

Grade 1 Science

Content Area Science \_\_\_\_\_

Grade Level(s) : Grade 1 \_\_\_\_\_

Date Developed/Revised July, 2019 \_\_\_\_\_

Date Adopted \_\_\_\_\_

**Course Description: Grade 1 Science**

**Unit 1: Engineering and Technology:** In this unit, children will define and identify problems, define and identify examples of technology, describe how people understand problems , use technology to solve problems and explore and apply a design process.

**Unit 2: Sound:** In this unit, children will explore the relationship between sound and vibration, compare the volume and the pitch of different sounds, investigate how sound makes materials move, identify ways people communicate using sounds and explore how technology is used to help people communicate with sound over distances.

**Unit 3: Light:** Students will also provide evidence, based on observations, of the relationship between the amount of light and how an object is seen, explain, using evidence based on observations, why objects that give off their own light can be seen in the dark, explain and demonstrate how different materials can allow different amounts of light to pass through, explain how shadows are made, observe that light shines in a straight line until it hits an object, explore how reflection can be used to redirect light and explore how technology is used to send and receive information using light.

**Unit 4: Plant and Animal Structures:** In this unit students will describe and explain how parts of a plant helps the plant and animals survive and grow, relate the shape and stability of structures to their function(s), use evidence to describe how plants and animals process and respond to information, describe how human-made products are designed by applying knowledge of the natural world and use observations to design a solution to a human problem by mimicking how plants use their parts to survive.

**Unit 5: Living Things and their young:** In this unit students will compare young plants and animals with parent plants and animals, observe patterns to see how plants of the same kind and animals of the same kind are alike and different, describe how

plants and animals respond to their environment to meet their needs and describe how behavior patterns of parents and offspring help offspring survive.

**Unit 6: Objects and Patterns in the Sky:** In this unit, students will identify and describe objects in the sky, use evidence to describe predictable patterns of the sun, moon and stars, observe and model patterns of the moon's phases, use observations to describe the characteristics of each season, predict patterns of change that take place from season to season, use observations to compare the amount of daylight from season to season and explore how seasons affect people and animals.

**Total Number of Units: 6**

**Pacing Guide**

<b>Unit</b>	<b>Week</b>	<b>Standard NJSLs</b>	<b>Skill What we want students to "DO"</b>
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<b>1: Engineering and Technology</b>	<b>5 days</b>	<b>K-2-ETS1-1</b>	Through a variety of opportunities, children will explore how engineers make and use technology to solve problems.
	<b>5 days</b>	<b>K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3</b>	Use a design process to develop simple models and compare and test solutions to problems.
<b>2: Sound</b>	<b>5 days</b>	<b>PS4-1</b>	Plan and conduct an investigation in order to gather evidence of how sound and vibration are related.
	<b>5 days</b>	<b>PS4-4</b>	Design a solution to the problem of communicating a message over a distance.
<b>3: Light</b>	<b>5 days</b>	<b>PS4-2</b>	Make observations to explain how objects can be seen if the objects give off their own light

	<p><b>5 days</b></p> <p><b>5 days</b></p>	<p><b>PS4-3:</b></p> <p><b>PS4-3 and PS4-4:</b></p>	<p>or if light is available to shine on them.</p> <p>Ask questions, make observations, and gather information to describe how light passes through objects and how shadows are made.</p> <p>Gather evidence to support or refute ideas about causes relating to how light travels, and explore how people use light to communicate over distances.</p>
<b>4: Life Cycles and Inherited</b>	<b>22 days</b>	<b>1-LS1-1</b>	<p>Design a solution to a human problem by mimicking how plants use their parts to survive and grow</p> <p>Design a solution to a human problem by mimicking how animals use parts of their body for protection</p> <p>Design a solution to a human problem by mimicking how animals use their body parts to meet their needs</p>

			Make observations to describe how behaviors of living things help them grow and survive.
<b>5: Living Things and Their Young</b>	<b>5 days</b>	<b>1-LS3-1</b>	Make observations to explain the differences and similarities between plant parents and their offspring.  Make observations to explain the differences and similarities between animal parents and their offspring.
	<b>10 days</b>	<b>1-LS1-2</b>	Determine patterns in how animal parents and offspring behave in ways that help the offspring survive
<b>6: Objects and Patterns in the Sky</b>	<b>5 days</b>	<b>ESS1-1</b>	Use observations of the sun, moon and stars to describe patterns that can be predicted.
	<b>5 days</b>	<b>ESS1-2</b>	Make observations at different times of year to relate the amount of daylight to the time of year.

**Unit 1 Title: Engineering and Technology**

**Time Frame: 12 days**

**Essential Questions**

- What is an engineer?
- What is technology?
- How do engineers use technology?
- How do you solve a problem?

**Standards :NJSL**

**Standards / CPIs (cumulative Progress Indicators) taught and assessed:**  
**PERFORMANCE EXPECTATION**

**K-2-ETS1-1 Ask questions, make observations and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.**

**K-2-ETS1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.**

**K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.**

**DISCIPLINARY CORE IDEAS**

**ETS1.A:Defining and Delimiting Engineering Problems**

- 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.

**ETS1.B: Developing Possible Solutions**

- 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.

**ETS1.C: Optimizing the Design Solution**

- Because there is always more than one possible solution to a problem, it is useful to compare and test designs.

## **SCIENCE and ENGINEERING PRACTICES**

### **Asking Questions and Defining Problems**

- 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 or tool.

### **Developing and Using Models**

- Develop a simple model based on evidence.

### **Analyzing and Interpreting Data**

- Analyzing data from tests of an object or tool.

## **CROSS CUTTING CONCEPTS**

### **Structure and Function**

- The shape and stability of structures of natural and designed objects are related to their function.

## **CONNECTIONS TO MATH**

**1.MD.C.4:** Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points; how many in each category, and how many more or less are in one category than in another.

## **CONNECTIONS TO ELA**

**W.1.8:** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

**W.1.2:** Write informative/explanatory texts in which they name a topic a topic, supply some facts about the topic, and provide some sense of closure.

### **Technology:**

**8.1.5.A.1** Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

### **Highlighted Career Ready Practices:**

**CRP4.** Communicate clearly and effectively and with reason.

**CRP6.** Demonstrate creativity and innovation  
**CRP7.** Employ valid and reliable research strategies  
**CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them  
**CRP12.** Work productively in teams while using cultural global competence.

**SEL Practices & Competencies:**

Self-Management  
 Social Awareness  
 Responsible Decision-Making  
 Relationship Skills

**Overall Goal (What is the big idea?) In this unit, children will define and identify problems, define and identify examples of technology, describe how people understand problems , use technology to solve problems and explore and apply a design process.**

**Pre-Assessment:** Unit 1 Pretest Engineering and Technology  
[Unit 1 Pretest](#)

**Please include interdisciplinary connections resources and plan in each activity**

Standards/ (SLO) Student Learning Objectives	Student Learning Strategies	Formative Assessment ***suggested but not limited to the following***	Activities ***suggested but not limited to the following***	Modifications & Reflections ***suggested but not limited to the following***

<p><b>K-2-ETS1-1</b>  <a href="https://www.nextgenscience.org/pe/k-2-ets1-1-engineering-design">https://www.nextgenscience.org/pe/k-2-ets1-1-engineering-design</a></p> <p><b>We are learning how to describe how people understand problems and make strategies.</b></p>	<p><b>Essential Vocabulary:</b>  <b>problem, solution</b>  ~explore how engineers make and use technology to solve problems.</p> <p><b>Instructional Strategies:</b>  ~ evidence notebooks  ~ think pair share  ~ cooperative learning  ~ KWL chart  ~question-answer  ~relationship (QAR)</p>	<p>Apply What You Know/Review of evidence based notebook  Lesson Check  Self Check  Observations  Rubrics</p>	<p>(NJSLS: SL.1.1)  Alternative Engage Strategy: Everyday Technology  Begin a discussion about technology that children use in their everyday life (i.e. kitchen tools, backpacks). Children will work in small groups to list a way they would make one of the technologies discussed better.  (Page 4 of TE)</p> <p>(NJSLS:W.1.2; W.1.8)  1.MD.C.4); SL1.1)  <b>Hands on Activity:</b>  <b>Engineer It: Solve the Problem</b>  The children will view tangled headphones and ask how they can keep headphones from looking that in the future. The children will receive pre assembled bundles of classroom materials including but not limited to string,</p>	<p><b>RTI/Extra Support:</b>  Supply children with additional examples of common problems and technology used to solve these problems. Provide children with context of how these technologies were made to help solve each problem.</p> <p><b>ELL:</b>  Discuss with children real life connections to content and provide hands-on examples of materials when possible.</p> <p><b>Extension:</b>  Children can research different types of engineers and/or technology. Children should use their data to make a poster that illustrates the type of engineer or the problem and the technology made to solve it.</p> <p><b>Suggested Strategies for Students with Special</b>  ~ Allow drawings and labels</p>
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			<p>rubber bands, tape, chenille sticks. The children will view the video to discuss the question that will need to be answered. Have the children plan two solutions to the problem, describe how to make these solutions and what materials and steps they will use.</p> <p><b>(Page 11 of TE)</b></p>	<p>-Keep instructions and directions '<u>chunked</u>'. Provide one step at a time, don't overload the student on too many pieces of information at once.</p> <p>- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.</p>
<p><b>K-2-ETS1-1</b>  <b>K-2-ETS1-2</b>  <b>K-2-ETS1-3</b>  <a href="https://www.nextgenscience.org/pe/k-2-ets1-1-engineering-design">https://www.nextgenscience.org/pe/k-2-ets1-1-engineering-design</a>  <a href="https://www.nextgenscience.org/pe/k-2-ets1-2-engineering-design">https://www.nextgenscience.org/pe/k-2-ets1-2-engineering-design</a></p>	<p><b>Essential Vocabulary:</b>  <b>problem, solution, design process</b></p> <p>Use a design process to develop simple models and compare and test solutions to problems.</p> <p><b>Instructional Strategies:</b></p>	<p>Apply What You Know/Review of evidence based notebook  Lesson Check  Self Check  Observations  Rubrics</p>	<p><b>Alternative Engage Strategy: Solving Problems in the Classroom</b></p> <p>The teacher will show the students a pair of scissors. The teacher will ask questions regarding the shape and function, and materials used to make the</p>	<p><b>RTI/Extra Support:</b></p> <p>Allow children to explore other problems in the classroom and how they are solved with objects or tools. Discuss the design process that was used to make the solution or how the design process</p>

<p><a href="https://www.nextgenscience.org/pe/k-2-ets1-3-engineering-design">https://www.nextgenscience.org/pe/k-2-ets1-3-engineering-design</a></p>	<p>~ evidence notebooks</p> <ul style="list-style-type: none"> <li>- think pair share</li> <li>- cooperative learning</li> <li>- KWL chart</li> <li>- question-answer relationship (QAR)</li> </ul>		<p>scissors. Students will choose a classroom object and present how it is designed to solve a problem.</p> <p>(Page 18 of TE)</p> <p>(NJSLS:W.1.2; W.1.8; 1.MD.C.4; SL1.1)</p> <p><b><u>Hands- On Activity: Engineer It: Protect the Legs</u></b></p> <p>Children will make observations, ask questions and follow a design process to develop solutions in order to prevent a cat from scratching the furniture. The students will make a claim and support their claim with evidence.</p> <p>(Page 27 of TE)</p>	<p>could be used to make a better solution.</p> <p><b>ELL:</b></p> <p>Discuss with children real life connections to content and provide hands-on examples of materials when possible. Help them understand the idea of a process by outlining the step by step process of getting ready for dismissal.</p> <p><b>Extension:</b></p> <p>Children can research other types of problem and solution relationships. Children can share their findings by making a poster or display or with a demonstration of the specifically designed objects made to solve the problem.</p> <p><b>Suggested Strategies for Students with Special</b></p> <ul style="list-style-type: none"> <li>~ Allow drawings and labels</li> <li>-Keep instructions and directions '<a href="#">chunked</a>'.</li> </ul>
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				<p>Provide one step at a time, don't overload the student on too many pieces of information at once.</p> <p>- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.</p>
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<b>21<sup>st</sup> Century Theme Targeted – Global Awareness: Using 21st century skills to understand and address global issues</b>					
<b>21st Century Skills Targeted:</b> Collaboration; Communication; Information Literacy; Media Literacy; Technology Literacy; Flexibility; Leadership; Initiative; Productivity; Social Skills					
<b>Creativity &amp; Innovation</b>	<b>Information Literacy</b>	<b>Media Literacy</b>	<b>Critical Thinking &amp; Problem Solving</b>	<b>Communication &amp; Collaboration</b>	<b>Life &amp; Careers</b>
<a href="#">Unit 1 Performance Task: Build a House</a> <b>(Rubric: page 5)</b>	Leveled Readers  On Level/Extra Supports  <a href="#">How Do You Investigate?</a>	<a href="#">Home   Epic!: Read Amazing Children's Books Online - Unlimited ...</a>  <a href="#">BrainPop</a>	<b>Constructing Explanations and Designing Solutions</b> Discuss with children how their claim can help to explain a problem and then design a solution.	<b>Build on Prior Knowledge</b> Watch video “Mia’s Problem” as a whole class to assess prior knowledge of problems, solutions, and technology. Think about	<a href="#">Packaging Engineering</a>  Children investigate how packaging

	<p><a href="#">How Do Engineers Solve Problems?</a></p> <p><b>Enrichment</b> <a href="#">Making a Car Go Faster</a></p> <p><a href="#">Design a Home for a Pet</a></p>		<p><b>Asking Questions and Defining Problems</b> <a href="#">Unit 1 Project: Pocket Lock-It</a> (Rubric pg 3L)</p>	<p>what kinds of problems come up in the classroom and how they might be solved.</p> <p><b>Think, Draw, Pair, Share</b> Ask children to think about a problem they might have while playing a sport after school. Have them think about what kinds of things they could do to solve the problem. Give the children to draw their answers, pair with a partner, and then share their ideas.</p>	<p>engineering design boxes, bottles, and other packages. <a href="#">Mary A. Delaney</a></p>
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**Summative Assessments:**  
 \*Self check questions,  
[Lesson 1 Quiz](#) [Lesson 2 Quiz](#) [Unit 1 Test](#) (include rubrics & exemplars) \*Self check questions, \*Unit Test, \*Rubrics,  
 \*Lesson Quiz, \*Unit 1 Performance Task (rubric: page 35) \*All available in Teachers Edition of HMH Science Dimensions

<p><b>Unit 2 Title: Sound</b></p> <p><b>Time Frame: 12 days</b></p>
<p style="text-align: center;"><b>Essential Questions</b></p> <p>What is sound? How can we communicate using sound?</p>
<p style="text-align: center;"><b>Standards: NJSL</b></p>
<p><b>PERFORMANCE EXPECTATION</b></p> <p><b>PS4-1</b> Plan and conduct investigations to provide evidence that vibrating materials can make sound can make materials vibrate,</p> <p><b>PS4-4</b> Use tools and materials to design and build a device that uses sound to solve the problem of communicating over a distance.</p>

## **DISCIPLINARY CORE IDEAS**

### **PS4.A: Wave Properties**

Sound can make matter vibrate, and vibrating matter can make sound.

### **PS4.C: Information Technologies and Instrumentation**

People also use a variety of devices to communicate (send and receive information) over long distances.

### **ETS1.A: Defining and Delimiting Engineering Problems**

A situation that people want to change or create can be approached as a problem to be solved through engineering.

## **SCIENCE and ENGINEERING PRACTICES**

### **Plan and Carrying Out Investigations**

- Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question

### **Scientific Investigations Use a Variety of Methods**

- Science Investigations begin with a question.
- Scientists use different ways to study the world.

### **Constructing Explanations and Designing Solutions**

- Use tools and materials provided to design a device that solves a specific problem.

### **Asking Questions and Defining Problems**

- Define a simple problem that can be solved through the development of a new and improved object or tool.

## **CROSS CUTTING CONCEPTS**

### **Cause and Effect**

- Simple tests can be designed to gather evidence to support or refute student ideas about causes.

### **Influence of Engineering, Technology, and Science on Society and the Natural World**

- People depend on various technologies in their lives; human life would be very different without technology.

**CONNECTIONS TO MATH**

**1.NBT.B.3** Compare two digit-digit numbers based on the meaning of the tens and ones digits, recording the results of comparisons with the symbols  $>$ ,  $<$ , and  $=$ .

**1.MD.A.2** Express the length of an object as a whole number of length units, by layering multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps.

**CONNECTIONS TO ELA**

**SL.1.** Participate in collaborative with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

**W.1.7** Participate in shared research and writing projects (e.g., explore a number of “how to” books on a given topic and use them to write a sequence of instructions).

**Highlighted Career Ready Practices:**

**CRP4.** Communicate clearly and effectively and with reason.

**CRP6.** Demonstrate creativity and innovation

**CRP7.** Employ valid and reliable research strategies

**CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them

**CRP12.** Work productively in teams while using cultural global competence.

**SEL Practices & Competencies:**

Self-Management

Social Awareness

Responsible Decision-Making

Relationship Skills

**Overall Goal (What is the big idea?)**

**In this unit, children will explore the relationship between sound and vibration, compare the volume and the pitch of different sounds, investigate how sound makes materials move, identify ways people communicate using sounds and explore how technology is used to help people communicate with sound over distances.**

Pre-Assessment: [Unit 2 Pretest](#)

**Please include interdisciplinary connections resources and plan in each activity**

Standards/ (SLO) Student Learning Objectives	Student Learning Strategies	Formative Assessment ***suggested but not limited to the following***	Activities ***suggested but not limited to the following***	Modifications & Reflections ***suggested but not limited to the following***
<p><b>1-PS4-1</b> We are learning to plan and conduct an investigation in order to gather evidence of how sound and vibration are related. <a href="https://www.nextgenscience.org/pe/1-ps4-1-waves-and-their-applications-technologies-information-transfer">https://www.nextgenscience.org/pe/1-ps4-1-waves-and-their-applications-technologies-information-transfer</a></p> <p><b>1-PS4-4</b> We are learning to explain how people use</p>	<p><b>Essential Vocabulary:</b> <b>sound, vibrate, volume, pitch</b> ~Explain that materials that vibrate make sound, and that sound can make materials vibrate.</p> <p><b>Instructional Strategies:</b> - evidence notebooks - think pair share - cooperative learning - KWL chart - question-answer relationship (QAR)</p>	<p>Apply What You Know Lesson Check Self Check Review of evidence notebook Observations Rubrics</p>	<p>(NJSLS:1.NBT.B.3; SL1.1; W.1.2; W.1.8) <b><u>Hands-on Activity:</u></b> <b><u>Make Something Move with Sound</u></b> Children work in small groups to answer the question, “Can sound make rice move?” <b>(Page 51 of TE)</b></p> <p>(NJSLS: 1.MD.C.4; SL1.1; W.1.2; W.1.7;W.1.8) <b>Vocabulary Match</b></p>	<p><b>RTI/Extra Support</b> Allow children to explore vibration, pitch and volume using simple musical instruments such as drums, kazoos, bells, and chimes. If these instruments are not available, have children make a simple instrument with a shoebox and a couple of rubber bands.</p>

<p>sound to send messages over a distance.</p> <p><a href="https://www.nextgenscience.org/pe/1-ps4-4-waves-and-their-applications-technologies-information-transfer">https://www.nextgenscience.org/pe/1-ps4-4-waves-and-their-applications-technologies-information-transfer</a></p>			<p>Assign children to pairs. Give a set of cards to each pair. Establish a time limit or set a number of rounds for the game.</p> <p><b>(page 41 in TE)</b></p>	<p>Help children remember high and low pitch by having them try to make both types of sounds when they look down and look up.</p> <p><b>ELL</b>  Help children identify their key words in captions and headings throughout the lesson, and encourage children to refer to those keywords as they explore the different activities. Provide hands-on examples of important concepts such as volume, pitch, sound, and vibration whenever possible.</p> <p>Divide a poster in half. Have students cut pictures out of magazines to make a collage that has pictures of things that make loud sounds on one side and soft sounds on the other side. Have children</p>
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				label and say the name of each picture.
<p><b>1-PS4-4</b> We are learning to design a solution to the problem of communicating a message over a distance. <a href="https://www.nextgenscience.org/pe/1-ps4-4-waves-and-their-applications-technologies-information-transfer">https://www.nextgenscience.org/pe/1-ps4-4-waves-and-their-applications-technologies-information-transfer</a></p>	<p><b><u>Essential Vocabulary:</u></b> <b>communicate</b> ~Explain how people use sound to send messages over a distance.</p> <p><b><u>Instructional Strategies:</u></b> - evidence notebooks - think pair share - cooperative learning - KWL chart - question-answer relationship (QAR)</p>	<p>Apply What You Know Lesson Check Self Check Review of evidence notebook Observations Rubric</p>	<p><b>Exploration 1: The Silent Treatment (NJSL: SL.1.1)</b> Have students work in groups to do a task without making any sound. For example, make a pattern with blocks or order them by height. Then, as a class, discuss how sound would have made the task easier. <b>(Page 58 of TE)</b></p> <p><u>Hands-On Activity: Engineer It: Communicate Over A Distance</u> Children design and construct a device to enhance communication with sound over a distance. They will use evidence from their investigation to support their claims. <b>(Page 63 of TE)</b></p>	<p><b>RTI/Extra Support</b> Arrange for children to talk to one another using cell phones or video calling, send emails to children or teachers in other classrooms, and listen to radio broadcasts.</p> <p>Have children construct a simple megaphone with paper and tape. Have partners see how far apart they can stand and still hear one another when they speak at a normal volume through a megaphone.</p> <p><b>ELL</b> Highlight the names of technologies used to communicate. Have children make a bank of these words nor make a class word wall to refer to.</p>

				<p><b>Suggested Strategies for Students with Special Needs</b></p> <ul style="list-style-type: none"><li>-Keep instructions and directions '<a href="#">chunked</a>'.</li></ul> <p>Provide one step at a time, don't overload the student on too many pieces of information at once.</p> <ul style="list-style-type: none"><li>- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.</li><li>-Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling)</li></ul>
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**21<sup>st</sup> Century Theme Targeted – Global Awareness: Using 21st century skills to understand and address global issues**

**21st Century Skills Targeted:** Collaboration; Communication; Information Literacy; Media Literacy; Technology Literacy; Flexibility; Leadership; Initiative; Productivity; Social Skills

Creativity & Innovation	Information Literacy	Media Literacy	Critical Thinking & Problem Solving	Communication & Collaboration	Life & Careers
<p><a href="#">Unit 2 Project: Explore Sound</a> (rubric: page 41L)</p> <p><a href="#">Unit 2 Performance Task: Communicate with Sound</a> (Rubric: page 75)</p>	<p>Leveled Readers: <a href="#">What are Forces and Energy?</a> <a href="#">Soccer Moves!</a></p>	<p><a href="#">What is Sound?</a></p> <p><a href="#">Brainpop</a></p> <p><a href="#">Home   Epic!: Read Amazing Children's Books Online - Unlimited ...</a></p>	<p><b>Cause and Effect</b> <b>Ask:</b> How could you use a balloon and a speaker to find out whether sounds make objects move? What happened when the speaker turned off/on? What caused the balloon to move?</p> <p><b>Claims, Evidence, and Reasoning</b> Children should make a claim that states that a loud close to a drum that will cause rice on the drum to move.</p>	<p><b>Think, Pair, Share</b> Have children think of ways they might measure the volume of sounds. Then have them work with a partner to expand upon their ideas. Encourage them to think about what nonstandard unit they might measure volume with. Invite children to share some of their ideas.</p> <p><b>Build on Prior Knowledge</b> Have children work in pairs to describe sounds they are familiar with. Encourage them to describe a variety of sounds, from soft and loud and from sudden to constant. Invite children to share some of their ideas with the class.</p>	<p><a href="#">Ludwig van Beethoven</a> Discuss with children the relationship between sound and vibration. <b>Ask: Why was Ludwig Van Beethoven's piano vibrating?</b></p> <p><a href="#">Sound Engineer</a> Discuss with children some examples of</p>

				<p><b>Ask:</b> How do you think these different sounds might make water move in different ways?</p>	<p>what a sound engineer might do. Encourage them to recognize the types of projects a sound engineers can be involved in.</p>
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**Summative Assessments:** [Lesson 1 Quiz](#); [Lesson 2 Quiz](#); [Unit 2 Test](#); (include rubrics & exemplars) \*Self check questions, \*Unit Test, \*Rubrics, \*Lesson Quiz, \*Unit 2 Performance Task (**rubric on page 75**) \*All available in Teachers Edition of HMH Science Dimensions

<p><b>Unit 3 Title: Light</b></p> <p><b>Time Frame: 17 days</b></p>
<p style="text-align: center;"><b>Essential Questions</b></p> <p>How does light help us see?  How do materials block light?  How does light travel?</p>
<p style="text-align: center;"><b>Standards: NJSL</b></p>
<p><b>Standards / CPIs (cumulative Progress Indicators) taught and assessed:</b>  <u><b>PERFORMANCE EXPECTATION</b></u>  <b>1-PS4-2</b> Make observations to construct an evidence-based account that objects can be seen only when illuminated.</p>

**1-PS4-3** Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.

**1-PS4-4** Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.

### **DISCIPLINARY CORE IDEAS**

#### **PS4.B Electromagnetic Radiation**

- Objects can be seen if the light is available to illuminate them or if they give off their own light.
- 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.

#### **PS4.C Information Technologies and Instrumentation**

People also use a variety of devices to communicate (send and receive information) over long distances.

### **SCIENCE and ENGINEERING PRACTICES**

#### **Constructing Explanations and Designing Solutions**

Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.

#### **Planning and Carrying Out Investigations**

Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question.

### **CROSS CUTTING CONCEPTS**

#### **Cause and Effect**

Simple tests can be designed to gather evidence to support or refute student ideas about causes.

#### **Influence of Engineering Technology, and Science on Society and the Natural World**

People depend on various technologies in their lives; human life would be very different without technology.

### **CONNECTIONS TO MATH**

**1.MD.B.3** Tell and write time in hours and half-hours using analog clocks.

**1.NBT.A.1** Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

**1.OA.A.2** Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, eg. by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

**CONNECTIONS TO ELA**

**SL.1.1** Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.

**W.1.7** Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instruction).

**Technology:**

**8.1.5.A.1** Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

**Highlighted Career Ready Practices:**

**CRP4.** Communicate clearly and effectively and with reason.

**CRP6.** Demonstrate creativity and innovation

**CRP7.** Employ valid and reliable research strategies

**CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them

**CRP12.** Work productively in teams while using cultural global competence.

**SEL Practices & Competencies:**

Self-Management

Social Awareness

Responsible Decision-Making

Relationship Skills

**Overall Goal (What is the big idea?)**

In this unit, students will provide evidence, based on observations, of the relationship between the amount of light and how an object is seen, explain, using evidence based on observations, why objects that give off their own light can be seen in the dark, explain and demonstrate how different materials can allow different amounts of light to pass through, explain how shadows are made, observe that light shines in a straight line until it hits an object, explore how reflection can be used to redirect light and explore how technology is used to send and receive information using light.

**Pre-Assessment:**  
[Unit 3 Pretest](#)

**Please include interdisciplinary connections resources and plan in each activity**

Standards/ (SLO) Student Learning Objectives	Student Learning Strategies	Formative Assessment ***suggested but not limited to the following***	Activities ***suggested but not limited to the following***	Modifications & Reflections ***suggested but not limited to the following***
<p><b>1-PS4-2</b>            We are learning to explain why you can see an object if it gives off its own light or if light shines on it.  <a href="https://www.nextgenscience.org/pe/1-ps4-2-waves-and-their-application-s-technologies-information-transfer">https://www.nextgenscience.org/pe/1-ps4-2-waves-and-their-application-s-technologies-information-transfer</a></p>	<p><b>Essential Vocabulary:</b>  <i>light</i>            ~Explain why you can see an object if it gives off its own light or if light shines on it.</p> <p><b>Instructional Strategies:</b></p> <ul style="list-style-type: none"> <li>- evidence notebooks</li> <li>- think pair share</li> <li>- cooperative learning</li> <li>- KWL chart</li> </ul>	<p>Apply What You Know            Lesson Check            Self Check            Review of evidence notebook            Observations            Rubrics</p>	<p><b><u>Make Observations in Different Light</u></b>  <b>(NJSLs: 1.MD.B.3: SL.1.1)</b>            Children will make observations in different amounts of light. Children will record observations under bright light, some light, and low light. They will then make a claim and support that claim using evidence from their</p>	<p><b>RTI/Extra Support</b>            Place five stickers that glow and four stickers that do not glow in a grid on a piece of cardboard or poster board. Have children shine a flashlight onto each sticker in bright daylight. Then have them take the poster and the flashlight into a dark area to make additional observations.</p>

	<p>- question-answer relationship (QAR)</p>		<p>observations during the explorations.  <b>(Page 87 of TE)</b></p> <p><b>Connections to Earth and Space Sciences (NJSL: 1.MD.B.3: SL.1.1)</b></p> <p>Discuss that the sun gives off its own light. Discuss with children things that can be seen in the night sky, Share with children that stars, such as the sun, give off their own light, which is why we can see stars in the night sky. Have children fold a sheet of paper in half. Tell them to draw the night sky on one side and the daytime sky on the other. Have children share the differences between the two images. Discuss how light changes what they see during the day and at night.  <b>(Page 89 of TE)</b></p>	<p>Alternatively, they could look at the poster under a cloth or blanket. Set up a light source large enough to cast a shadow of a child's profile onto a whiteboard or bulletin board covered with a large piece of construction paper. Cut out the child's profile to form a silhouette and ask the class if they can tell who the child is by the cutout. Discuss how you knew where to cut because you followed the line around the child's shadow.</p> <p><b>Extension</b></p> <p>Have children research how a lighthouse works. Ask them to write an opinion about whether it is more important for a lighthouse to be seen or to help other objects be seen. Prepare several cutouts of various object's shadows; for</p>
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			<p>example, a pencil, a pair of scissors, an eraser, etc. Ask children to identify as many objects as possible based on their shadow.</p> <p><b>ELL</b> Review the prepositions <b>on</b> and <b>off</b>. Discuss the phrases <b>shines light on</b> and <b>gives off its own light</b> to be.</p> <p>Discuss real world connections to content and provide hands-on examples of materials.</p> <p><b>Suggested Strategies for Students with Special Needs</b> -Keep instructions and directions <u>'chunked'</u>. Provide one step at a time, don't overload the student on too many pieces of information at once. - Structure lessons around questions that are authentic, relate to</p>
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				<p>students' interests, social/family background and knowledge of their community.</p> <p>-Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling)</p>
<p><b>1-PS4-3</b> We are learning to explain how shadows are made and that different amounts of light pass through materials. <a href="https://www.nextgenscience.org/pe/1-ps4-3-waves-and-their-applications-technologies-information-transfer">https://www.nextgenscience.org/pe/1-ps4-3-waves-and-their-applications-technologies-information-transfer</a></p>	<p><b>Essential Vocabulary:</b> <i>shadow</i> -Explain how shadows are made and that different amounts of light pass through materials.</p> <p><b>Instructional Strategies:</b> - evidence notebooks - think pair share - cooperative learning - KWL chart - question-answer relationship (QAR)</p>	<p>-Apply What You Know -Lesson Check -Self Check -Review of evidence notebook -Observations -Rubrics</p>	<p><b><u>Test How Light Passes Through Materials</u></b> <b>(NJSLs: 1.NBT.A.1: SL.1.1: W.1.2)</b> Children investigate what happens when different materials are placed in the path of light. They will use data they gathered as evidence to answer their questions and support or refute their ideas about causes. <b>(Page 101 of TE)</b></p>	<p><b>RTI/Extra Support:</b> Take a picture of a small section of the playground in the morning and in the afternoon on a sunny day. Ask the children to compare pictures. Guide the discussion to note differences in the shadows.</p> <p><b>ELL:</b> Demonstrate the words all, some, and no by placing your hand</p>

			<p><b>Read, Write, Share!</b>  <b>(NJSLs: 1.MD.B.3: SL.1.1)</b>  Have children discuss what they have learned about prisms and how this relates to rainbows.  <b>(Page 108 of TE)</b></p> <p><b>Build on Prior Knowledge</b>  <b>(NJSLs: 1.MD.B.3: SL.1.1)</b>  Have children form groups and look in books or online for investigations on the following topics: <i>shadows, prisms, or rainbow</i>. Have children conduct the investigation and record their results. Host a Science Fair Exhibit where children can share their results with parents.  <b>(Page 108 of TE)</b></p>	<p>over a flashlight in varying positions to let all, some, and no light through. Repeat by shining the flashlight on objects and repeating the words all, some and no.</p> <p><b>Extension:</b> Introduce the poem <i>Shadow Race</i> by Shel Silverstein. Guide children to compare the two pictures. Guide the discussion to note differences in the shadows.</p> <p><b>Suggested Strategies for Students with Special Needs</b>  -Keep instructions and directions <u>'chunked'</u>. Provide one step at a time, don't overload the student on too many pieces of information at once.  - Structure lessons around questions that are authentic, relate to</p>
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				<p>students' interests, social/family background and knowledge of their community.</p> <p>-Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling)</p>
<p><b>1-PS4-3</b> We are learning to explain how shadows are made and that different amounts of light pass through materials. <a href="https://www.nextgenscience.org/pe/1-ps4-3-waves-and-their-applications-technologies-information-transfer">https://www.nextgenscience.org/pe/1-ps4-3-waves-and-their-applications-technologies-information-transfer</a></p>	<p><b>Essential Vocabulary:</b> <i>reflect</i> -Explain how smooth surfaces reflect light and how to communicate with light. <b>Instructional Strategies:</b> - evidence notebooks - think pair share - cooperative learning - KWL chart</p>	<p>-Apply What You Know -Lesson Check -Self Check -Review of evidence notebook -Observations -Rubrics</p>	<p><b><u>Test What Happens to Light</u></b> <b>(NJSLs: 1.MD.B.3: SL.1.1)</b> Children will make a claim about how smooth, shiny surfaces affect a beam of light. They will support their claim with evidence and data from their</p>	<p><b>RTI/Extra Support:</b> Display a mirror in the classroom, and direct at the mirror a light source such as a flashlight or light from the sun. Demonstrate how light is reflected by the mirror, and repeat the definition or <i>reflect</i> as you demonstrate.</p>

<p><b>1-PS4-4</b>  We are learning to use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.  <a href="https://www.nextgenscience.org/pe/1-ps4-4-waves-and-their-applications-technologies-information-transfer">https://www.nextgenscience.org/pe/1-ps4-4-waves-and-their-applications-technologies-information-transfer</a></p>	<p>- question-answer relationship (QAR)</p>		<p>observations during the exploration.  <b>(Page 121 in TE)</b></p> <p><b>Read, Write, Share! Participate in a Writing Project and Discussion</b>  <b>(NJSLs: 1.MD.B.3: SL.1.1)</b>  Children will write two questions they would like to ask a camera engineer. Suggest to children that one of their questions should include something they want to know about how a camera engineer uses information about light.  <b>(Page 128 in TE)</b></p>	<p><b>ELL:</b> Review the words <i>smooth</i> and <i>shiny</i>. Provide objects for children to explore that are smooth, rough, shiny, and dull. Have children describe the qualities of the objects. Then have them sort the objects into groups.</p> <p><b>Extension:</b> Have children use books or the Internet to research materials that reflect light. Challenge children to devise a way to display their findings.</p> <p><b>Suggested Strategies for Students with Special Needs</b>  -Keep instructions and directions '<a href="#">chunked</a>'.  Provide one step at a time, don't overload the student on too many pieces of information at once.  - Structure lessons around questions that are authentic, relate to</p>
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				<p>students' interests, social/family background and knowledge of their community.</p> <p>-Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling)</p>
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<b>21<sup>st</sup> Century Theme Targeted – Global Awareness: Using 21st century skills to understand and address global issues</b>					
<b>21st Century Skills Targeted:</b> Collaboration; Communication; Information Literacy; Media Literacy; Technology Literacy; Flexibility; Leadership; Initiative; Productivity; Social Skills					
<b>Creativity &amp; Innovation</b>	<b>Information Literacy</b>	<b>Media Literacy</b>	<b>Critical Thinking &amp; Problem Solving</b>	<b>Communication &amp; Collaboration</b>	<b>Life &amp; Careers</b>
<a href="#">Unit 3 Project: Make a Rainbow (Rubric: page 81L)</a>	<p>Leveled Readers</p> <p>On Level/Extra Support</p> <p><a href="#">What forces and Energy?</a></p>	<p><a href="#">Home   Epic!: Read Amazing Children's Books Online - Unlimited ...</a></p>	<p><b>Cause and Effect</b></p> <p>What would you see if you went into the cave without a lamp? If children suggest items seen in this photograph, remind them</p>	<p><b>Think, Write, Pair, Share</b></p> <p>Direct children to think about their neighborhood at night. Have them make a list of three or more</p>	<p><a href="#">Thomas Edison</a></p> <p>As a class, read the information about</p>

<p><a href="#">Unit 3 Performance Task: Observe Reflections</a> (Rubric: page 133)</p>	<p><b>Enrichment Soccer Moves!</b></p>	<p><a href="#">BrainPop</a></p>	<p>that they would have no light without a lamp. Discuss with children how they could test to see whether or not the lamp is what allows the person in the photograph to see.</p> <p><b>Claims, Evidence, and Reasoning</b> Children should make a claim that relates to the amount of light shining on an object with the ability to see details about the object. They should cite evidence to support the claim. <b>Ask: Why is it important to have a light source when going someplace that it is dark?</b></p>	<p>objects that light shines on after dark. Ask them to pair with another child to share lists. Encourage them to discuss why they think each object has light on it at night.</p> <p><b>Build on Prior Knowledge</b> Have students view the video about fireworks. <b>Ask:</b> Think about how the sky looks before the fireworks start. What do you see? What do you see when the fireworks appear? How are you able to see them in the dark sky? Use details from the pictures to support your answers.</p>	<p>Thomas Edison. Discuss one of his most important inventions.</p> <p><a href="#">Camera Engineer</a> Tell children that camera engineers need to know about how light travels when they are designing camera. They need to know how light will react with the materials to build cameras. Prompt students to think about lenses in cameras.</p>
<p><b>Summative Assessments: (include rubrics &amp; exemplars)</b></p>					

[Lesson 1 Quiz](#); [Lesson 2 Quiz](#); [Lesson 3 Quiz](#); [Unit 3 Test](#) (include rubrics & exemplars) \*Self check questions, \*Unit Test, \*Rubrics, \*Lesson Quiz, \*Unit 3 Performance Task (**rubric page 133**) \*All available in Teachers Edition of HMH Science Dimensions

**Unit 4 Title: Plant and Animal Structures**

**Time Frame: 22 days**

**Essential Questions**

- What parts help plants live?**
- What body parts help animals stay safe?**
- What body parts help animals meet their needs?**
- How do plants and animals respond to their environment?**

**Standards : NJSL**

**Standards / CPIs (cumulative Progress Indicators) taught and assessed:**

**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**

**DISCIPLINARY CORE IDEAS**

**LS1. A: Structure and Function:**

- 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.

**ETS1.A: Defining and Delimiting Engineering Problems:**

- Before beginning to design a solution, it is important to clearly understand the problem

**ETS1.C:Optimizing the Design Solution**

- Because there is always more than one possible solution to a problem, it is useful to compare and test designs.

**LS1.D: Information Processing**

- 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 input

**SCIENCE and ENGINEERING PRACTICES****Constructing Explanations and Designing Solutions:**

- Use materials to design a device that solves a specific problem

**Asking Questions and Defining Problems**

- Define a simple problem that can be solved

**CROSS CUTTING CONCEPTS****Structure and Function:**

- The shape and stability of structures of natural and designed objects are related to their function(s).

**Influence of Engineering, Technology, and Science on Society and the Natural World:**

- Every human made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.

**CONNECTIONS TO MATH**

**1.MD.C.4:** Organize, represent and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

### **CONNECTIONS TO ELA**

**W.1.7:** Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions).

**R.1.1:** Ask and answer questions about key details in a text.

### **Technology:**

**8.1.5.A.1** Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

### **Highlighted Career Ready Practices:**

**CRP4.** Communicate clearly and effectively and with reason.

**CRP6.** Demonstrate creativity and innovation

**CRP7.** Employ valid and reliable research strategies

**CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them

**CRP12.** Work productively in teams while using cultural global competence.

### **SEL Practices & Competencies:**

Self-Management

Social Awareness

Responsible Decision-Making

Relationship Skills

### **Overall Goal (What is the big idea?)**

In this unit we are learning to describe how parts of a plant help it to survive and grow, explain how parts of an animal help it to survive and grow, relate the shape and stability of structure to their function(s). Students will also use evidence to describe how plants and animals process and respond to information, describe how human-made products are designed by applying knowledge of the natural world and use observations to design a solution to a human problem by mimicking how plants use their parts to survive.

**Pre-Assessment:** [Unit 4 Pretest](#)

Please include interdisciplinary connections resources and plan in each activity

Standards/ (SLO) Student Learning Objectives	Student Learning Strategies	Formative Assessment ***suggested but not limited to the following***	Activities ***suggested but not limited to the following***	Modifications & Reflections ***suggested but not limited to the following***
<p><b>1-LS1-1</b> <b>We are learning how to 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</b></p> <p><a href="https://www.nextgenscience.org/pe/1-ls1-1-molecules-organisms-structures-and-processes">https://www.nextgenscience.org/pe/1-ls1-1-molecules-organisms-structures-and-processes</a></p>	<p><b>Essential Vocabulary:</b> mimic</p> <p>~design a solution to a human problem by mimicking how plants use their parts to survive and grow</p> <p><b><u>Instructional Strategies:</u></b></p> <ul style="list-style-type: none"> <li>- evidence notebooks</li> <li>- think pair share</li> <li>-vocabulary cards</li> <li>-science word wall</li> <li>-hands on activities</li> <li>- cooperative learning</li> <li>- KWL chart</li> <li>- question-answer relationship (QAR)</li> <li>-videos</li> </ul>	<p>Rubrics</p> <p>Observations</p> <p>Interactive Work Text</p> <p>Apply what you know/Evidence Notebook</p> <p>Lesson check and self check</p>	<p>Utilize workbook</p> <p>Keep an evidence Notebook to record data and observations</p> <p><b><u>Vocabulary Game:</u></b> <b><u>Make a Match:</u></b> <b>(RF.1.3)</b></p> <p>Provide children with 1 set of word cards and 1 set of definition cards. Children will place the cards face up on the table. Pick a word card, read the word and match it to the definition. <b>(Pg 139 of TE)</b></p> <p><b><u>Hands-On Activity:</u></b> <b><u>Engineer It: Observe Plants to Design</u></b></p>	<p><b>RTI/Extra Support:</b> Supply children with plants for hands-on discovery. Provide examples of different plant parts. Allow children to explore each part. Encourage children to use descriptive words for each part.</p> <p><b>ELL:</b> Be sure to point out all labels, pictures, captions and headings throughout the lesson to assist children with strategies to summarize chunks of content. Provide labeled diagram so learners can compare diagram to real plant.</p>

			<p><b>(NJSL: 1.MD.C.4: W.1.7: R.1.1)</b>          Children will use an idea from observing a plant to design and build something that will help them keep cool on hot days. They will use a design process to solve their problem.          (Pg 151 of TE)</p>	<p><b>Suggested Strategies for Students with Special Needs</b></p> <ul style="list-style-type: none"> <li>-Color code cards that match.</li> <li>-Keep instructions and directions '<a href="#">chunked</a>'.</li> </ul> <p>Provide one step at a time, don't overload the student on too many pieces of information at once.</p> <ul style="list-style-type: none"> <li>- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.</li> <li>-Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling)</li> </ul> <p><b><u>Extension:</u></b></p>
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				Children can research plants in different environments and create a poster that illustrates the parts of a plant in each environment and how those parts help the plant survive in its environment.
<p><b>1-LS1-1</b>  <b>We are learning how to 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</b></p> <p><a href="https://www.nextgenscience.org/pe/1-ls1-1-molecules-organisms-structures-and-processes">https://www.nextgenscience.org/pe/1-ls1-1-molecules-organisms-structures-and-processes</a></p>	<p><b>Essential Vocabulary:</b>  mimic</p> <p>-Design a solution to a human problem by mimicking how animals use parts of their body for protection.</p> <p><b><u>Instructional Strategies:</u></b></p> <ul style="list-style-type: none"> <li>- evidence notebooks</li> <li>- think pair share</li> <li>-vocabulary cards</li> <li>-science word wall</li> <li>-hands on activities</li> <li>- cooperative learning</li> <li>- KWL chart</li> <li>- question-answer relationship (QAR)</li> <li>-videos</li> </ul>	<ul style="list-style-type: none"> <li>-Rubrics</li> <li>-Observations</li> <li>-Review of Evidence Notebook</li> <li>-Interactive Work Text</li> <li>-Apply what you know/Evidence Notebook</li> <li>-Lesson check and self check</li> </ul>	<p>Utilize workbook</p> <p>Keep an evidence Notebook to record data and observations</p> <p><b><u>What Animal Am I?</u></b>  <b><u>Activity:</u></b>  Invite children to choose an animal to mimic for their classmates. Encourage children to emphasize a certain way of moving that is a characteristic of that animal. Have the class guess which animal is being portrayed.  (Pg 158 of TE)</p>	<p><b>RTI/Extra Support:</b>  Provide children will additional pictures of animals and ask them to sort them in various ways</p> <p><b>ELL:</b>  As children view the photographs of animals in this lesson, encourage them to find the name of the animal on the page and say it aloud together. Children could build a class poster or picture book of animals they know.</p> <p><b><u>Extension:</u></b>  Children could investigate various pieces of sports</p>

			<p><b><u>Hands on Activity:</u></b>  <b><u>Engineer It-The Design a Shoe</u></b></p> <p>The learners will identify a problem related to keeping feet safe and use ideas about animal body parts to develop a solution to the problem.  (Pg 169 of TE)</p>	<p>equipment that keep us safe (shin guards in soccer) Invite the children to share a piece of sports equipment and identify an animal's body that functions in a similar way.</p>
<p><b>1-LS1-1</b>  <b>We are learning how to 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</b>  <a href="https://www.nextgenscience.org/pe/1-ls1-1-molecules-organisms-structures-and-processes">https://www.nextgenscience.org/pe/1-ls1-1-molecules-organisms-structures-and-processes</a></p>	<p><b>Essential Vocabulary:</b>  gills, lungs</p> <p>~design a solution to a human problem by mimicking how animals use their body parts to meet their needs</p> <p><b><u>Instructional Strategies:</u></b>  - evidence notebooks  - think pair share  -vocabulary cards  -science word wall  -hands on activities  - cooperative learning  - KWL chart</p>	<p>-Rubrics  -Observations  -Review of Evidence Notebook  -Interactive Work Text  -Apply what you know/Evidence Notebook  -Lesson check and self check</p>	<p>Utilize workbook</p> <p>Keep an evidence Notebook to record data and observations</p> <p><b><u>Animals Around Us Activity:</u></b>  <b><u>(NJSLS: W.2: SL.1.1)</u></b>  Begin with a discussion about animals. The children can think, pair, share animals they are familiar with in their surrounding area. In small groups, have the children draw pictures of the animals they discussed and label any body parts they know.</p>	<p><b>RTI/Extra Support:</b>  ~provide videos of animals eating  ~remind children that animals use other body parts to bring food to their mouths (in the same way we use our hands)  ~provide pictures of animals and their body parts. Allow children to talk about the body parts. Encourage the use of descriptive words.  <b>ELL:</b>  Point out all labels, pictures, captions and headings throughout the lesson to assist children</p>

	<p>- question-answer relationship (QAR)          -videos          ~Vocabulary notebook</p>		<p>The children can share their drawings and discuss how different animals have different bodies and different body parts.          (Pg 176 of TE)</p> <p><b><u>Hands-On Activity:</u></b>  <b><u>Engineer It: Observe Animals to Design</u></b>          (NJSLS: 1.MD.C.4: W.1.7)</p> <p>Children will use an idea from observing an animal to design and build a tool that would help them pick up food. They will use the design process to solve their problem. Children will share their tool with a partner and discuss how it solves the problem.          (Pg 189 of TE)</p>	<p>with strategies to summarize chunks of content. Discuss real life connections to content and provide hands-on examples.</p> <p><b>Suggested Strategies for Students with Special Needs</b></p> <ul style="list-style-type: none"> <li>-Typed labels of animal body parts will be available</li> <li>-Keep instructions and directions '<u>chunked</u>'.</li> <li>Provide one step at a time, don't overload the student on too many pieces of information at once.</li> <li>- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.</li> <li>-Provide students with multiple choices for how they can represent their understandings</li> </ul>
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				<p>(e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling)</p> <p><b>Extension:</b> Learners will research animals in different habitats. Learners will make a poster that illustrates animals in each habitat and how they use their body parts to help them survive in their habitat.</p>
<p><b>1-LS1-1</b> <b>We are learning how to 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</b></p> <p><a href="https://www.nextgenscience.org/pe/1-ls1-1-molecules-organisms-structures-and-processes">https://www.nextgenscience.org/pe/1-ls1-1-molecules-organisms-structures-and-processes</a></p>	<p><b>Essential Vocabulary:</b> adaptation, environment</p> <p>~make observations to describe how behaviors of living things help them grow and survive</p> <p><b>Instructional Strategies:</b></p> <ul style="list-style-type: none"> <li>- evidence notebooks</li> <li>- think pair share</li> <li>-vocabulary cards</li> <li>-science word wall</li> <li>-hands on activities</li> </ul>	<ul style="list-style-type: none"> <li>-Rubrics</li> <li>-Observations</li> <li>-Review of Evidence Notebook</li> <li>-Interactive Work Text</li> <li>-Apply what you know/Evidence Notebook</li> <li>-Lesson check and self check</li> </ul>	<p>Utilize workbook</p> <p>Keep an evidence Notebook to record data and observations</p> <p><b>Dressing for the Weather Activity: (NJSL: SL.1.1)</b> Ask the children how they decide on what to wear when they go outside. Guide the discussion to focus on</p>	<p><b>RTI/Extra Support:</b> Help children connect to plant and animal adaptations and migrations to their own experiences (viewing geese migrating) and encourage children to share these experiences. Discuss books or movies where animals hibernate.</p> <p><b>ELL:</b> Work with children to label key plant parts</p>

	<ul style="list-style-type: none"> <li>- cooperative learning</li> <li>- KWL chart</li> <li>- question-answer relationship (QAR)</li> <li>-videos</li> <li>~Vocabulary notebook</li> </ul>		<p>how we adapt our clothing choices to changes in the weather. Have children work in small groups to draw how they change outfits based on weather. (sunny day to rainy, rainy to snowy etc)  (Pg 196 of TE)</p> <p><a href="#">Hands-On Activity: Change How A Plant Grows</a>  <b>(NJSLs: 1.MD.A.2: W.1.7)</b>  Children make observations from an investigation to construct an evidence-based account for a plant's growth.  (Pg 199 of TE)</p>	<p>involved in adaptations (e.g. roots, leaves, stem) and a diagram of animal parts involved in gathering information (e.g. nose, eyes, whiskers) Display as a reference  <b>Extension:</b>  Children should work in pairs to conduct research on an additional plant or animal that they are interested in and how it reacts to changes in its environment. Children can make a poster or a slide show to share what they learned.</p>
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<p><b>21<sup>st</sup> Century Theme Targeted – Global Awareness: Using 21st century skills to understand and address global issues</b></p>
<p><b>21<sup>st</sup> Century Skills Targeted:</b> Collaboration; Communication; Information Literacy; Media Literacy; Technology Literacy; Flexibility; Leadership; Initiative; Productivity; Social Skills</p>

Creativity & Innovation	Information Literacy	Media Literacy	Critical Thinking & Problem Solving	Communication & Collaboration	Life & Careers
<p><a href="#">Unit 4 Project: Research a Favorite Animal</a> (Rubric: pg 219L)</p> <p><a href="#">Unit 4 Performance Task: Engineer It: Design A House</a> (Rubric: pg 213)</p>	<p><a href="#">Leveled Readers On Level</a> <a href="#">What Can We Learn About Animals</a> <a href="#">What Is A Plant</a> <b>Extra Support:</b> <a href="#">What Can We Learn About Animals?</a> <a href="#">What Is A Plant?</a> <b>Enrichment:</b> <a href="#">Amazing Animals</a> <a href="#">Weird and Wacky Plants</a></p>	<p><a href="#">BrainPop Parts of a Plant</a> <a href="#">BrainPop: Plant Adaptations</a></p> <p><a href="#">Home   Epic!: Read Amazing Children's Books Online</a> ...</p> <p><a href="#">Mammals</a> <a href="#">Basic Needs</a></p>	<p><b>Developing and Using Models:</b> ASK: Suppose you wanted to build a tree fort in a forest like this one, and you wanted it to blend into the forest. How could you use color or shape to help you.</p> <p><b>Constructing Explanations and Designing Solutions:</b> Explain that oxygen is a gas that all animals need to take in. ASK: How can animals that live under water take in oxygen. ASK: How is this different from animals who live on the land or animals that come to the surface to breathe?</p>	<p><b>Small Groups:</b> Take a tour of the classroom or school. Point out different human made objects that have features similar in structure to plant parts. Ask small groups to find an object that has parts inspired by a plant. Present the object to the class explaining its connection to plant structure or function.</p> <p><b>Collaboration:</b> Review with children the meanings of the terms <i>sound</i> and <i>smell</i>. Have children brainstorm examples from their own experiences of using their sense of sound or smell to understand what is happening around them . Guide children to recognize that animals use the senses the same way we do to meet their needs.</p>	<p><a href="#">Biologists! Scientists Who Love Life!</a> <b>Take It Further:</b> Introduce children to Janine Benyus, a biologist and writer who helps people find and copy ideas from plants and animals that will help them solve their problems. (pg 153)</p> <p><b>Take It Further: Careers in Science and Engineering:</b> Bioengineer Children explore the career of a bioengineer.</p>

					<p>(pg 171)</p> <p><a href="#"><u>Sesame Street Explores National Parks</u></a></p> <p><b>Take It Further:</b></p> <p><b><u>Forest Ranger:</u></b></p> <p>Children explore the career of a forest ranger.</p> <p>Forest Rangers watch for forest fires to protect plants and animals.</p> <p>A forest ranger educates the public about plants and animals and how to protect them.</p>
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Summative Assessments: [Lesson 1 Quiz](#); [Lesson 2 Quiz](#); [Lesson 3 Quiz](#); [Lesson 4 Quiz](#); [Unit 4 Test](#) (include rubrics & exemplars)\*Self check questions, \*Unit Test, \*Rubrics, \*Lesson Quiz, \*Unit 4 Performance Task \*All available in Teachers Edition of HMH Science Dimensions

**Unit 5 Title: Living Things and Their Young**

**Time Frame: 17 days**

**Essential Questions**

**How do plants look like their parents?  
How do animals look like their parents?  
How do animals take care of their young?**

**NJSLS Standards**

**Standards / CPIs (cumulative Progress Indicators) taught and assessed:**

**PERFORMANCE EXPECTATION**

**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 alike but not exactly like their parents.**

**DISCIPLINARY CORE IDEAS**

**LS3.A Inheritance of Traits**

- Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents.

**LS3.B: Variation of Traits**

- Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.

**LS1.B: Growth and Development of Organisms**

- 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.

**SCIENCE and ENGINEERING PRACTICES**

**Constructing Explanations and Designing Solutions:** Make observations (firsthand or from the media) to construct an evidence-based account for natural phenomena.

**Obtaining, Evaluating, and Communicating Information:** Read grade-level appropriate texts and use media to obtain scientific information to determine patterns.

**Scientific Knowledge is Based on Empirical Evidence:** Scientists look for patterns and order when making observations about the world.

**CROSS CUTTING CONCEPTS:**

- **Patterns:** Patterns in a natural world can be observed, used to describe phenomena, and used as evidence.

**CONNECTIONS TO MATH:**

**1.MD.A.1:** Order three objects by length; compare the lengths of two objects indirectly by using a third object.

**1.MD.A.2:** Express the length of an object as a whole number of length units, by laying multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of the same-size length units that span it with no gaps or overlaps. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps.

**1.NBT.B.3:** Compare two two-digit numbers based on the meanings of the tens and one digits, recording the results of comparisons with the symbols  $>$ ,  $=$ , and  $<$ .

**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.

**CONNECTIONS TO ELA:**

**W.1.7:** Participate in shared research and writing projects (e.g., explore a number of how-to books on a given topic and use them to write a sequence of instructions).

**W.1.8:** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

**R.1.1:** Ask and answer questions questions about key details in a text.

**Technology:**

**8.1.5.A.1:** Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

**Highlighted Career Ready Practices:**

**CRP4.** Communicate clearly and effectively and with reason.

**CRP6.** Demonstrate creativity and innovation

**CRP7.** Employ valid and reliable research strategies

**CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them

**CRP12.** Work productively in teams while using cultural global competence.

**SEL Practices & Competencies:**

Self-Management

Social Awareness

Responsible Decision-Making

Relationship Skills

**Overall Goal** (What is the big idea?) In this unit, children will be able to compare young plants with parent plants, observe patterns to explain how plants of the same kind are alike and different, compare young animals with parent animals and observe patterns to explain how animals of the same kind are alike and different. Children will also be able to describe how plants and animals respond to their environments to meet their needs and describe how behavior patterns of parents and offspring help offspring survive.

Pre-Assessment [Unit 5 Pretest](#)

Please include interdisciplinary connections resources and plan in each activity

Standards/ (SLO) Student Learning Objectives	Student Learning Strategies	Formative Assessment ***suggested but not limited to the following***	Activities ***suggested but not limited to the following***	Modifications & Reflections ***suggested but not limited to the following***
<p><b>1-LS3-1</b> We are learning to make observations to construct an evidence based account that young plants and animals are like, but not exactly like, their parents. <a href="https://www.nextgenscience.org/pe/1-ls3-1-heredity-inheritance-and-variation-traits">https://www.nextgenscience.org/pe/1-ls3-1-heredity-inheritance-and-variation-traits</a></p>	<p><b><u>Essential Vocabulary:</u></b> parent, offspring, trait</p> <p>Make observations to explain the differences and similarities between plant parents and their offspring.</p> <p>Compare patterns between a young plant and a parent plant to explain how they are alike and different.</p> <p>Children observe and gather evidence of how plants of the same kind can have similarities and differences.</p>	<p>Rubrics</p> <p>Observations</p> <p>Review of Evidence Notebook</p> <p>Interactive Work Text</p> <p>Apply what you know/Evidence Notebook</p> <p>Lesson check and self check</p>	<p>Utilize workbook</p> <p>Keep an evidence Notebook to record data and observations</p> <p><b><u>Hands-On Activity:</u></b> <b><u>Grow Carrot Tops</u></b> (NJSLS: 1.MD.A.2: W.1.7) Children will grow two carrot plants from carrot tops. They will record their observations, compare the plants and look for patterns. They make a claim and support the claim by using evidence gathered from their observations.</p>	<p><b><u>RTI/Extra Support:</u></b> Provide a video for the students to see how the experiment is conducted. (online resource) All the students various opportunities to ask questions. <b><u>Suggested Strategies for Students with Special Needs</u></b> ~Students can draw instead of writing -Keep instructions and directions '<u>chunked</u>'. Provide one step at a time, don't overload the student on too many</p>

	<p><u>Instructional Strategies</u>  Evidence notebooks  Think-pair-share  Vocabulary cards  Science Word Wall  Hands on activities  Videos  Cooperative learning  Question-Answer  Relationship</p>		<p>(Pg 229 of TE)</p> <p><b><u>Vocabulary Builder:</u></b>  To help children remember these vocabulary words, ask them to make a poster of animals parents and offspring. They can cut out the pictures and label them with the vocabulary word <i>parent</i> or <i>offspring</i>. Ask children to about one <i>trait</i> that the parent animal shares with their offspring. Remind children to look for the highlighted words as they proceed through the lesson.</p> <p>(Page 220B of TE)</p>	<p>pieces of information at once.</p> <ul style="list-style-type: none"> <li>- Structure lessons around questions that are authentic, relate to students’ interests, social/family background and knowledge of their community.</li> <li>-Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling)</li> </ul> <p><b><u>Extension:</u></b> Challenge the students to test another carrot top in a water bowl and limit the amount of sunlight. Ask the students to gather information and compare the carrot top that receives sunlight to the one that had limited sunlight.</p>
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				<p><i>Vocabulary Builder:</i> <b>RTI/Extra Support:</b> Provide additional opportunity for hands-on discovery. ASk children to save a few seeds from fruit eaten at home or school. Begin by providing examples of commercial seed packets for children to investigate. Explain that the picture on the front of the packet shows how the parent plant looks. Help children find information on the packets about some traits to expect in the young plants. Finally, guide children to design their own seed envelopes for the seeds they collected.</p> <p><b>Extension:</b> Children who want to find out more can do research on how some traits are more helpful for a plant</p>
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				<p>to live, grow, or make new plants.</p> <p><b>ELL:</b> Be sure to point out all labels, pictures, captions, and headings throughout the lesson to assist children with strategies to summarize chunks of content.</p>
<p><b>1-LS3-1</b> We are learning to make observations to construct an evidence based account that young plants and animals are like, but not exactly like, their parents. <a href="https://www.nextgenscience.org/pe/1-ls3-1-heredity-inheritance-and-variation-traits">https://www.nextgenscience.org/pe/1-ls3-1-heredity-inheritance-and-variation-traits</a></p>	<p><b>Essential Vocabulary:</b> parent, offspring, trait</p> <p>Make observations to explain the differences and similarities between animal parents and their offspring.</p> <p>Observe patterns in how young animals grow and change in order to construct evidence.</p> <p>Describe how young animals and their parents are alike and different.</p> <p>Observe and compare patterns in how the body</p>	<p>Rubrics</p> <p>Observations</p> <p>Review of Evidence Notebook</p> <p>Interactive Work Text</p> <p>Apply what you know/Evidence Notebook</p> <p>Lesson check and self check</p>	<p><b>Hands-on Activity:</b> <b>Observe Brine Shrimp</b> <b>(NJSLS: 1.M.D.C.4, W.1.8)</b></p> <p>Children will explore how brine shrimp hatch and change as they grow into adults. Children observe the shrimp over time and record information about their body features. They compare and contrast the adult shrimp and use this information to construct evidence. <b>(Page 229 of TE)</b></p>	<p><i>Hands-On Activity:</i> <i>Observe Brine Shrimp</i> <b>RTI/Extra Support:</b> Provide additional examples of young animals and their parents. Show pictures or videos of young animals and their parents and discuss how they are alike and different.</p> <p><b>Suggested Strategies for Students with Special Needs</b> ~Drawings and/or labels may be used in place of writing -Keep instructions and directions '<a href="#">chunked</a>'.</p>

	<p>features of young animals and their parents are alike and different in order to construct evidence.</p> <p><u>Instructional Strategies</u>  Evidence notebooks  Think-pair-share  Vocabulary cards  Science Word Wall  Hands on activities  Videos  Cooperative learning  Question-Answer  Relationship</p>		<p><b><u>Collaboration Activity:</u></b>  <b>(NJSL: SL.1.1,5-6)</b>  Have children work in pairs to draw a picture of a young animal and its parents. Children can share their drawings and explain how the young animals are like their parents and how they are different.  (Page 237 of TE)</p>	<p>Provide one step at a time, don't overload the student on too many pieces of information at once.</p> <ul style="list-style-type: none"> <li>- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.</li> <li>- Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling)</li> </ul> <p><b><u>Extension:</u></b>  Children can research other kinds of young animals and their parents. Children can share their findings with the class by making a poster or other display</p>
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				<p>that shows how young animals and their parents are similar and different.</p> <p><b>ELL:</b> Be sure to point out all labels, pictures, captions, and headings throughout the lesson to assist children with strategies to summarize chunks of content. Provide sentence frames for various responses.</p> <p><i>Collaboration Activity:</i></p> <p><b>RTI/Extra Support:</b> Locate or provide pictures of animals taking care of their young. Cut the pictures in two so that one side includes the adult and one side includes the young. Allow children to match the parent with the young and explain why it's a match. Students can orally provide one example of something that is the same and one example</p>
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				<p>of something that is different.</p> <p><b>Extension:</b> The students will research a selected animal and write down at least 3 similarities and 3 differences. The students will then present their findings to the class.</p> <p><b>ELL:</b> Review the different words used to describe the growth stages among animals. Have children make flash cards for newborn, young animal, parent and adult. Children can write each word on one side of a flash card, draw a picture or write words or phrases in their native language on the other side.</p>
<p><b>1-LS1-2</b> We are learning to read texts and use media to determine patterns in behavior in parents and</p>	<p><b>Essential Vocabulary:</b> <b>behavior</b> Determine patterns in how animal parents and offspring behave in</p>	<p>Rubrics Observations Review of Evidence Notebook</p>	<p>Utilize workbook Keep an evidence Notebook to record data and observations</p>	<p><b>RTI/Extra Support:</b> Locate or provide pictures of animals taking care of their young. Cut the pictures in two so that one side</p>

<p>offspring that help offspring survive.  <a href="https://www.nextgenscience.org/pe/1-ls1-2-molecules-organisms-structures-and-processes">https://www.nextgenscience.org/pe/1-ls1-2-molecules-organisms-structures-and-processes</a></p>	<p>ways that help the offspring survive.</p> <p><a href="#">Instructional Strategies</a></p> <p>Evidence notebooks  Think-pair-share  Vocabulary cards  Science Word Wall  Hands on activities  Videos  Cooperative learning  Question-Answer Relationship</p>	<p>Interactive Work Text  Apply what you know/Evidence Notebook  Lesson check and self check</p>	<p><b><a href="#">Hands-on Activity: Compare How Animals Learn</a></b>  <b>(NJSLLS: 1.M.D.C.4, W.1.8)</b>  Children gather information on how polar bears and lions teach their young to find food and stay safe. They use this information to construct evidence about how the animals are alike and different.  (Pg 263 of TE)</p>	<p>includes the adult and one side includes the young. Allow children to match the parent with the young and explain why it's a match.</p> <p><b>Suggested Strategies for Students with Special Needs</b></p> <p>~Typed labels of animal body parts will be available</p> <ul style="list-style-type: none"> <li>-Keep instructions and directions '<a href="#">chunked</a>'.</li> </ul> <p>Provide one step at a time, don't overload the student on too many pieces of information at once.</p> <ul style="list-style-type: none"> <li>- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.</li> <li>-Provide students with multiple choices for how they can represent their understandings (e.g. multisensory</li> </ul>
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			<p><b><u>Collaboration Activity:</u></b>  <b>(NJSLS: W.1.2, W.1.5, W.1.8, SL.1.1, 1.6)</b>  Place children in small groups. Provide each group with a picture of an animal that helps keep its young safe. (Some examples could include a penguin with an egg or a cat licking her young.) Have each group research behaviors of the animal and how it helps keep its young safe. Children can discuss their findings with the class.  <span style="color: red;">(Page 257 of TE)</span></p>	<p>techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling)</p> <p><b><u>Extension:</u></b>  Challenge children to keep a log as they find animals taking care of their young over a given time. Have children make a chart to display their findings or present to the class.</p> <p><b><u>ELL:</u></b> Be sure to point out all labels, pictures, captions, and headings throughout the lesson to assist children with strategies to summarize chunks of content.</p> <p><b><u>Vocabulary Support:</u></b>  Remind children to look for the highlighted word as they proceed through the lesson. To help children remember the word behavior have them note the root word is behave. Have them</p>
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				<p>use the root word and the new word in a sentence.</p> <p><b>Extension:</b> Students will create a poster on GoogleDocs with at least 3 different animals and explain how an animal keeps its young safe.</p> <p><b>ELL/RTI/Extra Support:</b> Provide students with various photos of animals keeping their young safe. Have them discuss how they think the adult helps the young. Have students draw a picture to show</p>
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<p><b>21<sup>st</sup> Century Theme Targeted – Global Awareness: Using 21st century skills to understand and address global issues</b></p>
<p><b>21st Century Skills Targeted:</b> Collaboration; Communication; Information Literacy; Media Literacy; Technology Literacy; Flexibility; Leadership; Initiative; Productivity; Social Skills</p>

Creativity & Innovation	Information Literacy	Media Literacy	Critical Thinking & Problem Solving	Communication & Collaboration	Life & Careers
<p><a href="#">Unit 5 Project: Compare Animals</a> (Rubric pg 219L)</p>	<p><b>Leveled Readers:</b> On Level: <a href="#">What Can We Learn About Animals?</a> <a href="#">What Is A Plant?</a> Extra Support: <a href="#">What Can We Learn About Animals</a> <a href="#">What Is a Plant?</a> Enrichment: <a href="#">Amazing Animals</a> <a href="#">Weird and Wacky Plants</a></p>	<p><a href="#">Animal Babies and Their Parents</a></p> <p><a href="#">Home   Epic!: Read Amazing Children's Books Online</a> ...</p> <p><a href="#">Plant Parents and their Offspring</a></p>	<p><a href="#">Unit 5 Performance Task: Match Animals and Their Young</a> (Rubric pg 271)</p>	<p>Plan a class field trip to a local orchard or nursery. Have children develop questions they want to ask about how young plants are similar to and different from their parents. Have children record the answers to their questions.</p> <p>Invite a veterinarian to speak to the class about how animals and their offspring are alike and different.</p>	<p><b>Take it Further:</b> People in Science and Engineering: Gregor Mendel-Scientist</p> <p><b>Take it Further:</b> Careers in Science and Engineering- Zookeeper (page 265) <a href="#">A Day In the Life of A Zoo Keeper</a></p>
<p><b>Summative Assessments:</b> <a href="#">Lesson 1 Quiz</a>; <a href="#">Lesson 2 Quiz</a>; <a href="#">Lesson 3 Quiz</a>; <a href="#">Unit 5 Test</a> include rubrics &amp; exemplars) *Self check questions, *Unit Test, *Rubrics, *Lesson Quiz, *Unit 5 Performance Task *All available in Teachers Edition of HMH Science Dimensions</p>					

**Unit 6 Title: Objects and Patterns in the Sky**

**Time Frame: 12 days**

**Essential Questions:**  
**How do objects in the sky seem to change?**  
**What are patterns of daylight?**

**NJSLS Standards**

**Standards / CPIs (cumulative Progress Indicators) taught and assessed:**

**PERFORMANCE EXPECTATIONS**

**ESS1-1:** Use observations of the sun, moon and stars to describe patterns that can be predicted.

**ESS1-2:** Make observations at different times of year to relate the amount of daylight to the time of year.

**DISCIPLINARY CORE IDEAS**

**ESS1.A: The Universe and its Stars**

Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.

**ESS1.B: Earth and the Solar System**

Seasonal patterns of sunrise and sunset can be observed, described, and predicted.

**SCIENCE and ENGINEERING PRACTICES**

- **Analyzing and Interpreting Data:** Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.

**CROSS CUTTING CONCEPTS**

- **Patterns:** Patterns in a natural world can be observed, used to describe phenomena, and used as evidence.
- **Scientific Knowledge Assumes an Order and Consistency in Natural Systems:**
- Science assumes natural events happen today as they happened in the past.
- Many events are repeated.

### **CONNECTIONS TO MATH**

**1.G.A.3:** Partition circles and rectangles into two and four equal shares, describe the shares using the words halves, fourths, and quarters, and use the phrases half of, fourth of, and quarter of. Describe the whole as two of, or four of the shares. Understand for these examples that decomposing into more equal shares creates smaller shares.

**1.OA.A.1:** Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem.

### **CONNECTIONS TO ELA**

**W.1.7:** Participate in shared research and writing projects (e.g., explore a number of how-to books on a given topic and use them to write a sequence of instructions).

**W.1.8:** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

### **Technology:**

**8.1.5.A.1:** Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems.

### **Highlighted Career Ready Practices:**

**CRP4.** Communicate clearly and effectively and with reason.

**CRP6.** Demonstrate creativity and innovation

**CRP7.** Employ valid and reliable research strategies

**CRP8.** Utilize critical thinking to make sense of problems and persevere in solving them

**CRP12.** Work productively in teams while using cultural global competence.

### **SEL Practices & Competencies:**

Self-Management

Social Awareness

Responsible Decision-Making  
Relationship Skills

**Overall Goal (What is the big idea?)** In this unit children will identify and describe objects in the sky, use evidence to describe predictable patterns of the sun, moon and stars, observe and model patterns of the moon’s phases. Students will also be able to use observations to describe the characteristics of each season, predict patterns of change that take place from season to season use observations to compare the amount of daylight from season to season and explore how seasons affect people and animals.

**Pre-Assessment:** [Unit 6 Pretest](#)

**Please include interdisciplinary connections resources and plan in each activity**

Standards/ (SLO) Student Learning Objectives	Student Learning Strategies	Formative Assessment ***suggested but not limited to the following***	Activities ***suggested but not limited to the following***	Modifications & Reflections ***suggested but not limited to the following***
<b>1-ESS1-1</b> <b>We are learning to describe objects in the</b>	<b>Essential Vocabulary:</b> star, sun, moon, phases	Rubrics  Observations	Utilize workbook	Visuals to illustrate the problem

<p>sky and predict their patterns.  <a href="https://www.nextgenscience.org/pe/1-ess1-1-earth-place-universe">https://www.nextgenscience.org/pe/1-ess1-1-earth-place-universe</a></p>	<p>Identify and describe objects in the sky.</p> <p>Use evidence to describe predictable patterns of the sun, moon and stars.</p> <p>Observe and model patterns of the moon's phases.</p> <p><b><u>Instructional Strategies</u></b>  Evidence notebooks  Think-pair-share  Vocabulary cards  Science Word Wall  Hands on activities  Videos  Cooperative learning  Question-Answer Relationship</p>	<p>Review of Evidence Notebook</p> <p>Interactive Work Text  Apply what you know/Evidence Notebook  Lesson check and self check</p>	<p>Keep an evidence Notebook to record data and observations</p> <p><b><u>Hands-on Activity: Observe the Pattern of the Sun</u></b>  (NJSLS: 1.MD.C.4, W.1.8)  Children will explore the sun's apparent movement across the daytime sky. They will use their observations to make a claim that answers their question. They will test and record data by using drawing paper to record the position of the sun. They will repeat these steps by viewing the sun at two other times throughout the day.  (Page 283 of TE)</p>	<p>Picture prompts for each step of the project</p> <p>Picture directions and check-list</p> <p><b><u>RTI/Extra Support:</u></b>  Some children may have difficulty with the idea that the Earth moves and the sun stays still. Place a large picture of the sun on the wall. Have children stand facing the opposite wall to represent Earth. Have children slowly turn in a counterclockwise direction toward the picture of the sun. Ask: What moved? What seemed to move?</p> <p><b><u>Suggested Strategies for Students with Special Needs</u></b>  ~Typed labels of animal body parts will be available  -Keep instructions and directions '<u>chunked</u>'.  Provide one step at a</p>
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			<p><b><u>Vocabulary Game:</u></b>  <b>(NJSL: SL.1.1-6)</b>  Students will work with a partner to make words and then place them face down in a pile. They will take a card and then draw or act out what the word is on the card. When the word is guessed correctly, the next person will have a turn.  (Page 277 of TE)</p>	<p>time, don't overload the student on too many pieces of information at once.</p> <ul style="list-style-type: none"> <li>- Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.</li> <li>-Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling)</li> </ul> <p><b><u>Extension:</u></b> Children may be aware that while it is day in the United States, it is night in other parts of the world. Challenge children to talk with a classmate and use what they know about Earth's movement</p>
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				<p>to explain how it can be a different time in two different places.</p> <p><b><u>ELL:</u></b> Discuss the different positions and times of the daytime sky by having the students label vocabulary words and their time to the correct picture. Example: If the picture being shown is directly above us, that picture would be labeled noon.</p> <p><b><u>RTI/Extra Support:</u></b> Pronounce each word and have children repeat it after you. Have children find each highlighted word within the unit content. Have children work in pairs and explain to a partner what they think each word means.</p> <p><b><u>Extension:</u></b> Have children select two vocabulary words and work in small groups to illustrate and explain to</p>
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				the words to another student.
<p><b>1-ESS1-2</b>  <b>We are learning to make observations at different times of year to relate the amount of daylight to the time of year.</b>  <a href="https://www.nextgenscience.org/pe/1-ess1-2-earth-place-universe">https://www.nextgenscience.org/pe/1-ess1-2-earth-place-universe</a></p>	<p><b>Essential Vocabulary:</b>  seasons</p> <p>~Use observations to describe characteristics of each season.</p> <p>~Predict patterns of change that take place from season to season.</p> <p>~Use observations to compare the amount of daylight from season to season.</p> <p>~Explore how seasons affect people and animals.</p> <p><b><u>Instructional Strategies</u></b>  Evidence notebooks  Think-pair-share  Vocabulary cards  Science Word Wall  Hands on activities  Videos  Cooperative learning</p>	<p>Rubrics</p> <p>Observations</p> <p>Review of Evidence Notebook</p> <p>Interactive Work Text</p> <p>Apply what you know/Evidence Notebook</p> <p>Lesson check and self check</p>	<p>Utilize workbook</p> <p>Keep an evidence Notebook to record data and observations</p> <p><b><u>Hands- On Activity: Observe Patterns of Sunset</u></b>  <b>(NJSL: 1.MD.C.4, W.1.8)</b>  Children will compare what time the sun seems to set in three different seasons. Guide children as they gather, record and recall information about the patterns of seasons.  (Paeg 305 of TE)</p> <p><b><u>Take It Further: Careers in Science &amp;</u></b></p>	<p><b>RTI/Extra Support:</b>  Students will have assistance with locating information on the computer. Sentence frames will be provided when recording information.</p> <p><b>Extension:</b> The students will record what time the sun seems to set in all four seasons. They will create a poster to showcase each season.</p> <p><b>ELL:</b> Visuals to illustrate the problem. Picture prompts for each step of the project. Picture directions and check-list.</p> <p><b>RTI/Extra Support:</b>  Some children might have limited experience with animals. Ask them</p>

	<p>Question-Answer Relationship</p>		<p><b><u>Engineering: Circadian Biologist</u></b>  <b>(NJSL: SL.1.1-6, W.1.2)</b>  Discuss the types of animals children might observe in their homes or community. Do the seasons affect these animals? Do you notice changes in the way they look? Do they act in a different way? Pick an animal of your choice to show the students an example. Students will then think about people and animals in the home and community and select one to record on page 308 by writing a sentence(s) and illustrating a picture.  <b>(Pg 308 of TE)</b></p>	<p>to interview a classmate who has a pet.</p> <p><b>Suggested Strategies for Students with Special Needs</b>  ~Typed labels of animal body parts will be available  -Keep instructions and directions '<b>chunked</b>'. Provide one step at a time, don't overload the student on too many pieces of information at once.  - Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.  -Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques-auditory/visual aids; pictures,</p>
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				<p>illustrations, graphs, charts, data tables, multimedia, modeling)</p> <p><b>Extension:</b> Challenge children to find out more about how season changes affect plants. Children may decide to research a certain type of plant, such as garden plants, houseplants or trees.</p>
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<b>21<sup>st</sup> Century Theme Targeted – Global Awareness: Using 21st century skills to understand and address global issues</b>					
<b>21st Century Skills Targeted:</b> Collaboration; Communication; Information Literacy; Media Literacy; Technology Literacy; Flexibility; Leadership; Initiative; Productivity; Social Skills					
<b>Creativity &amp; Innovation</b>	<b>Information Literacy</b>	<b>Media Literacy</b>	<b>Critical Thinking &amp; Problem Solving</b>	<b>Communication &amp; Collaboration</b>	<b>Life &amp; Careers</b>
<p><b>Unit 6 Project:</b>  <u><a href="#">Explore the Moon's Phases</a></u>  (Rubric pg 277L)</p>	<p><b>Leveled Readers:</b>  On Level:  <u><a href="#">How Can We Observe and Record Weather?</a></u>  <u><a href="#">How Does the Sky Seem to Change?</a></u>  Extra Support:</p>	<p><u><a href="#">Science-How Environment Effects Plants</a></u></p> <p><u><a href="#">Home   Epic!: Read Amazing Children's</a></u></p>	<p><b>Unit 6: Performance Task:</b>  <u><a href="#">Observe Long and short days</a></u>  Children will observe the growth patterns of plants exposed to different amounts of sunlight and collect and analyze data.</p>	<p>Invite or write to the New Jersey Astronomical Association to obtain more information on this career.  <a href="http://www.njaa.org/">http://www.njaa.org/</a></p>	<p>Take it Further:  People in Science &amp; Engineering  Astronomer:  Dr. Sarah</p>

	<p><a href="#">How Can We Observe and Record Weather?</a>  <a href="#">How Does the Sky Seem to Change?</a>          Enrichment:  <a href="#">Move It</a>  <a href="#">A Closer Look at Telescopes</a></p>	<p><a href="#">Books Online</a>          ...</p>	<p>(Rubric pg 313)</p>		<p>Ballard (page 291)  <a href="#">What Do Astronauts Do?</a>          (Students can explore the career of being an astronaut)          Take It Further:          Careers in Science &amp; Engineering:          Circadian Biologist (page 307)</p>
<p><b>Summative Assessments: <a href="#">Lesson 1 Quiz</a>; <a href="#">Lesson 2 Quiz</a>; <a href="#">Unit 6 Test</a>(include rubrics &amp; exemplars) *Self check questions, *Unit Test, *Rubrics, *Lesson Quiz, *Unit 6 Performance Task *All available in Teachers Edition of HMH Science Dimensions</b></p>					