

2nd Grade Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Introduction

There is no doubt that science—and, therefore, science education—is central to the lives of all Americans. Never before has our world been so complex and science knowledge so critical to making sense of it all. When comprehending current events, choosing and using technology, or making informed decisions about one’s healthcare, science understanding is key. Science is also at the heart of the United States’ ability to continue to innovate, lead, and create the jobs of the future.

Through a collaborative, state-led process, new K–12 science standards have been developed that are rich in content and practice and arranged in a coherent manner across disciplines and grades to provide all students an internationally benchmarked science education. The Next Generation Science Standards are based on the Framework for K–12 Science Education developed by the National Research Council.

Every NGSS standard has three dimensions: disciplinary core ideas (content), scientific and engineering practices, and cross-cutting concepts.

The NGSS focus on a smaller set of Disciplinary Core Ideas (DCI) that students should know by the time they graduate from high school, focusing on deeper understanding and application of content. ← Science and engineering are integrated into science education by raising engineering design to the same level as scientific inquiry in science classroom instruction at all levels, and by emphasizing the core ideas of engineering design and technology applications

The NGSS content is focused on preparing students for college and careers. The NGSS are aligned, by grade level and cognitive demand with the English Language Arts and Mathematics Common Core State Standards. This allows an opportunity both for science to be a part of a child’s comprehensive education as well as ensuring an aligned sequence of learning in all content areas. The three sets of standards overlap and are reinforcing in meaningful and substantive ways.

Coupling practice with content gives the learning context, whereas practices alone are activities and content alone is memorization. It is through integration that science begins to make sense and allows students to apply the material.

Gifted & Talented

The Saddle River School District extends learning opportunities to all high achieving students. It supports the philosophy that every student has special talents and gifts. The Saddle River School District’s enrichment and gifted & talented programs offer a unique approach to servicing all students while maintaining a focus on those who are identified as needing pull out services through the district’s screening/criteria process. The Saddle River School District’s enrichment program focuses on bringing out the special talents in all learners as enrichment instruction is delivered to all students in grades kindergarten through fifth grade. The program follows the Joseph Renzulli schoolwide enrichment model that concentrates on “schools being a place for talent development,” (Renzulli, 1994). The program follows a wide-range of enriching/developing activities based upon student strengths and interests. Additionally, the program focuses on enriching activities across the curriculum in providing complementary and developing features/standards for all subject areas. The enrichment program builds upon existing student learning standards in all content areas in coordination with instruction and student needs.

The Saddle River School District Gifted & Talented program offers pull-out instruction for those students meeting the multiple measures and specific criteria set forth and approved by the board of education. The identification process may/can begin as early as kindergarten. The gifted and talented program follows the central theme that all appropriate curriculum standards are followed and that those standards are the

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foundation for developing student learning opportunities and standards across the curriculum. The gifted and talented program will provide the following in coordination with each content area when and where appropriate:

- Develop students' abilities and engage critical thinking skills
- Expand students' creative thought process and responses
- Advance students' research skills needed to become independent learners
- Develop students' abilities to self-evaluate their own learning process
- Enrich students' abilities in seeking and expanding their own knowledge in subject content areas and individual talents
- Develop students' ability to interact effectively in small-group and large-group setting
- Heighten students' ability in expanding on student learning standards to strengthen appropriate skills necessary for 21st century learning

English Language Learners (ELL)

The Saddle River School District recognizes the importance of increasing language proficiency while gaining confidence and strength so that academic goals and New Jersey state learning standards can be met. English Language Learners in the Saddle River School District are identified through a multitude of measures. These measure include, but are not limited to: a home language survey, parental conferencing, and daily teacher observations. Based on the information/data collected, the Saddle River School District will determine if a formal approved language assessment is necessary. The World-Class Instructional Design and Assessment (WIDA) is the assessment tool for those students recommended for ELL testing.

The Saddle River School District will provide the following accommodations for ELL students:

- Basic skills with a focus a the specific language skills
- Use of a translation dictionary (ipad, google translator, bilingual word to word dictionary)
- Preferential seating
- Extended time and/or modified classroom assignments
- Print out of teacher notes/lessons for additional review
- Extended time and/or modified assessments
- Extended time/accommodation for standardized testing in coordination with state regulations

Special Education Students

The Saddle River School District special education department offers a full continuum of services for students who are eligible for special education services. In order to meet the specific requirements for each learner, programs are developed so that that social, emotional and educational needs are met within the least restrictive environment. The specific program for each learner is based on individual needs where goals and objectives are set and followed accordingly. These individual educational plans follow a specific plan that is aligned to the student learning standards and may include, but is/are not limited to:

- Individual education plan
- Pull-out support
- Replacement content instruction
- In-class support
- Instructional aide(s)
- Support services (i.e.; speech, physical therapy, occupational therapy)
- Presentation accommodations (i.e.; notes, outlines, instructions, lists, organization)
- Response accommodations (i.e.; dictations, audio, dictionaries, calculation devices, scribes)
- Setting accommodations (i.e.; lighting, acoustics, seat placement, testing, sensory tools)

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- Timing accommodations (i.e.; completing tasks, frequent breaks, processing directions)
- Scheduling accommodations (i.e.; spacing out projects/assignments, order of schedule)
- Organizational accommodations (i.e.; highlighter, time management, planning)
- Assignment modifications (i.e.; fewer tasks, alternate questions)
- Technology support (i.e; ipad, word processing, specific programs/apps)
- Testing accommodations (i.e.; extended time, placement, seating, time)

Students who require additional services outside of the district's resource program, may require an out-of-district placement. In this event, the Child Study Team will coordinate accordingly to ensure that all necessary learning standards are being met.

Students in Danger of Failing

For those students in danger of failing, the Saddle River School District has a specific referral process to ensure that student needs are being met. The Intervention & Referral Services (I&RS) is an interdisciplinary team of professional within the school that addresses a full range of student/staff needs and concerns. This process is designed to maximize student success and establish goals and benchmarks to promote outcomes that positively reflect academics, health, behavior, self-esteem, work habits and strong character. The I&RS team is comprised of a chairperson, child study team member, teachers and other school professionals so that a continuous system of support can be provided. The team provides a plan so that short and long term goals can be established and strategies can be implemented and designed specifically for each student. In trying to achieve success, the team works collaboratively in making growth for each student a top priority and adhere to a plan that is achievable but rigorous. This plan, as set by New Jersey I&RS Team Process, may contain, but is not limited to the following;

- Request for assistance
- Information collection
- Parent Notification
- Problem solving within the I&RS team
- Developing an I&RS action plan
- Supporting, evaluating and continuing the process

In evaluating and monitoring students, the I&RS team closely calculates a plan so that curriculum needs can be met. In order to achieve and demonstrate success, the Saddle River School District provides modifications and support so that consideration is given to, but not limited to, the following:

- Student strengths/weaknesses
- Classroom and standardized assessments
- Academic records
- Social and behavioral patterns
- Previous history or concern
- Participation in class (and interaction with peers)
- Health related concerns
- Family concerns
- Retention of information/instruction
- Student interests
- Independent & group work habits
- Emotional status
- Study habits (at home/school)
- Present level of functioning
- Expectations (academic, social, behavioral, etc.)
- Following classroom rules/directions/procedures

As the I&RS team formulates a plan, many ongoing concerns are addressed within the team and may

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include parental notification/input. The problem solving objectives as set forth by New Jersey I&RS Team Process will:

- Describe the problem
- Identify the priority
- Develop objectives
- Review previous interventions
- Create new strategies
- Analyze and evaluate solutions

The Saddle River School District continues to inform and update staff of the I&RS procedures. The procedures are as follows:

- Teacher recognizes a problem(s) with a particular student in class and refers the student to the I&RS committee by filling out the appropriate paperwork. An I&RS meeting is scheduled to and the committee and appropriate staff members gather to discuss and begin the proactive process of assistance.
- Information from the teacher(s), administrator(s), and other school personnel is collected.
- Parent notification where/when appropriate
- The I&RS team begins the problem solving process by offering ideas and suggestions pertaining to the problems while prioritizing the most important issues.
- The I&RS team develops an action plan with specific strategies that can be implemented to achieve both short term and long term goals.
- The I&RS team meets regularly to evaluate and support the action plan (and to adjust accordingly when/where appropriate). Parents are notified on an ongoing basis to continue communication in the support of implementing the strategies set forth in the action plan.

Basic Skills Instruction is also a valuable resource that the Saddle River School District uses to meet the needs of struggling students. Students who require additional academic support will be offered that assistance in all subject areas. This system allows the students to receive in-class or pull-out support when and where appropriate so that grade level curriculum and student learning goals can be met. This program is an intervention system used to create a positive and constructive learning environment so that students can achieve success.

After the I&RS action plan has been in place the team may continue with the current strategies, offer/discuss new strategies or decide that the student should be referred to the district's child study team. In the instance of referring a student to the child study team, it can be concluded that many of the strategies from the action plan were not benefitting the student as intended. The child study team then would follow the guidelines for the referral process and notify the parents/guardians of the potential special education recommendation.

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Unit A Overview

Unit Background

Although most scientific discoveries are the result of systematic exploration, some occur strictly by chance. For example, Alexander Fleming's discovery of penicillin in 1928 was more the result of an untidy laboratory than of scientific process. Fleming, who was studying bacteria at the time, left a culture plate on his lab bench when he went on a two-week vacation. When he returned, he found the plate had been contaminated by mold. He observed that the original bacteria had grown throughout the plate except in the areas where it touched the mold. Fleming then followed the traditional steps of scientific investigation and discovered that the mold prevented the growth of disease-causing bacteria. Thus, penicillin was discovered!

Content Area: Science

Unit Title: Unit A Science, Engineering, and Technology: The Nature of Science and Technology and Tools

Target Course/Grade Level: 2

Simple machines are all around us, but it can be difficult for children to recognize that some everyday objects are also simple machines, or use simple machines to operate. Some everyday simple machines are:

- Inclined plane: escalator, ladder, playground slide, dump truck
- Pulley: elevator, clothesline, crane, wrecking ball, winch, window blinds
- Lever: hammer, seesaw, scissors, salad tongs, stapler, crowbar, fingernail clippers
- Wedge: teeth, chisel sledgehammer, nail

Primary interdisciplinary connections: Reading, Math, Writing, Art, Social Studies, Health, Physical Education, Writing

21st century themes:

- **Creativity and Innovation**
 - Think Creatively
 - Work Creatively with Others
 - Implement Innovations
- **Critical Thinking and Problem Solving**
 - Reason Effectively
 - Use Systems Thinking
 - Make Judgments and Decisions
 - Solve Problems
- **Communication and Collaboration**
 - Communicate Clearly
 - Collaborate with Others

Standard(s)

Created for New Jersey school districts through a project of the New Jersey Department of Education, Office of Academic Standards, in partnership with the N.J. Association for Supervision and Curriculum Development and the N.J. Principals and Supervisors Association.

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<ul style="list-style-type: none"> ● K-2 ETS1 Engineering Design ● 1-LS1 From Molecules to Organisms: Structures and Processes 	
Performance Expectations <ul style="list-style-type: none"> ● K-2-ETS1-1 Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. ● K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. ● K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. ● 1-LS1-1 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. 	
Science and Engineering Practices <ul style="list-style-type: none"> ● <u>Asking Questions and Defining Problems</u> <ul style="list-style-type: none"> ○ Asking questions and defining problems in K-2 builds on prior experiences and progresses to simple descriptive questions. ● <u>Developing and Using Models</u> <ul style="list-style-type: none"> ○ Modeling in K-2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions. ● <u>Analyzing and Interpreting Data</u> <ul style="list-style-type: none"> ○ Analyzing data in K-2 builds on prior experiences and progresses to collecting, recording, and sharing observations. ● <u>Constructing Explanations and Designing Solutions</u> <ul style="list-style-type: none"> ○ Constructing explanations and designing solutions in K-2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. 	
Disciplinary Core Ideas <ul style="list-style-type: none"> ● ETS1.A: Defining and Delimiting Engineering Problems ● ETS1.B: Developing Possible Solutions ● ETS1.C: Optimizing the Design Solution ● LS1.A: Structure and Function 	
Crosscutting Concepts <ul style="list-style-type: none"> ● Structure and Function ● Influence of Science, Engineering and Technology on Society and the Natural World 	
Performance Expectations (PE)	Supporting Concepts, Practices, and Ideas
K-2-ETS1-1	Ask questions based on observations to find more information about the natural and/or designed world(s).
	Define a simple problem that can be solved through the development of a new or improved object or tool.
	A situation that people want to change or create can be approached as a problem to

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	be solved through engineering.
	Asking questions, making observations, and gathering information are helpful in thinking about problems.
	Before beginning to design a solution, it is important to clearly understand the problem.
K-2-ETS1-2	Develop a simple model based on evidence to represent a proposed object or tool.
	Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.
	The shape and stability of structures of natural and designed objects are related to their function(s).
K-2-ETS1-3	Analyze data from tests of an object or tool to determine if it works as intended.
	Because there is always more than one possible solution to a problem, it is useful to compare and test designs.
1-LS1-1	Use materials to design a device that solves a specific problem or a solution to a specific problem.
	All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.
Related Common Core ELA Standards	
RI.2.1	Ask and answer such questions as <i>who</i> , <i>what</i> , <i>where</i> , <i>when</i> , <i>why</i> , and <i>how</i> to demonstrate understanding of key details in a text. (K-2-ETS1-1)
W.2.6	With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K-2-ETS1-1) (K-2-ETS1-3)
W.1.7	Participate in shared research and writing projects. (1-LS1-1)
W.2.8	Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1) (K-2-ETS1-3)
SL.2.5	Create audio recording of stories or poems; add drawings, or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (K-2-ETS1-2)
Related Common Core Mathematics Standards	
MP.2	Reason abstractly and quantitatively. (K-2-ETS1-1) (K-2-ETS1-3)
MP.4	Model with mathematics. (K-2-ETS1-1) (K-2-ETS1-3)
MP.5	Use appropriate tools strategically. (K-2-ETS1-1) (K-2-ETS1-3)
2.MD.D.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1) (K-2-ETS1-3)
Unit Essential Questions	
<ul style="list-style-type: none"> ● What questions do scientists ask? 	
Unit Enduring Understandings	
<ul style="list-style-type: none"> ● Scientific inquiry involves asking scientifically 	

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- What kinds of skills do scientists use?
- How do scientists use tools and stay safe?
- How do scientists find answers?
- How do scientists collect and share data?
- What is technology?
- How do people design new things?
- How do we use tools and machines?

- oriented questions, collecting evidence, forming explanations, connecting explanations to scientific knowledge and theory, and communicating and justifying explanations.
- Safety first!
- Understanding the development of scientific ideas is essential for building scientific knowledge.
- Technology evolves at an ever accelerating pace based on the needs and wants of society, and is influenced by cultural, political, and environmental values and constraints.
- Mathematics is a tool used to model objects, events, and relationships in the natural and designed world.
- Thinking systematically means looking for the relationships between parts.
- The development of technology and advances in science are mutually supportive in driving innovation in both fields.
- The structural and functional characteristics of an organism determine their continued survival over time under changing environmental conditions.

Unit Learning Targets

Students will be Able To:

- explain that scientists ask questions and try to determine the answers
- apply science skills effectively
- identify tools, explain how to use them, and follow rules to stay safe
- explain why scientists repeat their investigations
- demonstrate how to record and show data
- explain how technology can help solve problems
- explain the process people use to design new things
- demonstrate an understanding of tools and simple machines and will recognize that some body parts can be used as tools

Evidence of Learning

Summative Assessments at the end of each chapter.

Equipment needed: See teacher's edition

Teacher Resources: Pearson Interactive Science

<https://www.pearsonsuccessnet.com/snpapp/login/PsnLandingPage.jsp?showLandingPage=true&ticket=ST-1368125-E9Ki92wc0g5CVII9xxk5-b3-rumba-prod-01-01>

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Formative Assessments

- teacher observation
- student responses to questions
- student participation in inquiry activities
- student interactive science journal
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Lesson Plans

Chapter 1: The Nature of Science	Timeframe
Lesson 1 <i>What Questions Do Scientists Ask?</i>	3-4 class periods
Lesson 2 <i>What Kinds of Skills Do Scientists Use?</i>	3-4 class periods
Lesson 3 <i>How Do Scientists Use Tools and Stay Safe?</i>	3-4 class periods
Lesson 4 <i>How do Scientists Find Answers?</i>	3-4 class periods
Lesson 5 <i>How do Scientists Collect and Share Data?</i>	3-4 class periods
Inquiry:	
Chapter 2: Technology and Tools	Timeframe
Lesson 1 <i>What is Technology?</i>	3-4 class periods
Lesson 2 <i>How Do People Design New Things?</i>	3-4 class periods
Lesson 3 <i>How Do We Use Tools and Machines?</i>	3-4 class periods
Teacher Notes:	
Curriculum Development Resources	
Click the links below to access additional resources used to design this unit:	
● Next Generation Science Standards (NGSS) http://www.nextgenscience.org/	
● 21st Century Skills http://www.p21.org/our-work/p21-framework	
● New Jersey Standards Clarification Project http://www.nj.gov/education/aps/njscp/Phase1allAreas.pdf	

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The Nature of Science: Lesson 1					
Content Area: Science					
Lesson Title: What Questions Do Scientists Ask?				Timeframe: 3-4 class periods	
Lesson Components					
<u>*21st Century Themes</u>					
Global Awareness	Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy	Health Literacy		
<u>*21st Century Skills</u>					
x Creativity and Innovation	x Critical Thinking and Problem Solving	x Communication and Collaboration	Information Literacy		
Media Literacy	ICT Literacy	x Life and Career Skills			
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>inquiry, nutrients</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● explain that scientists ask questions and try to determine the answers 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students tell one question scientists might ask about Mars. c. Tell students that Mars is the fourth planet. d. Students discuss what is in the photograph and tell what they would want to know about Mars. 2. Explore: <ol style="list-style-type: none"> a. Students read information about what astronauts eat in space, then discuss. b. Students work to list things that astronauts might need in space. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know that scientists ask questions and look for answers</i>. Help students connect this idea to their world. b. Students read information about scientists,

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	<p>then discuss.</p> <p>c. Students read information about scientists asking questions and making discoveries, then discuss.</p> <p>4. Elaborate:</p> <p>a. Students consider why it would be useful for astronauts to be able to grow plants in space. They write the question and a possible answer in their Science Notebook.</p> <p>5. Lightning Lab: Questions, Please.</p> <p>a. Students write 3 questions that a scientist might ask about plants.</p> <p>6. Evaluate:</p> <p>a. Students answer the lesson question <i>What questions do scientists ask?</i> Develop a class answer.</p> <p>b. Students complete the appropriate page in their science journal.</p>
<p>Differentiation:</p> <p>Embedded in the program are</p> <ul style="list-style-type: none"> ● strategies for English Language Learners ● leveled readers ● resources to address multiple intelligences 	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

The Nature of Science: Lesson 2					
Content Area: Science					
Lesson Title: What Kinds of Skills Do Scientists Use?			Timeframe: 3-4 class periods		
Lesson Components					
*<u>21st Century Themes</u>					
Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy	Health Literacy
*<u>21st Century Skills</u>					

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x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	x	Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>observe, predict</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● apply science skills effectively 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students describe a photograph using their senses. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How can you sort objects?</i> Lab objective: Students will work in teams to observe and sort objects, then record their results. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know how to use science skills</i>. Help students connect this idea to their world. b. Students read information about how scientists learn about the world around them, then discuss. c. Students read information about science skills, then discuss. 4. Elaborate: <ol style="list-style-type: none"> a. Students design an experiment in their Science Notebook to find out how different amounts of water affect trees and think about which science skills they would use to complete the experiment. 5. At-Home Lab: A Good Observer. <ol style="list-style-type: none"> a. Students observe an apple and write what they observe. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the lesson question <i>What</i>

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	<p><i>kinds of skills do scientists use?</i> Develop a class answer.</p> <p>b. Students complete the appropriate Lesson Check blackline master to assess understanding of lesson content.</p>
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none"> • strategies for English Language Learners • leveled readers • resources to address multiple intelligences 	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

The Nature of Science: Lesson 3					
Content Area: Science					
Lesson Title: How Do Scientists Use Tools and Stay Safe?				Timeframe: 3-4 class periods	
Lesson Components					
<u>*21st Century Themes</u>					
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy
					Health Literacy
<u>*21st Century Skills</u>					
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration
					Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>tool</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • identify tools, explain how to use them, and follow rules to stay safe 	<p>Lesson Sequence</p> <p>1. Engage:</p> <p>a. Activate prior knowledge.</p>

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	<p>b. Students view a photograph and tell one observation the beekeeper in the photograph might make.</p> <p>2. Explore:</p> <p>a. Inquiry: Explore It! Which tool works better? Lab objective: Students will use tools to measure the thickness, height, and length of objects. Students will record data.</p> <p>3. Explain:</p> <p>a. Students read <i>I will know how to use tools and stay safe</i>. Help students connect this idea to their world.</p> <p>b. Students read information about tools, then discuss.</p> <p>c. Students read information on observing with tools and safety tips, then discuss.</p> <p>4. At-Home Lab: Measure Temperature</p> <p>a. Students use a thermometer to measure the outside temperature and record the temperature in Fahrenheit and Celsius.</p> <p>5. Elaborate:</p> <p>a. Students write in their Science Notebook the rule they find hardest to remember and draw a picture of themselves following the rule.</p> <p>6. Evaluate:</p> <p>a. Students answer the lesson question <i>How do scientists use tools and stay safe?</i> Develop a class answer.</p> <p>b. Students complete the appropriate Lesson Check blackline master to assess understanding of lesson content.</p>
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none">● strategies for English Language Learners● leveled readers● resources to address multiple intelligences	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

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The Nature of Science: Lesson 4					
Content Area: Science					
Lesson Title: How Do Scientists Find Answers?				Timeframe: 3-4 class periods	
Lesson Components					
<u>*21st Century Themes</u>					
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy
<u>*21st Century Skills</u>					
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration
	Media Literacy		ICT Literacy	x	Life and Career Skills
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>investigation, conclusion, hypothesis</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> ● explain why scientists repeat their investigations 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Discuss what students know about what plants need to live, then tell how scientists find answers to questions. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>What conclusion can you draw?</i> Lab objective: Students will draw a conclusion about the reproducibility of results. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know why scientists repeat investigations</i>. Help students connect this idea to their world. b. Students read information about scientists

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	<p>repeating investigations, then discuss.</p> <ol style="list-style-type: none">c. Students learn that they often draw conclusions when they read by putting together the clues that they read with facts they already know. Scientists use the information from their investigations together with what they already know to draw conclusions.d. Students read information about scientific methods, then discuss. <p>4. Elaborate:</p> <ol style="list-style-type: none">a. Students develop a hypothesis as a possible answer to <i>Does water always boil at the same temperature?</i>b. Students write their hypothesis and the descriptions of their tests in their Science Notebook. <p>5. Go Green: Repeat a Test</p> <ol style="list-style-type: none">a. Students think of a hypothesis for the question <i>Do plants need sunlight?</i>b. They plan a test and perform the test recording their steps.c. Students repeat their test. <p>6. Evaluate:</p> <ol style="list-style-type: none">a. Students answer the lesson question <i>How do scientists find answers?</i> Develop a class answer.b. Students complete the appropriate Lesson Check blackline master to assess understanding of lesson content.
<p>Differentiation:</p> <p>Embedded in the program are</p> <ul style="list-style-type: none">● strategies for English Language Learners● leveled readers● resources to address multiple intelligences	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

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The Nature of Science: Lesson 5					
Content Area: Science					
Lesson Title: How Do Scientists Collect and Share Data?				Timeframe: 3-4 class periods	
Lesson Components					
<u>*21st Century Themes</u>					
Global Awareness	Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy	Health Literacy		
<u>*21st Century Skills</u>					
x Creativity and Innovation	x Critical Thinking and Problem Solving	x Communication and Collaboration	Information Literacy		
Media Literacy	ICT Literacy	x Life and Career Skills			
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>data, chart, bar graph</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> ● demonstrate how to record and show data 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students write what they observe about rocks in a photograph, then discuss how they might find out more about them. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>What are different ways you can collect and share data?</i> Lab objective: Students will answer a question and record data in two different ways. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know how to record and show data</i>. Help students connect this idea to their world. b. Students read information about collecting data, then discuss. c. Students learn that they use their five

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	<p>senses to observe and that the information they get is called data.</p> <p>d. Students read information on recording and showing data, then discuss.</p> <p>4. At-Home Lab: <i>Observe and Compare</i></p> <p>a. Students find three leaves in their neighborhood and look at them carefully. They compare shapes and colors and measure them in inches.</p> <p>5. Elaborate:</p> <p>a. Students think about how they can collect and show data about the color of classmates' socks.</p> <p>b. Students write a plan in their Science Notebook explaining how they would collect and show this data.</p> <p>c. Students think about what kind of chart or graph would best show the data.</p> <p>6. Evaluate:</p> <p>a. Students answer the lesson question <i>How do scientists collect and share data?</i> Develop a class answer.</p> <p>b. Students complete the appropriate Lesson Check blackline master to assess understanding of lesson content.</p>
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none">● strategies for English Language Learners● leveled readers● resources to address multiple intelligences	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

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Technology and Tools: Lesson 1							
Content Area: Science							
Lesson Title: What is Technology?				Timeframe: 3-4 class periods			
Lesson Components							
<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>technology, invent</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● explain how technology can help solve problems 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students tell what problem a train might solve. 2. Explore: <ol style="list-style-type: none"> a. Students read about Maglev trains, then explore with magnets. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know how technology can help people solve problems</i>. Help students connect this idea to their world. b. Students learn that they use technology every day and that telephones, computers, electric lights, and pencils are kinds of technology and how technology helps solve problems in their lives. c. Students read information about how

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	<p>technology solves problems, then discuss.</p> <p>d. Students read information on solving problems and helping people, then discuss.</p> <p>4. Lightning Lab: A New Way</p> <p>a. Students think about a pencil, and how people wrote before pencils and pens were invented, and tell how people will write in the future.</p> <p>5. Elaborate:</p> <p>a. Students select a technology from their text and write a sentence in their Science Notebook telling how the technology has changed since its invention.</p> <p>6. Evaluate:</p> <p>a. Students answer the lesson question <i>What is technology?</i> Develop a class answer.</p> <p>b. Students complete the appropriate Lesson Check blackline master to assess understanding of lesson content.</p>
<p>Differentiation:</p> <p>Embedded in the program are</p> <ul style="list-style-type: none"> ● strategies for English Language Learners ● leveled readers ● resources to address multiple intelligences 	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

Technology and Tools: Lesson 2					
Content Area: Science					
Lesson Title: How Do People Design New Things?			Timeframe: 3-4 class periods		
Lesson Components					
<u>*21st Century Themes</u>					
Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy	Health Literacy
<u>*21st Century Skills</u>					

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x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	x	Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>goal, solution, material</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● explain the process people use to design new things 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students learn that many items they use every day are designed to help meet a need or solve a problem. c. Students tell what they might like to design and tell what problems their designs might solve. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How can you keep warm water warm?</i> b. Lab objective: Students will test and compare designs that keep water warm. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know how people design new things</i>. Help students connect this idea to their world. b. Students read about problems and goals, then discuss. c. Students read about planning, drawing, and choosing materials, then discuss. d. Students read the information on making and testing a solution and recording and sharing information, then discuss. 4. Elaborate: <ol style="list-style-type: none"> a. Students look at a design they drew and write about a potential problem with their design in their Science Notebook, then plan and draw a second design. b. Students write a few sentences explaining

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	<p style="text-align: right;">how the new design is better than the first.</p> <p>5. At-Home Lab: <i>Different Designs</i></p> <p style="margin-left: 20px;">a. Students find out about two kinds of shoes and tell what the shoes are used for, and how the designs are different.</p> <p>6. Evaluate:</p> <p style="margin-left: 20px;">a. Students answer the lesson question <i>How do people design new things?</i> Develop a class answer.</p> <p style="margin-left: 20px;">b. Students complete the appropriate Lesson Check blackline master to assess understanding of lesson content.</p>
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none"> • strategies for English Language Learners • leveled readers • resources to address multiple intelligences 	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

Technology and Tools: Lesson 3						
Content Area: Science						
Lesson Title: How Do We Use Tools and Machines?				Timeframe: 3-4 class periods		
Lesson Components						
<u>*21st Century Themes</u>						
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy	Health Literacy
<u>*21st Century Skills</u>						
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills	
*Interdisciplinary Connections: see unit overview						
*Integration of Technology: Pearson Interactive Science Program						

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***Equipment needed: see teacher's edition**

Vocabulary:

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● demonstrate an understanding of tools and simple machines and will recognize that some body parts can be used as tools 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students tell what kinds of tools are needed to build a house. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How does a lever work?</i> b. Lab objective: Students will observe that less force is needed to move a load as the fulcrum of a lever moves closer to the load. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know about tools and simple machines. I will know how some body parts can be used as tools.</i> Help students connect this idea to their world. b. Students read about tools and machines, then discuss. c. Students read information about simple machines and body parts as tools, then discuss. d. Students read the information on animal body parts as tools, then discuss. 4. Elaborate: <ol style="list-style-type: none"> a. Students choose two simple machines that they have learned about and draw each simple machine in their Science Notebook. They write a sentence that describe how the machine is used. 5. Lightning Lab: <i>Tools in Nature</i> <ol style="list-style-type: none"> a. Students make a model of an animal body part and tell how it is like a tool, and how it is different from a tool. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the lesson question <i>How do we use tools and machines?</i> Develop a

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	class answer. b. Students complete the appropriate Lesson Check blackline master to assess understanding of lesson content.
Differentiation: Embedded in the program are <ul style="list-style-type: none">● strategies for English Language Learners● leveled readers● resources to address multiple intelligences	
Resources Provided: <i>Pearson Interactive Science</i>	

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Unit B Overview

Content Area: Science

Unit Title: Unit B Life Science: Plants and Animals, and Growing and Changing

Target Course/Grade Level: 2

Unit Background

Camels live in some of the driest places in the world. Besides camels, few large animals are found in these areas, so there are few predators or other animals to compete for food and water.

Camel bodies are extremely efficient at using the available resources in their environment. They can withstand dehydration, which allows them to survive not only between watering holes, but also between seasons. Camels are omnivores, and they eat almost anything.

Camels have other adaptations that help them survive. Callous-like pads on their chest and legs cushion the animals and keep them comfortable when they are sitting on hot sand. Even a camel's head is adapted to desert life. Its eyes are shaded by projecting ridges of bone covered with thick, bushy eyebrows.

Humans go through a life cycle just like other living things. The human life cycle can be divided into five stages: infancy, childhood, adolescence, adulthood, and late adulthood. A specific set of changes occurs in each of these stages. Infancy, which begins at birth and ends at age 2, is marked by a rapid increase in size and developing mental abilities. Childhood, ages, 2 through 12, is a time when a youngster's muscles develop further. The child becomes more independent and is capable of increasingly complex tasks. Adolescence, ages 11 through 18, is a time of rapid physical change as the body develops the ability to reproduce. After age 18, a human enters adulthood, which is when most people have completed their physical growth. The onset of late adulthood varies. This period is marked by a decline in muscle strength and sometimes diminishing mental capabilities.

Primary interdisciplinary connections: Reading, Math, Social Studies, Music, Writing, Language Arts, Art, Health

21st century themes:

- **Creativity and Innovation**
 - Think Creatively
 - Work Creatively with Others
 - Implement Innovations
- **Critical Thinking and Problem Solving**
 - Reason Effectively
 - Use Systems Thinking
 - Make Judgments and Decisions

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- Solve Problems
- **Communication and Collaboration**
 - Communicate Clearly
 - Collaborate with Others

Standard(s)

- **1-LS1 From Molecules to Organisms: Structures and Processes**
- **1-LS3 Heredity: Inheritance and Variation of Traits**
- **2-LS2 Ecosystems: Interactions, Energy, and Dynamics**
- **2-LS4 Biological Evolution: Unity and Diversity**
- **3-LS4 Biological Evolution: Unity and Diversity**

Performance Expectations

- **1-LS1-1 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external part to help them survive, grow, and meet their needs.**
- **1-LS3-1 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.**
- **2-LS2-1 Plan and conduct an investigation to determine if plants need sunlight and water to grow.**
- **2-LS2-2 Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.**
- **2-LS4-1 Make observations of plants and animals to compare the diversity of life in different habitats.**
- **3-LS4-1 Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.**
- **3-LS4-3 Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well and some cannot survive at all.**

Science and Engineering Practices

Constructing Explanations and Designing Solutions

- Constructing explanations and designing solutions in K-2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

Developing and Using Models

- Modeling in K-2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

Planning and Carrying Out Investigations

- Planning and carrying out investigations to answer questions or test solutions to problems in K-2 build on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

Scientific Knowledge is Based on Empirical Evidence

Analyzing and Interpreting Data

Engaging in Argument from Evidence

Disciplinary Core Ideas

- **LS1-A: Structure and Function**
- **LS1.D: Information Processing**

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<ul style="list-style-type: none"> ● LS2.A: Interdependent Relationships in Ecosystems ● LS3.A: Inheritance of Traits ● LS3.B: Variation of Traits ● LS4.A: Evidence of Common Ancestry and Diversity ● LS4.C: Adaptation ● ETS1.B: Developing Possible Solutions 	
Crosscutting Concepts <ul style="list-style-type: none"> ● Structure and Function ● Influence of Science, Engineering and Technology on Society and the Natural World ● Cause and Effect ● Scale, Proportion, and Quantity ● Scientific Knowledge Assumes an Order and Consistency in Natural Systems ● Patterns 	
Performance Expectations (PE)	Supporting Concepts, Practices, and Ideas
1-LS1-1	Use materials to design a device that solves a specific problem or a solution to a specific problem.
	All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.
	Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.
	The shape and stability of structures of natural and designed objects are related to their function.
	Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.
1-LS3-1	Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.
	Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents.
	Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.
	Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.
2-LS2-1	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
	Plants depend on water and light to grow.
	Events have causes that generate observable patterns.
2-LS2-2	Develop a simple model based on evidence to represent a proposed object or tool.
	Plants depend on animals for pollination or to move their seeds around.

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	Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.		
	The shape and stability of structures of natural and designed objects are related to their function.		
2-LS4-1	Make observations (firsthand or from media) to collect data that can be used to make comparisons.		
	Scientists look for patterns and order when making observations about the world.		
	There are many different kinds of living things in any area, and they exist in different places on land and in water.		
3-LS4-1	Analyze and interpret data to make sense of phenomena using logical reasoning.		
	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.		
	Observable phenomena exist from very short to very long time periods.		
	Science assumes consistent patterns in natural systems.		
3-LS4-3	Construct an argument with evidence.		
	For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.		
	Cause and effect relationships are routinely identified and used to explain change.		
Related Common Core ELA Standards			
W.2.7	Participate in shared research and writing projects.		
W.2.8	Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1) (K-2-ETS1-3)		
SL.2.5	Create audio recording of stories or poems; add drawings, or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (K-2-ETS1-2)		
Related Common Core Mathematics Standards			
MP.2	Reason abstractly and quantitatively. (K-2-ETS1-1) (K-2-ETS1-3)		
MP.4	Model with mathematics. (K-2-ETS1-1) (K-2-ETS1-3)		
MP.5	Use appropriate tools strategically. (K-2-ETS1-1) (K-2-ETS1-3)		
2.MD.D.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1) (K-2-ETS1-3)		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; vertical-align: top;"> Unit Essential Questions <ul style="list-style-type: none"> ● What are some kinds of animals? ● What are some parts of animals? ● What are the parts of plants? </td> <td style="width: 50%; vertical-align: top;"> Unit Enduring Understandings <ul style="list-style-type: none"> ● All organisms transfer matter and convert energy from one form to another. <i>f</i> ● Both matter and energy are necessary to build and </td> </tr> </table>		Unit Essential Questions <ul style="list-style-type: none"> ● What are some kinds of animals? ● What are some parts of animals? ● What are the parts of plants? 	Unit Enduring Understandings <ul style="list-style-type: none"> ● All organisms transfer matter and convert energy from one form to another. <i>f</i> ● Both matter and energy are necessary to build and
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<ul style="list-style-type: none"> ● Where do plants and animals live? ● How do living things get food? ● What is a fossil 	<p>maintain structures within the organism.</p> <ul style="list-style-type: none"> ● The structural and functional characteristics of an organism determine their continued survival over time under changing environmental conditions. ● Mathematics is a tool used to model objects, events, and relationships in the natural and designed world. ● Thinking systematically means looking for the relationships between parts. ● The development of technology and advances in science are mutually supportive in driving innovation in both fields. ● The structural and functional characteristics of an organism determine their continued survival over time under changing environmental conditions.
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Unit Learning Targets

Students will be Able To:

- describe how animal groups are alike and different
- identify animal needs and will be able to explain how animals use body parts to meet those needs
- identify the different parts of plants
- recognize that plants and animals live in habitats that meet their needs
- explain how a food chain works
- explain what fossils are and how fossils form

Evidence of Learning

Summative Assessments at the end of each chapter.

Equipment needed: See teacher's edition

Teacher Resources: Pearson Interactive Science

<https://www.pearsonsuccessnet.com/snpapp/login/PsnLandingPage.jsp?showLandingPage=true&ticket=ST-1368125-E9Ki92wc0g5CVII9xxk5-b3-rumba-prod-01-01>

Formative Assessments

- | | |
|--|---|
| <ul style="list-style-type: none"> ● teacher observation ● student responses to questions ● student participation in inquiry activities | <ul style="list-style-type: none"> ● student interactive science journal ● ● |
|--|---|

Lesson Plans

Chapter 3: Plants and Animals	Timeframe
Lesson 1 <i>What Are Some Kinds of Animals?</i>	3-4 class periods
Lesson 2 <i>What Are Some Parts of Animals?</i>	3-4 class periods
Lesson 3 <i>What Are the Parts of Plants?</i>	3-4 class periods
Lesson 4 <i>Where Do Plants and Animals Live?</i>	3-4 class periods

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Lesson 5 <i>How Do Living Things Get Food?</i>	3-4 class periods
Lesson 6 <i>What is a Fossil</i>	3-4 class periods
Inquiry: <ul style="list-style-type: none"> ● <i>What do plants need to be healthy?</i> ● <i>How does water affect plant growth?</i> ● <i>What will happen if you give a plant a lot of water?</i> ● At-Home Lab: Group Animals ● <i>How do ears compare?</i> ● Lightning Lab: Animal Needs ● Go Green: Air in Soil ● <i>Where can plants live?</i> ● Go Green: Clean Habitats ● <i>What is the order of a food chain?</i> ● Lightning Lab: Draw a Food Chain. ● <i>What can a fossil show?</i> ● At-Home Lab: Make a Fossil 	
Chapter 4: Growing and Changing	Timeframe
Lesson 1 <i>What is the Life Cycle of a Butterfly?</i>	3-4 class periods
Lesson 2 <i>What is the Life Cycle of a Frog?</i>	3-4 class periods
Lesson 3 <i>What is the Life Cycle of a Mouse?</i>	3-4 class periods
Lesson 4 <i>What is the Life Cycle of a Plant?</i>	3-4 class periods
Lesson 5 <i>How Are Living Things Like Their Parents?</i>	3-4 class periods
Lesson 6 <i>What Do Some of Your Body Parts Do?</i>	3-4 class periods
Inquiry: <ul style="list-style-type: none"> ● <i>How does a butterfly grow and change?</i> ● <i>What is the life cycle of a beetle?</i> ● <i>How do beetles move?</i> ● <i>How could you further explore mealworms?</i> ● Lightning Lab: Play a Butterfly ● <i>How are life cycles alike and different?</i> ● Lightning Lab: How You Grow Older ● Lightning Lab: Mouse Life Cycle ● <i>How does a seed grow?</i> 	

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- **Go Green: *The Good Bean***
- ***How are babies like their parents?***
- **At-Home Lab: *Parent and Young***
- ***How does your arm work?***
- **At-Home Lab: *Sound of a Heartbeat***

Teacher Notes:

Curriculum Development Resources

Click the links below to access additional resources used to design this unit:

- **Next Generation Science Standards (NGSS)** <http://www.nextgenscience.org/>
- **21st Century Skills** <http://www.p21.org/our-work/p21-framework>
- **New Jersey Standards Clarification Project**
<http://www.nj.gov/education/aps/njscp/Phase1allAreas.pdf>

Plants and Animals: Lesson 1

Content Area: Science

Lesson Title: What Are Some Kinds of Animals?

Timeframe: 3-4 class periods

Lesson Components

*21st Century Themes

Global Awareness	Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy	Health Literacy
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*21st Century Skills

x Creativity and Innovation	x Critical Thinking and Problem Solving	x Communication and Collaboration	Information Literacy
Media Literacy	ICT Literacy	x Life and Career Skills	

***Interdisciplinary Connections:** see unit overview

***Integration of Technology:** Pearson Interactive Science Program

***Equipment needed:** see teacher's edition

Vocabulary: *amphibian, reptile*

Learning Outcomes

Learning Activities/Instructional Strategies

Students Will Be Able To:

Lesson Sequence

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- describe how animal groups are alike and different

1. Engage:

- Activate prior knowledge.
- Students tell how they can sort animals into groups.
- Students learn that *sort* means to put similar objects into groups based on characteristics such as color, size, and shape.

2. Explore:

- Students read information about whales and learn that whales must swim to the surface of the ocean to breathe air through their blowhole.

3. Explain:

- Students read *I will know how animal groups are alike and different*. Help students connect this idea to their world.
- Students read information on animal groups, then discuss.
- Students read information on animals with backbones, then discuss.
- Students read information on animals without backbones, then discuss.

4. Elaborate:

- Students learn that frogs are not the same as toads.
- Students learn that all birds have feathers and wings, but not all birds can fly.

5. At-Home Lab: *Group Animals*.

- Students find pictures of different kinds of animals and sort them into groups, then use the groups to make a poster. They explain why the animals in each group belong together.

6. Evaluate:

- Students answer the lesson question *What are some kinds of animals?* Develop a class answer.
- Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

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Embedded in the program are <ul style="list-style-type: none"> • strategies for English Language Learners • leveled readers • resources to address multiple intelligences
Resources Provided: <i>Pearson Interactive Science</i>

Plants and Animals: Lesson 2						
Content Area: Science						
Lesson Title: What Are Some Parts of Animals?				Timeframe: 3-4 class periods		
Lesson Components						
<u>*21st Century Themes</u>						
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy	Health Literacy
<u>*21st Century Skills</u>						
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills	
*Interdisciplinary Connections: see unit overview						
*Integration of Technology: Pearson Interactive Science Program						
*Equipment needed: see teacher's edition						
Vocabulary: <i>camouflage</i>						

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> • identify animal needs and will be able to explain how animals use body parts to meet those needs 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students discuss the body parts they use to get food themselves. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How do ears compare?</i> <ol style="list-style-type: none"> i. Lab Objective: Students will

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compare hearing with a human ear and a model elk ear.

3. **Explain:**

- a. Students read *I will know what animals need. I will know how animals use body parts to meet their needs.* Help students connect this idea to their world.
- b. Students discuss how people's needs are met, then read about animal needs, then discuss.
- c. Students read the information on animal body parts, then discuss.
- d. Students read information on how animals stay safe, then discuss.

4. **Lightning Lab: Animal needs**

- a. Students find a picture of an animal and write what the animal eats and how it uses its body parts to get food.

5. **Elaborate:**

- a. Students choose a bird to draw in their Science Notebook and write how the shape of its beak helps it get the food it needs.

6. **At-Home Lab: Group Animals.**

- a. Students find pictures of different kinds of animals and sort them into groups, then use the groups to make a poster. They explain why the animals in each group belong together.

7. **Evaluate:**

- a. Students answer the lesson question *What are some parts of animals?* Develop a class answer.
- b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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Plants and Animals: Lesson 3					
Content Area: Science					
Lesson Title: What Are the Parts of Plants?				Timeframe: 3-4 class periods	
Lesson Components					
*<u>21st Century Themes</u>					
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy
					Health Literacy
*<u>21st Century Skills</u>					
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration
					Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>roots, stem, nutrient</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> ● identify the different parts of plants 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students circle the part of a plant that brings water from the soil to the stem. c. Students learn that soil is the upper layer of Earth in which plants grow, and that it is a mixture of plant and animal remains, clay, and rock. 2. Explore: <ol style="list-style-type: none"> a. Students read about a plant called a lithop, then discuss. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know the different</i>

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	<p><i>parts of seed plants.</i> Help students connect this idea to their world.</p> <ol style="list-style-type: none"> b. Students learn that plants have needs for living and growing well. c. Students compare what they need to live a healthy life and what plants need. d. Students read the information on plant needs, then discuss. e. Students read about plant parts, then discuss. f. Students read the information on seed plants, then discuss. <p>4. Go Green: Air in Soil</p> <ol style="list-style-type: none"> a. Students plant a seed in loose soil and one in packed soil, then water both and observe. <p>5. Elaborate:</p> <ol style="list-style-type: none"> a. Students observe the seeds of three plants and make simple drawings of each seed in their Science Notebook and draw the plant that produces it. <p>6. Evaluate:</p> <ol style="list-style-type: none"> c. Students answer the lesson question <i>What are parts of plants?</i> Develop a class answer. d. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none"> ● strategies for English Language Learners ● leveled readers ● resources to address multiple intelligences 	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

Plants and Animals: Lesson 4	
Content Area: Science	
Lesson Title: Where Do Plants and Animals Live?	Timeframe: 3-4 class periods
Lesson Components	

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<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>wetland, desert, habitat</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> recognize that plants and animals live in habitats that meet their needs 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> Engage: <ol style="list-style-type: none"> Activate prior knowledge. Students learn that a rain forest is very wet and warm. They discuss the types of animals that might live there. Explore: <ol style="list-style-type: none"> Inquiry: Explore It! <i>Where can plants live?</i> <ol style="list-style-type: none"> Lab Objective: Students will learn what kind of plant can live in deserts. Explain: <ol style="list-style-type: none"> Students read <i>I will know that plants and animals live in habitats that meet their needs</i>. Help students connect this idea to their world. Students discuss how they keep themselves warm in cold weather and that animals have adaptations that allow them to live in cold environments.

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	<ul style="list-style-type: none"> c. Students read the information on habitats, then discuss. d. Students read information on forests, then discuss. e. Students read information on ocean, desert, wetland, and rain forest habitats, then discuss. <p>4. Go Green: Clean Habitats</p> <ul style="list-style-type: none"> a. Students tell what happens if the air and water are dirty in an animal’s habitat then write three ways to keep habitats clean. <p>5. Elaborate:</p> <ul style="list-style-type: none"> a. Students choose one habitat and illustrate it and write 2-3 sentences about it in their Science Notebook. <p>6. Evaluate:</p> <ul style="list-style-type: none"> a. Students answer the lesson question <i>Where do plants and animals live?</i> Develop a class answer. b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none"> ● strategies for English Language Learners ● leveled readers ● resources to address multiple intelligences 	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

Plants and Animals: Lesson 5				
Content Area: Science				
Lesson Title: How Do Living Things Get Food?			Timeframe: 3-4 class periods	
Lesson Components				
*21st Century Themes				
Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy	Health Literacy

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<u>*21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	x	Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>food chain, predator, prey</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● explain how a food chain works 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students discuss how living things depend on each other for food. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>What is the order of a food chain?</i> <ol style="list-style-type: none"> i. Lab Objective: Students will identify the components of a food chain and make a model. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know how plants and animals get food. I will know how a food chain works.</i> Help students connect this idea to their world. b. Students learn that plants and animals are linked together in their need to get energy from the food they eat. c. Students read about energy from food, then discuss. d. Students read information about food chains, then discuss. 4. Lightning Lab: <i>Draw a Food Chain</i> <ol style="list-style-type: none"> a. Students draw a food chain that shows how energy passes from one living thing to

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	<p style="text-align: right;">another.</p> <p>5. Elaborate:</p> <p style="margin-left: 20px;">a. Students identify the plants or animals the food they ate for breakfast or lunch came from.</p> <p>6. Evaluate:</p> <p style="margin-left: 20px;">a. Students answer the lesson question <i>How do living things get food?</i> Develop a class answer.</p> <p style="margin-left: 20px;">b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.</p>
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none"> • strategies for English Language Learners • leveled readers • resources to address multiple intelligences 	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

Plants and Animals: Lesson 6							
Content Area: Science							
Lesson Title: What is a Fossil?			Timeframe: 3-4 class periods				
Lesson Components							
*<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
*<u>21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							

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Vocabulary: *extinct, fossil*

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none">● explain what fossils are and how fossils form	<p>Lesson Sequence</p> <ol style="list-style-type: none">1. Engage:<ol style="list-style-type: none">a. Activate prior knowledge.b. Students match fossils with the animal that left it.2. Explore:<ol style="list-style-type: none">a. Inquiry: Explore It! <i>What can a fossil show?</i><ol style="list-style-type: none">i. Lab Objective: Students will model an imprint fossil.3. Explain:<ol style="list-style-type: none">a. Students read <i>I will know what fossils are and how fossils form</i>. Help students connect this idea to their world.b. Students read information on fossils, then discuss.4. Elaborate:<ol style="list-style-type: none">a. Students learn that fossils can form in tar pits, and write how fossils form in their Science Notebook.5. At-Home Lab: <i>Make a Fossil</i><ol style="list-style-type: none">a. Students find a large leaf and create a rubbing.6. Evaluate:<ol style="list-style-type: none">a. Students answer the lesson question <i>What is a fossil?</i> Develop a class answer.b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation:</p> <p>Embedded in the program are</p> <ul style="list-style-type: none">● strategies for English Language Learners● leveled readers	

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- resources to address multiple intelligences
- Resources Provided:** *Pearson Interactive Science*

Growing and Changing: Lesson 1					
Content Area: Science					
Lesson Title: What is the Life Cycle of a Butterfly?				Timeframe: 3-4 class periods	
Lesson Components					
*21st Century Themes					
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy
*21st Century Skills					
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration
	Media Literacy		ICT Literacy	x	Life and Career Skills
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>pupa, larva, life cycle</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> observe and describe the life cycle of a butterfly 	Lesson Sequence <ol style="list-style-type: none"> Engage: <ol style="list-style-type: none"> Activate prior knowledge. Students are reminded that butterflies are insects, and review the parts of insects. Explore: <ol style="list-style-type: none"> Students read about the zebra butterfly, then discuss. Explain: <ol style="list-style-type: none"> Students read <i>I will know the life cycle of a butterfly</i>. Help students connect this idea to their world.

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	<ul style="list-style-type: none"> b. Students describe butterflies they may have seen. c. Students read about butterflies, then discuss. d. Students read about the butterfly life cycle, then discuss. <p>4. Elaborate:</p> <ul style="list-style-type: none"> a. Students draw the butterfly life cycle in their Science Notebook and label each stage. <p>5. Lightning Lab: <i>Play a Butterfly</i></p> <ul style="list-style-type: none"> a. Students enact the stages of the butterfly life cycle. <p>6. Evaluate:</p> <ul style="list-style-type: none"> a. Students answer the lesson question <i>What is the life cycle of a butterfly?</i> Develop a class answer. b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
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Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

Growing and Changing: Lesson 2					
Content Area: Science					
Lesson Title: What is the Life Cycle of a Frog?				Timeframe: 3-4 class periods	
Lesson Components					
<u>*21st Century Themes</u>					
Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy	Health Literacy
<u>*21st Century Skills</u>					
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration
					Information Literacy

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Media Literacy	ICT Literacy	x	Life and Career Skills
*Interdisciplinary Connections: see unit overview			
*Integration of Technology: Pearson Interactive Science Program			
*Equipment needed: see teacher's edition			
Vocabulary: <i>amphibian, tadpole</i>			

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● observe and describe the life cycle of a frog. 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students draw the life cycle of a frog. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How are life cycles alike and different?</i> Lab Objective: Students will compare the life cycles of butterflies and frogs. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know the life cycle of a frog</i>. Help students connect this idea to their world. b. Students read information on frogs and their life cycle, then discuss. 4. Elaborate: <ol style="list-style-type: none"> a. Students write riddles for each stage of the frog life cycle in their Science Notebook. 5. Lightning Lab: <i>How you grow older.</i> <ol style="list-style-type: none"> a. Students draw pictures of themselves, then put them in order beginning with a baby picture, then write the changes they see. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the lesson question <i>What is the life cycle of a frog?</i> Develop a class answer. b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
Differentiation:	

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Embedded in the program are <ul style="list-style-type: none"> ● strategies for English Language Learners ● leveled readers ● resources to address multiple intelligences
Resources Provided: <i>Pearson Interactive Science</i>

Growing and Changing: Lesson 3					
Content Area: Science					
Lesson Title: What is the Life Cycle of a Mouse?				Timeframe: 3-4 class periods	
Lesson Components					
<u>*21st Century Themes</u>					
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy
					Health Literacy
<u>*21st Century Skills</u>					
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration
					Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>litter, mammal</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> ● observe and describe the life cycle of a mouse. 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students children describe physical characteristics of a mouse while viewing a picture of a mouse. 2. Explore: <ol style="list-style-type: none"> a. Students read about mice, then discuss. 3. Explain:

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	<ol style="list-style-type: none"> a. Students read <i>I will know the life cycle of a mouse</i>. Help students connect this idea to their world. b. Students read information on mice and their life cycle, then discuss. <p>4. Elaborate:</p> <ol style="list-style-type: none"> a. Students learn that mice build nests. b. Students write about different kinds of nests in their Science Notebook. <p>5. Lightning Lab: <i>Mouse Life Cycle</i>.</p> <ol style="list-style-type: none"> a. Students write a sentence that describes a stage of the mouse life cycle. <p>6. Evaluate:</p> <ol style="list-style-type: none"> a. Students answer the lesson question <i>What is the life cycle of a mouse?</i> Develop a class answer. b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none"> • strategies for English Language Learners • leveled readers • resources to address multiple intelligences 	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

Growing and Changing: Lesson 4							
Content Area: Science							
Lesson Title: What is the Life Cycle of a Plant?				Timeframe: 3-4 class periods			
Lesson Components							
<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy

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Media Literacy	ICT Literacy	x	Life and Career Skills
*Interdisciplinary Connections: see unit overview			
*Integration of Technology: Pearson Interactive Science Program			
*Equipment needed: see teacher's edition			
Vocabulary: <i>seedling, seed coat, fruit, seed</i>			

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● observe and describe the life cycle of a plant. 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students draw what they think an acorn will look like when it's an adult plant. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How does a seed grow?</i> Lab Objective: Students will observe and describe changes to a pinto bean seed as it sprouts into a seedling. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know the life cycle of a bean plant</i>. Help students connect this idea to their world. b. Students brainstorm different types of seeds they have seen. c. Students learn that seeds are in many fruits they eat, and that <i>fruit</i> refers to any part of a plant that has seeds inside. d. Students read about seeds, then discuss. e. Students read about the bean plant life cycle, then discuss. 4. Go Green: <i>The Good Bean</i>. Students research how planting beans can improve soil and create a poster. 5. Elaborate: <ol style="list-style-type: none"> a. Students think of their favorite plant and draw its life cycle in their Science Notebook. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the lesson question <i>What is the life cycle of a plant?</i> Develop a class

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	answer. b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
Differentiation: Embedded in the program are <ul style="list-style-type: none"> • strategies for English Language Learners • leveled readers • resources to address multiple intelligences 	
Resources Provided: <i>Pearson Interactive Science</i>	

Growing and Changing: Lesson 5							
Content Area: Science							
Lesson Title: How Are Living Things Like Their Parents?				Timeframe: 3-4 class periods			
Lesson Components							
<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>inherit</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> • identify similar characteristics in parents 	Lesson Sequence 1. Engage:

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and their offspring.

- a. Activate prior knowledge.
 - b. Students discuss how children and their parents are alike and different.
2. **Explore:**
- a. **Inquiry: Explore It! *How are babies like their parents?*** Lab Objective: Students will observe pictures of parents and offspring and describe how they are similar and different.
3. **Explain:**
- a. Students read *I will know how living things are like their parents*. Help students connect this idea to their world.
 - b. Students view a picture of a family and discuss how the members are alike and how they are different.
 - c. Students read about living things and their parents, then discuss.
 - d. Students read about animals and their offspring, then discuss.
4. **Elaborate:**
- a. Students discuss how penguins change as they grow.
5. **At-Home Lab: *Parent and Young***. Students find a picture of a young animal and its parent, then compare the two animals.
6. Students read information on plants and their parents, then discuss.
7. **Evaluate:**
- a. Students answer the lesson question *How are living things like their parents?* Develop a class answer.
 - b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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Growing and Changing: Lesson 6					
Content Area: Science					
Lesson Title: What Do Some of Your Body Parts Do?				Timeframe: 3-4 class periods	
Lesson Components					
*<u>21st Century Themes</u>					
Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy	Health Literacy
*<u>21st Century Skills</u>					
x Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	Information Literacy
Media Literacy		ICT Literacy	x	Life and Career Skills	
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>heart, lungs, skeleton</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● understand what the brain, heart, lungs, stomach, bones, and muscles do 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students connect pictures of body parts to where they belong on the skeleton. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How does your arm work?</i> Lab Objective: Students will model how a human arm works. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know what the brain, heart, lungs, stomach, bones, and muscles do</i>. Help students connect this idea to their

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	<p>world.</p> <ol style="list-style-type: none">b. Students read about what the human body can do, then discuss.c. Students write sentences in their Science Notebook about each sense.d. Students read about the brain, then discuss.e. Students read about the stomach, then discuss.f. Students read about the lungs and heart, then discuss.g. Students read about bones and muscles, then discuss. <p>4. At-Home Lab: <i>Sound of a Heartbeat</i>. Students listen to someone’s heartbeat, then tell what they hear.</p> <p>5. Elaborate:</p> <ol style="list-style-type: none">a. Students learn that the five senses are sight, hearing, smell, touch, and taste <p>6. Evaluate:</p> <ol style="list-style-type: none">a. Students answer the lesson question <i>What do some of your body parts do?</i> Develop a class answer.b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none">● strategies for English Language Learners● leveled readers● resources to address multiple intelligences	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

Unit C Overview

Content Area: Science

Unit Title: Unit C Earth Science: Earth’s Materials, The Solar System, and Weather

Target Course/Grade Level: 2

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Unit Background

Hardness refers to a mineral's resistance to being scratched. In 1822, the German mineralogist Friedrich Mohs devised a scale for quantifying this physical property of minerals. The scale ranks minerals in hardness from 1 to 10 with 1 being the softest and 10 being the hardest. Each mineral can scratch other minerals with a lower hardness rating. This means that talc, which has a rating of 1, can be scratched by all other minerals. Diamond, which has a rating of 10, scratches all other minerals. Even though this scale was devised nearly 200 years ago, it is still widely used as a mineral identification tool.

The sun is neither the brightest nor largest star in the universe; however, at a distance of nearly 150 million kilometers (93 million miles), it is the star closest to Earth. Radiant energy produced by nuclear fusion reactions within the sun travels outward to all directions through space.

When radiant energy reaches Earth, it is transformed into other energy forms. For example, green plants capture radiant energy and convert it to chemical energy through the process of photosynthesis. Solar cells and solar power plants convert radiant energy into thermal and electrical energy. Energy absorbed by the atmosphere produces our weather. Except for geothermal energy, which is produced by reactions inside our planet, all the energy used on Earth ultimately comes from the sun.

Scientists group the eight planets in the solar system according to their size, surface, and distance from the sun. The first four planets – Mercury, Venus, Earth, and Mars – are called the *inner planets*. They are small and have rocky surfaces. The inner planets are also known as the *terrestrial planets*, from the Latin word *terra*, which means “earth”, or “land.”

Jupiter, Saturn, Uranus, and Neptune are the *outer planets*. Large, with more mass than Earth, the outer planets do not have solid surfaces. Instead, they are made mostly of gases, giving them the name “gas giants.” The outer planets all have rings around them.

The National Weather Service is a government agency that monitors worldwide weather conditions and advises communities of approaching severe weather. When such conditions arise, the forecasters first issue a weather watch, which means that conditions are suitable for a specific type of severe weather to occur in the next few days. In the case of a hurricane, the watch indicates that people should prepare for evacuation. As the severe weather draws closer and begins to threaten a community, the National Weather Service issues a weather warning, which indicates that severe weather is about to strike. Local officials may evacuate communities when a hurricane warning is issued.

Primary interdisciplinary connections: Reading, Math, Language Arts, Art, Social Studies, Writing, Rhyme, Music, Health

21st century themes:

- **Creativity and Innovation**
 - Think Creatively
 - Work Creatively with Others
 - Implement Innovations
- **Critical Thinking and Problem Solving**
 - Reason Effectively
 - Use Systems Thinking

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- Make Judgments and Decisions
- Solve Problems
- **Communication and Collaboration**
 - Communicate Clearly
 - Collaborate with Others

Standard(s)

- **K-ESS2 Earth's Systems**
- **K-ESS3 Earth and Human Activity**
- **1-ESS1 Earth's Place in the Universe**
- **2-ESS1 Earth's Place in the Universe**
- **2-ESS2 Earth's Systems**
- **2-PS1 Matter and Its Interactions**

Performance Expectations

- **K-ESS2-1 Use and share observations of local weather conditions to describe patterns.**
- **K-ESS3-2 Ask questions to obtain information about the purpose of weather forecasting.**
- **K-ESS3-3 Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.**
- **1-ESS1-1 Use observations of the sun, moon, and stars to describe patterns that can be predicted.**
- **2-ESS2-2 Develop a model to represent the shapes and kinds of land and bodies of water.**
- **2-ESS1-1 Use information from several sources to provide evidence that Earth events can occur quickly or slowly.**
- **2-ESS2-3 Obtain information to identify where water is found on Earth and that it can be solid or liquid.**
- **2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.**

Science and Engineering Practices

Analyzing and Interpreting Data

- Analyzing data in K-2 builds on prior experiences and progresses to collecting, recording, and sharing observations.

Science Knowledge is Based on Empirical Evidence

Planning and Carrying Out Investigations

- Planning and carrying out investigations to answer questions or test solutions to problems in K-2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.

Developing and Using Models

- Modeling in K-2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions.

Asking Questions and Defining Problems

- Asking questions and defining problems in grades K-2 builds on prior experiences and progresses to simple descriptive questions that can be tested.

Obtaining, Evaluating, and Communicating Information

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- Obtaining, evaluating, and communicating information in K-2 builds on prior experiences and uses observations and texts to communicate new information.

Constructing Explanations and Designing Solutions

- Constructing explanations and designing solutions in K-2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

Disciplinary Core Ideas

- **ESS1.A: The Universe and the Stars**
- **ESS1.C: The History of Planet Earth**
- **ESS2.B: Plate Tectonics and Large-Scale System Interactions**
- **ESS2.C: The Roles of Water in Earth’s Surface Processes**
- **ESS2.D: Weather and Climate**
- **ESS3.B: Natural Hazards**
- **ESS3.C: Human Impacts on Earth Systems**
- **PS1.A: Structure and Properties of Matter**

Crosscutting Concepts

- **Patterns**
- **Cause and Effect**
- **Stability and Change**
- **Interdependence of Science, Engineering and Technology**
- **Influence of Engineering, Technology and Science on Society and the Natural World**
- **Scientific Knowledge Assumes an Order and Consistency in Natural Systems**

Performance Expectations (PE)	Supporting Concepts, Practices, and Ideas
K-ESS2-1	Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.
	Scientists look for patterns and order when making observations about the world.
	Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time.
K-ESS3-2	Ask questions based on observations to find more information about the designed world.
	Read grade-appropriate texts and/or use media to obtain scientific information to describe patterns in the natural world.
	Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for, and respond to, these events.
	Events have causes that generate observable patterns.
	People encounter questions about the natural world every day.
	People depend on various technologies in their lives; human life would be very different without technology.
K-ESS3-3	Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas.

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	Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things.
	Events have causes that generate observable patterns.
1-ESS1-1	Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.
	Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.
	Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.
	Science assumes natural events happen today as they happened in the past.
	Many events are repeated.
2-ESS1-1	Make observations from several sources to construct an evidence-based account for natural phenomena.
	Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.
	Things may change slowly or rapidly.
2-ESS2-2	Develop a model to represent patterns in the natural world.
	Maps show where things are located. One can map the shapes and kinds of land and water in any area.
	Patterns in the natural world can be observed.
2-ESS2-3	Obtain information using various text, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question.
	Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.
	Patterns in the natural world can be observed.
2-PS1-1	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
	Different kinds of matter exist and many of them can either be liquid or solid, depending on temperature.
	Matter can be described and classified by its observable properties.
	Patterns in the natural and human designed world can be observed.
Related Common Core ELA Standards	
RI.2.1	Ask and answer such questions as <i>who</i> , <i>what</i> , <i>where</i> , <i>when</i> , <i>why</i> , and <i>how</i> to demonstrate understanding of key details in a text. (2-ESS1-1)
RI.2.3	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-ESS1-1)

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W.2.6	With guidance and support from adults, use a variety of digital tools to produce and publish writing including in collaboration with peers. (2-ESS1-1) (2-ESS2-3)
W.2.7	Participate in shared research and writing projects. (2-ESS1-1)
W.2.8	Recall information from experiences or gather information from provided sources to answer a question. (2-ESS1-1) (2-ESS2-3)
SL.2.2	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media. (2-ESS1-1)
SL.2.5	Create audio recording of stories or poems; add drawings, or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (2-ESS2-2)
Related Common Core Mathematics Standards	
MP.2	Reason abstractly and quantitatively. (2-ESS1-1) (2-ESS2-2)
MP.4	Model with mathematics. (2-ESS1-1) (2-ESS2-2)
MP.5	Use appropriate tools strategically.
2.NBT.A	Understand place value. (2-ESS1-1)
2.NBT.A.3	Read and write numbers to 1000 using base-ten numerals, number names, and expanded form. (2-ESS2-2)
2.MD.D.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.
<p>Unit Essential Questions</p> <ul style="list-style-type: none"> ● What are natural resources? ● What are rocks and minerals? ● What is soil? ● What are some kinds of land and water? ● How can people help protect Earth? ● What is the sun? ● What are the moon and stars? ● What is the solar system? ● What is the water cycle? ● How can you describe weather? ● How can you measure weather? ● How does weather change? ● How can you stay safe in severe weather? 	<p>Unit Enduring Understandings</p> <ul style="list-style-type: none"> ● Scientific inquiry involves asking scientifically oriented questions, collecting evidence, forming explanations, connecting explanations to scientific knowledge and theory, and communicating and justifying explanations. ● Safety first! ● Energy takes many forms. ● Earth systems can be broken down into individual components that have observable measurable properties. ● Earth’s components form systems. These systems continually interact at different rates of time affecting the Earth regionally and globally. ● Technology enables us to better understand Earth’s systems and the impact of Earth’s systems on human activity. ● Observable, predictable patterns of movement in the Sun, Earth, and Moon system occur because of gravitational interaction and energy from the Sun. ● Physical characteristics of planets depend on their distance from the Sun and their size.

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	<ul style="list-style-type: none"> ● The Sun is star. ● Humans can alter the living and non-living factors within an ecosystem, thereby creating changes in the overall system. ● Mathematics is a tool used to model objects, events, and relationships in the natural and designed world. ● Thinking systematically means looking for the relationships between parts. ● The development of technology and advances in science are mutually supportive in driving innovation in both fields.
<p>Unit Learning Targets <i>Students will be Able To:</i></p> <ul style="list-style-type: none"> ● demonstrate an understanding that Earth has many natural resources ● recognize that Earth is made of many different kinds of rock ● describe and classify soils ● identify the land and water on Earth ● describe ways they can protect Earth’s environment ● explain that the sun is a star that gives off light and heat, and that Earth’s daily rotation makes the sun appear to be moving across the sky ● explain what stars are, and describe the moon ● demonstrate an understanding of the objects that make up the solar system ● demonstrate an understanding of the water cycle and why the sun is important ● describe different kinds of weather ● describe how wind, rain, and temperature are measured ● describe weather patterns, both day-to-day and season-to-season ● explain how to stay safe in severe weather 	
Evidence of Learning	
<p>Summative Assessments at the end of each chapter.</p> <p>Equipment needed: See teacher’s edition</p> <p>Teacher Resources: Pearson Interactive Science https://www.pearsonsuccessnet.com/snpapp/login/PsnLandingPage.jsp?showLandingPage=true&ticket=ST-1368125-E9Ki92wc0g5CVII9xxk5-b3-rumba-prod-01-01</p>	

Formative Assessments	
<ul style="list-style-type: none"> ● teacher observation ● student responses to questions ● student participation in inquiry activities 	<ul style="list-style-type: none"> ● student interactive science journal ● ●
Lesson Plans	
Chapter 5: Earth’s Materials	Timeframe
Lesson 1	3-4 class periods

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<i>What Are Natural Resources?</i>	
Lesson 2 <i>What Are Rocks and Minerals?</i>	3-4 class periods
Lesson 3 <i>What is Soil?</i>	3-4 class periods
Lesson 4 <i>What Are Some Kinds of Land and Water?</i>	3-4 class periods
Lesson 5 <i>How Can People Help Protect Earth?</i>	3-4 class periods
Inquiry Questions and Labs: <ul style="list-style-type: none"> ● <i>What is in soil?</i> ● <i>How can “polluted” water be cleaned?</i> ● <i>How does moving water affect water pollution?</i> ● <i>How could you further explore water pollution?</i> ● Go Green: Classify Resources ● <i>How can you sort rocks?</i> ● At-Home Lab: Find Minerals ● <i>How does soil help plants?</i> ● Lightning Lab: Soil Survey ● At-Home Lab: Compare Landforms ● <i>How do materials break down?</i> ● Go Green: New Uses for Old Cans 	
Chapter 6: The Solar System	Timeframe
Lesson 1 <i>What Is the Sun?</i>	3-4 class periods
Lesson 2 <i>What Are the Moon and Stars?</i>	3-4 class periods
Lesson 3 <i>What is the Solar System?</i>	3-4 class periods
Inquiry Questions and Labs: <ul style="list-style-type: none"> ● <i>How does the sun’s movement cause shadows to change?</i> ● <i>Can you make a model of a constellation?</i> ● <i>What can the sun’s energy do?</i> ● At-Home Lab: Shade and Sun ● <i>How does the shape of the moon appear to change?</i> ● At-Home Lab: The Big Dipper ● Lightning Lab: Order Planets 	
Chapter 7: Weather	Timeframe
Lesson 1 <i>What is the Water Cycle?</i>	3-4 class periods
Lesson 2 <i>How Can You Describe Weather?</i>	3-4 class periods

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Lesson 3 <i>How Can You Measure Weather?</i>	3-4 class periods
Lesson 4 <i>How Does Weather Change?</i>	3-4 class periods
Lesson 5 <i>How Can You Stay Safe in Severe Weather?</i>	3-4 class periods
Inquiry Questions and Labs: <ul style="list-style-type: none"> ● <i>How can you show the temperature?</i> ● <i>What is your weather like?</i> ● <i>How does sunshine affect the weather?</i> ● Lightning Lab: Measure Evaporation ● <i>Which way does the wind blow?</i> ● At-Home Lab: Make a List ● <i>How much rain falls?</i> ● At-Home Lab: Chart the Weather ● Lightning Lab: Changing Seasons ● <i>What do tornadoes look like?</i> ● At-Home Lab: Safe Places 	
Teacher Notes:	
Curriculum Development Resources Click the links below to access additional resources used to design this unit: <ul style="list-style-type: none"> ● Next Generation Science Standards (NGSS) http://www.nextgenscience.org/ ● 21st Century Skills http://www.p21.org/our-work/p21-framework ● New Jersey Standards Clarification Project http://www.nj.gov/education/aps/njscp/Phase1allAreas.pdf 	

Earth's Materials: Lesson 1				
Content Area: Science				
Lesson Title: What Are Natural Resources?			Timeframe: 3-4 class periods	
Lesson Components				
*21st Century Themes				
Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy	Health Literacy
*21st Century Skills				

Created for New Jersey school districts through a project of the New Jersey Department of Education, Office of Academic Standards, in partnership with the N.J. Association for Supervision and Curriculum Development and the N.J. Principals and Supervisors Association.

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x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills	
*Interdisciplinary Connections: see unit overview						
*Integration of Technology: Pearson Interactive Science Program						
*Equipment needed: see teacher's edition						
Vocabulary: <i>natural resource, fuel</i>						

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● demonstrate an understanding that Earth has many natural resources 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. 2. Explore: <ol style="list-style-type: none"> a. Students read about how people use water, then discuss. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know that Earth has many natural resources</i>. Help students connect this idea to their world. b. Students learn that <i>natural</i> means “from nature” and that people have many uses for natural things. c. Students read about the kinds of natural resources then discuss. 4. Elaborate: <ol style="list-style-type: none"> a. Students learn that Access to drinking water is becoming scarce in parts of the world. Students write how drinking water is similar to, and different from, ocean water and other natural resources in their Science Notebook. 5. Go Green: <i>Classify Resources</i> <ol style="list-style-type: none"> a. Students list five resources they use in one day and underline the resources that cannot be replaced, then tell how they can use fewer of these resources. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the lesson question <i>What</i>

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	<p><i>are natural resources?</i> Develop a class answer.</p> <p>b. Students complete the Lesson Check blackline master to assess understanding of lesson content.</p>
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none"> • strategies for English Language Learners • leveled readers • resources to address multiple intelligences 	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

Earth's Materials: Lesson 2							
Content Area: Science							
Lesson Title: What Are Rocks and Minerals?				Timeframe: 3-4 class periods			
Lesson Components							
<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	x	Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>rock, mineral</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
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<p>Students Will Be Able To:</p> <ul style="list-style-type: none">● recognize that Earth is made of many different kinds of rock	<p>Lesson Sequence</p> <ol style="list-style-type: none">1. Engage:<ol style="list-style-type: none">a. Activate prior knowledge.b. Students look at a picture of rocks and tell how they are different.2. Explore:<ol style="list-style-type: none">a. Inquiry: Explore It! <i>How can you sort rocks?</i> Lab objective: Students will sort pebbles and rocks by size.3. Explain:<ol style="list-style-type: none">a. Students read <i>I will know that Earth is made of many different kinds of rocks</i>. Help students connect this idea to their world.b. Students read information about rocks and minerals, then discuss.4. Elaborate:<ol style="list-style-type: none">a. Students learn that some rocks are the results of cooled lava.b. Students choose a rock from the lesson and write a detailed description in their Science Notebook accompanied by a picture.5. At-Home Lab: <i>Find Minerals</i><ol style="list-style-type: none">a. Students work with an adult to find three objects made from minerals and tell which minerals made the object.6. Evaluate:<ol style="list-style-type: none">a. Students answer the lesson question <i>What are rocks and minerals?</i> Develop a class answer.b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation:</p> <p>Embedded in the program are</p> <ul style="list-style-type: none">● strategies for English Language Learners● leveled readers● resources to address multiple intelligences	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

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Earth's Materials: Lesson 3							
Content Area: Science							
Lesson Title: What Is Soil?				Timeframe: 3-4 class periods			
Lesson Components							
*<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
*<u>21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>loam, soil, texture</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
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Students Will Be Able To:

- describe and classify soils

Lesson Sequence

1. **Engage:**
 - a. Activate prior knowledge.
 - b. Students tell how soil helps flowers.
2. **Explore:**
 - a. **Inquiry: Explore It! *How does soil help plants?*** Lab objective: Students will observe that the type of soil can affect plant growth.
3. **Explain:**
 - a. Students read *I will know how soil is formed. I will know different kinds of soil.* Help students connect this idea to their world.
 - b. Students learn that soil is made up of many different materials, including parts of dead plants and animals, small pieces of rock, air, and water.
 - c. Students read information about soil, then discuss.
 - d. Students read information on soil and plants, then complete activities.
4. **Lightning Lab: *Soil Survey.*** Students look at some soil and describe it.
5. **Elaborate:**
 - a. Students learn that scientists study soil samples to determine what kinds of plants will grow best in that soil.
 - b. Students examine the soil around their school.
6. **Evaluate:**
 - a. Students answer the lesson question *What is soil?* Develop a class answer.
 - b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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Earth's Materials: Lesson 4					
Content Area: Science					
Lesson Title: What Are Some Kinds of Land and Water?				Timeframe: 3-4 class periods	
Lesson Components					
* <u>21st Century Themes</u>					
Global Awareness	Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy	Health Literacy		
* <u>21st Century Skills</u>					
x Creativity and Innovation	x Critical Thinking and Problem Solving	x Communication and Collaboration	Information Literacy		
Media Literacy	ICT Literacy	x Life and Career Skills			
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>loam, soil, texture</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
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<p>Students Will Be Able To:</p> <ul style="list-style-type: none">● identify the land and water on Earth	<p>Lesson Sequence</p> <ol style="list-style-type: none">1. Engage:<ol style="list-style-type: none">a. Activate prior knowledge.b. Students brainstorm a list of different kinds of water and land.2. Explore:<ol style="list-style-type: none">a. Students read about mountains, then complete activities.3. Explain:<ol style="list-style-type: none">a. Students read <i>I will know about the land and water on Earth</i>. Help students connect this idea to their world.b. Students learn that beneath soil is a layer of rock.c. Students read information about land and water, then complete activities.d. Student read about landforms, then complete activities.e. Students read about the ocean, lakes and ponds.4. At-Home Lab: Students choose two landforms, draw a picture of each one and tell how they are alike and different.5. Elaborate:<ol style="list-style-type: none">a. Students learn the ocean has many islands. They learn that Hawaii is made up of many islands.6. Evaluate:<ol style="list-style-type: none">a. Students answer the lesson question <i>What are some kinds of land and water?</i> Develop a class answer.b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation:</p> <p>Embedded in the program are</p> <ul style="list-style-type: none">● strategies for English Language Learners● leveled readers● resources to address multiple intelligences	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

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Earth's Materials: Lesson 5							
Content Area: Science							
Lesson Title: How Can People Help Protect Earth?				Timeframe: 3-4 class periods			
Lesson Components							
*<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
*<u>21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>pollution, recycle, refuge</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
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Students Will Be Able To:

- describe ways they can protect Earth's environment

Lesson Sequence

1. **Engage:**
 - a. Activate prior knowledge.
 - b. Students begin a KWL chart about recycling.
2. **Explore:**
 - a. **Inquiry: Explore It! *How do materials break down?*** Lab objective: Students will recycle waste materials by making compost.
3. **Explain:**
 - a. Students read *I will know ways to protect Earth*. Help students connect this idea to their world.
 - b. Students tell about when they have seen garbage on the ground and identify ways they can help take care of Earth.
 - c. Students read about pollution, then discuss.
 - d. Students read information on reducing, reusing, and recycling, then discuss.
 - e. Students read information on protecting plants and animals.
4. **Go Green Lab: *New Uses for Old Cans***. Students make a container out of an old can, then decorate it, then use it to hold pencils.
5. **Elaborate:**
 - a. Students learn that some art is made of reused and recycled items.
6. **Evaluate:**
 - a. Students answer the lesson question *How can people help protect Earth?* Develop a class answer.
 - b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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The Solar System: Lesson 1							
Content Area: Science							
Lesson Title: What is the Sun?				Timeframe: 3-4 class periods			
Lesson Components							
* <u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
* <u>21st Century Skills</u>							
x	Creativity and Innovation	X	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>sun, light</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
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Students Will Be Able To:

- explain that the sun is a star that gives off light and heat, and that Earth's daily rotation make the sun appear to be moving across the sky

Lesson Sequence

1. **Engage:**
 - a. Activate prior knowledge.
2. **Explore:**
 - a. **Inquiry: Explore It! *What can the sun's energy do?*** Lab objective: Students will use a solar collector to observe that energy from the sun heats objects.
3. **Explain:**
 - a. Students read *I will know what the sun is and why we need it. I will know that the sun does not move across the sky.* Help students connect this idea to their world.
 - b. Students learn that matter is anything that has mass and takes up space. Matter can be in different forms. The sun is made mostly of gases hydrogen and helium.
 - c. Students read about the sun, then discuss.
 - d. Students read about how the sun looks at different times of the day, then discuss.
4. **At-Home Lab:** Students sit outside in a shady spot, then move to a sunny spot and tell what feels and looks different?
5. **Elaborate:**
 - a. Students learn that the sun affects the temperature on Earth. Students write why the temperature might be cooler on a cloudy day.
6. **Evaluate:**
 - a. Students answer the lesson question *What is the sun?* Develop a class answer.
 - b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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The Solar System: Lesson 2							
Content Area: Science							
Lesson Title: What Are the Moon and the Stars?				Timeframe: 3-4 class periods			
Lesson Components							
<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>star, crater, constellation, phase</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
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Students Will Be Able To:

- explain what stars are and describe the moon

Lesson Sequence

1. **Engage:**
 - a. Activate prior knowledge.
2. **Explore:**
 - a. **Inquiry: Explore It! *How does the shape of the moon appear to change?*** Lab objective: Students will observe the moon for a month and record data about how the moon changes during that time.
3. **Explain:**
 - a. Students read *I will know what stars are and what the moon is like*. Help students connect this idea to their world.
 - b. Students discuss that the sun is a star and shines too brightly for other stars to be seen.
 - c. Students learn that a star's temperature determines its color.
 - d. Students read about the night sky and constellations then discuss.
 - e. Students read about the moon's appearance, then discuss.
 - f. Students read about the moon at night, then discuss.
4. **At-Home Lab:** Students go out at night with an adult to observe the Big Dipper constellation and tell why it has that name.
5. **Elaborate:**
 - a. Students write a description of the moon in their Science Notebook.
6. **Evaluate:**
 - a. Students answer the lesson question *What are the moon and stars?* Develop a class answer.
 - b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

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Resources Provided: *Pearson Interactive Science*

The Solar System: Lesson 3					
Content Area: Science					
Lesson Title: What is the Solar System?				Timeframe: 3-4 class periods	
Lesson Components					
<u>*21st Century Themes</u>					
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy	Health Literacy
<u>*21st Century Skills</u>					
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration
	Media Literacy		ICT Literacy	x	Life and Career Skills
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>orbit, solar system</i>					

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Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● demonstrate an understanding of the objects that make up the solar system 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. 2. Explore: <ol style="list-style-type: none"> a. Students read about the dwarf planet Pluto. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know what objects make up the solar system</i>. Help students connect this idea to their world. b. Students discuss how Earth’s rotation affects the position of the sun during the day. c. Students read about the sun and the planets. 4. Lightning Lab: Order Planets. Students write the names of the planets and sun on index cards and line up the objects of the solar system in order. 5. Elaborate: <ol style="list-style-type: none"> a. Students learn about Jupiter’s moons and draw Jupiter and one of its moons in their Science Notebook. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the lesson question <i>What is the solar system?</i> Develop a class answer. b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none"> ● strategies for English Language Learners ● leveled readers ● resources to address multiple intelligences 	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

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Weather: Lesson 1							
Content Area: Science							
Lesson Title: What is the water cycle?				Timeframe: 3-4 class periods			
Lesson Components							
<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>water cycle, condense</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
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Students Will Be Able To:

- demonstrate an understanding of the water cycle and why the sun is important

Lesson Sequence

1. **Engage:**
 - a. Activate prior knowledge.
2. **Explore:**
 - a. Students read about where drinking water comes from.
3. **Explain:**
 - a. Students read *I will know why the sun is important to the water cycle*. Help students connect this idea to their world.
 - b. Students learn that a cycle is a series of events that repeat.
 - c. Students discuss where rain water goes after a storm.
 - d. Students read about clouds, then discuss.
 - e. Students read about the water cycle, then discuss.
4. **Lightning Lab: Measure Evaporation.** Students use a paper cup and water to plan an activity that shows evaporation.
5. **Elaborate:**
 - a. Students learn that the main steps of the water cycle are evaporation, condensation, and precipitation. Students draw the water cycle in their Science Notebook.
6. **Evaluate:**
 - a. Students answer the lesson question *What is the water cycle?* Develop a class answer.
 - b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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Weather: Lesson 2							
Content Area: Science							
Lesson Title: How Can You Describe Weather?				Timeframe: 3-4 class periods			
Lesson Components							
<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>temperature, drought, precipitation</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
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Students Will Be Able To:

- describe different kinds of weather

Lesson Sequence

1. **Engage:**
 - a. Activate prior knowledge.
2. **Explore:**
 - a. **Inquiry: Explore It! Which way does the wind blow?** Lab objective: Students will describe that a wind vane measures wind direction because the wind pushes it.
3. **Explain:**
 - a. Students read *I will know how to describe different kinds of weather*. Help students connect this idea to their world.
 - b. Students discuss how the sun warms the Earth's air and water.
 - c. Students read about weather, then discuss.
 - d. Students read about wet weather and dry weather, then discuss.
4. **At-Home Lab: Make a List.** Students write what they can do on a sunny day and on a rainy day and tell how the weather affects what they do for fun.
5. **Elaborate:**
 - a. Students discuss why it's important to conserve water during a drought and write one way they can conserve water in their Science Notebook.
6. **Evaluate:**
 - a. Students answer the lesson question *How can you describe weather?* Develop a class answer.
 - b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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Weather: Lesson 3							
Content Area: Science							
Lesson Title: How Can You Measure Weather?				Timeframe: 3-4 class periods			
Lesson Components							
<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>wind</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
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Aligned to the Next Generation Science Standards (NGSS)

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Students Will Be Able To:

- describe how wind, rain, and temperature are measured

Lesson Sequence

1. **Engage:**
 - a. Activate prior knowledge.
 - b. Discuss what a windsock is and does.
2. **Explore:**
 - a. **Inquiry: Explore It! *How much rain falls?*** Lab objective: Students will use a rain gauge to measure rainfall.
3. **Explain:**
 - a. Students read *I will know how to measure different kinds of weather*. Help students connect this idea to their world.
 - b. Students read about why we measure weather, then discuss.
 - c. Students read about the kind of tools used to measure weather, then discuss.
4. **At-Home Lab: *Chart the Weather*.** Students chart the weather for a week by looking at a weather report each day and recording the temperature. Students place a thermometer outside and compare the temperature from the thermometer and the weather report.
5. **Elaborate:**
 - a. Students learn that a hygrometer is a weather tool that measures moisture in the air. Students write a description of the weather tools from the lesson in their Science Notebook.
6. **Evaluate:**
 - a. Students answer the lesson question *How can you measure weather?* Develop a class answer.
 - b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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Weather: Lesson 4							
Content Area: Science							
Lesson Title: How Does Weather Change?				Timeframe: 3-4 class periods			
Lesson Components							
*<u>21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
*<u>21st Century Skills</u>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>pattern, seasons</i>							

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Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none">● describe different weather patterns, both day-to-day and season-to-season	<p>Lesson Sequence</p> <ol style="list-style-type: none">1. Engage:<ol style="list-style-type: none">a. Activate prior knowledge.b. Review the four seasons that make up the cycle of yearly weather changes.2. Explore:<ol style="list-style-type: none">a. Students read about how freezing weather hurts crops.3. Explain:<ol style="list-style-type: none">a. Students read <i>I will know that weather follows a pattern</i>. Help students connect this idea to their world.b. Students read about weather patterns, then discuss.c. Students read about the four seasons of the year, then discuss.4. Lightning Lab: <i>Changing Seasons</i>. Students choose a season and write about the weather before, during, and after that season.5. Elaborate:<ol style="list-style-type: none">a. Students draw themselves doing an activity in their favorite season in their Science Notebook.6. Evaluate:<ol style="list-style-type: none">a. Students answer the lesson question <i>How does weather change?</i> Develop a class answer.b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation:</p> <p>Embedded in the program are</p> <ul style="list-style-type: none">● strategies for English Language Learners● leveled readers● resources to address multiple intelligences	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

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Weather: Lesson 5					
Content Area: Science					
Lesson Title: How Can You Stay Safe in Severe Weather?				Timeframe: 3-4 class periods	
Lesson Components					
<u>*21st Century Themes</u>					
Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy	Health Literacy
<u>*21st Century Skills</u>					
x Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	Information Literacy
Media Literacy		ICT Literacy	x	Life and Career Skills	
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>severe weather, thunderstorm, hurricane, tornado</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
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Students Will Be Able To:

- explain how to stay safe in severe weather

Lesson Sequence

1. **Engage:**
 - a. Activate prior knowledge.
 - b. Students tell what to do if they see lightning.
2. **Explore:**
 - a. **Inquiry: Explore It! *What do tornadoes look like?*** Lab objective: Students will observe that a tornado has a shape like a funnel.
3. **Explain:**
 - a. Students read *I will know how to stay safe in severe weather*. Help students connect this idea to their world.
 - b. Students read about thunderstorms and thunderstorm safety, then discuss.
 - c. Students read about tornadoes and tornado safety, then discuss.
 - d. Students read about hurricanes and hurricane safety, then discuss.
4. **At-Home Lab: *Safe Places*.** Students work with an adult to identify one kind of severe weather and make a plan to stay safe.
5. **Elaborate:**
 - a. Students describe hurricanes, tornadoes, and thunderstorms and how to stay safe in their Science Notebook.
6. **Evaluate:**
 - a. Students answer the lesson question *How can you stay safe in severe weather?* Develop a class answer.
 - b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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Unit D Overview

Content Area: Science

Unit Title: Unit Physical Science: Matter and Energy, Motion, and Force

Target Course/Grade Level: 2

Unit Background

Water constantly changes from one state to another in the water cycle. Liquid water on Earth's surface – in the form of oceans, lakes, and rivers – gains energy from the sun. The liquid water evaporates, or changes into the gas known as water vapor. As water vapor rises with other gases in the air, it cools. Water vapor condenses and forms drops of liquid water. These drops form clouds. As the drops get larger, they may fall as rain, snow, or sleet, depending on air temperature. Water that strikes the surface collects in lakes, rivers, and oceans, and the cycle begins again.

Theme-park ride designers often use gravity to give riders a thrilling adventure. With the exception of the climb up the first hill, a roller coaster is pulled along its track by gravity. Gravity is also the force behind free-fall rides in which a car filled with passengers suddenly drops down a tower.

Roller coasters use gravity, inertia, and acceleration to give your body the different feelings it experiences throughout a ride. The combination of these forces makes you feel as if you are being pushed up, and therefore you feel lighter, or pushed down, and therefore feel heavier than normal. Free fall or “air-time” is achieved as a coaster crests a hill. At that moment, inertia may still be carrying you up, while the coaster has already started down. At this point, you may actually lift out of your seat for an instant.

Primary interdisciplinary connections: Reading, Math, Language Arts, Art, Social Studies, Writing, Art, Health

21st century themes:

- **Creativity and Innovation**
 - Think Creatively
 - Work Creatively with Others
 - Implement Innovations
- **Critical Thinking and Problem Solving**
 - Reason Effectively
 - Use Systems Thinking
 - Make Judgments and Decisions
 - Solve Problems
- **Communication and Collaboration**
 - Communicate Clearly
 - Collaborate with Others

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Standard(s) <ul style="list-style-type: none"> ● K-PS2 Motion and Stability: Forces and Interactions ● 1-PS4 Waves and Their Applications in Technology for Information Transfer ● 2-PS1 Matter and Its Interactions 	
Performance Expectations <ul style="list-style-type: none"> ● K-PS2-1 Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. ● 1-PS4-1 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. ● 1-PS4-3 Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light. ● 2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. ● 2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot. 	
Science and Engineering Practices <u>Planning and Carrying Out Investigations</u> <ul style="list-style-type: none"> ● Planning and carrying out investigations to answer questions or test solutions to problems in K-2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. <u>Engaging in Argument from Evidence</u> <ul style="list-style-type: none"> ● Engaging in argument from evidence in K-2 builds on prior experiences and progresses to comparing ideas and representations about the natural and designed world(s). <u>Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena</u> <u>Scientific Investigations Use a Variety of Methods</u>	
Disciplinary Core Ideas <ul style="list-style-type: none"> ● PS1.A: Structure and Properties of Matter ● PS1.B: Chemical Reactions ● PS2.A: Forces and Motion ● PS2.B: Types of Interactions ● PS4.A: Wave Properties ● PS4.B: Electromagnetic Radiation 	
Crosscutting Concepts <ul style="list-style-type: none"> ● Patterns ● Cause and Effect 	
Performance Expectations (PE)	Supporting Concepts, Practices, and Ideas
K-PS2-1	Plan and conduct investigations collaboratively to produce evidence to answer a question.
	Scientists use different ways to study the world.
	Pushes and pulls can have different strengths and directions.
	Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it.

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	When objects touch or collide, they push on one another and can change motion.
	Simple tests can be designed to gather evidence to support or refute student ideas about causes.
1-PS4-1	Plan and conduct investigations collaboratively to produce evidence to answer a question.
	Science investigations begin with a question.
	Scientists use different ways to study the world.
	Sound can make matter vibrate and vibrating matter can make sound.
	Simple tests can be designed to gather evidence to support or refute student ideas about causes.
1-PS4-3	Plan and conduct investigations collaboratively to produce evidence to answer a question.
	Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam.
	Simple tests can be designed to gather evidence to support or refute student ideas about causes.
2-PS1-1	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
	Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.
	Patterns in the natural and human designed world can be observed.
2-PS1-4	Construct an argument with evidence to support a claim.
	Science searches for cause and effect relationships to explain natural events.
	Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.
	Events have causes that generate observable patterns.
Related Common Core ELA Standards	
RI.2.1	Ask and answer such questions as <i>who</i> , <i>what</i> , <i>where</i> , <i>when</i> , <i>why</i> , and <i>how</i> to demonstrate understanding of key details in a text. (2-PS1-4)
RI.2.3	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4)
RI.2.8	Describe how reasons support specific points the author makes in a text. (2-PS1-4)
W.2.1	Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4)
W.2.7	Participate in shared research and writing projects.(2-PS1-1)

Created for New Jersey school districts through a project of the New Jersey Department of Education, Office of Academic Standards, in partnership with the N.J. Association for Supervision and Curriculum Development and the N.J. Principals and Supervisors Association.

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W.2.8	Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1)
Related Common Core Mathematics Standards	
MP.2	Reason abstractly and quantitatively. (K-PS2-1)
MP.4	Model with mathematics. (2-PS1-1)
2.MD.D.10	Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1)
<p>Unit Essential Questions</p> <ul style="list-style-type: none"> ● <i>What are some properties of matter?</i> ● <i>What are solids, liquids, and gases?</i> ● <i>What are some ways matter can change?</i> ● <i>How can water change?</i> ● <i>What are some kinds of energy?</i> ● <i>What is sound?</i> ● <i>What are motion and force?</i> ● <i>What are magnets?</i> ● <i>What is gravity?</i> 	<p>Unit Enduring Understandings</p> <ul style="list-style-type: none"> ● The same basic rules govern the motion of all bodies, from planets and stars to birds and billiard balls. ● Energy takes many forms. ● These forms can be grouped into types of energy that are associated with the motion of mass (kinetic energy), and types of energy associated with the position of mass and with energy fields (potential energy). ● Scientific inquiry involves asking scientifically oriented questions, collecting evidence, forming explanations, connecting explanations to scientific knowledge and theory, and communicating and justifying explanations. ● Safety first! ● Mathematics is a tool used to model objects, events, and relationships in the natural and designed world. ● Thinking systematically means looking for the relationships between parts. ● The development of technology and advances in science are mutually supportive in driving innovation in both fields.
<p>Unit Learning Targets <i>Students will be Able To:</i></p> <ul style="list-style-type: none"> ● observe and measure properties of matter ● distinguish solids, liquids, and gases ● investigate ways that matter can be changed ● observe and describe water in its solid, liquid, and gaseous states and measure and compare volume and temperature ● identify different ways in which people use energy ● identify the causes of sound and describe the pitch and volume of sound ● investigate how forces change the way objects move ● recognize that gravity pulls object toward the center of the Earth 	
Evidence of Learning	

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Summative Assessments at the end of each chapter.

Equipment needed: See teacher's edition

Teacher Resources: Pearson Interactive Science

<https://www.pearsonsuccessnet.com/snpapp/login/PsnLandingPage.jsp?showLandingPage=true&ticket=ST-1368125-E9Ki92wc0g5CVII9xxk5-b3-rumba-prod-01-01>

Formative Assessments

- teacher observation
- student responses to questions
- student participation in inquiry activities
- student interactive science journal
-
-

Lesson Plans

Chapter 8: Matter	Timeframe
Lesson 1 <i>What are some properties of matter?</i>	3-4 class periods
Lesson 2 <i>What are solids, liquids, and gases?</i>	3-4 class periods
Lesson 3 <i>What are some ways matter can change?</i>	3-4 class periods
Lesson 4 <i>How can water change?</i>	3-4 class periods

Inquiry Questions and Labs:

- *What affects evaporation?*
- *How can properties change?*
- *Will water change the properties of the substance?*
- *How can you classify matter?*
- **At-Home Lab: Describe Materials**
- **At-Home Lab: Water and Ice**
- *How can you change clay?*
- **Lightning Lab: Solids in Water**
- *How much water is in each cup?*
- **Lightning Lab: Effects of Temperature**

Chapter 9: Energy, Motion, and Force	Timeframe
Lesson 1	3-4 class periods

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<i>What Are Some Kinds of Energy?</i>	
Lesson 2 <i>What is Sound?</i>	3-4 class periods
Lesson 3 <i>What Are Motion and Force?</i>	3-4 class periods
Lesson 4 <i>What Are Magnets?</i>	3-4 class periods
Lesson 5 <i>What is Gravity?</i>	3-4 class periods
<p>Inquiry Questions and Labs:</p> <ul style="list-style-type: none"> ● <i>How much force does it take to move objects?</i> ● <i>How high will a ball bounce?</i> ● <i>How might the type of ball affect how high it bounces?</i> ● <i>What can a light shine through?</i> ● At-Home Lab: Mirrors and Light ● <i>What tool can help you see sound?</i> ● Lightning Lab: Pitch and Volume ● Lightning Lab: Forces and Movement ● <i>What can a magnet pull through?</i> ● At-Home Lab: Magnets and Movement ● <i>How do heavier objects fall?</i> ● Lightning Lab: Sink or Float 	
<p>Teacher Notes:</p>	
<p>Curriculum Development Resources</p> <p>Click the links below to access additional resources used to design this unit:</p> <ul style="list-style-type: none"> ● Next Generation Science Standards (NGSS) http://www.nextgenscience.org/ ● 21st Century Skills http://www.p21.org/our-work/p21-framework ● New Jersey Standards Clarification Project http://www.nj.gov/education/aps/njscp/Phase1allAreas.pdf 	

Matter: Lesson 1	
Content Area: Science	
Lesson Title: What is Matter?	Timeframe: 3-4 class periods
Lesson Components	

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<u>*21st Century Themes</u>					
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy
					Health Literacy
<u>*21st Century Skills</u>					
x	Creativity and Innovation	X	Critical Thinking and Problem Solving	x	Communication and Collaboration
					Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>matter, property, thermometer</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
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Students Will Be Able To:

- observe and measure properties of matter

Lesson Sequence

1. **Engage:**
 - a. Activate prior knowledge.
2. **Explore:**
 - a. **Inquiry: Explore It! *How can you classify matter?*** Lab objective: Students will classify objects using physical properties.
3. **Explain:**
 - a. Students read *I will know that matter has many different properties*. Help students connect this idea to their world.
 - b. Students read about matter and discuss.
 - c. Students read about properties of matter and color and texture, then discuss.
 - d. Students read information on shape and size and discuss.
 - e. Students read information on sinking and floating and temperature, then discuss.
4. **At-Home Lab: *Describe Materials***. Students observe objects made of different materials and record the texture, color, and shape.
5. **Elaborate:**
 - a. Students choose classroom objects to describe in their Science Notebook using as many properties as they can.
6. **Evaluate:**
 - a. Students answer the lesson question *What are some properties of matter?* Develop a class answer.
 - b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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Matter: Lesson 2							
Content Area: Science							
Lesson Title: What Are Solids, Liquids, and Gases?				Timeframe: 3-4 class periods			
Lesson Components							
<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	X	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>solid, liquid, gas</i>							

Learning Outcomes	Learning Activities/Instructional Strategies

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<p>Students Will Be Able To:</p> <ul style="list-style-type: none">● distinguish solids, liquids, and gases	<p>Lesson Sequence</p> <ol style="list-style-type: none">1. Engage:<ol style="list-style-type: none">a. Activate prior knowledge.b. Students identify solids.2. Explore:<ol style="list-style-type: none">a. Students read about thermometers.3. Explain:<ol style="list-style-type: none">a. Students read <i>I will know that matter can be a solid, a liquid, or a gas</i>. Help students connect this idea to their world.b. Students read about solids and liquids, then discuss.c. Students read about gases then discuss.4. At-Home Lab: <i>Water and Ice</i>. Students put some ice cubes in a bowl of water and tell what happened to the solids and the liquid.5. Elaborate:<ol style="list-style-type: none">a. Students record the results of a “State of Matter Hunt”.6. Evaluate:<ol style="list-style-type: none">a. Students answer the lesson question <i>What are solids, liquids, and gases?</i> Develop a class answer.b. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation:</p> <p>Embedded in the program are</p> <ul style="list-style-type: none">● strategies for English Language Learners● leveled readers● resources to address multiple intelligences	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

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Matter: Lesson 3							
Content Area: Science							
Lesson Title: What Are Some Ways Matter Can Change?				Timeframe: 3-4 class periods			
Lesson Components							
<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	X	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>physical change</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
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<p>Students Will Be Able To:</p> <ul style="list-style-type: none">investigate ways that matter can be changed	<p>Lesson Sequence</p> <ol style="list-style-type: none">Engage:<ol style="list-style-type: none">Activate prior knowledge.Explore:<ol style="list-style-type: none">Inquiry: Explore It! <i>How can you change clay?</i> Lab objective: Students will manipulate clay balls to change shape, size, and color.Explain:<ol style="list-style-type: none">Students read <i>I will know that matter can be changed in many ways</i>. Help students connect this idea to their world.Students read about changing matter and discuss.Students read information on the ways matter changes and discuss.Students read information on how to mix and separate matter, and water mixtures.Lightning Lab: <i>Solids in Water</i>. Students mix salt in water, then sand in water. Students observe and record what they see.Elaborate:<ol style="list-style-type: none">Students make up and record riddles using physical properties and physical changes in their Science Notebook.Evaluate:<ol style="list-style-type: none">Students answer the lesson question <i>What are some ways matter can change?</i> Develop a class answer.Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation:</p> <p>Embedded in the program are</p> <ul style="list-style-type: none">strategies for English Language Learnersleveled readersresources to address multiple intelligences	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

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Matter: Lesson 4							
Content Area: Science							
Lesson Title: How Can Water Change?				Timeframe: 3-4 class periods			
Lesson Components							
<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	X	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>volume</i>							

Learning Outcomes	Learning Activities/Instructional Strategies

2nd Grade Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Students Will Be Able To:

- observe and describe water in its solid, liquid, and gaseous states and measure and compare volume and temperature.

Lesson Sequence

1. **Engage:**
 - a. Activate prior knowledge.
2. **Explore:**
 - a. **Inquiry: Explore It! *How much water is in each cup?*** Lab objective: Students will observe the volume and shape of liquid water in different measuring tools.
3. **Explain:**
 - a. Students read *I will know that water can be solid, liquid, or gas*. Help students connect this idea to their world.
 - b. Students read how water can change shape.
 - c. Students read the information on cooling and heating matter, then discuss.
4. **Lightning Lab: *Effects of Temperature***. Students mix sugar in cold water; then mix sugar in very warm water and tell how the temperature of the water affects what happens.
5. **Elaborate:**
 - a. Students write in response to prompts about water changes.
6. **Evaluate:**
 - a. Students answer the lesson question *How can water change?* Develop a class answer.
 - d. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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Energy, Motion, and Force: Lesson 1							
Content Area: Science							
Lesson Title: What Are Some Kinds of Energy?				Timeframe: 3-4 class periods			
Lesson Components							
<u>*21st Century Themes</u>							
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy		Health Literacy
<u>*21st Century Skills</u>							
x	Creativity and Innovation	X	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pearson Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>energy, electricity, reflect</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
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Students Will Be Able To:

- identify different ways in which people use energy.

Lesson Sequence

1. **Engage:**
 - a. Activate prior knowledge.
 - b. Discuss that electricity can come from a power station or from batteries.
2. **Explore:**
 - a. **Inquiry: Explore It! *What can light shine through?*** Lab objective: Students will shine light on different materials to observe what the light shines through.
3. **Explain:**
 - a. Students read *I will know that people use energy in many different ways*. Help students connect this idea to their world.
 - b. Students read about and discuss electricity, light energy, and heat.
4. **At-Home Lab: *Mirrors and Light*.** Students find a room with a mirror on the wall. Turn off all the lights and shine a flashlight on the mirror and notice how the direction of the light changes.
5. **Elaborate:**
 - a. Students draw a cause and effect organizer in their Science Notebook to show what happens when light hits a translucent material such as waxed paper.
6. **Evaluate:**
 - a. Students answer the lesson question *What are some kinds of energy?* Develop a class answer.
 - e. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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Aligned to the Next Generation Science Standards (NGSS)

ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Energy, Motion, and Force: Lesson 2						
Content Area: Science						
Lesson Title: What is Sound?				Timeframe: 3-4 class periods		
Lesson Components						
* <u>21st Century Themes</u>						
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy	Health Literacy
* <u>21st Century Skills</u>						
x	Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication and Collaboration	Information Literacy
	Media Literacy		ICT Literacy	X	Life and Career Skills	
*Interdisciplinary Connections: see unit overview						
*Integration of Technology: Pearson Interactive Science Program						
*Equipment needed: see teacher's edition						
Vocabulary: <i>vibrate, pitch</i>						

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Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● identify the causes of sound and describe the pitch and volume of sound. 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>What tool can help you see sound?</i> Lab objective: Students will observe and compare how speaking softly and loudly moves salt. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know what causes sound. I will know what pitch and volume are.</i> Help students connect this idea to their world. b. Students read about sound, and the pitch of sounds, then discuss. c. Students read about volume then discuss. 4. Lightning Lab: <i>Pitch and Volume.</i> Work with a partner to describe the pitch and volume of their voices. 5. Elaborate: <ol style="list-style-type: none"> a. Students write a hypothesis for an experiment in their Science Notebook. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the lesson question <i>What is sound?</i> Develop a class answer. f. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation:</p> <p>Embedded in the program are</p> <ul style="list-style-type: none"> ● strategies for English Language Learners ● leveled readers ● resources to address multiple intelligences 	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

Energy, Motion, and Force: Lesson 3

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Content Area: Science					
Lesson Title: What Are Motion and Force?				Timeframe: 3-4 class periods	
Lesson Components					
<u>*21st Century Themes</u>					
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy
					Health Literacy
<u>*21st Century Skills</u>					
x	Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication and Collaboration
					Information Literacy
	Media Literacy		ICT Literacy	X	Life and Career Skills
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>force, motion</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
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<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> ● investigate how forces change the way objects move. 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students discuss how they can make objects move in different directions. 2. Explore: <ol style="list-style-type: none"> a. Students read about the pyramids in Egypt. 3. Explain: <ol style="list-style-type: none"> a. Students read <i>I will know that forces change the way objects move</i>. Help students connect this idea to their world. b. Students read about motion, force, and direction, then discuss. 4. Lightning Lab: Forces and Movement. Students show how they can change the way the ball moves. 5. Elaborate: <ol style="list-style-type: none"> a. Students note how a stronger or weaker push or pull affects the motion of the object in their Science Notebook. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the lesson question <i>What are motion and force?</i> Develop a class answer. g. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none"> ● strategies for English Language Learners ● leveled readers ● resources to address multiple intelligences 	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

Energy, Motion, and Force: Lesson 4	
Content Area: Science	
Lesson Title: What Are Magnets?	Timeframe: 3-4 class periods
Lesson Components	

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<u>*21st Century Themes</u>					
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy	Civic Literacy	Health Literacy
<u>*21st Century Skills</u>					
x	Creativity and Innovation	X	Critical Thinking and Problem Solving	X	Communication and Collaboration
	Media Literacy		ICT Literacy	X	Life and Career Skills
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>repel, attract, pole</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
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ENGAGING STUDENTS • FOSTERING ACHIEVEMENT • CULTIVATING 21ST CENTURY GLOBAL SKILLS

Students Will Be Able To:

- demonstrate that magnets can push or pull some metal objects without touching them.

Lesson Sequence

1. **Engage:**
 - a. Activate prior knowledge.
2. **Explore:**
 - a. **Inquiry: Explore It! *What can a magnet pull through?*** Lab objective: Students will observe which materials a magnet can pull through.
3. **Explain:**
 - a. Students read *I will know that magnets can push or pull some metal objects*. Help students connect this idea to their world.
 - b. Students read about magnets and their poles, then discuss.
 - c. Students read how magnets move objects, then discuss.
4. **At-Home Lab: *Magnets and Movement***. Students observe interactions between two magnets.
5. **Elaborate:**
 - a. Students respond to a prompt about how magnets react when placed next to each other.
6. **Evaluate:**
 - a. Students answer the lesson question *What are magnets?* Develop a class answer.
 - h. Students complete the Lesson Check blackline master to assess understanding of the lesson content.

Differentiation:

Embedded in the program are

- strategies for English Language Learners
- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

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Energy, Motion, and Force: Lesson 5					
Content Area: Science					
Lesson Title: What is Gravity?				Timeframe: 3-4 class periods	
Lesson Components					
*<u>21st Century Themes</u>					
Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy	Health Literacy
*<u>21st Century Skills</u>					
x Creativity and Innovation	X	Critical Thinking and Problem Solving	x	Communication and Collaboration	Information Literacy
Media Literacy		ICT Literacy	x	Life and Career Skills	
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pearson Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>gravity, weight, fall</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
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<p>Students Will Be Able To:</p> <ul style="list-style-type: none">● recognize that gravity pulls objects toward the center of Earth.	<p>Lesson Sequence</p> <ol style="list-style-type: none">1. Engage:<ol style="list-style-type: none">a. Activate prior knowledge.2. Explore:<ol style="list-style-type: none">a. Inquiry: Explore It! <i>How do heavier objects fall?</i> Lab objective: Students will compare how fast bags of marbles fall.3. Explain:<ol style="list-style-type: none">a. Students read <i>I will know that gravity pulls things toward the center of Earth.</i> Help students connect this idea to their world.b. Students read about gravity and weight.4. Lightning Lab: <i>Sink or Float.</i> Students make a boat using foil and put it in a bowl of water then add pennies one at a time, then tell how many pennies could be added before the boat sinks.5. Elaborate:<ol style="list-style-type: none">a. Students write a story about what would happen if there were no gravity on Earth in their Science Notebook.6. Evaluate:<ol style="list-style-type: none">a. Students answer the lesson question <i>What is gravity?</i> Develop a class answer.i. Students complete the Lesson Check blackline master to assess understanding of the lesson content.
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none">● strategies for English Language Learners● leveled readers● resources to address multiple intelligences	
<p>Resources Provided: <i>Pearson Interactive Science</i></p>	

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LESSON REFLECTION

Reflect on the lesson you have developed and rate the degree to which the lesson *Strongly*, *Moderately* or *Weakly* meets the criteria below.

Lesson Activities:	Strongly	Moderately	Weakly
Are challenging and require higher order thinking and problem solving skills			
Allow for student choice			
Provide scaffolding for acquiring targeted knowledge/skills			
Integrate global perspectives			
Integrate 21 st century skills			
Provide opportunities for interdisciplinary connection and transfer of knowledge and skills			
Foster student use of technology as a tool to develop critical thinking, creativity and innovation skills			
Are varied to address different student learning styles and preferences			
Are differentiated based on student needs			
Are student-centered with teacher acting as a facilitator and co-learner during the teaching and learning process			
Provide means for students to demonstrate knowledge and skills and progress in meeting learning goals and objectives			
Provide opportunities for student reflection and self-assessment			
Provide data to inform and adjust instruction to better meet the varying needs of learners			

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Curriculum Design Template

Content Area:

Course Title:

Grade Level:

Unit Plan 1	Pacing Guide
Unit Plan 1	Pacing Guide
Unit Plan 3	Pacing Guide
Unit Plan 4	Pacing Guide
Unit Plan 5	Pacing Guide
Unit Plan 6	Pacing Guide

Date Created:

Board Approved on:

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