

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.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Unit A Overview

Content Area: Science

Unit Title: Unit A Science, Engineering, and Technology

Target Course/Grade Level: 1

Unit Background

Scientific inquiry is a process that involves a series of steps. Although these steps are often taught in a sequence, they can be carried out in various orders, and all steps are not necessary in every investigation. Nevertheless, the first step in scientific inquiry always involves identification of a problem to be explored. Next, information about the problem is gathered from appropriate reference materials. This information is used to plan and carry out an investigation. Data gathered through the investigation are organized, interpreted, and analyzed. Conclusions are then drawn and shared. Often, the conclusions trigger identification of a related problem – and the process begins again.

The design process is an inherent part of STEM education – Science, Technology, Engineering, and Mathematics. These four strands are interconnected. Without engineering, electricity may have remained an exciting lab trick. Engineering is the link between a scientific discovery and a practical, real product. These products fuel scientific discovery, which inspires engineering, which results in new technology and products. The underpinning of this cycle is mathematics. Whether measuring the ingredients of a recipe, balancing a chemical equation, or determining the wattage of a light bulb, every product uses math in the process of its design and construction.

In addition to the application of science, technology, engineering, and mathematics concepts, creativity and imagination are essential for designing successful solutions for real-world problems. Allowing children to work collaboratively enhances the design process and leads to richer, more creative outcomes.

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

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)

- **K-2-ETS1 Engineering Design**

Performance Expectations

- **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

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

<p>object or tool.</p> <ul style="list-style-type: none"> • 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. 	
<p>Science and Engineering Practices</p> <p><u>Asking Questions and Defining Problems</u></p> <ul style="list-style-type: none"> • Asking questions and defining problems in K-2 builds on prior experiences and progresses to simple descriptive questions. <p><u>Developing and Using Models</u></p> <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. <p><u>Analyzing and Interpreting Data</u></p> <ul style="list-style-type: none"> • Analyzing data in K-2 builds on prior experiences and progresses to collecting, recording, and sharing observations. 	
<p>Disciplinary Core Ideas</p> <ul style="list-style-type: none"> • ETS1.A: Defining and Delimiting Engineering • ETS1.B: Developing Possible Solutions • ETS1.C: Optimizing the Design Solution 	
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 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 test 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.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

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-ETS1-3)
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 recordings 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)
Crosscutting Concepts Structure and Function	
<p>Unit Essential Questions</p> <ul style="list-style-type: none"> • What is science? • What questions do scientists ask? • What skills do scientists use? • How do scientists use tools? • How do scientists find answers? • How do scientists share data? • How can you design a tap? • What is technology? • What are objects made of? • What is the design process? • What is technology? • What are objects made of? • What is the design process? 	<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. • Understanding the development of scientific ideas is essential for building scientific knowledge. • Mathematics is a tool used to model objects, events, and relationships in the natural and designed world. • The development of technology and advances in science are mutually supportive in driving innovation in both fields. • Thinking systematically means looking for the relationships between parts.
Unit Learning Targets	
<p><i>Students will be Able To:</i></p> <ul style="list-style-type: none"> • recognize that scientists ask questions about the world • identify skills scientists use to learn about new things • demonstrate how to use some science equipment and tools safely • describe the steps scientists use to ask questions and find answers 	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

- identify how scientists share the data they collect
- identify how technology can help people solve problems
- explain what materials some objects are made of
- describe the design process and explain how to use it to find a solution

Evidence of Learning

Summative Assessments at the end of each chapter.

Equipment needed: See teacher's edition

Teacher Resources: Pearson Interactive Science

<https://www.pearsuccessnet.com/snpapp/login/PsnLandingPage.jsp?showLandingPage=true&ticket=ST-1368125-E9Ki92we0g5CVII9xxk5-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 1: The Nature of Science	Time frame
Lesson 1 <i>What Questions Do Scientists Ask?</i>	20 minutes
Lesson 2 <i>What Skills Do Scientists Use?</i>	20 minutes
Lesson 3 <i>How Do Scientists Use Tools?</i>	
Lesson 4 <i>How Do Scientists Find Answers?</i>	
Lesson 5 <i>How Do Scientists Share Data?</i>	

Inquiry:

- **Chapter 1**
 - **How do you use your senses to identify objects?**
 - **How do you know the mass of objects?**
 - **How can the mass of a liquid be found?**
 - **How could you further explore the weight of an object?**
 - **Lightning Lab: Science Questions**
 - **How can you observe objects?**
 - **At-Home Lab: Classify Objects**
 - **Why do scientists use tools?**
 - **Lightning Lab: Measure Temperature**
 - **How do scientists answer questions?**
 - **Lightning Lab: Fast Claps**
 - **What are some ways to record and share data?**
 - **At-Home Lab: Favorite Pet Name**

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Chapter 2: The Design Process	Timeframe
Lesson 1 <i>What is Technology?</i>	
Lesson 2 <i>What are Objects Made Of?</i>	
Lesson 3 <i>What is the Design Process?</i>	
Inquiry: <ul style="list-style-type: none">• Chapter 2<ul style="list-style-type: none">○ How can you design a top?○ How can you build a boat?○ How can you make a clay boat?○ How can you compare boat designs?○ Which tool works better?○ Go Green: Helping Earth○ At-Home Lab: Materials○ Which design works best?○ Lightning Lab: Make a Plan○ What do pill bugs need?	
Teacher Notes:	
Curriculum Development Resources <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-frame-work• New Jersey Standards Clarification Project http://www.nj.gov/education/aps/njscp/Phase1allAreas.pdf• Pearson Interactive Science https://www.pearsonsuccessnet.com/snapp/login/PsnLandingPage.jsp?showLandingPage=true&ticket=ST-1368125-E9Ki92wc0g5CVII9xxk5-b3-rumba-prod-01-01	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

The Nature of Science: Lesson 1							
Content Area: Science							
Lesson Title: What Questions Do Scientists Ask?				Timeframe: 3-4 class periods			
Lesson Components [Each * Item is Optional, and "As Needed"]							
<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, scientist</i>							

Learning Outcomes <small>(Note: Each outcome should include a formative assessment)</small>	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • recognize that scientists ask questions about the world 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Explain that scientists wonder about the things in the world around them and then work to answer those questions. 2. Explore: Read selection about George Washington Carver and have children share what they know about the products he made from peanuts and how those products are used. Students choose one product and write about it. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know scientists ask questions about the world</i> and help students connect this idea to their world. b. Explain that a scientist is a person who observes, describes, tests, and draws conclusions about the world. c. Scientists ask questions about how and why things happen, and work to find the

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p style="text-align: center;">answers.</p> <ol style="list-style-type: none"> 4. Lightning Lab: Science Questions 5. Elaborate: Students write a question in their science notebook and generate ideas for answering it. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the question <i>What questions do scientists answer?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<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 2							
Content Area: Science							
Lesson Title: What Skills do Scientists Use?				Timeframe: 3-4 class periods			
Lesson Components [Each * Item is Optional, and "As Needed"]							
* <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>observe, predict</i>							

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Learning Outcomes (Note: Each outcome should include a formative assessment)	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • identify skills scientists use to learn about 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. Invite students to suppose they are standing in a rain forest. Encourage them to think about what they might hear or how the water might feel. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How can you observe objects?</i> 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know skills scientists use to learn about new things</i> and help students connect this idea to their world. b. List the five senses on the board. Ask students to identify the body part they use for each sense, such as eyes for sight. c. Students will read information on using the senses to observe, predict, compare, and classify, then answer questions. d. Discuss that scientists observe things and make predictions so they can test their ideas. Tell students that as scientists, they will observe, predict, compare, and classify. 4. Elaborate: Students describe an object in detail and record observations in science notebook. 5. Evaluate: <ol style="list-style-type: none"> a. Students answer the question <i>What skills do scientists use?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<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>	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

The Nature of Science: Lesson 3							
Content Area: Science							
Lesson Title: How Do Scientists Use Tools?				Timeframe: 3-4 class periods			
Lesson Components [Each * Item is Optional, and "As Needed"]							
<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, measure, safety</i>							

Learning Outcomes <small>(Note: Each outcome should include a formative assessment)</small>	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • demonstrate how to use some science equipment and tools safely 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Discuss different tools used in science. Review their names and how scientists use them. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>Why do scientists use tools?</i> 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how to use some science tools. I will know how to do science safely.</i> Help students connect these ideas to their world. b. Remind students that they use tools in their daily lives such as spoons and pencils. These tools make it easier for people to get jobs done. Ask students to name other

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>tools and how they make work easier.</p> <p>c. Discuss lab safety rules and what they mean.</p> <p>4. Lightning Lab: Measure Temperature</p> <p>5. Elaborate: Students write something new they learned about being safe in their science notebook.</p> <p>6. Evaluate:</p> <p>a. Students answer the question <i>How do scientists use tools?</i> Develop a class answer and record on board.</p> <p>b. Students complete the Lesson Check blackline master.</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 4					
Content Area: Science					
Lesson Title: How Do Scientists Find Answers?				Timeframe: 3-4 class periods	
Lesson Components [Each * Item is Optional, and "As Needed"]					
<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>investigate, scientific method</i>					

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Learning Outcomes (Note: Each outcome should include a formative assessment)	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • describe the steps scientists use to ask questions and find 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 view a photo of a scientist studying plants and tell what the scientist might want to find out. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How do scientists answer questions?</i> Lab objective: Students will predict and test how sunlight affects the temperature of an object. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how scientists ask questions and find answers</i>. Help students connect these ideas to their world. b. Remind students that the five senses can help them learn about the world. Students identify the sense that the scientist who is studying plants is using. c. Students read information about the scientific method and answer questions. 4. Lightning Lab: Fast Claps: How many times can you clap your hands in one minute? 5. Elaborate: Students use scientific methods to plan an investigation and formulate their own questions. Students write their hypothesis and plan for testing in their Science Notebook. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the question <i>How do scientists find answers?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<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>	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

The Nature of Science: Lesson 5							
Content Area: Science							
Lesson Title: How Do Scientists 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	x	Information Literacy
x	Media Literacy	x	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, record</i>							

Learning Outcomes <small>(Note: Each outcome should include a formative assessment)</small>	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • identify how scientists share the data they collect 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students view a photo of a dog in motion and discuss why a scientist observing this dog might find it useful to write down or photograph what is observed. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>What are some ways to record and share data?</i> Lab objective: Students will collect and record data in two ways (tally marks and totals written as numerals). 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how scientists share the data they collect</i>. Help students connect these ideas to their world. b. Students learn that data are information

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>that can come from what people observe with their senses. Sometimes the information involves counting.</p> <p>c. Students learn the parts of a graph or chart, then create a picture graph with provided data.</p> <p>4. At-Home Lab: <i>Favorite Animals</i>: Students survey people at home about pets and make a chart to record the data.</p> <p>5. Elaborate: Students draw a picture of the favorite animal from their survey and write a sentence telling how they know it is the favorite in their Science Notebook.</p> <p>6. Evaluate:</p> <p>a. Students answer the question <i>How do scientists share data?</i> Develop a class answer and record on board.</p> <p>b. Students complete the Lesson Check blackline master.</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 Design Process: Lesson 1							
Content Area: Science							
Lesson Title: How Do Scientists 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
x	Media Literacy		ICT Literacy	x	Life and Career Skills		

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

*Interdisciplinary Connections: see unit overview
*Integration of Technology: Pearson Interactive Science Program
*Equipment needed: see teacher's edition
Vocabulary: <i>data, record</i>

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • identify how technology can help people 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. Discuss tools children use in school to learn, to investigate, and to share ideas. Students tell how these tools help them solve problems. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>Which tool works better?</i> Lab objective: Students will predict and then observe which tool works better for performing a specific task. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how technology can help people solve problems</i>. Help students connect these ideas to their world. b. Students learn that long ago, the bicycle was new technology that helped people travel faster than walking from place to place. Discuss other technologies that help people travel even faster today. c. Students study a timeline of technology. 4. Elaborate: Students draw a picture of their favorite technology in their Science Notebook. Children write a sentence telling how this technology helps them. 5. Evaluate: <ol style="list-style-type: none"> a. Students answer the question <i>What is technology?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none"> • strategies for English Language Learners 	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

The Design Process: Lesson 2					
Content Area: Science					
Lesson Title: What Are Objects Made Of?				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					
x Creativity and Innovation	x Critical Thinking and Problem Solving	x Communication and Collaboration	Information Literacy		
x 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, human-made</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> • identify how technology can help people solve problems 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students view a picture of a playground and identify human-made objects. Discuss differences between objects found in nature and those that people make. 2. Explore: <ol style="list-style-type: none"> a. Read about how Orville Redenbacher wanted to find the kind of corn that made the best popcorn and understand that not only can people invent, build, and test

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>things, but they can test things found in nature and think of ways to make them better.</p> <p>3. Explain:</p> <ol style="list-style-type: none"> a. Read <i>I will what some objects are made of</i>. Help students connect these ideas to their world. b. Students learn that their five senses can be used to determine whether objects are natural or made by people. c. Students brainstorm a list of natural materials and identify how each of these materials is used to make common objects. <p>4. Elaborate: Students draw pictures of three common objects in their Science Notebook. One object is made of all natural materials, one is made of all man-made materials, and one is made of both. Students label the materials that make up each object.</p> <p>5. At-Home Lab: Students find two objects and tell what materials the objects are made of, and tell if the materials are natural or made by people.</p> <p>6. Evaluate:</p> <ol style="list-style-type: none"> a. Students answer the question <i>What are objects made of?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<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 Design Process: Lesson 3	
Content Area: Science	
Lesson Title: What Is The Design Process?	Timeframe: 3-4 class periods
Lesson Components	
<u>*21st Century Themes</u>	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	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
x	Media Literacy	x	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</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • describe the design process and explain how to use it to find a solution 	<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 what objects might be in a fishbowl and understand that each object should serve a purpose, whether functional or decorative. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: <i>Explore It! Which design works best?</i> Lab objective: Students will build a bird feeder for a specific type of bird. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how to find a solution.</i> Help students connect these ideas to their world. b. Students learn that solutions to problems can be a physical object or a plan of action. c. Students learn that the design process includes a series of steps. The development of a plan involves both writing and drawing. Plans also involve choosing materials to make the object. d. Students learn that the design process requires collaboration. 4. Elaborate: Students duplicate their original drawings and descriptions of their Wood duck

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>house in their Science Notebook. Make revisions after viewing a photograph of a Wood duck house. Students learn the importance of record keeping and sharing information about their designs and revisions are made.</p> <p>5. Evaluate:</p> <ol style="list-style-type: none">a. Students answer the question <i>What is the design process?</i> Develop a class answer and record on board.b. Students complete the Lesson Check blackline master.
<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>	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Unit B Overview

Content Area: Science

Unit Title: Unit B Life Science: Living Things and Their Environments, and Plants and Animals

Target Course/Grade Level: 1

Unit Background

Much of the human body is made up of water. In fact, water is a major component of every cell in the body. In addition, water is used to regulate body temperature, digest foods, transport oxygen and nutrients to cells, protect organs and tissues, and remove waste materials.

Each day an adult loses about 1.5 liters (6.3 cups) of the body's water through respiration, excretion, and perspiration. This water needs to be replenished daily. The recommended daily intake for children is 6 cups, while adults should drink 8 cups. People who exercise a lot should drink even more.

More than 2,000 years ago, ancient Greeks classified living things into two basic groups – plants and animals. These early scientists then divided animals into three smaller groups – land animals, water animals, and air animals.

Since that time, scientists have identified more than 1.5 million types of animals and roughly 400,000 plant species. It is thought that these numbers represent only a fraction of life on Earth and that millions of plant and animal species remain undiscovered.

Primary interdisciplinary connections: Reading, Math, Critical Thinking, Art, Music, Social Studies, Health, Physical Education, Rhyme

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)

- **1-LS1 From Molecules to Organisms: Structures and Processes**
- **1-LS3 Heredity: Inheritance and Variation of Traits**

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 parts to help them survive, grow, and meet their needs.**

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

<ul style="list-style-type: none"> • 1-LS1-2: Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. • 1-LS3-1: Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents. 	
Science and Engineering Practices <ul style="list-style-type: none"> • <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. • <u>Obtaining, Evaluating, and Communicating Information</u> <ul style="list-style-type: none"> ○ Obtaining, evaluating, and communicating information in K-2 builds on prior experiences and uses observations and texts to communicate new information. • <u>Scientific Knowledge is Based on Empirical Evidence</u> 	
Disciplinary Core Ideas <ul style="list-style-type: none"> • LS1.A: Structure and Function • LS1.B: Growth and Development of Organisms • LS1.D: Information Processing • LS3.A: Inheritance of Traits • LS3.B: Variation of Traits. 	
Performance Expectations (PE)	Supporting Practices, Ideas, and Concepts
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(s).
	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-LS1-2	Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world.
	Scientists look for patterns and order when making observations about the world.
	Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.
	Patterns in the natural and human-designed world can be observed, used to describe phenomena, and used as evidence.
1-LS3-1	Make observations (firsthand or from media) to construct an evidence-based

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	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.
Related Common Core ELA Standards	
RI.1.1	Ask and answer questions about key details in a text. (1-LS1-2)
RI.1.2	Identify the main topic and retell key details of a text. (1-LS1-2)
RI.1.10	With prompting and support, read informational texts appropriately complex for grade. (1-LS1-2)
W.1.7	Participate in shared research and writing projects. (1-LS1-1)
W.1.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-LS3-1)
Related Common Core Mathematics Standards	
MP.2	Reason abstractly and quantitatively. (1-LS3-1)
MP.5	Use appropriate tools strategically. (1-LS3-1)
1.NBT.B.3	Compare two 2-digit numbers based on the meanings of the tens and ones digits, recording the results of comparisons with $<$, $>$, or $=$. (1-LS1-2)
1.NBT.C.4	Add within 100, including adding a two-digit and a one-digit number, and adding a two-digit number and a multiple of ten, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. (1-LS1-2)
1.NBT.C.5	Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. (1-LS1-2)
1.NBT.C.6	Subtract multiples of 10 in the range of 10-90 from multiples of 10 in the range 10-90 (positive or zero differences) using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction, and explain the reasoning used. (1-LS1-2)
1.MD.A.1	Order three objects by length; compare the length of two objects indirectly by using a third object. (1-LS3-1)
Crosscutting Concepts	
<ul style="list-style-type: none"> • Patterns • Structure and Function • Influence of Science, Engineering and Technology on Society and the Natural World 	
Unit Essential Questions	Unit Enduring Understandings
<ul style="list-style-type: none"> • What are nonliving and living things? • What do living things need? • How do plants and animals live in land 	<ul style="list-style-type: none"> • The natural world is defined by organisms and life processes which conform to principles regarding conservation and transformation of matter and energy. Knowledge about life processes can be

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

<p>environments?</p> <ul style="list-style-type: none"> • How do plants and animals live in water environments? • What plants and animals no longer live on Earth? • How are flowers alike and different? • What are some groups of living things? • What are some parts of plants? • How do plants grow? • How do some animals grow? • How are living things like their parents? • How are groups of living things different? 	<p>applied to improving human health and well-being.</p> <ul style="list-style-type: none"> • All organisms transfer matter and convert energy from one form to another. Both matter and energy are necessary to build and maintain structures within the organism. • Organisms are grouped in taxonomy based upon similarity.
<p>Unit Learning Targets <i>Students will be Able To:</i></p> <ul style="list-style-type: none"> • differentiate living and nonliving things • identify air, water, light, food and space as needs of living things • describe how some plants and animals can live in land environments • explain how some plants and animals can live in water environments • describe some plants and animals that no longer live on Earth • describe ways to group living things • identify some parts of plants and what those parts do • understand how plants grow • describe how some animals grow and change • know that plants and animals look like their parents • understand how groups of living things are alike and different 	
Evidence of Learning	
<p>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</p>	

<p>Formative Assessments</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;"> <ul style="list-style-type: none"> • teacher observation • student responses to questions • student participation in inquiry activities </td> <td style="width: 50%; border: none;"> <ul style="list-style-type: none"> • student interactive science journal • • </td> </tr> </table>		<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 • •
<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: Living Things and Their Environment	Time frame		

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Lesson 1 <i>What Are Nonliving and Living Things?</i>	3-4 class periods
Lesson 2 <i>What Do Living Things Need?</i>	3-4 class periods
Lesson 3 <i>How Do Plants and Animals Live in Land Environments?</i>	3-4 class periods
Lesson 4 <i>How Do Plants and Animals Live in Water Environments?</i>	3-4 class periods
Lesson 5 <i>What Plants and Animals No Longer Live on Earth?</i>	3-4 class periods
Inquiry Questions/Labs: <ul style="list-style-type: none"> • Chapter 3 <ul style="list-style-type: none"> ○ Identify things a cow needs. ○ What does a cricket need? ○ Do plants need light? ○ What will happen if you move the plant from the dark place to a sunny place? ○ What could you further explore to see how light affects plants? ○ Which is a living thing? ○ At-Home Lab: <i>Living and Nonliving</i> ○ Do plants need water? ○ Lightning Lab: <i>Play a Plant</i> ○ At-Home Lab: <i>Local Environments</i> ○ How do some turtles stay warm in winter? ○ Go Green: <i>Wetlands</i> ○ Lightning Lab: <i>Extinct Animals</i> 	
Chapter 4: Plants and Animals	Timeframe
Lesson 1 <i>What Are Some Groups of Living Things?</i>	3-4 class periods
Lesson 2 <i>What Are Some Parts of Plants?</i>	3-4 class periods
Lesson 3 <i>How Do Plants Grow?</i>	3-4 class periods
Lesson 4 <i>How Do Some Animals Grow?</i>	3-4 class periods
Lesson 5 <i>How Are Living Things Like Their Parents?</i>	3-4 class periods
Lesson 6 <i>How Are Groups of Living Things Different?</i>	3-4 class periods
Inquiry Questions/Labs:	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

- **Chapter 4**
 - **How are the mother and baby alike?**
 - **How are flowers alike and different?**
 - **How do different seeds grow?**
 - **How do seeds grow in soil?**
 - **What do seeds need to grow?**
 - **At-Home Lab: *Plant Groups***
 - **Lighting Lab: *Grow a Plant***
 - **How does a seed grow?**
 - **Go Green: *Helpful Houseplants***
 - **At-Home Lab: *Life Cycle***
 - **How are babies and parents alike and different?**
 - **At-Home Lab: *Parents and Young***
 - **How are bodies different?**
 - **Lightning Lab: *Alike and Different***

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

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Living Things and Their Environments: Lesson 1							
Content Area: Science							
Lesson Title: What Are Nonliving and Living 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>							
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration		Information Literacy
x	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>nonliving, living</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> differentiate living and nonliving things 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students discuss the different objects in a fish tank and are reminded that plants and animals are living things. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: <i>Explore It! Which is a living thing?</i> Lab objective: Students will observe a living thing and a nonliving thing and distinguish between the two. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how nonliving things are different from living things..</i> Help students connect these ideas to their world. b. Students name various living and nonliving things in the classroom and read information on living things. 4. Elaborate:

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>a. Students name different places they have visited where they have seen living things. They choose a location and draw and write about the living things they saw in their Science Notebook.</p> <p>5. At-Home Lab: <i>Living and Nonliving</i>. Students create a chart of living and nonliving things and tell how they know which is living and which is nonliving.</p> <p>6. Evaluate:</p> <p>a. Students answer the question <i>What are nonliving and living things?</i> Develop a class answer and record on board.</p> <p>b. Students complete the Lesson Check blackline master.</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>	

Living Things and Their Environments: Lesson 2					
Content Area: Science					
Lesson Title: What do Living Things Need?				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
x	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					

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Vocabulary: *need, nutrients*

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • identify air, water, light, food, and space as needs of living 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 discuss different plants they know and review parts of plants, then draw a full-grown plant with stems and leaves in a pot. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: <i>Explore It! Do plants need water?</i> Lab objective: Students will predict and then observe what happens when a wilted plant is given water. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know that living things need air, wáter, food, and space</i>. Help students connect these ideas to their world. b. Students learn that plants are living things that grow and change, then discuss ways to take care of plants. c. Students read information on the needs of living things. Then discuss how plants need energy from the food they make as well as the right temperatura for growth, repair, maintenance, health, and development. d. Students draw a web that shows diffrent ways that plants might get water, or light, then write a short paragraph on what plants need to live based on their web. e. Students write sentences describing how named animals gets air, food, water, and shelter in their Scienc Notebook. 4. Elaborate: <ol style="list-style-type: none"> a. Students draw a plant in their Science Notebook and show what it needs to live and grow – include information on water, air, light,nutrients, and space. 5. Lightning Lab: <i>Play a Plant</i>. Students sit on the floor and raise both hands and pretend to be a plant – they then show what happens when there is no

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>water.</p> <p>6. Evaluate:</p> <ol style="list-style-type: none"> a. Students answer the question <i>What do living things need?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<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>	

Living Things and Their Environments: Lesson 3				
Content Area: Science				
Lesson Title: How Do Plants and Animals Live in Land Environments?			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
x	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>environment, prairie, forest, desert</i>				

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • describe how some plants and animals can live in land environments 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

- b. Students describe a horse's environment based on the observation of a picture and learn that an *environment* is made up of all the living and nonliving things in the area.
2. **Explore:**
 - a. Students read information on bighorn sheep and tell how its horns are beneficial.
3. **Explain:**
 - a. Read *I will know how some plants and animals can live in land environments*. Help students connect these ideas to their world.
 - b. Students learn that it is important that environments have food, water, and air.
 - c. Students learn that *habitat* is another word for *environment*.
 - d. Students read information on various environments. (prairie, desert)
 - e. Students use observation to identify things in the environment of a bear as presented in a picture.
4. **At-Home Lab: Local Environments.** Students go outside with an adult and look around and note the plants and animals they see, writing what helps the plants and animals live in their environment.
5. **Elaborate:**
 - a. Students draw a picture of one of the living things they described in the At-Home Lab and label a feature they think helps the plant or animal survive in its environment.
6. **Evaluate:**
 - a. Students answer the question *How do plants and animals live in land environments?* Develop a class answer and record on board.
 - b. Students complete the Lesson Check blackline master.

Differentiation:

Embedded in the program are

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

Resources Provided: *Pearson Interactive Science*

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Living Things and Their Environments: Lesson 4					
Content Area: Science					
Lesson Title: How Do Plants and Animals Live in Water Environments?			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
x 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, ocean</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • explain how some plants and animals can live in water environments 	<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 the types of animals and plants they know that live in or near the water, then draw an animal that might live in this type of environment. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How do some turtles stay warm in winter?</i> Lab objective: Students will predict and observe how temperature affects soil. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how some plants and animals can live in water environments</i>. Help students connect these ideas to their world.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

- b. Students learn that more than half of Earth's surface is covered with water, and that many different types of water environments exist in that vast area.
 - c. Students learn that
 - i. A *newt* is a small animal that lives in a water environment.
 - ii. The roots of a plant absorb the water and nutrients a plant needs to live.
 - iii. Most plants absorb air through their leaves, and most animals breathe in air through their nose and mouth.
 - d. Students read information on water environments. (marsh, swamp and ocean)
 - e. Students look at a map to learn the names of the oceans and see that oceans cover most of the Earth.
4. **Elaborate:**
- a. Students find pictures of additional marsh-dwelling plants and animals in books or online, then draw pictures of one plant and one animal in their Scienc Notebook and write a sentence about each.
5. **Go Green: *Wetlands*** Students find out about wetlands in New Jersey and write about the plants and animals that live there and how the state protects this water environment.
6. **Evaluate:**
- a. Students answer the question *How do plants and animals live in water environments?* Develop a class answer and record on board.
 - b. Students complete the Lesson Check blackline master.

Differentiation:

Embedded in the program are

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

Resources Provided: *Pearson Interactive Science*

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Living Things and Their Environments: Lesson 5							
Content Area: Science							
Lesson Title: What Plants and Animals No Longer Live On 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
x	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>extinct, fossil</i>							

Living Things and Their Environments: Lesson 5							
Content Area: Science							
Lesson Title: What Plants and Animals No Longer Live On 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
x	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>extinct, fossil</i>							

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none">describe some plants and animals that no longer live on Earth	<p>Lesson Sequence</p> <ol style="list-style-type: none">Engage:<ol style="list-style-type: none">Activate prior knowledge.Students identify animals they think no longer live on Earth from pictures.Students learn that some living things that once lived on Earth looked very similar to the plants and animals living on Earth now, and others looked very different from today's plants and animals.Discuss which pictured animals would likely be seen living on Earth now.Explore:<ol style="list-style-type: none">Students read about seed ferns, a plant that no longer lives on Earth.Explain:<ol style="list-style-type: none">Read <i>I will know some plants and animals that no longer live on Earth</i>. Help students connect these ideas to their world.Students learn that a plant or an animal becomes extinct when all members of its kind disappear from Earth.Students read information on extinct plants and animals and their fossils.Elaborate:<ol style="list-style-type: none">Students learn that some fossils are prints that an animal left behind. Students draw the footprint of the dinosaur pictured and discuss what information a scientist might learn about an animal from its footprints.Students write a short story about the pictured dinosaur including details about how looked, what it ate, and how it used its horns.Lightning Lab: Extinct Animals Students find out about an extinct animal and share their knowledge with the class.Evaluate:<ol style="list-style-type: none">Students answer the question <i>What plants and animals no longer live on Earth?</i> Develop a class answer and record on board.Students complete the Lesson Check

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	blackline master.
<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 1						
Content Area: Science						
Lesson Title: What Are Some Groups of Living 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>						
x	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	Information Literacy
x	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>backbone, mammals</i>						

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • describe ways to group living 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 tell one way to group the animals in the picture. c. Students learn that <i>group (v)</i> means “to put together,” and that items are grouped by how they are alike. d. Discuss how the animals pictured are alike

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

and ways they might be grouped.

2. **Explore:**

- a. Students read about brain coral and are shown pictures of the human brain then discuss why the coral has the name brain coral.

3. **Explain:**

- a. Read *I will know ways to group living things*. Help students connect these ideas to their world.
- b. Discuss ways that students group things in their lives. Look around the classroom for ideas.
- c. Students learn that grouping things are a way to organize things and that scientists group living things based on similar characteristics.
- d. Students read about plants with flowers and plants without flowers.
- e. Students create a two-column chart in their Science Notebook to list characteristics of plants with flowers and plants without flowers.
- f. Students read information about animal groups.

4. **At-Home Lab: *Plant Groups*** Students collect pictures of plants and work with an adult to group the pictures into plants with flowers and plants without flowers.

5. **Elaborate:**

- a. Students learn that how young animals develop is another way to be grouped. Animals that lay eggs are in one group while animals that give birth to live young are in another group.
- b. Students identify the group of animals that are shown based on how their young develop.

6. **Evaluate:**

- a. Students answer the question *What are some groups of living things?* Develop a class answer and record on board.
- b. Students complete the Lesson Check blackline master.

Differentiation:

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Embedded in the program are

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

Resources Provided: *Pearson Interactive Science*

Plants and Animals: Lesson 2							
Content Area: Science							
Lesson Title: What Are Some 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
x	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>root, leaf, stem</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • identify some parts of plants and what those parts 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 identify plant parts in the picture. c. Students discuss and describe different plants they know focusing on the plant parts. 2. Explore: <ol style="list-style-type: none"> a. Students read about the tundra and the kinds of plants found there. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know some parts of plants and what the parts do</i>. Help students connect

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>these ideas to their world.</p> <ol style="list-style-type: none"> b. Students observe and name different parts of the plants pictured in the lesson and identify flowers, stems, leavers, and roots. c. Students read about roots, stems, and leaves. <p>4. Elaborate:</p> <ol style="list-style-type: none"> a. Students learn that plants may look very different from each other, but most have roots, stems, and leaves. b. Students draw a picture of a plant in their Science Notebook and label all the parts. c. Students write a sentence describing the function of each part. <p>5. Lightning Lab: <i>Grow a Plant.</i> Students plant a seed, watch it grow and tell others what parts are growing,</p> <p>6. Evaluate:</p> <ol style="list-style-type: none"> a. Students answer the question <i>What are some parts of plants?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<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 3	
Content Area: Science	
Lesson Title: How Do Plants Grow?	Time frame: 3-4 class periods
Lesson Components	
* <u>21st Century Themes</u>	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	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
x	Media Literacy	x	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>life cycle, seedling</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • understand how plants grow 	<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 they know about seeds and plants. c. Students tell that they know that many plants grow from seeds and tell about their experiences with seeds. 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. Read <i>I will know how plants grow</i>. Help students connect these ideas to their world. b. Students learn that plants are living things and that all living things change as they grow (<i>life cycle</i>). c. Students read about the life cycle of plants. 4. Elaborate: <ol style="list-style-type: none"> a. Students learn that seeds have an outer coating called a seed coat that protects the seed until it is ready to sprout. b. Students describe the life cycle of a pepper plant and draw the life cycle in their

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p style="text-align: center;">Science Notebook.</p> <p>5. Lightning Lab: <i>Grow a Plant</i>. Students plant a seed, watch it grow and tell others what parts are growing,</p> <p>6. Evaluate:</p> <p style="margin-left: 20px;">a. Students answer the question <i>How do plants grow?</i> Develop a class answer and record on board.</p> <p style="margin-left: 20px;">b. Students complete the Lesson Check blackline master.</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 4						
Content Area: Science						
Lesson Title: How Do some animals grow?				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
x	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>life cycle, nymph</i>						

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • describe how some animals grow and change 	<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 how a pig will look when its grown. c. Students are reminded that all living things grow and change and the way they do that is called its <i>life cycle</i>. 2. Explore: <ol style="list-style-type: none"> a. Students read about bird eggs and talk about the size, shape, and color of different eggs. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how some animals grow and change</i>. Help students connect these ideas to their world. b. Students describe any baby animals they know about and tell how these animals changed as they grew. c. Students read about the life cycle of a sea turtle and draw its life cycle in their Science Notebook. d. Students read about the life cycle of a grasshopper. 4. Elaborate: <ol style="list-style-type: none"> a. Students learn that grown sea turtle emerge from the ocean to lay their eggs in the sand. After 7-12 weeks the baby turtles hatch and go back into the ocean. 5. At-Home Lab: <i>Life Cycle</i> Students create a poster at home about the life cycle of an animal. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the question <i>How do some animals grow?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none"> • strategies for English Language Learners • leveled readers 	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

Plants and Animals: 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
x	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>young, parent</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> identify how plants and animals look like their parents 	<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 how a cow and a calf are alike and different. c. Students that baby cows are called calves.. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How are babies and parents alike and different?</i> Lab objective: Students will observe parents and offspring and describe their similarities and differences. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will plants and animals look like</i>

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p><i>their parents.</i> Help students connect these ideas to their world.</p> <ol style="list-style-type: none"> b. Students compare and contrast young and adult animals they have seen. c. Students read information on how animals and their parents are alike and different. <p>4. Elaborate:</p> <ol style="list-style-type: none"> a. Students learn some animal parents may have more than one young at a time and these offspring may be like their parents as well as like each other. b. Students compare and contrast young and adult animals in their Science Notebook. <p>5. At-Home Lab: <i>Parents and Young.</i> Students find a picture of an animal and its young and write about how the animals are alike and different.</p> <p>6. Evaluate:</p> <ol style="list-style-type: none"> a. Students answer the question <i>How are living things like their parents?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<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: How Are Groups of Living Things Different?			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				
x Creativity and	x Critical Thinking and	x Communication	Information	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	Innovation		Problem Solving		and Collaboration		Literacy
x	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>herd, different, alike</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • understand how groups of living things are alike and different 	<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 living things of the same kind can vary in color. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How are bodies different?</i> Lab objective: Students will compare feet to recognize body variations within a group. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how groups of living things are alike and different</i>. Help students connect these ideas to their world. b. Students read information on kinds of animals, and different animals of one kind. 4. Elaborate: <ol style="list-style-type: none"> a. Students draw two of the same kind of animal in their Science Notebook and describe how the animals are alike and different from each other. 5. Lightning Lab: <i>Alike and Different</i>. Students find two of the same kind of plant or animal and tell how they are alike and different. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the question <i>How are groups of living things different?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Differentiation:

Embedded in the program are

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

Resources Provided: *Pearson Interactive Science*

Unit C Overview

Content Area: Science

Unit Title: Unit C Earth Science: Earth and Sky, and Weather

Target Course/Grade Level: 1

Unit Background

Scientists classify rocks into three classes according to the way they form. Igneous rocks form when melted rock cools and hardens. Some igneous rocks form at Earth's surface as lava hardens. Other igneous rocks form underground. Granite, pumice, and basalt are types of igneous rocks. Sedimentary rocks form when bits of sediment are cemented together. Sedimentary rocks also form when minerals precipitate out of water. Limestone, sandstone, and coquina are sedimentary rocks. Metamorphic rocks form when heat and pressure change existing rocks. Metamorphic rocks include gneiss and schist.

Natural processes on Earth's surface and deep inside our planet are continually changing rock from one class to another. This cycle of change is called the rock cycle.

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. This 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. This indicates that the severe weather is about to strike. Local officials may evacuate communities when a hurricane warning is issued.

Primary interdisciplinary connections: Reading, Writing, Social Studies, Language Arts, Art, 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
 - Make Judgments and Decisions
 - Solve Problems

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

<ul style="list-style-type: none"> ● Communication and Collaboration <ul style="list-style-type: none"> ○ Communicate Clearly ○ Collaborate with Others 	
Standard(s) <ul style="list-style-type: none"> ● K-ESS3 Earth and Human Activity ● 1-ESS1 Earth's Place in the Universe 	
Performance Expectations <ul style="list-style-type: none"> ● 1-ESS1 -1 Use observations of the sun, moon, and stars to describe patterns that can be predicted. ● K-ESS3-1 Use a model to represent the relationship between the needs of different plants and animals (including humans) and the places they live. ● K-ESS3-2 Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. [Clarification Statement: Emphasis is on local forms of severe weather.] ● 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. [Clarification Statement: Examples of human impact on the land could include cutting trees to produce paper and using resources to produce bottles. Examples of solutions could include reusing paper and recycling cans and bottles.] 	
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 that can be tested. ● <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, storyboard) that represent concrete events or design solutions. ● <u>Obtaining, Evaluating, and Communicating Information</u> <ul style="list-style-type: none"> ○ Obtaining, evaluating, and communicating information in K-2 builds on prior experiences and uses observations and texts to communicate new information. ● <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. 	
Disciplinary Core Ideas <ul style="list-style-type: none"> ● ESS1.A: The Universe and its Stars ● ESS1.B: Earth and the Solar System ● ESS3.A: Natural Resources ● ESS3.B: Natural Hazards ● ESS3.C: Human Impacts on Earth Systems ● ETS1.A: Defining and Delimiting an Engineering Problem ● ETS1.B: Developing Possible Solutions 	
Performance Expectations (PE)	Supporting Practices, Ideas, and Concepts
K-ESS3-1	Use a model to represent relationships in the natural world.
	Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	do.
	Systems in the natural and designed world have parts that work together.
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.
	Asking questions, making observations, and gathering information are helpful in thinking about problems.
	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.
	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.
	Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solution to other people.
	Events have causes that generate observable patterns.
1-ESS1 -1	Use observation (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.
Related Common Core ELA Standards	
RI.K.1	With prompting and support, ask and answer questions about key details in text. (K-ESS3-2)
W.K.2	Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (K-ESS3-3)
SL.K.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood. (K-ESS3-2)
SL.K.5	Add drawings or other visual displays to descriptions as desired to provide additional detail. (K-

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	ESS3-1)
W.1.7	Participate in shared research and writing projects. (1-ESS1-1), (1-ESS1-2)
W.1.8	With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-ESS1-2)
Related Common Core Mathematics Standards	
MP.2	Reason abstractly and quantitatively. (K-ESS3-1)
MP.4	Model with mathematics. (K-ESS3-1) (K-ESS3-2)
K.CC	Counting and Cardinality (K-ESS3-1) (K-ESS3-2)
Crosscutting Concepts	
<ul style="list-style-type: none"> • Cause and Effect • Systems and Systems Models • 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 	
Unit Essential Questions <ul style="list-style-type: none"> • What is on Earth? • What are rocks and soil? • What changes land? • How do people use natural resources? • What is the sun? • What causes day and night? • What is the water cycle? • What is the weather? • How can you measure weather? • What are the four seasons? 	Unit Enduring Understandings <ul style="list-style-type: none"> • 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. • Observable, predictable patterns of movement in the Sun, Earth, Moon system occur because of gravitational interaction and energy from the Sun. • The Sun is star.
Unit Learning Targets <i>Students will be Able To:</i> <ul style="list-style-type: none"> • describe the land, water, and living things found on Earth • describe rocks and soil • identify some of the fast and slow ways that Earth changes • describe how people use natural resources • understand ways the sun helps and harms things on Earth • explain what causes day and night 	
Evidence of Learning	
Summative Assessments at the end of each chapter.	
Equipment needed: See teacher’s edition	
Teacher Resources: Pearson Interactive Science	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

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

Lesson Plans	
Chapter 5: Earth and Sky	Timeframe
Lesson 1 <i>What Is on Earth?</i>	3-4 class periods
Lesson 2 <i>What Are Rocks and Soil?</i>	3-4 class periods
Lesson 3 <i>What Changes Land?</i>	3-4 class periods
Lesson 4 <i>How Do People Use Natural Resources?</i>	3-4 class periods
Lesson 5 <i>What is the Sun?</i>	3-4 class periods
Lesson 6 <i>What Causes Day and Night?</i>	3-4 class periods
Inquiry Questions/Labs: <ul style="list-style-type: none"> • Chapter 5 <ul style="list-style-type: none"> ○ How much water and land are on Earth? ○ How can rocks crack? ○ How might more thawing and freezing of water change the model rock? ○ How could you further explore other effects that freezing and thawing could have? ○ At-Home Lab: <i>Types of Landforms</i> ○ What are soils like? ○ At-Home Lab: <i>Describe Soil</i> ○ How does Earth's surface move during an earthquake? ○ Lightning Lab: <i>Erosion</i> ○ How does a well work? ○ Go Green: <i>Care for Earth</i> ○ How can the sun make temperatures change? ○ Lightning Lab: <i>Heat from the Sun.</i> ○ At-Home Lab: <i>Changes in the Sky.</i> 	
Chapter 6: Weather	Timeframe
Lesson 1 <i>What is the water cycle?</i>	3-4 class periods
Lesson 2 <i>What is weather?</i>	3-4 class periods

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Lesson 3 <i>How can you measure weather?</i>	3-4 class periods
Lesson 4 <i>What are the four seasons?</i>	3-4 class periods
Inquiry Questions/Labs: <ul style="list-style-type: none">• Chapter 6<ul style="list-style-type: none">○ What is the weather like in different seasons?○ How does water vapor condense?○ How can you use ice cubes to show condensation?○ How else does water vapor condense?○ How can water change?○ At-Home Lab: <i>Evaporation</i>○ Lightning Lab: <i>Weather Safety</i>○ When is it warm or cool?○ Lightning Lab: <i>The Seasons</i>	
Teacher Notes:	
Curriculum Development Resources <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• Pearson Interactive Science https://www.pearsonsuccessnet.com/snapp/login/PsnLandingPage.jsp?showLandingPage=true&ticket=ST-1368125-E9Ki92wc0g5CVII9xxk5-b3-rumba-prod-01-01	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Earth and Sky: Lesson 1					
Content Area: Science					
Lesson Title: What is on 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
x	Media Literacy		ICT Literacy	x	Life and Career Skills
*Interdisciplinary Connections: see unit overview					
*Integration of Technology: Pears on Interactive Science Program					
*Equipment needed: see teacher's edition					
Vocabulary: <i>soil, rocks</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> describe the land, water, and living things found on Earth 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students identify landforms in a picture and talk about how air is all around but cannot be seen. 2. Explore: <ol style="list-style-type: none"> a. Students read about how the Inca changed their land to help them grow food. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know that land, water, and living things are found on Earth</i>. Help students connect these ideas to their world. b. Students describe the different kinds of land and water they have seen, such as mountains, deserts, the ocean, lakes, or rivers. c. Students read information on water and air and color a map showing land and water.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>d. Students read information on landforms.</p> <p>e. Students read information about the water on Earth.</p> <p>4. Elaborate:</p> <p>a. Students learn that geologists are scientists who study landforms. Students choose a landform and describe it in their Science Notebook.</p> <p>b. Students read information on rocks and soil.</p> <p>5. At-Home Lab: <i>Kinds of Landforms.</i> Students draw two different landforms and write how they are alike and different..</p> <p>6. Evaluate:</p> <p>a. Students answer the question <i>What is on Earth?</i> Develop a class answer and record on board.</p> <p>b. Students complete the Lesson Check blackline master.</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 and Sky: Lesson 2						
Content Area: Science						
Lesson Title: What are Rocks and 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

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

x	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>humus, loam</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • describe rocks and soil 	<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 how to group rocks they see in a picture. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>What are soils like?</i> Lab Objective: Students will observe, record and compare two types of soil. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how to describe rocks and soil</i>. Help students connect these ideas to their world. b. Students describe a rock they have seen including the color, shape, hardness, and smoothness. c. Students learn about a type of rock called a geode. d. Students read about a the parts of soil. e. Students read about clay soil. f. Students read about soil with silt, and sandy soil. g. Students read about <i>loam</i>. 4. Elaborate: <ol style="list-style-type: none"> a. Students learn some worms wiggle through soil and loosen it to make room for air and water. b. Students learn that: <ol style="list-style-type: none"> i. Clay soil packs together tightly because it is sticky and bits of clay

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>are very small.</p> <ul style="list-style-type: none"> ii. Water cannot drain through clay soil easily and there is little space for air. iii. Most plants cannot grow well in clay soil. <p>c. Students write a sentence about clay soil in their Science Notebook.</p> <p>5. At-Home Lab: <i>Describe Soil</i> Students work with an adult to observe and describe soil.</p> <p>6. Evaluate:</p> <ul style="list-style-type: none"> a. Students answer the question <i>What are rocks and soil?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<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 and Sky: Lesson 3						
Content Area: Science						
Lesson Title: What Changes Land?				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
x	Media Literacy		ICT Literacy	x	Life and Career Skills	
*Interdisciplinary Connections: see unit overview						
*Integration of Technology: Pearson Interactive Science Program						

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

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

Vocabulary: *weathering, erosion*

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • identify some of the fast and slow ways that Earth changes 	<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 how the land changed in before and after pictures of the eruption of a volcano. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How does Earth's surface move during an Earthquake?</i> Lab Objective: Students will demonstrate that when there is friction, two surfaces may move suddenly and quickly. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know some fast and slow ways Earth changes</i>. Help students connect these ideas to their world. b. Students tell about earth-moving equipment they might have seen and talk about ways that this equipment is used to change the land. c. Students read about human-created changes and naturally occurring changes to the land. d. Students read information on earthquakes, volcanoes, weathering, and erosion. 4. Elaborate: <ol style="list-style-type: none"> a. Students complete a Frayer model to differentiate between erosion and weathering, then copy the model into their Science Notebook. 5. Lightning Lab: <i>Erosion</i> Students pour sand into the raised end of a pan, then slowly pour water over the sand and document where the sand goes. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the question <i>What changes land?</i> Develop a class answer and record on board.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	b. Students complete the Lesson Check blackline master.
<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 and Sky: Lesson 4					
Content Area: Science					
Lesson Title: How Do People Use Natural Resources?				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
x	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, reduce, reuse, recycle</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • describe how people use natural resources 	<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 why they think people collect

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>cans.</p> <p>c. Students learn that many cans are made of aluminum, a metal that can be reused to make new cans or other objects.</p> <p>2. Explore:</p> <p>a. Inquiry: Explore It! <i>How does a well work?</i> Lab Objective: Students will make and use a model of a well to observe how groundwater flows into a well.</p> <p>3. Explain:</p> <p>a. Read <i>I will know how people use natural resources</i>. Help students connect these ideas to their world.</p> <p>b. Students name some natural resources they have observed and discuss the connection between <i>nature and natural</i>.</p> <p>c. Students learn that natural resources come from different parts of nature.</p> <p>d. Students read about natural resources.</p> <p>e. Students read information on sunlight and wood; discuss that wood is a renewable resource.</p> <p>f. Students read information on oil and copper.</p> <p>g. Students read information on reducing, reusing, and recycling.</p> <p>4. Elaborate:</p> <p>a. Students list four things in their Science Notebook they throw away in one day; identify ways that some of the items may be reused.</p> <p>5. Go Green: <i>Care for Earth</i>. Students write a plan for how people can care for Earth.</p> <p>6. Evaluate:</p> <p>a. Students answer the question <i>How do people use natural resources?</i> Develop a class answer and record on board.</p> <p>b. Students complete the Lesson Check blackline master.</p>
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none">• strategies for English Language Learners• leveled readers	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

Earth and Sky: Lesson 5							
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
x	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</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> understand ways the sun helps and harms things on Earth 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students identify what items in a picture are being warmed by the sun. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How can the sun make temperatures change?</i> Lab Objective: Students will observe the sun's effect on temperature. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know ways the sun helps and harms things on Earth</i>. Help students connect these ideas to their world.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>b. Students learn that the sun is a star, and that stars give off light and heat.</p> <p>c. Students read about the sun, and about why people need the sun.</p> <p>4. Elaborate:</p> <p>a. Students observe the sun at different times of the day and write a sentence in their Science Notebook telling where the sun is at each time.</p> <p>b. Students read information on being out in the sun.</p> <p>5. Lightning Lab: <i>Heat from the Sun</i>. Students observe two pieces of clay – one that has been put in the sun and one in the shade and write how each feels after 10 minutes.</p> <p>6. Evaluate:</p> <p>a. Students answer the question <i>What is the Sun?</i> Develop a class answer and record on board.</p> <p>b. Students complete the Lesson Check blackline master.</p>
--	--

Differentiation:

Embedded in the program are

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

Resources Provided: *Pearson Interactive Science*

Earth and Sky: Lesson 6							
Content Area: Science							
Lesson Title: What Causes Day and Night?				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
x	Media Literacy		ICT Literacy	x	Life and Career Skills		

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

*Interdisciplinary Connections: see unit overview
*Integration of Technology: Pearson Interactive Science Program
*Equipment needed: see teacher's edition
Vocabulary: <i>rotation, moon</i>

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • explain what causes day and night 	<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 how day and night are different using their senses. 2. Explore: <ol style="list-style-type: none"> a. Students read information about telescopes and learn that telescopes make objects that are far away appear bigger and closer than they really are. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know what causes day and night</i>. Help students connect these ideas to their world. b. Students discuss what they see in the day sky, then read information about the day sky. c. Students read information about the night sky and discuss. d. Students read information about the moon and discuss. 4. Elaborate: <ol style="list-style-type: none"> a. Students learn that the different ways the moon looks are called the <i>phases of the moon</i>. b. Students learn what the moon looks like during each phase. c. Students write a sentence about what a full moon looks like. d. Students read information on sunrise and sunset, then discuss. e. Students read information on day and night, then discuss. 5. At-Home Lab: <i>Changes in the Sky</i>. Students observe the sky at sunrise and at sunset and describe it to their families.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>6. Evaluate:</p> <ol style="list-style-type: none"> a. Students answer the question <i>What causes day and night?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<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>	

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
x	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>evaporate, water vapor, condensation</i>					

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

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

- identify how water changes form

- Engage:**
 - Activate prior knowledge.
 - Students draw a picture of where rain comes from.
 - Discuss that clouds form in the sky before a storm comes.
- Explore:**
 - Inquiry: Explore It! *How can water change?*** Lab objective: Students will observe how water changes states.
- Explain:**
 - Read *I will know how water changes form*. Help students connect these ideas to their world.
 - Students learn the difference between a solid, liquid and gas. The solid form of water is ice; the liquid form is rain, and when water changes to a gas, it cannot be seen.
 - Students read information on how water changes.
 - Students read information on the water cycle and study the diagram.
 - Students learn what condensation is, that clouds form from condensation, and that water falls back to Earth as snow, hail, rain, or sleet.
- Elaborate:**
 - Students learn that the word *cycle* comes from a Greek word meaning “circle”.
 - Students write why the word “*cycle*” is appropriate to describe what happens to water on Earth.
- At-Home Lab: *Evaporation*.** Students place an ice cube in the sunlight and observe and document what happens.
- Evaluate:**
 - Students answer the question *What is the water cycle?* Develop a class answer and record on board.
 - Students complete the Lesson Check blackline master.

Differentiation:

Embedded in the program are

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

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

Resources Provided: *Pearson Interactive Science*

Weather: Lesson 2							
Content Area: Science							
Lesson Title: What is 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
x	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>hurricane, weather</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> • describe weather and explain how to stay safe in bad weather 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students tell about a picture of a snowscape. 2. Explore: <ol style="list-style-type: none"> a. Students read about snowflakes, then discuss. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how to describe weather. I will know how to stay safe in bad</i>

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p><i>weather</i>. Help students connect these ideas to their world.</p> <ol style="list-style-type: none">b. Students tell how they would dress for different kinds of weather.c. Students read about weather, then discuss.d. Students observe and describe the weather outside the classroom.e. Students read information on safety in bad weather, then discuss. <p>4. Lightning Lab: <i>Weather Safety</i>. Students put on a skit showing how to stay safe in stormy weather.</p> <p>5. Elaborate:</p> <ol style="list-style-type: none">a. Students learn that the word <i>cycle</i> comes from a Greek word meaning “circle”.b. Students write why the word “<i>cycle</i>” is appropriate to describe what happens to water on Earth.c. Students learn that it is important to stay safe in good weather also; students draw in their Science Notebook a picture of a person staying safe outside in good weather. <p>6. Evaluate:</p> <ol style="list-style-type: none">a. Students answer the question <i>What is weather?</i> Develop a class answer and record on board.b. Students complete the Lesson Check blackline master.
<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>	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

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		
x 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, wind vane</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> • find out how to measure weather 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students think about when it rains, then tell what kind of tool could collect rainwater to measure how much water fell. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! When Is It Warm or Cool? Lab objective: Students will observe that outdoor temperature changes throughout the day. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how to measure weather</i>. Help students connect these ideas to their world. b. Students talk about the different activities they do in different weather. c. Students read the information on weather tools, then discuss.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>4. Elaborate:</p> <ol style="list-style-type: none"> a. Students learn about a wind vane and the directions words <i>north, south, east, west</i>. b. Students draw a simple compass in their Science Notebook <p>5. Evaluate:</p> <ol style="list-style-type: none"> a. Students answer the question <i>How can you measure weather?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<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>	

Weather: Lesson 4					
Content Area: Science					
Lesson Title: What Are the Four Seasons?				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	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>season</i>					

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • describe how weather changes from 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. Students name the four seasons and discuss the kind of weather common during each season. 2. Explore: <ol style="list-style-type: none"> a. Students read to find out that weather is opposite in the southern hemisphere. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how weather changes from season to season</i>. Help students connect these ideas to their world. b. Students tell about the activities they do in different seasons. c. Students learn that seasons are a time of year and follow the same sequential order. d. Students read the information on weather in different seasons, then discuss. 4. Elaborate: <ol style="list-style-type: none"> a. Students use their five senses to describe the current weather and draw a chart in their Science Notebook to record their descriptions. 5. Evaluate: <ol style="list-style-type: none"> a. Students answer the question <i>What are the four seasons?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<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>	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Unit D Overview

Content Area: Science

Unit Title: Unit D Physical Science: Matter, Energy, and Movement

Target Course/Grade Level: 1

Unit Background

Substances are made up of particles that are constantly moving. The faster the particles are moving, the more energy they have. The total amount of energy of motion in the particles of a substance is thermal energy. A hot substance, such as coffee, has more thermal energy than a cooler substance, such as cold lemonade. Eventually, the coffee cools as its thermal energy is transferred to a cooler substance, such as the air around it. This transfer of thermal energy is known as heat.

As a substance gains or loses thermal energy, it can change states. The freezing point is the temperature at which a liquid starts to become a solid. Freezing happens when a liquid loses thermal energy. When a solid substance warms, the addition of thermal energy can cause it to melt. The melting point is the temperature at which a solid starts to become a liquid. The boiling point is the point at which gas bubbles begin to form inside the body of a liquid. Boiling happens with the addition of thermal energy.

Energy is the ability to work. People have learned how to use sources of energy for practical purposes such as transportation, manufacturing, heating and cooling homes, and so on.

Energy sources can be renewable or nonrenewable. Most of the energy currently used in the United States comes from nonrenewable sources, such as petroleum, natural gas, coal, and uranium. There is a limited supply of these sources. Fossil fuels – petroleum, natural gas, and coal – supply most of the energy used in the United States.

Hydropower, solar power, wind energy, geothermal energy, and biomass power (energy obtained from plants and plant-derived materials) are all renewable. These energy sources can be replaced in a short period of time. In the United States, renewable energy sources are used mainly to produce electricity.

Isaac Newton's laws of motion, written centuries ago are used to design products that keep people safe. The first law of motion states that an object will remain at rest or continue to move in a straight line at a constant speed unless it is acted upon by a force. Modern-day seat belts are based on this law. Seat belts apply a force to a car passenger that prevents the person from continuing a forward motion when the vehicle stops suddenly. Lap bars and shoulder harnesses in roller coasters do much the same thing – they keep a person restrained when the car suddenly changes direction.

Primary interdisciplinary connections: Reading, Writing, Social Studies, Language Arts, Art, Music, Health
21st century themes:

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

- **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)

- **K-PS2 Motion and Stability: Forces and Interactions**
- **1-PS4 Waves and Their Applications in Technologies for Information Transfer**
- **2-PS1 Matter and Its Interactions**
- **3-PS2 Motion and Stability: Forces and Interactions**
- **4-PS3 Energy**

Performance Expectations

- **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.**
- **K-PS2-2 Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or pull.**
- **1-PS4-1 Plan and conduct investigations to provide evidence that vibrating materials can make sound and 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-PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.**
- **2-PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.**
- **3-PS2-1 Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.**
- **4-PS3-2 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.**

Science and Engineering Practices

- 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.
- Analyzing and Interpreting Data

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

<ul style="list-style-type: none"> ○ Analyzing data in K-2 builds on prior experiences and progresses to collecting, recording, and sharing observations. ● <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 ● PS3.A: Definitions of Energy ● PS3.B: Conservation of Energy and Energy Transfer ● PS3.C: Relationship Between Energy and Forces ● PS4.A: Wave Properties ● PS4.B: Electromagnetic Radiation ● ETS1.A: Defining Engineering Problems 	
Performance Expectations (PE)	Supporting Practices, Ideas, and Concepts
K-PS2-1	With guidance, plan and conduct an investigation in collaboration with peers.
	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.
	When objects touch or collide, they push on one another and can change motion.
	A bigger push or pull makes things speed up or slow down more quickly.
	Simple tests can be designed to gather evidence to support or refute student ideas about causes.
K-PS2-2	Analyze data from tests of an object or tool to determine if it works as intended.
	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.
	A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions.
	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 other 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 an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	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	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.
	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
	Patterns in the natural and human-designed world can be observed.
2-PS1-2	Different properties are suited to different things.
	Analyze data from tests of an object or tool to determine if it works as intended.
	Simple tests can be designed to gather evidence to support or refute student ideas about causes.
	Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.
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.
3-PS2-1	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
	Science investigations use a variety of methods, tools, and techniques.
	Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object's speed or direction of motion.
	Objects in contact exert forces on each other.
	Cause and effect relationships are routinely identified.
4-PS3-2	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
	Energy can be moved from place to place by moving objects or through sound, light, or electric currents.
	Energy can also be transferred from place to place by electric currents, which can then be used locally to produce motion, sound, heat, or light. The currents may have been produced originally by transforming the energy of motion into electrical energy.
	Energy can be transferred in various ways and between objects.
Related Common Core ELA Standards	
RI.2.1	Ask and answer such questions as <i>who, what, when, why, and how</i> to demonstrate understanding of

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	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 a technical procedure in a text. (2-PS1-4)	
RI. 2.8	Describe how reasons support specific points the author makes in a text. (2-PS1-2) (2-PS1-4)	
W.1.2	Write informative/explanatory texts in which they name a topic, supply some facts about the topic and provide some sense of closure.	
W.1.7	Participate in shared research and writing projects. (2-PS1-1) (2-PS1-2) (1-PS4-3)	
W.1.8	Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1) (2-PS1-2) (1-PS4-3)	
SL.1.1	Participate in collaborative conversations with diverse partner about grade 1 topics and texts. (1-PS4-3)	
SL.K.3	Ask and answer questions in order to seek help, get information, or clarify something that is not understood. (K-PS2-2)	
Related Common Core Mathematics Standards		
MP.2	Reason abstractly and quantitatively. (2-PS1-2)	
MP.4	Model with mathematics. (2-PS1-1) (2-PS1-2)	
MP.5	Use appropriate tools strategically (2-PS1-2) (1-PS4-3)	
2.MD.D.10	Draw a picture graph and a bar graph to represent a data set; solve simple problems using information in the graph. (2-PS1-1) (2-PS1-2)	
Crosscutting Concepts <ul style="list-style-type: none"> • Patterns • Cause and Effect • Influence of Engineering, Technology, and Science on Society and the Natural World • Energy and Matter 		
Unit Essential Questions <ul style="list-style-type: none"> • What is matter? • What are solids, liquids, and gases? • How can matter change? • What is a mixture? • How do we use energy? • What gives off heat? • What is light? • What is sound? • How can objects move? • What is a force? • What is a magnet? • What is gravity? 		Unit Enduring Understandings <ul style="list-style-type: none"> • Scientific inquiry involves asking scientifically oriented questions, collecting evidence, forming explanations, connecting explanations to scientific knowledge and the ory, and communicating and justifying explanations. • Safety first! • The same basic rules govern the motion of all bodies, from planets and stars to birds and billiard balls. • Energy takes many forms.
Unit Learning Targets		

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:

- define matter as anything that takes up space and describe and sort objects by their observable properties
- identify matter as a solid, a liquid, or a gas
- explain some ways that matter can change
- demonstrate an understanding of mixtures
- understand how energy is used
- learn what gives off heat
- demonstrate an understanding of what light can do
- discover how sounds are made
- describe different ways that objects can move
- demonstrate how forces change the way things move and will understand that gravity is a force
- identify magnets as objects that can attract or repel some objects
- explain that gravity pulls objects toward Earth without touching them

Evidence of Learning

Summative Assessments at the end of each chapter.

Equipment needed: See teacher's edition

Teacher Resources: Pearson Interactive Science

<https://www.pearsuccessnet.com/snpapp/login/PsnLandingPage.jsp?showLandingPage=true&ticket=ST-1368125-E9Ki92we0g5CVII9xxk5-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 7: Matter	Time frame
Lesson 1 <i>What is Matter?</i>	3-4 class periods
Lesson 2 <i>What are Solids, Liquids, and Gases?</i>	3-4 class periods
Lesson 3 <i>How Can Matter Change?</i>	3-4 class periods
Lesson 4 <i>What is a Mixture?</i>	3-4 class periods

Inquiry Questions/Labs:

- **Chapter 7**
 - **How can you use a tool to measure?**
 - **How are objects different?**
 - **How can you make a solid into a liquid?**
 - **How could you further explore solids and liquids?**

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

<ul style="list-style-type: none"> ○ Lightning Lab: <i>Measure Length</i> ○ What are the states of matter like? ○ At-Home Lab: <i>Kinds of Matter</i> ○ At-Home Lab: <i>Objects Change</i> ○ How can you separate solids and liquids? ○ At-Home Lab: <i>Find a Mixture</i> 	
Chapter 8: Energy	Time frame
Lesson 1 <i>How Do We Use Energy?</i>	3-4 class periods
Lesson 2 <i>What Gives Off Heat?</i>	3-4 class periods
Lesson 3 <i>What is Light?</i>	3-4 class periods
Lesson 4 <i>What is Sound?</i>	3-4 class periods
Inquiry Questions/Labs: <ul style="list-style-type: none"> ● Chapter 8 <ul style="list-style-type: none"> ○ What does light do? ○ What sounds can bottles make? ○ What other sounds can you make? ○ How could you further explore sounds? ○ Go Green: <i>Making Things Work</i> ○ How can texture affect the heat produced by rubbing? ○ Lightning Lab: <i>Make Heat</i> ○ Lightning Lab: <i>Bouncing Light</i> ○ How can you make sound? ○ At-Home Lab: <i>Making Sounds</i> 	
Chapter 9: Movement	Time frame
Lesson 1 <i>How Can Objects Move?</i>	3-4 class periods
Lesson 2 <i>What is a Force?</i>	3-4 class periods
Lesson 3 <i>What is a Magnet?</i>	3-4 class periods
Lesson 4 <i>What is Gravity?</i>	3-4 class periods
Inquiry Questions/Labs: <ul style="list-style-type: none"> ● Chapter 9 <ul style="list-style-type: none"> ○ How can you make a toy move? ○ How do objects move? 	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

- How does tube height change how a marble moves?
- How could you further explore how a marble moves?
- How can water move?
- **Lightning Lab: *On the Move***
- What makes the toy car move?
- **At-Home Lab: *Roll Away***
- **Lightning Lab: *Attract or Repel***
- Why do things fall?
- **At-Home Lab: *Gravity and Air***

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

Matter: Lesson 1							
Content Area: Science							
Lesson Title: What Are the Four Seasons?				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
X	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, weight, mass</i>							

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none">define matter as anything that takes up space and describe and sort objects by their observable properties	<p>Lesson Sequence</p> <ol style="list-style-type: none">Engage:<ol style="list-style-type: none">Activate prior knowledge.Students name properties they know such as size, shape, texture, etc.Explore:<ol style="list-style-type: none">Students read about the properties of pumice.Explain:<ol style="list-style-type: none">Read <i>I will know how to describe matter. I will know how to group matter.</i> Help students connect these ideas to their world.Students read about matter investigate whether matter takes up space.Students read about objects and matter.Elaborate:<ol style="list-style-type: none">Students use their five senses to describe objects and make a two-column chart in their Science Notebook to compare two objects.Students read about describing and grouping objects, then discuss.Lightning Lab: Measure Length. Students use paper clips to measure their desk, then re-measure using other nonstandard units.Evaluate:<ol style="list-style-type: none">Students answer the question <i>What is matter?</i> Develop a class answer and record on board.Students complete the Lesson Check blackline master.
<p>Differentiation: Embedded in the program are</p>	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

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

Resources Provided: *Pearson Interactive Science*

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	
X	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, frozen, melt, boil</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> • identify matter as a solid, liquid, or a gas 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students name a gas that is all around them and discuss that air is a gas. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>What are the states of matter like?</i> Lab objective: Students will compare the properties of a solid, a liquid, and a gas. 3. Explain:

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<ol style="list-style-type: none">a. Read <i>I will know that matter can be a solid, a liquid, or a gas</i>. Help students connect these ideas to their world.b. Show students that solids keep their shape and size, even if they are moved to another place.c. Students read about solids, then discuss.d. Students read about liquids and gases, then discuss.e. Students create a chart in their Science Notebook and write the properties of solids, liquids, and gases.f. Students read about how matter changes from one form to another, then discuss. <p>4. At-Home Lab: <i>Kinds of Matter</i></p> <ol style="list-style-type: none">a. Students will gather objects and put the solids together and the liquids together and tell which objects contain a gas. <p>5. Elaborate:</p> <ol style="list-style-type: none">a. Students learn that steam is not a gas, but a cloud of cooled, condensed water vapor. <p>6. Evaluate:</p> <ol style="list-style-type: none">a. Students answer the question <i>What are solids, liquids, and gases?</i> Develop a class answer and record on board.b. Students complete the Lesson Check blackline master.
<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>	

Matter: Lesson 3

Content Area: Science

Lesson Title: How Can Matter Change?

Timeframe: 3-4 class periods

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Lesson Components						
*21st Century Themes						
	Global Awareness		Financial, Economic, Business, and Entrepreneurial Literacy		Civic Literacy	Health Literacy
*21st Century Skills						
X	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	Information Literacy
X	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>rust, iron</i>						

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • explain some ways that matter can change 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students provide one-word descriptions (properties) of clay and learn that these properties allow its shape to change. 2. Explore: <ol style="list-style-type: none"> a. Students learn how crayons are made and discuss how melted wax is different from hardened wax. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know some ways matter can change</i>. Help students connect these ideas to their world. b. Students learn that they see matter change every day, such as the change in bread when it is toasted. c. Students read about changes in matter, then discuss. d. Students read about bending and cutting, then discuss. e. Students read how matter can be changed into different kinds of matter (burning and rusting), then discuss.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>4. At-Home Lab: <i>Objects Change</i></p> <p style="padding-left: 20px;">a. Students look around their home and find ways people change matter and tell how they changed it.</p> <p>5. Elaborate:</p> <p style="padding-left: 20px;">a. Students draw pictures of a candle before it is lit and after it is lit showing the changes in the candle and the wick; they describe those changes.</p> <p>6. Evaluate:</p> <p style="padding-left: 20px;">a. Students answer the question <i>How can matter change?</i> Develop a class answer and record on board.</p> <p style="padding-left: 20px;">b. Students complete the Lesson Check blackline master.</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>	

Matter: Lesson 4							
Content Area: Science							
Lesson Title: What is a Mixture?				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
X	Media Literacy		ICT Literacy	x	Life and Career Skills		

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

*Interdisciplinary Connections: see unit overview
*Integration of Technology: Pearson Interactive Science Program
*Equipment needed: see teacher's edition
Vocabulary: <i>mixture, evaporate</i>

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • demonstrate an understanding of mixtures 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students the parts of a mixture shown in a photograph. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How can you separate solids and liquids?</i> Lab objective: Students observe the solids left after water evaporates from a mixture. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know about different kinds of mixtures</i>. Help students connect these ideas to their world. b. Students list solids and liquids, then name mixtures they know and what is in the mixture. c. Students read about mixtures, then discuss. 4. Elaborate: <ol style="list-style-type: none"> a. Students learn that mixtures are all around them. b. Students observe mixtures they see in their daily lives and write brief descriptions in their Science Notebook. 5. At-Home Lab: Find a Mixture <ol style="list-style-type: none"> a. Students look in the refrigerator at home and tell about the mixtures they find. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the question <i>What is a mixture?</i> Develop a class answer and record on board.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	b. Students complete the Lesson Check blackline master.
<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: Lesson 1				
Content Area: Science				
Lesson Title: How Do We Use 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>				

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

X	Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	Information Literacy
X	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>electricity, energy</i>						

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • understand how energy is used 	<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 energy is used to make things and people work, then discuss some forms of energy. 2. Explore: <ol style="list-style-type: none"> a. Students read about wind turbines, then discuss. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how energy is used</i>. Help students connect these ideas to their world. b. Students identify things they can and cannot do when the power goes out. c. Students learn that electricity travels from a power plant to people's homes, schools, and businesses, then electricity flows from an outlet through a power cord to their devices. They learn that a device's on/off switch controls the supply of electricity. d. Students read about electricity, then discuss. e. Students read about cars and energy, then discuss. f. Students learn how to take notes for the lessons in this chapter. g. Students read about using energy, then discuss. 4. Go Green: Making Things Work <ol style="list-style-type: none"> a. Students name things that use energy and tell what kind of energy makes each thing work. Then they tell one way they can use

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p style="text-align: right;">less energy.</p> <p>5. Elaborate:</p> <p style="margin-left: 20px;">a. Students identify the energy source that makes most vehicles move, makes lights go on, and makes a kite fly. They also identify water and people as sources of mechanical energy.</p> <p>6. Evaluate:</p> <p style="margin-left: 20px;">a. Students answer the question <i>How do we use energy?</i> Develop a class answer and record on board.</p> <p style="margin-left: 20px;">b. Students complete the Lesson Check blackline master.</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>	

Energy: Lesson 2						
Content Area: Science						
Lesson Title: What Gives Off Heat?				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
X	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>heat</i>						

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will:</p> <ul style="list-style-type: none"> • learn what gives off heat 	<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 differences between unlit candles and burning candles. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How can texture affect the heat produced by rubbing?</i> Lab objective: Students will compare the warmth of different materials after rubbing to infer that friction produces heat (thermal energy). 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know what gives off heat</i>. Help students connect these ideas to their world. b. Students name words related to heat they would use to describe the beach on a sunny summer day. c. Students read how heat comes from the sun, then discuss. d. Students read the information on heat from people, then discuss. e. Students read information on heat from fire, then discuss. 4. Lightning Lab: <i>Make Heat</i> <ol style="list-style-type: none"> a. Students run in place for two minutes and tell a partner how they feel. 5. Elaborate: <ol style="list-style-type: none"> a. Students continue taking notes in their Science Notebook. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the question <i>What gives off heat?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<p>Differentiation: Embedded in the program are</p>	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

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

Resources Provided: *Pearson Interactive Science*

Energy: Lesson 3					
Content Area: Science					
Lesson Title: What is Light?				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					
X Creativity and Innovation	x	Critical Thinking and Problem Solving	x	Communication and Collaboration	Information Literacy
X 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>shadow</i>					

Learning Outcomes	Learning Activities/Instructional Strategies
Students Will Be Able To: <ul style="list-style-type: none"> • demonstrate an understanding of what light can do 	Lesson Sequence <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students draw objects that make light. 2. Explore: <ol style="list-style-type: none"> a. Students read about the first electric lights, then discuss what people used for light before electric lights. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know what light can do</i>. Help students connect these ideas to their world. b. Students discuss things that make light. They learn that the sun is a star and light

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>comes from stars.</p> <p>c. Students read about things that make light, then discuss.</p> <p>d. Students read information on how light shines through things and what light can do. Discuss differences between <i>transparent</i>, <i>translucent</i>, and <i>opaque</i>.</p> <p>4. Lightning Lab: <i>Bouncing Light</i></p> <p>a. Students work with a partner and shine a flashlight on a mirror while turning the mirror in different directions, then record what happens to the beam of light.</p> <p>5. Elaborate:</p> <p>a. Students continue taking notes in their Science Notebook.</p> <p>6. Evaluate:</p> <p>a. Students answer the question <i>What is light?</i> Develop a class answer and record on board.</p> <p>b. Students complete the Lesson Check blackline master.</p>
--	---

Differentiation:

Embedded in the program are

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

Resources Provided: *Pearson Interactive Science*

Energy: Lesson 4						
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	X	Critical Thinking and	x	Communication	Information

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	Innovation		Problem Solving		and Collaboration		Literacy
X	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</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • discover how sounds are made 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students close their eyes and tell about the sounds they hear. c. Students learn that different musical instruments make different sounds. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How can you make sound?</i> Lab objective: Students will demonstrate how vibration makes sound. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know how sounds are made</i>. Help students connect these ideas to their world. b. Students learn that there is a difference between music and noise. Music is composed of regular, uniform vibrations. Noise is composed of irregular and disordered vibrations. c. Students read information about sounds, then discuss. d. Students read information about loud, soft, high, and low sounds, then discuss. 4. At-Home Lab: <i>Making Sounds</i> <ol style="list-style-type: none"> a. Students use different objects to make sounds and identify if each sound is high or low, and loud or soft. 5. Elaborate:

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>a. Students continue taking notes in their Science Notebook.</p> <p>6. Evaluate:</p> <p>a. Students answer the question <i>What is sound?</i> Develop a class answer and record on board.</p> <p>b. Students complete the Lesson Check blackline master.</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>	

Movement: Lesson 1							
Content Area: Science							
Lesson Title: How Can Objects Move?				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
X	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							
*Integration of Technology: Pears on Interactive Science Program							
*Equipment needed: see teacher's edition							
Vocabulary: <i>move, speed</i>							

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • demonstrate and describe ways that objects can move, including a straight line, back and forth, roud and round, and fast and slow 	<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 different ways amusement park rides move. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>How can water move?</i> Lab objective: Students will observe the speeds of a water drop moving down a slope and interpret the data. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know different ways objects can move. I will know objects move fast and slow.</i> Help students connect these ideas to their world. b. Students think about a race they have seen and discuss that the winner moved the fastest. c. Make a list of things that move fast and slow. d. Students read about ways to move, then discuss. e. Students read about more ways to move, then discuss. 4. Elaborate: <ol style="list-style-type: none"> a. Students continue taking notes in their Science Notebook and write sentences using the words <i>fast, faster, fastest.</i> 5. Lightning Lab: <i>On the Move</i> <ol style="list-style-type: none"> a. Students pick a way to move and show how to move that way. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the question <i>How can objects move?</i> Develop a class answer and record on board. b. Students complete the Lesson Check blackline master.
<p>Differentiation: Embedded in the program are</p> <ul style="list-style-type: none"> • strategies for English Language Learners 	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

- leveled readers
- resources to address multiple intelligences

Resources Provided: *Pearson Interactive Science*

Movement: Lesson 2							
Content Area: Science							
Lesson Title: What is a 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
X	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>pull, push, force</i>							

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • demonstrate how forces change the way things 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 learn that a pull brings an object closer to you. Discuss objects that can be pulled. 2. Explore:

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>a. Inquiry: Explore It! <i>What makes the toy car move?</i> Lab objective: Students will observe a force moving a toy car and predict the effect of varying that force.</p> <p>3. Explain:</p> <p>a. Read <i>I will know how forces change the way things move</i>. Help students connect these ideas to their world.</p> <p>b. Contrast <i>pull</i> and <i>push</i>.</p> <p>c. Students read about force, then discuss.</p> <p>4. Elaborate:</p> <p>a. Students draw a picture of their favorite activity in terms of the forces involved.</p> <p>5. At-Home Lab: Roll Away</p> <p>a. Students push a ball hard and see how far it goes, then push a ball softly and see how far it goes.</p> <p>6. Evaluate:</p> <p>a. Students answer the question <i>What is a force?</i> Develop a class answer and record on board.</p> <p>b. Students complete the Lesson Check blackline master.</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>	

Movement: Lesson 3				
Content Area: Science				
Lesson Title: What is a Magnet?			Timeframe: 3-4 class periods	
Lesson Components				
<u>*21st Century Themes</u>				
Global Awareness		Financial, Economic, Business, and		Civic Literacy
				Health Literacy

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

			Entrepreneurial Literacy			
<u>*21st Century Skills</u>						
X	Creativity and Innovation	X	Critical Thinking and Problem Solving	x	Communication and Collaboration	Information Literacy
X	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>magnet, attract, repel</i>						

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • identify magnets as objects that can attract or repel some objects 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students circle objects that magnets can pull. c. Students tell about magnets they are familiar with. 2. Explore: <ol style="list-style-type: none"> a. Students read about iron and learn that the iron in cereal is the same iron that is found in some metal items, but that cereal contains tiny iron particles that are safe to eat. They learn that iron helps our bodies make parts of blood cells. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know that magnets can attract or repel some objects</i>. Help students connect these ideas to their world. b. Students learn that magnets attract some metals c. Students read the information on magnets, then discuss. d. Students read about the magnetic poles and learn that the north and south poles of a magnet stick together. e. Students read about how magnets can attract objects.

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	<p>4. Lightning Lab: <i>Attract or Repel</i></p> <p>a. Students get two magnets and put the poles together and note which poles attract and which repel.</p> <p>5. Elaborate:</p> <p>a. Students draw and label a magnet in their Science Notebook and draw three things that the magnet will attract and write one fact they learned about magnets.</p> <p>6. Evaluate:</p> <p>a. Students answer the question <i>What is a magnet?</i> Develop a class answer and record on board.</p> <p>b. Students complete the Lesson Check blackline master.</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>	

Movement: Lesson 4							
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
X	Media Literacy		ICT Literacy	x	Life and Career Skills		
*Interdisciplinary Connections: see unit overview							

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

*Integration of Technology: Pearson Interactive Science Program
*Equipment needed: see teacher's edition
Vocabulary: <i>wind, gravity</i>

Learning Outcomes	Learning Activities/Instructional Strategies
<p>Students Will Be Able To:</p> <ul style="list-style-type: none"> • explain that gravity pulls objects toward Earth without touching them 	<p>Lesson Sequence</p> <ol style="list-style-type: none"> 1. Engage: <ol style="list-style-type: none"> a. Activate prior knowledge. b. Students talk about the movement of a waterfall. 2. Explore: <ol style="list-style-type: none"> a. Inquiry: Explore It! <i>Why do things fall?</i> Lab objective: Students will predict and observe that objects fall; relate this effect to the force of gravity. 3. Explain: <ol style="list-style-type: none"> a. Read <i>I will know that gravity pulls objects toward Earth without touching them</i>. Help students connect these ideas to their world. b. Students read about the pull of gravity, then discuss. c. Students read how gravity interacts with a kite, then discuss. d. Students read how gravity pulls things down without touching them, then discuss. 4. At-Home Lab: <i>Gravity and Air</i> <ol style="list-style-type: none"> a. Students get two sheets of paper and make one into a ball; hold the ball in one hand and the sheet of paper in the other, drop them at the same time, and notice what happens. 5. Elaborate: <ol style="list-style-type: none"> a. Students draw and write about one way that gravity affects us. 6. Evaluate: <ol style="list-style-type: none"> a. Students answer the question <i>What is gravity?</i> Develop a class answer and record on board. b. Students complete the Lesson Check

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

	blackline master.
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>	

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			

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

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			

Curriculum Design Template	
Content Area:	
Course Title:	Grade Level:
Unit Plan 1	Pacing Guide
Unit Plan 1	Pacing Guide
Unit Plan 3	Pacing Guide
 	

Wandell School Science Curricula

Aligned to the Next Generation Science Standards (NGSS)

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

Unit Plan 4

Pacing Guide

Unit Plan 5

Pacing Guide

Unit Plan 6

Pacing Guide

Date Created:

Board Approved on: