assessment
  ○ Performance Expectation Activity
 	
Additional learning opportunities/strategies:
• Utilize Teacher Background pages
• Utilize Vocabulary Smart Cards
 	
• Utilize online resources, leveled content readers, and web links to support learning.
• Additional Websites
	• **Explain:**
	  ○ SE/TE pp. 77-81
	
	• **Elaborate:**
	  ○ TE p. 269
	
	• **Evaluate:**
	  ○ Got it SE/TE p. 81 Lesson Check TE p. 81b
	
	• **Unit Cumulative Activities**
	  ○ SE/TE pp. 84-85
	  ○ p. 93
	
	  ○ SE/TE pp. 98-99
	  ○ TE pp. 99a, 99b, 99c, 99d
	
	Additional resources:
	• TE pp.38C-38D
	• Cards are located at the end of the chapter in student text
	• Pearsonrealize.com
	
	• https://kids.usa.gov/science/index.shtml
	• http://www.learner.org/interactives/parkphysics/index.html
	• http://interactivesites.weebly.com/physics-and-motion.html
	• Bozemanscience.com
	• http://ngss.nsta.org/
	• https://www.teachingchannel.org/ngss

Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation.

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Advanced Leveled Content Reader Use project-based science learning to connect	On-Level Content Reader Use project-based science learning to	Below-Level Content Reader Use project-based science learning to	Below-Level Content Reader Utilize the support flaps in the leveled readers to provide support before-reading support

science with observable phenomena.	connect science with observable phenomena. Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.	connect science with observable phenomena. Utilize the If/Then strategies in the RTI section of the lesson/chapter Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).	(KWL charts, word webs), during-reading support (visual vocabulary support, strategies to determine word meanings, questioning while reading), and after-reading support (summative assessment, activity). Utilize the ELL lesson plan to identify content and language objectives. Use project-based science learning to connect science with observable phenomena. When using the write-in student edition, refer to graphic organizers, photographs, illustrations, and models Use Envision it! to frontload the lesson by activating prior knowledge and building background knowledge. Utilize the ELL handbook for best practices and instructional strategies. Follow the specific "ELL Support" for each chapter in the TE. Support is given through scripted text, graphic organizers, etc.

Unit Title: Grade 3 - Unit 4: Traits

What kinds of traits are passed on from parent to offspring?

What environmental factors might influence the traits of a specific organism?

In this unit of study, students acquire an understanding that organisms have different inherited traits and that the environment can also affect the traits that an organism develops. The crosscutting concepts of patterns and cause and effect are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in analyzing and interpreting data, constructing explanations, and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.

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This unit is based on 3-LS3-1 and 3-LS3-2.

Stage 1: Desired Results

Standards & Indicators:

- **NJSLS – Science**
  - **Science and Engineering Practices (SEP)**
    - Analyzing and Interpreting Data
      - Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS3-1)
    - Constructing Explanations and Designing Solutions
      - Use evidence (e.g., observations, patterns) to support an explanation. (3-LS3-2)
  - **Disciplinary Core Ideas (DCI)**
    - LS3.A: Inheritance of Traits
      - Many characteristics of organisms are inherited from their parents. (3-LS3-1)
      - Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment. (3LS3-2)
    - LS3.B: Variation of Traits
      - Different organisms vary in how they look and function because they have different inherited information. (3-LS3-1)
      - The environment also affects the traits that an organism develops. (3-LS3-2)
  - **Crosscutting Concepts (CCC)**
    - Patterns
      - Similarities and differences in patterns can be used to sort and classify natural phenomena. (3LS3-1)
      - Cause and Effect
        - Cause and effect relationships are routinely identified and used to explain change. (3-LS3-2)

Central Idea / Enduring Understanding:

In this unit of study, students acquire an understanding that organisms have different inherited traits and that the environment can also affect the traits that an organism develops. The crosscutting concepts of patterns and cause and effect are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in analyzing and interpreting data, constructing explanations, and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Essential/Guiding Question:

- What kinds of traits are passed on from parent to offspring?
- What environmental factors might influence the traits of a specific organism?
- What kinds of traits are passed on from parent to offspring?
- What environmental factors might influence the traits of a specific organism?

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Content:

- Similarities and differences in patterns can be used to sort and classify natural phenomena (e.g., inherited traits that occur naturally).
- Many characteristics of organisms are inherited from their parents.
- Different organisms vary in how they look and function because they have different inherited information.
- Cause-and-effect relationships are routinely identified and used to explain change.
- Other characteristics, which can range from diet to learning, result from individuals' interaction with the environment.
- Many characteristics involve both inheritance and environment.
- The environment also affects the traits that an organism develops.

Skills (Student Learning Objectives):

- 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. [Clarification Statement: Patterns are the similarities and differences in traits shared between offspring and their parents, or among siblings. Emphasis is on organisms other than humans.] [Assessment Boundary: Assessment does not include genetic mechanisms of inheritance and prediction of traits. Assessment is limited to non-human examples.] (3-LS3-1)
- Use evidence to support the explanation that traits can be influenced by the environment. [Clarification Statement: Examples of the environment affecting a trait could include normally tall plants grown with insufficient water are stunted; and, a pet dog that is given too much food and little exercise may become overweight.] (3-LS3-2)

Interdisciplinary Connection(s):

- **NJSLS – Math**
  - MP.2: Reason abstractly and quantitatively.
  - MP.4: Model with mathematics.
  - 3.DL.A.2: Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (Clarification: "Measure and estimate liquid volumes and masses" excludes compound units such as cm3 and finding the geometric volume of a container. "Multiplying to solve one-step word problems" excludes multiplicative comparison problems (problems involving "times as much"; See Glossary, Tables 2a-2d))
- **NJSLS – English Language Arts**
  - RI.CR.3.1.: Ask and answer questions and make relevant connections to demonstrate understanding of an informational text, referring explicitly to textual evidence as the basis for the answers.
  - RI.CI.3.2.: Recount in oral and written form key details from a text and explain how they support the main idea (in multi-paragraph informational text).
  - RI.IT.3.3.: Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause-effect.
  - W.NW.3.3.: Write narratives to develop real or imagined experience or events with basic story elements.

- SL.PI.3.4: Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.

- **NJSLS - Career Readiness, Life Literacies, and Key Skills**
  - 9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
  - 9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.
  - 9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions.
  - 9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social.

Stage 2: Assessment Evidence

Performance Task(s):

- "Inquiry labs"
- STEM activities
- Formative assessment: "Lesson Check" blackline masters
- "Got It?" self-assessments in each lesson
- Complete graphic organizers
- Performance Expectation Activities
- Performance Based Assessment
- Unit Assessment

Other Evidence:

- Post-activity discussion questions
- Review Vocabulary Smart Cards
- Students elaborate in "Science Notebooks"
- Students make connections to the "Unlock the Big ?" in each lesson.
- Have students restate or contrast topics in each lesson

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Pearson Chapter 4

- **Inquiry/Engagement:**
  - Students observe and classify shells by similarities and differences.
  - Students will determine an effective way to clean bird feathers that have been exposed to oil pollution.

Pearson Chapter 4 - Lesson 2: How do living things grow and change?

- **Engage:**
  - Activate prior knowledge
- **Explore:**
  - Students will learn how the bee's dance helps them communicate and survive.
- **Explain:**
  - Have students read *Both Alike and Different, Inherited Characteristics,*

Resources:

Pearson Chapter 4

- **Inquiry/Engagement:**
  - How can shells be classified? Try It! SE/TE p.154
  - STEM Activity-Bird Feather Cleaning SE/TE pp.156-159

Pearson Chapter 4 - Lesson 2

- **Engage:**
  - Envision It! Activity SE/TE pp. 168-169
- **Explore:**
  - My Planet Diary - Discovery TE p. 175a SE p. 168
- **Explain:**
  - SE/TE pp. 169-175

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Acquired Characteristics, Inherited Behavior, Learned Behaviors and *Small Differences in Traits* and answer the guided questions. ● **Elaborate:** ○ Explain to students about Gregor Mendel and the results of the pea plant experiment. Then have students predict what the offspring of a tall-stemmed and a short-stemmed pea plant would look like. ● **Evaluate:** ○ Formative Assessment **Additional learning opportunities/strategies:** ● Utilize Teacher Background pages ● Utilize Vocabulary Smart Cards ● Utilize online resources, leveled content readers, and web links to support learning. ● Additional Websites	● **Elaborate:** ○ TE p.170 ● **Evaluate:** ○ Got it SE/TE p. 175 Lesson Check TE p. 175b **Additional resources:** ● TE pp. 152C-152D (Chapter 4) ● TE pp. 99C-100D (Chapter 3) ● Cards are located at the end of the chapter in student text ● Pearsonrealize.com ● https://kids.usa.gov/science/index.shtml ● http://kidshealth.org/en/kids/what-is-gene.html ● http://kids.lovetoknow.com/wiki/Genetics_for_Kids ● Bozemanscience.com ● http://ngss.nsta.org/ ● https://www.teachingchannel.org/ngss

Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation.

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Advanced Leveled Content Reader Use project-based science learning to connect science with observable phenomena.	On-Level Content Reader Use project-based science learning to connect science with observable phenomena.	Below-Level Content Reader Use project-based science learning to connect science with observable phenomena.	Below-Level Content Reader Utilize the support flaps in the leveled readers to provide support before-reading support (KWL charts, word webs), during-reading support (visual vocabulary support, strategies to determine word meanings, questioning while reading), and

	Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.	Utilize the If/Then strategies in the RTI section of the lesson/chapter Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).	after-reading support (summative assessment, activity). Utilize the ELL lesson plan to identify content and language objectives. Use project-based science learning to connect science with observable phenomena. When using the write-in student edition, refer to graphic organizers, photographs, illustrations, and models Use Envision it! to frontload the lesson by activating prior knowledge and building background knowledge. Utilize the ELL handbook for best practices and instructional strategies. Follow the specific "ELL Support" for each chapter in the TE. Support is given through scripted text, graphic organizers, etc.

Unit Title: Grade 3 - Unit 5: Continuing the Cycle

Do all living things have the same life cycle?
Are there advantages to being different?

In this unit of study, students develop an understanding of the similarities and differences in organisms' life cycles. In addition, students 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. The crosscutting concepts of patterns and cause and effect are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in developing and using models and constructing explanations and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.
This unit is based on 3-LS1-1 and 3-LS4-2.

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Stage 1: Desired Results

Standards & Indicators:

- **NJSLS – Science**
  - **Science and Engineering Practices (SEP)**
    - Developing and Using Models
      - Develop models to describe phenomena. (3-LS11) Constructing Explanations and Designing Solutions
      - Use evidence (e.g., observations, patterns) to construct an explanation. (3-LS4-2)
  - **Disciplinary Core Ideas (DCI)**
    - LS1.B: Growth and Development of Organisms
      - Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles. (3LS1-1)
    - LS4.B: Natural Selection
      - Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing. (3-LS4-2)
  - **Crosscutting Concepts (CCC)**
    - Patterns
      - Patterns of change can be used to make predictions. (3-LS1-1)
    - Cause and Effect
      - Cause and effect relationships are routinely identified and used to explain change. (3-LS42),(3-LS4-3)
    - Connections to Nature of Science
      - Scientific Knowledge is Based on Empirical Evidence
        - Science findings are based on recognizing patterns. (3-LS1-1)

Central Idea / Enduring Understanding:

In this unit of study, students develop an understanding of the similarities and differences in organisms' life cycles. In addition, students 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. The crosscutting concepts of patterns and cause and effect are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in developing and using models and constructing explanations and designing solutions. Students are also expected to use these practices to demonstrate understanding of the core ideas.

Essential/Guiding Question:

- Do all living things have the same life cycle?
- Are there advantages to being different?
- What are the stages of an organism's life cycle?
- How do the life cycles of organisms compare?
- What makes an organism's life cycle unique?
- How do organisms use their characteristics to survive, find mates, and reproduce?

Content:

- Science findings are based on recognizing patterns.

Skills (Student Learning Objectives):

- Develop models to describe that organisms have unique and diverse life cycles but all

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● Similarities and differences in patterns can be used to sort and classify natural phenomena. ● Patterns of change can be used to make predictions. ● Reproduction is essential to the continued existence of every kind of organism. ● Plants and animals have unique and diverse life cycles. ● Cause-and-effect relationships are routinely identified and used to explain change. ● Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.	have in common birth, growth, reproduction, and death. [Clarification Statement: Changes organisms go through during their life form a pattern.] [Assessment Boundary: Assessment of plant life cycles is limited to those of flowering plants. Assessment does not include details of human reproduction.] (3-LS1-1) ● 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. [Clarification Statement: Examples of cause and effect relationships could be plants that have larger thorns than other plants may be less likely to be eaten by predators; and, animals that have better camouflage coloration than other animals may be more likely to survive and therefore more likely to leave offspring.] (3-LS4-2)

Interdisciplinary Connection(s):

- **NJSLS – Math**
  - MP.2: Reason abstractly and quantitatively.
  - MP.4: Model with mathematics.
  - 3.NBT: Use place value understanding and properties of operations to perform multi-digit arithmetic.
  - 3.NF: Develop understanding of fractions as numbers.
  - 3.DL.B.3: Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.
  - 3.DL.B.4: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.
- **NJSLS – English Language Arts**
  - RI.CR.3.1.: Ask and answer questions and make relevant connections to demonstrate understanding of an informational text, referring explicitly to textual evidence as the basis for the answers.
  - RI.CI.3.2.: Recount in oral and written form key details from a text and explain how they support the main idea (in multi-paragraph informational text).
  - RI.IT.3.3.: Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause-effect.
  - RI.MF.3.6.: Use information gained from text features (e.g., illustrations, maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).

- SL.PI.3.4.: Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
- SL.UM.3.5.: Use multimedia to demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.
- W.IW.3.2.: Write informative/explanatory texts to examine a topic and convey ideas and information.

- **NJSLS – Career Readiness, Life Literacies, and Key Skills**
  - 9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
  - 9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.
  - 9.4.5.IML.1: Evaluate digital sources for accuracy, perspective, credibility and relevance (e.g., Social Studies Practice - Gathering and Evaluating Sources).
  - 9.4.5.IML.6: Use appropriate sources of information from diverse sources, contexts, disciplines, and cultures to answer questions.
  - 9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social.
  - 9.4.5.TL.3: Format a document using a word processing application to enhance text, change page formatting, and include appropriate images, graphics, or symbols.
  - 9.4.5.TL.5: Collaborate digitally to produce an artifact.

Stage 2: Assessment Evidence

Performance Task(s):

- “Inquiry labs”
- activities
- Complete Science Careers
- Formative assessment: “Lesson Check” blackline masters
- “Got It?” self-assessments in each lesson
- Complete graphic organizers
- Performance Expectation Activities
- Performance Based Assessment
- Unit Assessment

Other Evidence:

- Post-activity discussion questions
- Review Vocabulary Smart Cards
- Students elaborate in “Science Notebooks”
- Students make connections to the “Unlock the Big ?” in each lesson.
- Have students restate or contrast topics in each lesson

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Pearson Chapter 3

- **Inquiry/Engagement:**
  - Students will observe and record how plants adapt to changing conditions.
  - Students will design a way to produce healthy seed sprouts without using soil.

Pearson Chapter 3 - Lesson 1: How can you classify plants?

Resources:

Pearson Chapter 3

- **Inquiry/Engagement:**
  - How do plants change? Try It! SE/TE p. 102
  - STEM Activity-Watch it Grow! SE/TE pp. 104-107

Pearson Chapter 3 - Lesson 1

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• **Engage:**
  ○ Activate prior knowledge
• **Explore:**
  ○ My Planet Diary
• **Explain:**
  ○ Have students read *Classify Plants, Flowering Plants, Nonflowering Plants, Spores* and *Rain-Forest Plants* and answer the guided questions.
• **Elaborate:**
  ○ **Science Notebook** - Have students write a description and draw a picture of a plant that grows in their area, using a field guide as a reference.
• **Evaluate:**
  ○ Formative Assessment
	• **Engage:**
	  ○ Envision It! Activity SE/TE pp. 108-109
	• **Explore:**
	  ○ Science Stats SE/TE p. 108 Blackline Master TE p. 115a
	• **Explain:**
	  ○ SE/TE pp. 109-115
	• **Elaborate:**
	  ○ TE p. 111
	• **Evaluate:**
	  ○ Got it SE/TE p. 115 Lesson Check TE p. 115b

Pearson Chapter 3 - Lesson 4 - How do plants use flowers or cones to reproduce?
• **Engage:**
  ○ Activate prior knowledge
• **Explore:**
  ○ Students will observe a bean seed to identify where food is stored.
• **Explain:**
  ○ Have students read *Reproduction, Parts of a Flower, how Seeds Grow,* and *How Cones Help Plants* and answer the guided questions.
• **Elaborate:**
  ○ **Science Notebook** - Have students list foods that are seeds and those that are made from seeds.
• **Evaluate:**
  ○ Formative Assessment
	Pearson Chapter 3 - Lesson 4
	• **Engage:**
	  ○ Envision It! Activity SE/TE pp. 128-129
	• **Explore:**
	  ○ Explore It! Lab -What is inside a seed? TE p. 133a SE p. 128
	• **Explain:**
	  ○ SE/TE pp. 129-133
	• **Elaborate:**
	  ○ TE p. 131
	• **Evaluate:**
	  ○ Got it SE/TE p. 133 Lesson Check TE p. 133b

Pearson Chapter 3 - Lesson 5: What are the life cycles of some plants?
• **Engage:**
  ○ Activate prior knowledge
• **Explore:**
	Pearson Chapter 3 - Lesson 5
	• **Engage:**
	  ○ Envision It! Activity SE/TE pp. 134-135
	• **Explore:**

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○ My Planet Diary ● **Explain:** ○ Have students read *Plant Life Cycles, Life Cycle of a Flowering Plant, Life Cycle of a Conifer Plant, Other Plant Life Cycles,* and *Life Cycle Length* and answer the guided questions. ● **Elaborate:** ○ Explain to students that some conifers have cones that remain tightly closed until exposed to the high heat of fire. Ask students what would happen to a jack pine forest if fires stopped occurring. ● **Evaluate:** ○ Formative Assessment	○ Science Stats SE/TE p.134 Blackline Master TE p. 139a ● **Explain:** ○ SE/TE pp. 135-139 ● **Elaborate:** ○ TE p.137 ● **Evaluate:** ○ Got it SE/TE p.139 Lesson Check TE p. 139b
Pearson Chapter 4 - Lesson 3: What are the life cycles of some animals? ● **Engage:** ○ Activate prior knowledge ● **Explore:** ○ Students will use a hand lens to observe stages in a grain beetle's life cycle. ● **Explain:** ○ Have students read *Life Cycles, Life Cycle of a Butterfly, Life Cycle of a Frog,* and *Life Cycle of a Mammal* and answer the guided questions. ● **Elaborate:** ○ Tell students that most young mammals stay with their parents for an extended period of time after they are born. Ask students to discuss why they think it is important that mammals behave this way. ● **Evaluate:** ○ Formative Assessment ● **Unit Cumulative Activities** ○ Inquiry-Investigate It! ○ Performance Based Assessment	**Pearson Chapter 4 - Lesson 3** ● **Engage:** ○ Envision It! Activity SE/TE pp. 176-177 ● **Explore:** ○ Explore It! Lab -What is the life cycle of a grain beetle? TE p. 183a SE p. 176 ● **Explain:** ○ SE/TE pp. 177-183 ● **Elaborate:** ○ TE p.182 ● **Evaluate:** ○ Got it SE/TE p.183 Lesson Check TE p.183b ● **Unit Cumulative Activities** ○ SE/TE pp. 140-141 ○ SE/TE pp. 244-245

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○ Performance Expectation Activity ○ Science Careers - Botanical Illustrator ○ Field Trip - International Space Station **Additional learning opportunities/strategies:** ● Utilize Teacher Background pages ● Utilize Vocabulary Smart Cards ● Utilize online resources, leveled content readers, and web links to support learning. ● Additional Websites	○ TE pp. 245a, 245b, 245c, 245d ○ SE/TE p. 136 ○ SE/TE p. 151 **Additional resources:** ● TE pp. 100C-100D (Chapter 3) ● TE pp. 152C-152D (Chapter 4) ● Cards are located at the end of the chapter in student text ● Pearsonrealize.com ● https://kids.usa.gov/science/index.shtml ● http://www.sciencekids.co.nz/gamesactivities/plantsanimals.html ● http://interactivesites.weebly.com/living-things.html ● Bozemanscience.com ● http://ngss.nsta.org/ ● https://www.teachingchannel.org/ngss

Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation.

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Advanced Leveled Content Reader Use project-based science learning to connect science with observable phenomena.	On-Level Content Reader Use project-based science learning to connect science with observable phenomena. Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.	Below-Level Content Reader Use project-based science learning to connect science with observable phenomena. Utilize the If/Then strategies in the RTI section of the lesson/chapter Provide students with multiple choices for how they can represent their understandings (e.g. multisensory	Below-Level Content Reader Utilize the support flaps in the leveled readers to provide support before-reading support (KWL charts, word webs), during-reading support (visual vocabulary support, strategies to determine word meanings, questioning while reading), and after-reading support (summative assessment, activity). Utilize the ELL lesson plan to identify content and language objectives.

		techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).	Use project-based science learning to connect science with observable phenomena. When using the write-in student edition, refer to graphic organizers, photographs, illustrations, and models Use Envision it! to frontload the lesson by activating prior knowledge and building background knowledge. Utilize the ELL handbook for best practices and instructional strategies. Follow the specific "ELL Support" for each chapter in the TE. Support is given through scripted text, graphic organizers, etc.

Unit Title: Grade 3 - Unit 6: Organisms and the Environment

Why don't we see alligators in the arctic?

In this unit of study, students develop an understanding of the idea that when the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. The crosscutting concepts of cause and effect and the interdependence of science, engineering, and technology are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in engaging in argument from evidence. Students are also expected to use this practice to demonstrate understanding of the core ideas.
This unit is based on 3-LS2-1 and 3-LS4-3.

Stage 1: Desired Results

Standards & Indicators:

- **NJSLS – Science**
  - **Science and Engineering Practices (SEP)**
    - Engaging in Argument from Evidence
      - Construct an argument with evidence, data, and/or a model. (3-LS2-1)
      - Construct an argument with evidence. (3-LS4-3)
  - **Disciplinary Core Ideas (DCI)**
    - LS2.D: Social Interactions and Group Behavior

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- Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size (Note: Moved from K–2). (3LS2-1)
  - LS4.C: Adaptation
    - For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all. (3-LS4-3)
- **Crosscutting Concepts (CCC)**
  - Cause and Effect
    - Cause and effect relationships are routinely identified and used to explain change. (3-LS21),(3-LS4-3)

Central Idea / Enduring Understanding:

In this unit of study, students develop an understanding of the idea that when the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. The crosscutting concepts of cause and effect and the interdependence of science, engineering, and technology are called out as organizing concepts for these disciplinary core ideas. Students demonstrate grade-appropriate proficiency in engaging in argument from evidence. Students are also expected to use this practice to demonstrate understanding of the core ideas.

Essential/Guiding Question:

- Why don't we see alligators in the arctic?
- In a particular habitat, why do some organisms survive well, some survive less well, and some not survive at all?

Content:

- Cause-and-effect relationships are routinely identified and used to explain change.
- Knowledge of relevant scientific concepts and research findings is important in engineering.
- For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.
- Organisms and their habitat make up a system in which the parts depend on each other.

Skills (Student Learning Objectives):

- Construct an argument that some animals form groups that help members survive. (3-LS2-1)
- 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. [Clarification Statement: Examples of evidence could include needs and characteristics of the organisms and habitats involved. The organisms and their habitat make up a system in which the parts depend on each other.] (3-LS4-3)

Interdisciplinary Connection(s):

- **NJSLS – Math**
  - MP.2: Reason abstractly and quantitatively.
  - MP.4: Model with mathematics.
  - 3.NBT: Use place value understanding and properties of operations to perform multi-digit arithmetic.

- 3.NF: Develop understanding of fractions as numbers.
- 3.DL.B.3: Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.
- 3.DL.B.4: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

- **NJSLS – English Language Arts**
  - RI.CR.3.1.: Ask and answer questions and make relevant connections to demonstrate understanding of an informational text, referring explicitly to textual evidence as the basis for the answers.
  - RI.CI.3.2.: Recount in oral and written form key details from a text and explain how they support the main idea (in multi-paragraph informational text).
  - RI.IT.3.3.: Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause-effect.
  - RI.MF.3.6.: Use information gained from text features (e.g., illustrations, maps, photographs) and the words in a text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).
  - SL.PI.3.4: Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly at an understandable pace.
  - SL.UM.3.5: Use multimedia to demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.
  - W.IW.3.2.: Write informative/explanatory texts to examine a topic and convey ideas and information.
- **NJSLS – Career Readiness, Life Literacies, and Key Skills**
  - 9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
  - 9.4.5.CI.2: Investigate a persistent local or global issue, such as climate change, and collaborate with individuals with diverse perspectives to improve upon current actions designed to address the issue.
  - 9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one’s thinking about a topic of curiosity.
  - 9.4.5.CT.1: Identify and gather relevant data that will aid in the problem-solving process.
  - 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.
  - 9.4.5.IML.1: Evaluate digital sources for accuracy, perspective, credibility and relevance (e.g., Social Studies Practice - Gathering and Evaluating Sources).
  - 9.4.5.IML.2: Create a visual representation to organize information about a problem or issue.
  - 9.4.5.IML.3: Represent the same data in multiple visual formats in order to tell a story about the data.
  - 9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social.

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Stage 2: Assessment Evidence

Performance Task(s):

- "Inquiry labs"
- STEM activities
- Complete Field Trip
- Formative assessment: "Lesson Check" blackline masters
- "Got It?" self-assessments in each lesson
- Complete graphic organizers
- Performance Expectation Activities
- Performance Based Assessment
- Unit Assessment

Other Evidence:

- Post-activity discussion questions
- Review Vocabulary Smart Cards
- Students elaborate in "Science Notebooks"
- Students make connections to the "Unlock the Big ?" in each lesson.
- Have students restate or contrast topics in each lesson

Stage 3: Learning Plan

Learning Opportunities/Strategies:

Pearson Chapter 5

- **Inquiry/Engagement:**
  - Students create an invention from recycled material.
  - Let's Read Science - *The Big Fire*. (cause & effect)

Pearson Chapter 5 - Lesson 1: What is an ecosystem?

- **Engage:**
  - Activate prior knowledge
- **Explore:**
  - My Planet Diary
- **Explain:**
  - Have students read *Places for Living Things, Parts of an Ecosystem, Habitats, Groups Within Ecosystems,* and *Ecosystems Change* and answer the guided questions.
- **Elaborate:**
  - **Science Notebook** - Have students write a paragraph about why a nonliving part of a swamp is important to the ecosystem.
- **Evaluate:.**
  - Formative Assessment

Resources:

Pearson Chapter 5

- **Inquiry/Engagement:**
  - How can you recycle some materials? Try It! SE/TE p.198
  - SE/TE p.199

Pearson Chapter 5 - Lesson 1

- **Engage:**
  - Envision It! Activity SE/TE pp. 204-205
- **Explore:**
  - Connections SE/TE p. 204 Blackline Master TE p. 209a
- **Explain:**
  - SE/TE pp. 205-209
- **Elaborate:**
  - TE p.207
- **Evaluate:**
  - Got it SE/TE p. 209 Lesson Check TE p. 209b

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Pearson Chapter 5 - Lesson 3: How do ecosystems change? ● **Engage:** ○ Activate prior knowledge ● **Explore:** ○ Students will observe the effect of a pollutant on organisms. ● **Explain:** ○ Have students read *Ecosystem Change, Living Things Cause Change, Natural Events Cause Change, Seasonal Change* and *Living Things Return* and answer the guided questions. ● **Elaborate:** ○ Explain to students that ash from a fire contains some nutrients. Rain may wash these nutrients back into the soil. Have students discuss the impact the ash has on living things in this ecosystem. ● **Evaluate:** ○ Formative Assessment ● **Unit Cumulative Activities** ○ Inquiry-Investigate It! ○ Performance-Based Assessment ○ Performance Expectation Activity ○ Field Trip - The National Wildlife Refuge System **Additional learning opportunities/strategies:** ● Utilize Teacher Background pages ● Utilize Vocabulary Smart Cards ● Utilize online resources, leveled content readers, and web links to support learning. ● Additional Websites	**Pearson Chapter 5 - Lesson 3** ● **Engage:** ○ Envision It! Activity SE/TE pp. 216-217 ● **Explore:** ○ Explore It! Lab - How can pollution affect an organism? TE p. 223a SE p. 216 ● **Explain:** ○ SE/TE pp. 217-223 ● **Elaborate:** ○ TE p.220 ● **Evaluate:** ○ Got it SE/TE p. 233 Lesson Check TE p. 223b ● **Unit Cumulative Activities** ○ SE/TE pp. 228-229 ○ SE/TE pp. 244-245 ○ SE/TE pp. 245a, 245e, 245f, 245g, 245h ○ SE/TE p. 230 **Additional resources:** ● TE pp.196C-197D ● Cards are located at the end of the chapter in student text ● Pearsonrealize.com ● https://kids.usa.gov/science/index.shtml ● http://eschooltoday.com/ecosystems/what-is-an-ecosystem.html ● http://easyscienceforkids.com/all-about-ecosystems/ ● http://kids.nceas.ucsb.edu/ecology/ecoindex.html

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	• Bozemanscience.com • http://ngss.nsta.org/ • https://www.teachingchannel.org/ngss

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High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
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			Follow the specific "ELL Support" for each chapter in the TE. Support is given through scripted text, graphic organizers, etc.

Unit Title: Grade 3 - Unit 7: Using Evidence to Understand Change in Environments

What do fossils tell us about the organisms and the environments in which they lived?

In this unit of study, students develop an understanding of the types of organisms that lived long ago and also about the nature of their environments. Students develop an understanding of the idea that when the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. The crosscutting concepts of systems and system models; scale, proportion, and quantity; and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions and defining problems, analyzing and interpreting data, and engaging in argument from evidence. Students are also expected to use these practices to demonstrate understanding of the core ideas.

This unit is based on 3-LS4-1, 3-LS4-4, and 3-5-ETS1-1.

Stage 1: Desired Results

Standards & Indicators:

- **NJSLS – Science**
  - **Science and Engineering Practices (SEP)**
    - Analyzing and Interpreting Data
      - Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS4-1)
    - Engaging in Argument from Evidence
      - Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem. (3-LS4-4)
    - Asking Questions and Defining Problems
      - Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)
  - **Disciplinary Core Ideas (DCI)**
    - LS4.A: Evidence of Common Ancestry and Diversity
      - Some kinds of plants and animals that once lived on Earth are no longer found anywhere. (3-LS41)
      - Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments. (3-LS4-1)
    - LS4.D: Biodiversity and Humans
      - Populations live in a variety of habitats, and change in those habitats affects the organisms living there. (3-LS4-4)
    - LS2.C: Ecosystem Dynamics, Functioning, and Resilience

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- When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die. (secondary to 3-LS4-4)
- ETS1.A: Defining and Delimiting Engineering Problems
  - Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account. (35-ETS1-1)

- **Crosscutting Concepts (CCC)**
  - Scale, Proportion, and Quantity
    - Observable phenomena exist from very short to very long time periods. (3-LS4-1)
  - Systems and System Models
    - A system can be described in terms of its components and their interactions. (3-LS4-4)
  - Connections to Engineering, Technology, and Applications of Science
    - Interdependence of Engineering, Technology, and Science on Society and the Natural World
      - Knowledge of relevant scientific concepts and research findings is important in engineering. (3LS4-4)
    - Influence of Science, Engineering, and Technology on Society and the Natural World
      - People's needs and wants change over time, as do their demands for new and improved technologies. (3-5-ETS1-1)
  - Connections to Nature of Science
    - Scientific Knowledge Assumes an Order and Consistency in Natural Systems
      - Science assumes consistent patterns in natural systems. (3-LS4-1)

Central Idea / Enduring Understanding:

In this unit of study, students develop an understanding of the types of organisms that lived long ago and also about the nature of their environments. Students develop an understanding of the idea that when the environment changes, some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die. The crosscutting concepts of systems and system models; scale, proportion, and quantity; and the influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. Students are expected to demonstrate grade-appropriate proficiency in asking questions and defining

Essential/Guiding Question:

- What do fossils tell us about the organisms and the environments in which they lived?
- What do fossils tell us about the organisms and the environments in which they lived?
- What happens to the plants and animals when the environment changes?

<table>
<tr><td>problems, analyzing and interpreting data, and engaging in argument from evidence. Students are also expected to use these practices to demonstrate understanding of the core ideas.</td><td></td></tr>
<tr><td>Content:
Observable phenomena exist from very short to very long periods of time.
Science assumes consistent patterns in natural systems.
Some kinds of plants and animals that once lived on Earth are no longer found anywhere.
Fossils provide evidence about the types of organisms that lived long ago, and also about the nature of their environments.</td><td>Skills (Student Learning Objectives):
Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. [Clarification Statement: Examples of data could include type, size, and distributions of fossil organisms. Examples of fossils and environments could include marine fossils found on dry land, tropical plant fossils found in Arctic areas, and fossils of extinct organisms.] [Assessment Boundary: Assessment does not include identification of specific fossils or present plants and animals. Assessment is limited to major fossil types and relative ages.] (3-LS4-1)
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.* [Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.] [Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.] (3-LS4-4)
Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost. (3-5-ETS1-1)</td></tr>
<tr><td colspan="2">Interdisciplinary Connection(s):
NJSLS – Math
MP.2: Reason abstractly and quantitatively.
MP.4: Model with mathematics.
MP.5: Use appropriate tools strategically.
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- 3.DL.B.4: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

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  - W.IW.3.2.: Write informative/explanatory texts to examine a topic and convey ideas and information.
- **NJSLS – Career Readiness, Life Literacies, and Key Skills**
  - 9.2.5.CAP.1: Evaluate personal likes and dislikes and identify careers that might be suited to personal likes.
  - 9.4.5.CI.3: Participate in a brainstorming session with individuals with diverse perspectives to expand one's thinking about a topic of curiosity.
  - 9.4.5.CT.4: Apply critical thinking and problem-solving strategies to different types of problems such as personal, academic, community and global.
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  - 9.4.5.IML.7: Evaluate the degree to which information meets a need including social emotional learning, academic, and social.

Stage 2: Assessment Evidence

Performance Task(s):

- "Inquiry labs"
- STEM activities
- Formative assessment: "Lesson Check" blackline masters
- "Got It?" self-assessments in each lesson
- Complete graphic organizers
- Performance Expectation Activities
- Performance Based Assessment
- Unit Assessment

Other Evidence:

- Post-activity discussion questions
- Review Vocabulary Smart Cards
- Students elaborate in "Science Notebooks"
- Students make connections to the "Unlock the Big ?" in each lesson.
- Have students restate or contrast topics in each lesson

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Stage 3: Learning Plan

Learning Opportunities/Strategies:	Resources:
Pearson Chapter 5 ● **Inquiry/Engagement:** ○ Students will determine a way to observe a section of a habitat.	**Pearson Chapter 5** ● **Inquiry/Engagement:** ○ STEM Activity - Nothing Like a Habitat SE/TE pp. 200-203
Pearson Chapter 5 - Lesson 2: How do living things get energy? ● **Engage:** ○ Activate prior knowledge ● **Explore:** ○ Students will observe how yeast use energy. ● **Explain:** ○ Have students read *Energy Roles in Ecosystems, Food Chain,* and *Food Webs* and answer the guided questions. ● **Elaborate:** ○ **Science Notebook** - Explain to students that the type of teeth a consumer has often relates to the kind of consumer it is. Have students draw how they think the different kinds of teeth look. ● **Evaluate:** ○ Formative Assessment	**Pearson Chapter 5 - Lesson 2** ● **Engage:** ○ Envision It! Activity SE/TE pp. 210-211 ● **Explore:** ○ Explore It! Lab - What do yeast use for energy? TE p. 215a SE p. 210 ● **Explain:** ○ SE/TE pp. 211-215 ● **Elaborate:** ○ TE p.212 ● **Evaluate:** ○ Got it SE/TE p. 215 Lesson Check TE p. 215b
Pearson Chapter 5 - Lesson 4: What can we learn from fossils? ● **Engage:** ○ Activate prior knowledge ● **Explore:** ○ Students make a model of a fossil, compare and contrast the model and the real thing, and infer characteristics of an object based on the model. ● **Explain:** ○ Have students read *Fossils* and *What Fossils Show* and answer the guided questions.	**Pearson Chapter 5 - Lesson 4** ● **Engage:** ○ Envision It! Activity SE/TE pp. 224-225 ● **Explore:** ○ Explore It! Lab -What can a fossil tell you? TE p. 227a SE p. 224 ● **Explain:** ○ SE/TE pp. 225-227

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• **Elaborate:**
  ○ Have students draw a picture of Tyrannosaurus rex in its 65-million-year old natural habitat.
• **Evaluate:**
  ○ Formative Assessment
 	
• **Unit Cumulative Activities**
  ○ Inquiry-Apply It!
  ○ Performance-Based Assessment
  ○ Performance Expectation Activity
  ○ Science Careers - Zoo Designer
 	
Additional learning opportunities/strategies:
• Utilize Teacher Background pages
• Utilize Vocabulary Smart Cards
 	
• Utilize online resources, leveled content readers, and web links to support learning.
• Additional Websites
	• **Elaborate:**
	  ○ TE p.227
	
	• **Evaluate:**
	  ○ Got it SE/TE p. 227 Lesson Check TE p. 227b
	
	• **Unit Cumulative Activities**
	  ○ SE/TE pp. 240-243
	  ○ SE/TE pp. 244-245
	  ○ TE pp. 245a, 245e, 245f, 245g, 245h
	  ○ SE/TE p. 239
	
	Additional resources:
	• TE pp. 196C-197D
	• Cards are located at the end of the chapter in student text
	• Pearsonrealize.com
	
	• https://kids.usa.gov/science/index.shtml
	• http://eschooltoday.com/ecosystems/what-is-an-ecosystem.html
	• http://easyscienceforkids.com/all-about-ecosystems/
	• http://kids.nceas.ucsb.edu/ecology/ecoindex.html
	• Bozemanscience.com
	• http://ngss.nsta.org/
	• https://www.teachingchannel.org/ngss

Differentiation *Please note: Teachers who have students with 504 plans that require curricular accommodations are to refer to Struggling and/or Special Needs Section for differentiation.

High-Achieving Students	On Grade Level Students	Struggling Students	Special Needs/ELL
Advanced Leveled Content Reader Use project-based science learning to connect science with observable phenomena.	On-Level Content Reader Use project-based science learning to connect science with observable phenomena.	Below-Level Content Reader Use project-based science learning to connect science with observable phenomena.	Below-Level Content Reader Utilize the support flaps in the leveled readers to provide support before-reading support (KWL charts, word webs), during-reading support (visual vocabulary support, strategies to determine word meanings, questioning while reading),

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	Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.	Utilize the If/Then strategies in the RTI section of the lesson/chapter Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling).	and after-reading support (summative assessment, activity). Utilize the ELL lesson plan to identify content and language objectives. Use project-based science learning to connect science with observable phenomena. When using the write-in student edition, refer to graphic organizers, photographs, illustrations, and models Use Envision it! to frontload the lesson by activating prior knowledge and building background knowledge. Utilize the ELL handbook for best practices and instructional strategies. Follow the specific "ELL Support" for each chapter in the TE. Support is given through scripted text, graphic organizers, etc.

Science Pacing Guide

Grade 3

MP	Units	Unit TOTAL*	Cumulative TOTAL**
MP1	**Unit 1 – Weather and Climate** Chapter 6: Try It!, Lesson 1, Lesson 2, Lesson 3, Lesson 4, and Unit Cumulative Activities	16 days	16 days
MP1	**Unit 2 – Force and Motion** Chapter 1: Try It!, Lesson 1, Lesson 2, Lesson 3 and Unit Cumulative Activities	14 days	30 days
MP1-2	**Unit 3 – Electrical and Magnetic Forces** Chapter 2: Try It!, Lesson 1, Lesson 6, and Unit Cumulative Activities	14 days	44 days
MP2	**Unit 4 – Traits** Chapter 4: Try It! and Lesson 2	14 days	58 days
MP2	**Unit 5 – Continuing the Cycle** Chapter 3: Try It!, Lesson 1, Lesson 4, and Lesson 5; Chapter 4: Lesson 3 and Unit Cumulative Activities	14 days	72 days
MP3	**Unit 6 – Organisms and the Environment** Chapter 5: Try It!, Lesson 1, Lesson 3, and Unit Cumulative Activities	14 days	86 days
MP3	**Unit 7 – Using Evidence to Understand Change in Environments** Chapter 5: Try It!, Lesson 2, Lesson 4, and Unit Cumulative Activities	14 days	100 days
MP1-3	**FLEX DAYS**	12 days	112 days

* Unit Total is inclusive of introduction, instruction, assessment, labs, projects, etc. for that particular unit.

** Cumulative Total is a running total, inclusive of prior and current units.