Curriculum Management System

PAULSBORO PUBLIC SCHOOLS

Science Grade 1

UPDATED 2022

For adoption by all regular education programs as specified and for adoption or adaptation by all Special Education Programs in accordance with Board of Education Policy.

Board Approved: 2022

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Paulsboro Public Schools

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Paulsboro Public Schools

Mission Statement

The mission of the Paulsboro School District is to work with students, parents, educators, and community to develop excellence in education while preparing each student to be viable and productive citizens in society. Our goal is to develop the unique potential of the whole student by creating a challenging and diverse learning climate that prepares students for the 21st Century and is rich in tradition and pride.

1st GRADE PACING CHART (2020-2021)

TOPIC	# OF DAYS	DATES	COMMENTS
1 -Waves and their Applications in Technologies for Information Transfer (Unit 3)	22 @ 30-45 minutes	September-November	See Objects
2-From Molecules to Organisms: Structures and Processes Heredity: Inheritance and Variation of Traits (Unit 2)	38.5 @ 30-45 minutes	November-January	Animal Parents and Their Offspring
3- From Molecules to Organisms: Structures and Processes Heredity: Inheritance and Variation of Traits (Unit 1)	16 @ 30-45 minutes	February-March	Plant Structures and Functions
4- Earth's Place in the Universe	23 @ 30-45 Minutes	March-May	Observe the Sky

Unit 1
Big Idea: Waves and their Applications in Technologies for Information Transfer
Topic: Light & Shadows

NJSLS - Science:	Critical Knowledge and Skills
Engineering Design **SEP-Science and Engineering Practices** K-2-ETS1-3	**Concept(s):** ● Light is one kind of energy we get from the Sun and one we can detect with our eyes. ● Light comes as a mix of colors. ● Different materials absorb or reflect light in different ways. ● Transparent objects allow light to travel through them.

<table>
<tr>
<td rowspan="4">

Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.
Constructing explanations and designing solutions in K-2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. Make observations (firsthand or from media) to construct and evidence-based account for natural phenomena. (1-PS4-2)
Use tools and materials provided to design a device that solves a specific problem. (1-PS4-4)

DCI-Disciplinary Core Ideas
ETS1.C: Optimizing the design solution

Because there is always more than one possible solution to a problem and progresses to collecting, recording, and sharing observations.
Analyze data from tests of an object or tool to determine if it works as intended. (K-2-ETS1-3)
PS4.B: Electromagnetic Radiation

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Translucent objects let only some light through.
Opaque objects block light altogether.
The absence of light coming through these objects forms a shadow, or an area without light.
Some objects are reflective, meaning they bounce a lot of light back.

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<tr>
<td>Students are able to:</td>
<td>Learning Goal(s):</td>
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<td>Students will explore the interaction of light & materials. They will learn that light illuminates, passes through some objects, and casts shadows.
Students will make observations and construct explanations to observe what causes objects to be seen when illuminated.
Students will carry out investigations to determine the effect of placing objects in the path of a beam light.
Students will begin to construct explanations and design solutions for people who use modern technology to communicate over a distance.</td>
<td>What happens when light hits an object?
Do we need light to see?
How does light interact with materials?
How do we use light to communicate?</td>
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<tr>
<td>Formative/Summative Assessments</td>
<td>Primary & Supplementary Resources</td>
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<tr>
<td>Talk About It
Inquiry Activities
Teacher created assessments
Quick Check
Three-Dimensional Thinking Questions</td>
<td>Inspire Science, McGraw Hill, 2020
Unit 3
Inspire Science Videos

Cave Exploration
Light
A Prism

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</table>

• Objects can be seen if light is available to illuminate them or if they give off their own light(1-PS4-2) • Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated. • PS4.C: Information Technologies and Instrumentation • People also use a variety of devices to communicate (send/receive) over long distances. (1-PS4-4) CCC-Crosscutting Concepts • Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-2) • People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4) 1-PS4-2 Make observations to construct evidence-based account that objects in darkness can be seen only when illuminated. 1-PS4-4 Use tools and materials to design and build a device that uses light	Page Keeley Science Probe - Light and Sight (Lesson 1) Page Keeley Science Probe - Properties of Light (Lesson 2) Page Keeley Science Probe - Mirrors and Light (Lesson 3) Performance Task - Lighting the School Play (Lesson 1) Lighting the School Play Performance Task Rubric Lesson 1- Light & Shadows Test Performance Task - Light and Materials (Lesson 2) Light and Materials Performance Task Rubric Lesson 2- Properties of Light Test Performance Task - Mirrors (Lesson 3) Mirrors Performance Task Rubric Lesson 3- How Light Travels Test Module Performance Project- Light Illuminates Objects Light Illuminates Objects Performance Project Rubric Light Energy Module Test	Inspire Science Files • How Does Light Move? Inspire Simulations & Digital Interactives • Find the Cat Simulation • How Light and Shadows Interact • Types of Materials • Inspire Science Songs • My Shadow Inspire Science Readers • Shadows • The Camera's Eye Discovery Education • Sticky Songs: Singable Lessons about Physical Science: Light

or sound to solve the problem of communicating over a distance. **Related Interdisciplinary Standards:** **ELA/Literacy** 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). **Mathematics** MP.5 Use appropriate tools strategically. 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 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. Limit to contexts where the object being measured is spanned by a whole number of length units with no gaps or overlaps. **21st Century Skills** **9.1.4.A.1:** Recognize a problem and brainstorm ways to solve the problem individually or collaboratively. **9.1.4.A.2:** Evaluate available resources that can assist in solving problems.		

9.1.4.A.3: Determine when the use of technology is appropriate to solve problems. **9.1.4.A.4:** Use data accessed on the Web to inform solutions to problems and the decision-making process. **9.1.4.A.5:** Apply critical thinking **9.1.4.B.1:** Participate in brainstorming sessions to seek information, ideas, and strategies that foster creative thinking. **9.1.4.D.1:** Use effective oral and written communication in face-to-face and online interactions and when presenting to an audience. **9.1.4.E.2:** Demonstrate effective communication using digital media during classroom activities. **9.3.4.A.2:** Identify various life roles and civic and work-related activities in the school, home, and community. **9.3.4.A.3:** Appraise personal likes and dislikes and identify careers that might be suited to personal likes. **9.3.4.A.4:** Identify qualifications needed to pursue traditional and nontraditional careers and occupations. **9.3.4.A.5:** Locate career information using a variety of resources. **MODIFICATIONS:** **Follow guidelines in each module for differentiated learning.** **Advanced Learner:** DOK 3 Strategic Thinking		

Have students use what they learned from the module to describe why part of Earth is in daylight while the other side of Earth is in darkness each day. Have the draw a picture that includes the Sun, Earth and Earth's shadow to help them explain the phenomenon. Then have them label the Sun, Earth and the areas in daylight or in darkness. DOK 4 Extended Thinking Have partners brainstorm materials and surfaces that can produce reflections. What conditions must be present to create a clear reflection? Which materials help create the clearest reflections? Have students design an investigation to test their theories. Provide materials for students to conduct their investigations. Have students create a table to display their results. **Students with Disabilities:** • Create a vocabulary anchor chart • Create an anchor chart the class can utilize/reference throughout the module • Use partnering strategy to allow students to work in teams. • Provide students with pictures to cut and paste or use as a visual reference when answering questions • Utilize scaffolding strategies • Provide prompting and support		

• Provide students with a picture, word and/or sentence bank. Students can use the answer bank options to draw and write or they can cut and paste their answers into the answer box. • Provide students with images they can cut and paste into their notebook. • Students can provide their answers verbally and the answers can be scribed. Students can copy their scribed answers to their questions. • Provide students with only two answer choices for each fill in the blanks question to choose from. • Provide students with tangible manipulatives to complete sorting tasks • Provide students with vocabulary words on an index card - students can use the cards to assist with formulating answers or for activities which requires students to sort • Use highlighter to guide students answering questions • Reduce the number of questions a student answers (i.e., if there are 10 questions, some students may only answer 7 questions)		

• Provide students with a sheet of paper to only see one question at a time to reduce distraction • Allow students to use Google Read&Write for text to speech using *Science Notebook* digital format or any other reading materials • Allow students to use Google Read &Write for speech to text to construct sentences independently. • Display worksheet/textbook on SmartBoard • Provide students mini breaks when necessary English Language Learners: • Create a vocabulary anchor chart • Create an anchor chart the class can utilize/reference throughout the module • Use partnering strategy to allow students to work in teams. • Provide students with pictures to cut and paste or use as a visual reference when answering questions • Utilize scaffolding strategies • Provide prompting and support • Provide students with a picture, word and/or sentence bank. Students can use the answer bank options to draw and write or they		

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UNIT 2
Big Idea: From Molecules to Organisms: Structures and Processes
Topic: Animals & How they Communicate

NJSLS - Science:	**Critical Knowledge and Skills**
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.	**Concept(s):** • All living things share certain characteristics: organization, growth, reproduction, the need for food, excretion of waste, respiration, and the ability to respond to stimuli. • All living things require food for energy. • Humans, animals, and plants all must meet daily needs for survival.

<table>
<tr>
<td rowspan="5">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.
1-LS1-2 Read texts and us media to determine patterns in behavior of parents and offspring that help offspring survive.
1-LS3-1 make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.
1-PS4-1 Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
1-PS4-4 Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over distance.

SEP Science & Engineering Practices
• Ask questions based on observations to find more information about the natural and/or designed world(s).
• Define a simple problem that can be solved through the development of a new or improved object or tool. (K-2-ETS1-1)</td>
<td colspan="2">• Animals and plants have different parts that can function to help them meet those needs.
• Important parts of a plant include roots, stems, leaves, flowers and seeds.
• When humans design objects to help solve their problems, they might draw on or mimic solutions in the natural world. Solving human problems by mimicking designs seen in nature is known as biomimicry.</td>
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<tr>
<td>Students are able to:</td>
<td>Learning Goal(s):</td>
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<tr>
<td>• Students will explain the differences between living and nonliving things.
• Students will explain plant parts and structure.
• Students will explain animal structure and function, what animals need to live, and how animals meet their needs.
• Students will explain that animals and plants have parts that protect them or capture and convey information needed for growth and survival.</td>
<td>• How are living and nonliving things different?
• How do different parts of a plant help it live?
• How do body parts help animals?
• How can plant and animal parts help us solve human problems?</td>
</tr>
<tr>
<td>Formative/Summative Assessments</td>
<td>Primary & Supplementary Resources</td>
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<tr>
<td>Page Keeley Science Probe: Living and Nonliving (Lesson 1)
Page Keeley Science Probe: Plant Parts (Lesson 2)</td>
<td>Inspire Science, McGraw Hill, 2020 (Unit 2) Animals & How They Communicate
Inspire Science Videos
• Jellyfish in the Ocean</td>
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</table>

• Use materials to design a device that solves a specific problem or a solution to a specific problem. (1-LS1-1) • Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2) • Scientists look for patterns and order when making observations about the world. (1-LS1-2) • Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1-LS3-1) • Plan and conduct investigations collaboratively to produce evidence to answer a question. (1-PS4-1) • Use tools and materials provided to design a device that solves a specific problem. (1-PS4-4) **DCI 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.	Page Keeley Science Probe: Do They Have Body Parts? (Lesson 3) Page Keeley Science Probe: Sensing Things (Lesson 4) Performance Task - Tell What is Living and Nonliving (Lesson 1) Lesson 1- Living and Nonliving Things Test Performance Task - Plant Model (Lesson 2) Plant Model Performance Task Rubric Lesson 2- Parts of Plants Test Performance Task - Animal Parts (Lesson 3) Animal Parts Performance Task Rubric Lesson 3- Parts of Animals Test Performance Task - Design a New Tool (Lesson 4) Design a New Tool Performance Task Rubric Lesson 4- Plant and Animal Survival Test Plants and Animals Module Test Module Performance Project- Nature-Inspired Tools Nature-Inspired Tools Rubric	• Sea Turtle • Venus Fly Trap Inspire Science Files • Ways Animals Use Their Senses Inspire Simulations & Digital Interactives • Living and Nonliving Things • What is Living and Nonliving? • Parts of Plants • Animobile Adventures • Animal Parts • Bugs and Lights • Animal Structure and Function • Plant Structure and Function Inspire Science Readers • A World of Animals • Parts of Plants Discovery Education • Living and Non-living Things • The Characteristics of Living Things • What Do Living Things Need?

• Asking questions, making observations, and gathering information are helpful in thinking about a problem. • Before beginning to design a solution, it is important to clearly understand the problem. (K-2-ETS-1-1) 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, stem, leaves, flowers, fruit) that help them survive and grow. (1-LS1-1) 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 inputs. (1-LS1-1) LS1.B: Adult plants and animals can have young. In many kinds of animals,		• External Animal Parts

parents and the offspring themselves engage in behaviors that help the offspring to survive. (1-LS1-2) LS3.A: young animals are very much, but not exactly like their parents. Plants also are very much, but not exactly like their parents. (LS3-1) LS3.B: individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. (1-LS3-1) PS4.A: wave properties • Sound can make matter vibrate, and vibrating matter can make sound. (1-PS4-1) PS4.C: people also use a variety of devices to communicate (send and receive information) over long distances. (1-PS4-4) **CCC Crosscutting concepts** Structure and function • The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1) • Every human-made product is designed by applying some knowledge of the natural world and is build using materials derived from the natural world. (1-LS1-1)		

• Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2) • Patterns in the natural and human designed world can be observed, used to d3escribe phenomena, and used as evidence. (1-LS3-1) • Simple tests can be designed to gather evidence to support or refute student ideas about causes. (1-PS4-1) • People depend on various technologies in their lives; human life would be very different without technology. (1-PS4-4) **Related Interdisciplinary Standards: ELA/Literacy** • 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). • RI.1.1 Ask and answer questions about key details in a text. • RL.1.2 Identify the main topic and retell key details in a text.		

• RL.1.10 With prompting and support, read and comprehend stories and poetry at grade level text complexity or above. **Mathematics** **1.NBT.B.3** Compare two two-digit numbrs based on the meanings of the tens and one digits, recording the results of comparisons with the symbols > = < **1.NBT.C.4** Add within 100, including adding a two digit and a one digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning uses. **1.NBT.C.6** Given a two-digit number, mentally to find 10 more or 10 less than the number, without having to count; explain the reasoning used. **1.NBT.C.6** Subtract multiples of 10 in the range 10-90 from multiples of 10 in the range 10-90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a		

written method and explain the reasoning used. **21st Century Skills** **9.1.4.A.1:** Recognize a problem and brainstorm ways to solve the problem individually or collaboratively. **9.1.4.A.2:** Evaluate available resources that can assist in solving problems. **9.1.4.A.3:** Determine when the use of technology is appropriate to solve problems. **9.1.4.A.4:** Use data accessed on the Web to inform solutions to problems and the decision-making process. **9.1.4.A.5:** Apply critical thinking **9.1.4.B.1:** Participate in brainstorming sessions to seek information, ideas, and strategies that foster creative thinking. **9.1.4.D.1:** Use effective oral and written communication in face-to-face and online interactions and when presenting to an audience. **9.1.4.E.2:** Demonstrate effective communication using digital media during classroom activities. **9.3.4.A.2:** Identify various life roles and civic and work-related activities in the school, home, and community. **9.3.4.A.3:** Appraise personal likes and dislikes and identify careers that might be suited to personal likes. **9.3.4.A.4:** Identify qualifications needed to pursue traditional and nontraditional careers and occupations.		

9.3.4.A.5: Locate career information using a variety of resources. **MODIFICATIONS:** **Advanced Learner:** DOK 3 Have students research and make a list of birds that are unable to fly, such as the penguin, kiwi, or ostrich. Then have them create a KWL chart. Allow independent research to answer their questions and complete their charts. Make sure students find out why their bird cannot fly. DOK 4 Have students research biomimicry, write a definition for the word, brainstorm or research examples. Then have students choose a special animal structure and imagine how humans culd mimic its use to solve a problem. Have them write a sentence to describe the problem and then design a solution for it, using what they know about the animal structure and how it helps the animal survive, grow, and meet its needs. **Students with Disabilities:** • Create a vocabulary anchor chart • Create an anchor chart the class can utilize/reference throughout the module • Use partnering strategy to allow students to work in teams. • Provide students with pictures to cut and paste or use as a visual		

reference when answering questions • Utilize scaffolding strategies • Provide prompting and support • Provide students with a picture, word and/or sentence bank. Students can use the answer bank options to draw and write or they can cut and paste their answers into the answer box. • Provide students with images they can cut and paste into their notebook. • Students can provide their answers verbally and the answers can be scribed. Students can copy their scribed answers to their questions. • Provide students with only two answer choices for each fill in the blanks question to choose from. • Provide students with tangible manipulatives to complete sorting tasks • Provide students with vocabulary words on an index card - students can use the cards to assist with formulating answers or for activities which requires students to sort • Use highlighter to guide students answering questions • Reduce the number of questions a student answers (i.e., if there are		

10 questions, some students may only answer 7 questions) • Provide students with a sheet of paper to only see one question at a time to reduce distraction • Allow students to use Google Read&Write for text to speech using *Science Notebook* digital format or any other reading materials • Allow students to use Google Read&Write for speech to text to construct sentences independently. • Display worksheet/textbook on SmartBoard • Provide students mini-breaks when necessary **English Language Learners**: • Create a vocabulary anchor chart • Create an anchor chart the class can utilize/reference throughout the module • Use partnering strategy to allow students to work in teams. • Provide students with pictures to cut and paste or use as a visual reference when answering questions • Utilize scaffolding strategies • Provide prompting and support • Provide students with a picture, word and/or sentence bank. Students can use the answer bank		

options to draw and write or they can cut and paste their answers into the answer box. • Provide students with images they can cut and paste into their notebook. • Allow students to use Google Read&Write for text to speech using *Science Notebook* digital format or any other reading materials • Allow students to use Google Read&Write for speech to text to construct sentences independently. • Display worksheet/textbook on SmartBoard		

UNIT 3
Big Idea: Heredity: Inheritance and Variation of Traits
Topic: All About Plants

NJSLS - Science:	**Critical Knowledge and Skills**
K-2-ETS1-2 develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it	**Concept(s):** • All plants and animals go through stages of growth, or life cycles. • Like animals, adult plants produce young. These kinds of plants produce seeds. • Young plants are also similar to their parents.

function as needed to solve a given problem. 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. K-2-ETS1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. 1-LS3-1 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents. SEP Science & Engineering Practices Developing & Using Models Modeling K-2 builds on prior experiences and progresses to include using and developing models (i.e., diagram, drawing, physical replica, diorama, dramatization, or storyboard) that represent concrete events or design solutions. • Develop a simple model based on evidence to represent a proposed object or tool. (K-2-ETS1-2 Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K-2 builds on prior experiences and progresses to the		
	Students are able to:	**Learning Goal(s):**
	Students will learn how plant structures help plants live. Students will make observations of plants to construct explanations of their external parts and how their structures help them survive. Students will make observations of plants to construct explanations of their external parts and how plant structures are related to their functions and help them survive. Students will use what they have learned throughout this module to design and build a model of a solar-powered light stand. They will explain how their light stand is similar to a plant's structure and function. Students will use what they learned throughout the module to explain how structures of a plant help it to survive.	What are the functions of common plant structures? What patterns can you find between different plants? What do plant structures do?
	Formative/Summative Assessments	**Primary & Supplementary Resources**

use of evidence and ideas in construction evidence-based accounts of natural phenomena and designing solutions. • Use materials to design a device that solves a specific problem or a solution to specific problem. (1-LS1-1). • Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1-LS3-1) Analyzing and Interpreting Data Analyzing data in K-2 builds on prior experiences and progresses to collecting, recording, and sharing observations. • Analyze data from tests of an object or tool to determine if it works as intended. (K-2-ETS1-3) DCI Disciplinary Core Ideas 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. (K-2-ETS1-2) ETS1.C: Optimizing the Design Solution	*FORMATIVE:* Performance Task - Life Cycle of an Apple Tree (Lesson 1) Life Cycle of an Apple Tree Performance Task Rubric Lesson 1- Plants Grow and Change Test Performance Task - Compare Tulip Plants (Lesson 2) Compare Tulip Plants Performance Task Rubric Lesson 2- Plants and Their Parents Test *SUMMATIVE:* Page Keeley Science Probe: Growing Plants (Lesson 1) Page Keeley Science Probe: Young Plants (Lesson 2)	*Inspire Science*, McGraw Hill, 2020 (Unit 1) Inspire Science Videos Jellyfish in the Ocean Sea Turtle Venus Fly Trap Inspire Science Files Ways Animals Use Their Senses Inspire Simulations & Digital Interactives Living and Nonliving Things What is Living and Nonliving? Parts of Plants Animobile Adventures Animal Parts Bugs and Lights Animal Structure and Function Plant Structure and Function Inspire Science Readers A World of Animals Parts of Plants Discovery Education Living and Non-living Things The Characteristics of Living Things What Do Living Things Need? External Animal Parts Mystery Science Mystery Science #1: Why do birds have beaks? Mystery Science #3: Why are polar bears white? Mystery #5: Why don't trees blow down in the wind?

• Because there is always more than one possible solution to a problem, it is useful to compare and test designs. (K-2-ETS-1-3) LS1.A: Structure and functions • 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. (1-LS1-1) 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 inputs. (1-LS-1) CCC Crosscutting Concepts Structure & Function • The shape and stability of structures of natural and designed objects are related to		

their function(s). (K-2-ETS1-1) (1-LS1-1) **Related Interdisciplinary Standards: 21st Century Skills** 9.1.4.A.1: Recognize a problem and brainstorm ways to solve the problem individually or collaboratively. 9.1.4.A.2: Evaluate available resources that can assist in solving problems. 9.1.4.A.3: Determine when the use of technology is appropriate to solve problems. 9.1.4.A.4: Use data accessed on the Web to inform solutions to problems and the decision-making process. 9.1.4.A.5: Apply critical thinking 9.1.4.B.1: Participate in brainstorming sessions to seek information, ideas, and strategies that foster creative thinking. 9.1.4.D.1: Use effective oral and written communication in face-to-face and online interactions and when presenting to an audience. 9.1.4.E.2: Demonstrate effective communication using digital media during classroom activities. 9.3.4.A.2: Identify various life roles and civic and work-related activities in the school, home, and community. 9.3.4.A.3: Appraise personal likes and dislikes and identify careers that might be suited to personal likes.		

9.3.4.A.4: Identify qualifications needed to pursue traditional and nontraditional careers and occupations. 9.3.4.A.5: Locate career information using a variety of resources. **ELA/Writing** 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). RI.1.1 Ask and answer questions about key details in a text. W.1.8 With guidance and support for adults, recall information from experiences or gather information from provided sources to answer a question. (1-LS3-1) **Mathematics** MP.2 Reason abstractly and quantitatively. (1-LS3-1) MP.5 Use appropriate tools strategically. (1-LS3-1) 1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-LS3-1) **MODIFICATIONS:** **Advanced Learner**: DOK 3 Strategic Thinking Have students revisit the investigations they conduct throughout the module and have them ask additional questions.		

DOK 4 Extended Thinking Provide students with plant-related materials (faux plants, play soil, etc.) Have them conduct their own investigations. Students can present what they have learned to the entire group. Independent projects can be assigned on the basis of ability level. Encourage creativity and original thinking. Plan for tiered learning **Students with Disabilities**: Create a vocabulary anchor chart Create an anchor chart the class can utilize/reference throughout the module Use partnering strategy to allow students to work in teams. Provide students with pictures to cut and paste or use as a visual reference when answering questions Utilize scaffolding strategies Provide prompting and support Provide students with a picture, word and/or sentence bank. Students can use the answer bank options to draw and write or they can cut and paste their answers into the answer box. Provide students with images they can cut and paste into their notebook. Students can provide their answers verbally and the answers can be scribed.		

Students can copy their scribed answers to their questions. Provide students with only two answer choices for each fill in the blanks question to choose from. Provide students with tangible manipulatives to complete sorting tasks Provide students with vocabulary words on an index card - students can use the cards to assist with formulating answers or for activities which requires students to sort Use highlighter to guide students answering questions Reduce the number of questions a student answers (i.e., if there are 10 questions, some students may only answer 7 questions) Provide students with a sheet of paper to only see one question at a time to reduce distraction Allow students to use Google Read&Write for text to speech using Science Notebook digital format or any other reading materials Allow students to use Google Read&Write for speech to text to construct sentences independently. Display worksheet/textbook on SmartBoard Provide students mini-breaks when necessary		

English Language Learners: Create a vocabulary anchor chart Create an anchor chart the class can utilize/reference throughout the module Use partnering strategy to allow students to work in teams. Provide students with pictures to cut and paste or use as a visual reference when answering questions Utilize scaffolding strategies Provide prompting and support Provide students with a picture, word and/or sentence bank. Students can use the answer bank options to draw and write or they can cut and paste their answers into the answer box. Provide students with images they can cut and paste into their notebook. Allow students to use Google Read&Write for text to speech using Science Notebook digital format or any other reading materials Allow students to use Google Read&Write for speech to text to construct sentences independently. Display worksheet/textbook on SmartBoard		

UNIT 4
Big Idea: Earth's Place in the Universe
Topic: Sky Patterns

NJSLS - Science:

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

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

SEP Science and Engineering Practices

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

- Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)

Analyzing and Interpreting Data

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

- Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (1-ESS1-1)

DCI Disciplinary Core Ideas

Critical Knowledge and Skills

Concept(s):

- Day and night form a regular pattern that can be observed. Earth rotates, or spins on its axis once every 24 hours.
- Earth's orbit and the tilt of Earth on its axis cause the seasons. As Earth travels in a path around the Sun, the angle of sunlight that meets Earth's surface changes throughout the year.
- The Northern and Southern hemispheres have opposite seasons. When the Northern Hemisphere is tilted toward the Sun summer occurs. When the Southern Hemisphere is tilted away from the Sun, winter occurs.
- The phases of the Moon occur over a period of about 29.5 days.
- The side of the Moon facing the Sun is lit up. It is the lit part of the Moon that appears to change as the Moon goes through its phases.
- As the Moon orbits Earth, different amounts of light from the Sun are reflected from its surface. Changes in the amount of reflected light result in the Moon's phases.
- Stars are hot, glowing balls of gas, made up of mostly hydrogen and helium.
- Stars produce energy and give off both heat and light. The color of a star depends on its temperature.
- The Sun is the star at the center of our solar system. It is a medium-sized yellow star.
- It appears larger than the other stars because it is much closer.

Students are able to:	Learning Goal(s):
Students will observe long and short-term patterns in the sky. Students will identify the objects in the sky and make observations about what objects are present during the day and night. Students will make observations and predict patterns of day and night.	What patterns can we observe in the sky? When can we see different objects in the sky? What are the day and night patterns? What long-term patterns exist during the year?

<table>
<tr>
<td rowspan="2">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. (1-ESS1-1)
ESS1.B Earth and the Solar System
Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1- ESS12)
Crosscutting Concepts
Patterns
• Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-1), (1-ESS1-2)

Connections to Nature of Science
Scientific Knowledge Assumes an Order and Consistency in Natural Systems
• Science assumes natural events happen today as they happened in the past. (1-ESS1-1)
• Many events are repeated. (1-ESS1-1)

Related Interdisciplinary Standards:

ELA/Literacy
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).</td>
<td>Students will recognize patterns that occur over several days, weeks or months.
Students will use what they have learned throughout the module to record data and describe patterns they observe about the seasonal changes over three months.</td>
<td></td>
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<tr>
<td>Formative/Summative Assessments

FORMATIVE:
Page Keeley Science Probe: Day and Night (Lesson 1)
Page Keeley Science Probe: Daylight Hours (Lesson 2)
Page Keeley Science Probe: Moon Patterns (Lesson 3)
Page Keeley Science Probe: Seeing Stars (Lesson 4)
Claim-Evidence-Reasoning
Three-Dimensional Thinking questions
Talk about it
Inquiry Activities
Quick Check

SUMMATIVE:
Performance Task - The Sun During the Day (Lesson 1)</td>
<td>Primary & Supplementary Resources

Inspire Science, McGraw Hill, 2020 (Unit 4)
Inspire Science Videos
Day and Night
Trees
Seasons Change
The Moon
The Sun and Stars
Inspire Science Files
How Does Light Move?
Inspire Simulations & Digital Interactives
How Earth Moves
Sunlight
The Sun in the Sky
Inspire Science Songs
Day Sky and Night Sky
What Do You See
A Big Chill
A Sun for All Seasons
Long, Hot Days</td>
</tr>
</table>

W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question **Mathematics** MP.2 Reason abstractly and quantitatively. MP.5 Use appropriate tools strategically MP.4 Model with Mathematics. 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 problem. 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. (1-ESS1-2) 21St Century Skills 9.1.4.A.1: Recognize a problem and brainstorm ways to solve the problem individually or collaboratively. 9.1.4.A.2: Evaluate available resources that can assist in solving problems.	The Sun During the Day Performance Task Rubric Lesson 1- Day and Night Test Performance Task - How Some Trees Change (Lesson 2) How Some Trees Change Performance Task Rubric Lesson 2- Seasonal Patterns Test Performance Task - Phases of the Moon (Lesson 3) Phases of the Moon Performance Task Rubric Lesson 3- The Moon Test Performance Task - Observe the Night Sky (Lesson 4) Observe the Night Sky Performance Task Rubric Lesson 4- The Sun and Stars Test Earth and Space Module Test Module Performance Project- Observing the Moon Observing the Moon Rubric	Inspire Science Readers The Four Seasons What Goes Around? Discovery Education Day, Night, and the Changing Seasons What are Stars? Mystery Science Mystery #1: Could a statue's shadow move? (Lesson 1) Mystery #2- Read-Along: What does your shadow do when you're not looking? (Lesson 1) Mystery #3: How can the Sun help you if you're lost? (Lesson 1) Mystery #4- Read-Along: Why do you have to go to bed early in the summer? (Lesson 2) Mystery #5: Why do the stars come out at night? (Lesson 4) Mystery #6- Read-Along: How can stars help you if you get lost? (Lesson 4)

9.1.4.A.3: Determine when the use of technology is appropriate to solve problems. 9.1.4.A.4: Use data accessed on the Web to inform solutions to problems and the decision-making process. 9.1.4.A.5: Apply critical thinking 9.1.4.B.1: Participate in brainstorming sessions to seek information, ideas, and strategies that foster creative thinking. 9.1.4.D.1: Use effective oral and written communication in face-to-face and online interactions and when presenting to an audience. 9.1.4.E.2: Demonstrate effective communication using digital media during classroom activities. 9.3.4.A.2: Identify various life roles and civic and work-related activities in the school, home, and community. 9.3.4.A.3: Appraise personal likes and dislikes and identify careers that might be suited to personal likes. 9.3.4.A.4: Identify qualifications needed to pursue traditional and nontraditional careers and occupations. 9.3.4.A.5: Locate career information using a variety of resources. **MODIFICATIONS:** Advanced Learner: DOK3 Strategic Thinking Have partners work together to identify a city in another country that would		

have the same amount of day and night and the same amount of daylight from season to season as their local area. Have them explain their choice. DOK4 Extended Thinking Have students design a model that shows how shadows would be different at noon on June 21 as compared to noon on December 21. Provide materials, such as a block or clay to represent an object on the ground, a flashlight to represent the Sun, and measurement tools. Have students present and explain their models to the group. Students can present what they have learned to the entire group. Independent projects can be assigned on the basis of ability level. Encourage creativity and original thinking. Plan for tiered learning Students with Disabilities: Create a vocabulary anchor chart Create an anchor chart the class can utilize/reference throughout the module Use partnering strategy to allow students to work in teams. Provide students with pictures to cut and paste or use as a visual reference when answering questions Utilize scaffolding strategies Provide prompting and support		

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