

Grade: 1

Content Area: Science

Introduction:

Students in First Grade science will complete six units that include engineering and technology, sound and light, plant and animal structures, living things and their young, and objects and patterns in the sky. All science units follow the NJ Student Learning Objectives. Student progress will be measured in a variety of methods.

Long Beach Island Consolidated School District Curriculum Guide

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| Grade: 1 | Content Area: Science |
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| Original Adoption: October 23, 2018 |
| Revised on: July 1, 2019 |
| Revised by: C. McBride, C.Sheplin |

| Pacing Guide | |
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| Unit 1: Engineering and Technology | 20 days |
| Unit 2: Sound and Light | 25 days |
| Unit 3: Light | 25 days |
| Unit 4: Plant and Animal Structures | 25 days |
| Unit 5: Living Things and Their Young | 25 days |
| Unit 6: Objects and Patterns in the Sky | 20 days |

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| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

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| Unit 1: Engineering and Technology | Duration: 20 days |
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Standards/Learning Targets

New Jersey Student Learning Standards:

- **ETS1.A:** Defining and Delimiting Engineering Problems
- **ETS1.B:** Developing Possible Solutions
- **ETS1.C:** Optimizing the Design Solution

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.

| Science and Engineering Practices | Disciplinary Core Ideas |
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| <p>Asking Questions and Defining Problems-</p> <ul style="list-style-type: none"> ● 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. | <p>ETS1.A: Defining and Delimiting Engineering Problems-</p> <ul style="list-style-type: none"> ● 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. |
| Crosscutting Concepts | Learning Objectives |
| <p>Systems and System Models</p> | <ul style="list-style-type: none"> ● Students ask questions and make observations to gather information about a situation that people want to change. Students' questions, observations, and information gathering are focused on: <ul style="list-style-type: none"> ○ A given situation that people wish |

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| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

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| | <ul style="list-style-type: none"> to change. <ul style="list-style-type: none"> ○ Why people want the situation to change. ○ The desired outcome of changing the situation. ● Students' questions are based on observations and information gathered about scientific phenomena that are important to the situation. ● Students use the information they have gathered, including the answers to their questions, observations they have made, and scientific information, to describe the situation people want to change in terms of a simple problem that can be solved with the development of a new or improved object or tool. ● With guidance, students describe the desired features of the tool or object that would solve the problem, based on scientific information, materials available, and potential related benefits to people and other living things. |
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Performance Expectation

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.

| Science and Engineering Practices | Disciplinary Core Ideas |
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| <p>Developing and Using Models-</p> <ul style="list-style-type: none"> ● Develop a simple model based on evidence to represent a proposed object or tool. | <p>ETS1.B: Developing Possible Solutions-</p> <ul style="list-style-type: none"> ● Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem |
| Crosscutting Concepts | Learning Objectives |
| <p>Structure and Function-</p> <ul style="list-style-type: none"> ● The shape and stability of structures of natural and designed objects are related to their function(s). | <ul style="list-style-type: none"> ● Students develop a representation of an object and the problem it is intended to solve. In their representation, students include the following components: |

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| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

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| | <ul style="list-style-type: none"> ○ The object ○ The relevant shape(s) of the object. ○ The function of the object. ● Students use sketches, drawings, or physical models to convey their representations. ● Students identify relationships between the components in their representation, including: <ul style="list-style-type: none"> ○ The shape(s) of the object and the object’s function. ○ The object and the problem it is designed to solve. ● Students use their representation (simple sketch, drawing, or physical model) to communicate the connections between the shape(s) of an object, and how the object could solve the problem. |
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Performance Expectation

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.

| Science and Engineering Practices | Disciplinary Core Ideas |
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| Analyzing and Interpreting Data- <ul style="list-style-type: none"> ● Analyze data from tests of an object or tool to determine if it works as intended. | ETS1.C: Optimizing the Design Solution- <ul style="list-style-type: none"> ● Because there is always more than one possible solution to a problem, it is useful to compare and test designs. |
| Crosscutting Concepts | Learning Objectives |
| Patterns | <ul style="list-style-type: none"> ● With guidance, students use graphical displays (e.g., tables, pictographs, line plots) to organize given data from tests of two objects, including data about the features and relative performance of each solution. ● Students use their organization of the data to find patterns in the data, including: |

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| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

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| | <ul style="list-style-type: none">○ How each of the objects performed, relative to:<ul style="list-style-type: none">■ The other object.■ The intended performance○ How various features of the objects relate to their performance● Students use the patterns they found in object performance to describe:<ul style="list-style-type: none">○ The way each object will solve the problem○ The strengths and weaknesses of each design.○ Which object is better suited to the desired function, if both solve the problem. |
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Primary Interdisciplinary Connections:

- ELA:
 - Reading
 - RI.1.1. Ask and answer questions about key details in a text.
 - Writing
 - W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
 - Speaking & Listening
 - SL.1.5 Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
- Math:
 - Math Practices
 - MP.2 Reason abstractly and quantitatively.
 - MP.4 Model with mathematics.
 - MP.5 Use appropriate tools strategically.
 - Measurement & Data
 - MD.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 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.

Technology Standards:

- 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and

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|-----------------|------------------------------|
| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

develop innovative products and process using technology.

- F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Life and Career Standards:

- 9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.

21st Century Themes/Career Readiness:

- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

Evidence of Student Learning

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| <p>Formative Tasks:</p> <ul style="list-style-type: none"> ● Lesson quizzes ● Lesson reviews ● Language “Smarts” writing tasks ● Exit slips ● Analysis of student work ● Teacher observations ● Science evidence notebooks ● Graphic Organizers ● Cooperative Group Learning ● Instructionally embedded assessments ● Short performance assessments | <p>Alternative Assessments:</p> <ul style="list-style-type: none"> ● Short performance assessment ● Class discussion rubric ● Participation rubric ● Drawn/verbal explanations ● Modified quizzes/classwork |
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| <p>Summative Assessments:</p> <ul style="list-style-type: none"> ● End of unit assessment ● Engineering projects ● Performance assessments | <p>Benchmark Assessments:</p> <ul style="list-style-type: none"> ● Pre-Unit Assessments ● Beginning of the year, mid-year, and end of the year SGO |
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Knowledge & Skills

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| <p>Enduring Understandings:</p> <ul style="list-style-type: none"> ● 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. | <p>Essential Questions:</p> <ul style="list-style-type: none"> ● How are asking questions, gathering information, and making observation helpful when thinking about problems? |
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| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

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| <ul style="list-style-type: none"> ● The shape and stability of structures of natural and designed objects are related to their function(s). ● Before beginning to design a solution, it is important to clearly understand the problem. ● 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. | <ul style="list-style-type: none"> ● How does sketching or creating a model to illustrate its shape help solve a given problem? ● How does testing a model determine its strengths and weaknesses in solving a given problem? |
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Core Instructional & Supplemental Materials

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| <p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> ● Houghton Mifflin Harcourt “Science Dimensions” <ul style="list-style-type: none"> ○ Lesson explorations ○ Hands-on activities ○ Performance tasks ○ Virtual labs ○ Career explorations ○ Extensions ● https://www.brainpop.com/science/ ● https://betterlesson.com/browse/next_gen_science ● Mystery Science | <p>Varied Levels of Text:</p> <ul style="list-style-type: none"> ● Houghton Mifflin Harcourt “Science Dimensions” leveled readers ● “Rosie Revere Engineer” by A. Beaty ● “The Most Magnificent Thing” by A. Spires ● “Marvelous Mattie: How Margaret E. Knight Became an Inventor” by E. McCully ● “Coppernickel The Invention” by W. van Reek ● “Hello Ruby: Adventures in Coding” by L. Liukas ● “If I Built a Car” by C. Van Dusen ● “Papa’s Mechanical Fish” by C. Fleming ● “What Do You Do With an Idea?” by K. Yamada |
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Modifications and Accommodations

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| <p>English Language Learners:</p> <ul style="list-style-type: none"> ● Labeled pictures of academic skill ● Using tactile objects to relate to key ideas. ● Chunk/limit information ● Speak slowly ● Limit number of questions ● Partner with a strong English speaking partner |
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Grade: 1

Content Area: Science

- Extended time
- Modified assignments

Special Education/504 Plans/Students with Disabilities:

- Follow specific IEP/504 accommodations and modifications
- Extended time
- Modified assignments
- Labeled pictures of weather phenomenon
- Pre-teach concepts
- Differentiate assignments
- Allow alternate assignments and assessment
- Listen to audio recordings instead of reading text
- Learn content from audio books, movies, videos and digital media instead of reading print versions
- Work with fewer items per page or line and/or materials in a larger print size
- Have a designated reader
- Hear instructions orally
- Record a lesson, instead of taking notes
- Have another student share class notes
- Be given an outline of a lesson
- Use visual presentations of verbal material, such as word webs and visual organizers
- Be given a written list of instructions
- Give responses in a form (oral or written) that's easier
- Dictate answers to a scribe
- Capture responses on an audio recorder
- Work or take a test in a different setting, such as a quiet room with few distractions
- Sit where student learns best (for example, near the teacher)
- Use special lighting or acoustics
- Take a test in small group setting
- Use sensory tools

Students at Risk of Failure:

- Small group instruction
- Frequent breaks
- Model how assignments should look
- Incorporate social/emotional discussions
- Encourage and monitor positive peer collaboration
- Provide academic resources for both home and school use
- Provide incentives to increase motivation and collaboration

Economically Disadvantaged:

- Provide clear, achievable expectation, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Perspective and experiences of the children need to be considered
- Create ways for students to share their emotions

Grade: 1

Content Area: Science

- Give every student the same opportunity for success.
- Offer tutoring. Thirty or forty minutes a few times a week can dramatically increase a disadvantaged child's achievement level
- Assemble a packet with information and expectations for each class.
- Be flexible with assignments
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
- Talk with parents about class expectations and the challenges of changing schools mid-year.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input (e.g., "Would you rather do your rough draft now or gather some more ideas first?").
- Model the process of adult thinking.
- Discipline through positive relationships, not by exerting power or authority.
- Use a variety of classroom strategies that strengthen social and emotional skills
- Create a familial atmosphere by using inclusive and affiliative language
- Build supportive relationships, provide positive guidance, foster hope and optimism, and take time for affirmation and celebration.
- Provide access to computers, magazines, newspapers, and books so low-income students can see and work with printed materials
- Daily affirmations
- Asking to hear students' hopes and offering reinforcements of those hopes
- Telling students why they can succeed
- Providing needed academic resources (paper, pencils, computer time)
- Helping students to set goals and build goal-setting skills

Culturally Diverse:

- Involve families in student learning
- Consult with tribes and tribal education departments
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Help students feel more comfortable by learning about their cultural background
- Provide immediate praise and feedback
- Provide high interest topics/options
- Provide road maps or outlines for difficult concepts
- Provide sufficient wait time before calling on any student to help keep students who may need more time engaged
- Create a nurturing environment with structured routines
- Teach study skills
- Provided students with necessary academic resources and materials

Grade: 1

Content Area: Science

- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Allow students to demonstrate knowledge through alternative assessments
- Greater accommodation of English language learner students on assessment tests and in the classroom,
- Allocation of more resources to involve parents who are non-native English speakers
- Become familiar with the values, traditions, and customs of various cultures; and learn the migratory conditions specific to each of their students' families.
- Learn at least a few words of students' native languages.
- Collaborate with language professionals and ESL teachers
- Encourage parents to help children maintain their native language at home, while the school helps the child attain proficiency in English.
- Teachers have a clear sense of their own ethnic and cultural identities.
- Teachers communicate high expectations for the success of all students and a belief that all students can succeed.
- Teachers provide a "scaffolding" that links the academically challenging curriculum to the cultural resources that students bring to school.
- Teachers explicitly teach students the culture of the school and seek to maintain students' sense of ethnocultural pride and identity
- Maintain high standards and demonstrate high expectations for all ethnically, culturally, and linguistically diverse students.

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| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

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| Unit 2: Sound | Duration: 25 Days |
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Standards/Learning Targets

1-PS4-1- Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. [Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]

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.[Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string “telephones,” and a pattern of drum beats.] [*Assessment Boundary: Assessment does not include technological details for how communication devices work.*]

Performance Expectation

1-PS4-1- Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. [Clarification Statement: Examples of vibrating materials that make sound could include tuning forks and plucking a stretched string. Examples of how sound can make matter vibrate could include holding a piece of paper near a speaker making sound and holding an object near a vibrating tuning fork.]

| Science and Engineering Practices | Disciplinary Core Ideas |
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| <p>Planning and Carrying Out Investigations</p> <ul style="list-style-type: none"> Plan and conduct investigations collaboratively to produce evidence to answer a question. <p>Scientific Investigations Use a Variety of Methods</p> <ul style="list-style-type: none"> Science investigations begin with a question. Scientists use different ways to study the world. | <p>PS4.A: Wave Properties-</p> <ul style="list-style-type: none"> Sound can make matter vibrate, and vibrating matter can make sound. |
| Crosscutting Concepts | Learning Objectives |
| <p>Cause and Effect-</p> | <ul style="list-style-type: none"> Students identify and describe the phenomenon and purpose of the |

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| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

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| <ul style="list-style-type: none"> Simple tests can be designed to gather evidence to support or refute student ideas about causes. | <p>investigation, which include providing evidence to answer questions about the relationship between vibrating materials and sound.</p> <ul style="list-style-type: none"> Students collaboratively develop an investigation plan and describe* the evidence that will result from the investigation. According to the investigation plan they develop, students collaboratively collect and record observations about: Sounds causing materials to vibrate. Vibrating materials causing sounds. |
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Performance Expectation

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.[Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string “telephones,” and a pattern of drum beats.] [*Assessment Boundary: Assessment does not include technological details for how communication devices work.*]

| Science and Engineering Practices | Disciplinary Core Ideas |
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| <p>Constructing Explanations and Designing Solutions-</p> <ul style="list-style-type: none"> Use tools and materials provided to design a device that solves a specific problem. | <p>PS4.C: Information Technologies and Instrumentation-</p> <ul style="list-style-type: none"> People also use a variety of devices to communicate (send and receive information) over long distances. |
| Crosscutting Concepts | Learning Objectives |
| <p>Influence of Engineering, Technology, and Science, on Society and the Natural World</p> <ul style="list-style-type: none"> People depend on various technologies in their lives; human life would be very different without technology. | <ul style="list-style-type: none"> Students describe a given problem involving people communicating over long distances. With guidance, students design and build a device that uses light or sound to solve the given problem. With guidance, students describe* the scientific information they use to design the solution. Students describe that specific expected or required features of the design solution are included. |

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| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

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| | <ul style="list-style-type: none"> • Students describe how communicating over long distances helps people. |
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Primary Interdisciplinary Connections:

- **ELA**

- Reading

- RI.1.1. Ask and answer questions about key details in a text.
- RI.1.3 Describe the connection between two individuals, events, ideas, or pieces of information in a text.
- RI.1.5 Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.
- RI.1.7 Use the illustrations and details in a text to describe its key ideas.
- RI.1.10 With prompting and support, read and comprehend stories and poetry at grade level text complexity or above.

- Writing

- W.1.2. Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.
- W.1.5 With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers and self-reflection, and add details to strengthen writing and ideas as needed.
- W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

- Speaking and Listening

- 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.
- SL.1.2 Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL.1.4 Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
- SL.1.5 Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.

- Language

- L.1.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 1 reading and content, choosing flexibly from an array of strategies.
- L.1.6 Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., because).

- **Mathematics**

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|-----------------|------------------------------|
| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

- Math Practices
 - MP.1 Make sense of problems and persevere in solving them.
 - MP.2 Reason abstractly and quantitatively.
 - MP.4 Model with mathematics.
 - MP.6 Attend to precision.
 - MP.7 Look for and make use of structure.
- Measurement & Data
 - MD.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.
- Geometry
 - G.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
 - G.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

Technology Standards:

- 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
- C. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
- F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Life and Career Standards:

- 9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.
- 9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

21st Century Themes/Career Readiness:

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- CRP6. Demonstrate creativity and innovation.

Long Beach Island Consolidated School District Curriculum Guide

| | |
|-----------------|------------------------------|
| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.
- 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Evidence of Student Learning

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| <p>Formative Tasks:</p> <ul style="list-style-type: none"> ● Cooperative group learning ● Exit slips ● Analysis of student work ● Teacher observations ● Self-reflection ● Science evidence notebooks ● Lesson quizzes, Lesson reviews ● Instructionally embedded assessments | <p>Alternative Assessments:</p> <ul style="list-style-type: none"> ● Performance Tasks ● Student created models ● Written/verbal explanations ● Peer assessment |
| <p>Summative Assessments:</p> <ul style="list-style-type: none"> ● Associated unit tests ● Unit Projects ● Unit Performance Tasks ● Labs and engineering based projects ● Student created models ● Written student explanations of phenomenon | <p>Benchmark Assessments:</p> <ul style="list-style-type: none"> ● Pre-Unit Assessments ● Beginning of the year, mid-year and end of the year SGO |

Knowledge & Skills

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| <p>Enduring Understandings:</p> <ul style="list-style-type: none"> ● All sound comes from a source. ● A source makes a sound because part of it is vibrating. | <p>Essential Questions:</p> <ul style="list-style-type: none"> ● What happens when something starts making a sound? ● How do we make different vibrations to make different kinds of sounds? |
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Core Instructional & Supplemental Materials

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| <p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> ● Houghton Mifflin Harcourt “Science Dimensions”: <ul style="list-style-type: none"> ○ Lessons ○ Hands-on activities ○ Performance tasks | <p>Varied Levels of Text:</p> <ul style="list-style-type: none"> ● Houghton Mifflin Harcourt “Science Dimensions” leveled readers ● <i>Engineering with Light and Sound</i> ● <i>Let’s Test!</i> ● <i>What Vibrates?</i> |
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|-----------------|------------------------------|
| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

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| <ul style="list-style-type: none"> ○ Virtual labs ○ Extensions ○ Career explorations ● https://sites.google.com/a/msad60.org/k-5_science/first-grade/waves-light-sound ● http://www.teachertube.com/video/sound-for-first-grade-209689 ● http://betterlesson.com/next_gen_science/browse/2069/ngss-1-ps4-2-make-observations-to-construct-an-evidence-based-account-that-objects-can-be-seen-only-when-illuminated ● http://betterlesson.com/next_gen_science/browse/2070/ngss-1-ps4-3-plan-and-conduct-an-investigation-to-determine-the-effect-of-placing-objects-made-with-different-materials-in-the-p ● http://betterlesson.com/next_gen_science/browse/2071/ngss-1-ps4-4-use-tools-and-materials-to-design-and-build-a-device-that-uses-light-or-sound-to-solve-the-problem-of-communicating ● http://betterlesson.com/next_gen_science/browse/2068/ngss-1-ps4-1-plan-and-conduct-investigations-to-provide-evidence-that-vibrating-materials-can-make-sound-and-that-sound-can-make ● https://www.teachingchannel.org/videos/next-generation-science-standards-achieve ● http://www.hookedonscience.org/nextgeneration/sciencestandards.html ● http://www.propertiesofmatter.si.edu/ ● BrainPOP ● https://www.brainpop.com/science/ ● New Jersey Center for Teaching & Learning ● Khan Academy ● National Science Teachers Association ● Better Lessons- Science ● Next Generation Science Instructional Resources ● National Geographic Learning ● Draw pictures of things that make light or sound. ● Take a listening walk in and around the building. | |
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Grade: 1

Content Area: Science

Modifications and Accommodations

English Language Learners:

- Labeled pictures of academic skill
- Using tactile objects to relate to key ideas.
- Chunk/limit information
- Speak slowly
- Limit number of questions
- Partner with a strong English speaking partner
- Extended time
- Modified assignments

Special Education/504 Plans/Students with Disabilities:

- Follow specific IEP/504 accommodations and modifications
- Extended time
- Modified assignments
- Labeled pictures of concepts/phenomenon
- Pre-teach concepts
- Differentiate assignments
- Allow alternate assignments and assessment

Students at Risk of Failure:

- Small group instruction
- Frequent breaks
- Model how assignments should look
- Incorporate social/emotional discussions
- Encourage and monitor positive peer collaboration
- Provide academic resources for both home and school use
- Provide incentives to increase motivation and collaboration

Economically Disadvantaged:

- Provide clear, achievable expectation, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Perspective and experiences of the children need to be considered
- Create ways for students to share their emotions
- Give every student the same opportunity for success.
- Offer tutoring. Thirty or forty minutes a few times a week can dramatically increase a disadvantaged child's achievement level
- Assemble a packet with information and expectations for each class.
- Be flexible with assignments
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.

Grade: 1

Content Area: Science

- Talk with parents about class expectations and the challenges of changing schools mid-year.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input (e.g., "Would you rather do your rough draft now or gather some more ideas first?").
- Model the process of adult thinking.
- Discipline through positive relationships, not by exerting power or authority.
- Use a variety of classroom strategies that strengthen social and emotional skills
- Create a familial atmosphere by using inclusive and affiliative language
- Build supportive relationships, provide positive guidance, foster hope and optimism, and take time for affirmation and celebration.
- Provide access to computers, magazines, newspapers, and books so low-income students can see and work with printed materials
- Daily affirmations
- Asking to hear students' hopes and offering reinforcements of those hopes
- Telling students why they can succeed
- Providing needed academic resources (paper, pencils, computer time)
- Helping students to set goals and build goal-setting skills

Culturally Diverse:

- Involve families in student learning
- Consult with tribes and tribal education departments
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Help students feel more comfortable by learning about their cultural background
- Provide immediate praise and feedback
- Provide high interest topics/options
- Provide road maps or outlines for difficult concepts
- Provide sufficient wait time before calling on any student to help keep students who may need more time engaged
- Create a nurturing environment with structured routines
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Allow students to demonstrate knowledge through alternative assessments
- Greater accommodation of English language learner students on assessment tests and in the classroom,
- Allocation of more resources to involve parents who are non-native English speakers

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| Grade: 1 | Content Area: Science |
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- Familiarize themselves with the values, traditions, and customs of various cultures; and learn the migratory conditions specific to each of their students' families.
- Learn at least a few words of students' native languages. Collaborate with language professionals and ESL teachers
- Encourage parents to help children maintain their native language at home, while the school helps the child attain proficiency in English.
- Teachers have a clear sense of their own ethnic and cultural identities.
- Teachers communicate high expectations for the success of all students and a belief that all students can succeed.
- Teachers provide a "scaffolding" that links the academically challenging curriculum to the cultural resources that students bring to school.
- Teachers explicitly teach students the culture of the school and seek to maintain students' sense of ethnocultural pride and identity
- Maintain high standards and demonstrate high expectations for all ethnically, culturally, and linguistically diverse students.

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| Unit 3: Light | Duration: 20 Days |
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Standards/Learning Targets

1-PS4-2- Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated. [Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.]

1-PS4-3- Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light. [Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).] [Assessment Boundary: Assessment does not include the speed 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.[Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string “telephones,” and a pattern of drum beats.] [Assessment Boundary: Assessment does not include technological details for how communication devices work.]

Performance Expectation

1-PS4-2- Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated. [Clarification Statement: Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight.

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| Grade: 1 | Content Area: Science |
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| Illumination could be from an external light source or by an object giving off its own light.] | |
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| Science and Engineering Practices | Disciplinary Core Ideas |
| Constructing Explanations and Designing Solutions- <ul style="list-style-type: none"> • Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. | PS4.B: Electromagnetic Radiation- <ul style="list-style-type: none"> • Objects can be seen if light is available to illuminate them or if they give off their own light. |
| Crosscutting Concepts | Learning Objectives |
| Cause and Effect- <ul style="list-style-type: none"> • Simple tests can be designed to gather evidence to support or refute student ideas about causes. | <ul style="list-style-type: none"> • Students articulate a statement that relates the given phenomenon to a scientific idea, including that when an object in the dark is lit (e.g., turning on a light in the dark space or from light the object itself gives off), it can be seen. • Students use evidence and reasoning to construct an evidence-based account of the phenomenon. • Students make observations (firsthand or from media) to serve as the basis for evidence. • Students logically connect the evidence to support the evidence-based account of the phenomenon. |
| Performance Expectation | |
| 1-PS4-3- Plan and conduct investigations to determine the effect of placing objects made with different materials in the path of a beam of light. [Clarification Statement: Examples of materials could include those that are transparent (such as clear plastic), translucent (such as wax paper), opaque (such as cardboard), and reflective (such as a mirror).] [Assessment Boundary: Assessment does not include the speed of light.] | |
| Science and Engineering Practices | Disciplinary Core Ideas |
| Planning and Carrying Out Investigations- <ul style="list-style-type: none"> • Plan and conduct investigations collaboratively to produce evidence to answer a question. | PS4.B: Electromagnetic Radiation- <ul style="list-style-type: none"> • Some materials allow light to pass through them, others allow only some light through and others block all the light and create a |

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| Grade: 1 | Content Area: Science |
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| | <p>dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam.</p> <ul style="list-style-type: none"> • (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.) |
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| Crosscutting Concepts | Learning Objectives |
| <p>Cause and Effect-</p> <ul style="list-style-type: none"> • Simple tests can be designed to gather evidence to support or refute student ideas about causes. | <ul style="list-style-type: none"> • Students identify and describe the phenomenon and purpose of the investigation. • Students collaboratively develop an investigation plan and describe the data that will result from the investigation. • Students individually describe* how these observations provide evidence to answer the question under investigation. • Students collaboratively collect and record observations about what happens when objects made of materials that allow light to pass through them in different ways are placed in the path of a beam of light, according to the developed investigation plan. |

| Performance Expectation | |
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| <p>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.[Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string “telephones,” and a pattern of drum beats.] <i>[Assessment Boundary: Assessment does not include technological details for how communication devices work.]</i></p> | |
| Science and Engineering Practices | Disciplinary Core Ideas |
| <p>Constructing Explanations and Designing Solutions-</p> <ul style="list-style-type: none"> • Use tools and materials provided to design a device that solves a specific problem. | <p>PS4.C: Information Technologies and Instrumentation-</p> |

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| Grade: 1 | Content Area: Science |
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| | <ul style="list-style-type: none"> ● People also use a variety of devices to communicate (send and receive information) over long distances. |
| Crosscutting Concepts | Learning Objectives |
| <p>Influence of Engineering, Technology, and Science, on Society and the Natural World</p> <ul style="list-style-type: none"> ● People depend on various technologies in their lives; human life would be very different without technology. | <ul style="list-style-type: none"> ● Students describe a given problem involving people communicating over long distances. ● With guidance, students design and build a device that uses light or sound to solve the given problem. ● With guidance, students describe* the scientific information they use to design the solution. ● Students describe that specific expected or required features of the design solution are included. ● Students describe how communicating over long distances helps people. |

Primary Interdisciplinary Connections:

- **ELA**
 - Reading
 - RI.1.1. Ask and answer questions about key details in a text.
 - RI.1.3 Describe the connection between two individuals, events, ideas, or pieces of information in a text.
 - RI.1.5 Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.
 - RI.1.7 Use the illustrations and details in a text to describe its key ideas.
 - RI.1.10 With prompting and support, read and comprehend stories and poetry at grade level text complexity or above.
 - Writing
 - W.1.2. Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.
 - W.1.5 With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers and self-reflection, and add details to strengthen writing and ideas as needed.
 - W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
 - Speaking and Listening
 - 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.

Grade: 1

Content Area: Science

- SL.1.2 Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL.1.4 Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
- SL.1.5 Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
- Language
 - L.1.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 1 reading and content, choosing flexibly from an array of strategies.
 - L.1.6 Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., because).

● **Mathematics**

- Math Practices:
 - MP.2 Reason abstractly and quantitatively.
 - MP.4 Model with mathematics.
 - MP.6 Attend to precision.
 - MP.7 Look for and make use of structure.
- Measurement & Data
 - MD.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.
- Geometry
 - G.1 Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
 - G.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

Technology Standards:

- 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
- C. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and

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| Grade: 1 | Content Area: Science |
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contribute to the learning of others.

- F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Life and Career Standards:

- 9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.
- 9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

21st Century Themes/Career Readiness:

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.
- 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Evidence of Student Learning

Formative Tasks:

- Cooperative group learning
- Exit slips
- Analysis of student work
- Teacher observations
- Self-reflection
- Science evidence notebooks
- Lesson quizzes, lesson reviews
- Instructionally embedded tasks

Alternative Assessments:

- Performance Tasks
- Student created models
- Written/verbal explanations
- Peer assessment
- Engineering Projects

Summative Assessments:

- Associated unit tests
- Unit Projects
- Performance Assessments
- Labs and engineering based projects
- Student created models
- Written student explanations of phenomenon

Benchmark Assessments:

- Pre-Unit Assessments
- Beginning of the year, mid year and end of the year SGO

Knowledge & Skills

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| Grade: 1 | Content Area: Science |
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| <p>Enduring Understandings:</p> <ul style="list-style-type: none"> ● Light makes things look bright. ● You need some light to see. ● All light comes from a source. ● When light from a source gets to a surface, the surface looks bright. ● When light is blocked by an object, the surface behind the object looks dark, and we call this a shadow. ● When light is blocked by a material, the surface behind the material looks dark, and we call this a shadow. ● When all light passes through a material, the surface behind the material looks bright. ● When some light passes through a material, the surface behind the material looks medium bright. | <p>Essential Questions:</p> <ul style="list-style-type: none"> ● What makes something look bright or dark? ● Where does the light come from that makes surfaces look bright or dark? ● What makes a surface look bright or dark? ● How do we stop light from getting to one part of a surface? ● How do materials make areas on a surface that are not dark? |
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| Core Instructional & Supplemental Materials |
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| <p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> ● Houghton Mifflin Harcourt “Science Dimensions” <ul style="list-style-type: none"> ○ Lesson explorations ○ Hands-on activities ○ Virtual labs ○ Extensions ○ Career explorations ● BrainPOP ● https://www.brainpop.com/science/ ● New Jersey Center for Teaching & Learning ● Khan Academy ● National Science Teachers Association ● Better Lessons- Science ● Next Generation Science Instructional Resources ● National Geographic Learning ● Draw pictures of things that make light or sound. ● Take a listening walk in and around the building. | <p>Varied Levels of Text:</p> <ul style="list-style-type: none"> ● Houghton Mifflin Harcourt “Science Dimensions” leveled readers ● <i>Engineering with Light and Sound</i> ● <i>Can You See in the Dark?</i> ● <i>What Made this Shadow?</i> |
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| Grade: 1 | Content Area: Science |
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| <ul style="list-style-type: none">● Use flashlights to reflect light off of mirrors. | |
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| Modifications and Accommodations |
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| <p>English Language Learners:</p> <ul style="list-style-type: none">● Labeled pictures of academic skill● Using tactile objects to relate to key ideas.● Chunk/limit information● Speak slowly● Limit number of questions● Partner with a strong English speaking partner● Extended time● Modified assignments |
| <p>Special Education/504 Plans/Students with Disabilities:</p> <ul style="list-style-type: none">● Follow specific IEP/504 accommodations and modifications● Extended time● Modified assignments● Labeled pictures of weather phenomenon● Pre-teach concepts● Differentiate assignments● Allow alternate assignments and assessment |
| <p>Students at Risk of Failure:</p> <ul style="list-style-type: none">● Small group instruction● Frequent breaks● Model how assignments should look● Incorporate social/emotional discussions● Encourage and monitor positive peer collaboration● Provide academic resources for both home and school use● Provide incentives to increase motivation and collaboration |
| <p>Economically Disadvantaged:</p> <ul style="list-style-type: none">● Provide clear, achievable expectation, do not lower academic requirements for them.● Build a safe and nurturing atmosphere● Perspective and experiences of the children need to be considered● Create ways for students to share their emotions● Give every student the same opportunity for success. |

Grade: 1

Content Area: Science

- Offer tutoring. Thirty or forty minutes a few times a week can dramatically increase a disadvantaged child's achievement level
- Assemble a packet with information and expectations for each class.
- Be flexible with assignments
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
- Talk with parents about class expectations and the challenges of changing schools mid-year.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input (e.g., "Would you rather do your rough draft now or gather some more ideas first?").
- Model the process of adult thinking.
- Discipline through positive relationships, not by exerting power or authority.
- Use a variety of classroom strategies that strengthen social and emotional skills
- Create a familial atmosphere by using inclusive and affiliative language
- Build supportive relationships, provide positive guidance, foster hope and optimism, and take time for affirmation and celebration.
- Provide access to computers, magazines, newspapers, and books so low-income students can see and work with printed materials
- Daily affirmations
- Asking to hear students' hopes and offering reinforcements of those hopes
- Telling students why they can succeed
- Providing needed academic resources (paper, pencils, computer time)
- Helping students to set goals and build goal-setting skills

Culturally Diverse:

- Involve families in student learning
- Consult with tribes and tribal education departments
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Help students feel more comfortable by learning about their cultural background
- Provide immediate praise and feedback
- Provide high interest topics/options
- Provide road maps or outlines for difficult concepts
- Provide sufficient wait time before calling on any student to help keep students who may need more time engaged
- Create a nurturing environment with structured routines
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments

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| Grade: 1 | Content Area: Science |
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- Provide visuals
- Assign peer tutor
- Allow students to demonstrate knowledge through alternative assessments
- Greater accommodation of English language learner students on assessment tests and in the classroom,
- Allocation of more resources to involve parents who are non-native English speakers
- Familiarize themselves with the values, traditions, and customs of various cultures; and learn the migratory conditions specific to each of their students' families.
- Learn at least a few words of their Asian students' native languages. By showing such interest, teachers can set the tone for better communication.
- Collaborate with language professionals and ESL teachers
- Encourage parents to help children maintain their native language at home, while the school helps the child attain proficiency in English.
- Teachers have a clear sense of their own ethnic and cultural identities.
- Teachers communicate high expectations for the success of all students and a belief that all students can succeed.
- Teachers provide a "scaffolding" that links the academically challenging curriculum to the cultural resources that students bring to school.
- Teachers explicitly teach students the culture of the school and seek to maintain students' sense of ethnocultural pride and identity
- Maintain high standards and demonstrate high expectations for all ethnically, culturally, and linguistically diverse students.

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| Unit 4: Plant and Animal Structures | Duration: 25 days |
| Standards/Learning Targets | |
| <p>New Jersey Student Learning Standards:</p> <ul style="list-style-type: none"> ● 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.* [Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.] | |

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| Grade: 1 | Content Area: Science |
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| Performance Expectation | |
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| <p>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.* [Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and, detecting intruders by mimicking eyes and ears.]</p> | |
| Science and Engineering Practices | Disciplinary Core Ideas |
| <p>Constructing Explanations and Designing Solutions</p> <ul style="list-style-type: none"> Use materials to design a device that solves a specific problem or a solution to a specific problem. | <p>LS1.A: Structure and Function</p> <ul style="list-style-type: none"> 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. <p>LS1.D: Information Processing</p> <ul style="list-style-type: none"> 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. |
| Crosscutting Concepts | Learning Objectives |
| <p>Structure and Function</p> <ul style="list-style-type: none"> The shape and stability of structures of natural and designed objects are related to their function(s). <p>Influence of Science, Engineering and Technology on Society and the Natural World</p> <ul style="list-style-type: none"> Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. | <ul style="list-style-type: none"> Students describe the given human problem to be solved by the design. With guidance, students use given scientific information about plants and/or animals to design the solution. Students design a device (using student-suggested materials) that provides a solution to the given human problem by mimicking how plants and/or animals use external |

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| Grade: 1 | Content Area: Science |
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| | <p>structures to survive, grow, and/or meet their needs.</p> <ul style="list-style-type: none"> Students describe the specific expected or required features in their designs and devices. |
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Performance Expectation

1-LS1-2- Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. [Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).]

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| Science and Engineering Practices | Disciplinary Core Ideas |
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Obtaining, Evaluating, and Communicating Information-

- Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world.

Scientific Knowledge is Based on Empirical Evidence

- Scientists look for patterns and order when making observations about the world.

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.

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| Crosscutting Concepts | Learning Objectives |
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Patterns-

- Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.

- Students use grade-appropriate books and other reliable media to obtain scientific information.
- Students evaluate the information to determine and describe the patterns of what animal parents and offspring do to help offspring survive (e.g., when a baby cries, the mother feeds it; when danger is present, parents protect offspring; some young animals become silent to avoid predators).

Performance Expectation

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| Grade: 1 | Content Area: Science |
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1-LS3-1- Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents. [Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same.] [Assessment Boundary: Assessment does not include inheritance or animals that undergo metamorphosis or hybrids.]

| Science and Engineering Practices | Disciplinary Core Ideas |
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| <p>Constructing Explanations and Designing Solutions</p> <ul style="list-style-type: none"> Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. | <p>LS3.A: Inheritance of Traits</p> <ul style="list-style-type: none"> Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents. <p>LS3.B: Variation of Traits</p> <ul style="list-style-type: none"> Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. |
| Crosscutting Concepts | Learning Objectives |
| <p>Patterns-</p> <ul style="list-style-type: none"> Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence. | <ul style="list-style-type: none"> Students articulate a statement that relates a given phenomenon to a scientific idea, including the idea that young plants and animals are like, but not exactly like, their parents (not to include animals that undergo complete metamorphosis, such as insects or frogs). Students use evidence and reasoning to construct an evidence-based account of the phenomenon. Students describe* evidence from observations (firsthand or from media) about patterns of features in plants and animals Students logically connect the evidence of observed patterns in features to support the evidence-based account by describing* chains of reasoning. |

Primary Interdisciplinary Connections:

- ELA

Grade: 1

Content Area: Science

- Reading
 - RI.1.1 Ask and answer questions about key details in a text.
 - RI.1.2 Identify the main topic and retell key details of a text.
 - RI.1.10 With prompting and support, read informational texts appropriately complex for grade.
- 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).
 - W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
- **Mathematics**
 - Math Practices
 - MP.2 Reason abstractly and quantitatively.
 - MP.5 Use appropriate tools strategically.
 - Number & Operations in Base Ten
 - 1.NBT.B.3 Compare two two-digit numbers based on the meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.
 - 1.NBT.C.4 Add within 100, including adding a two-digit number 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 used. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten.
 - 1.NBT.C.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used.
 - 1.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.
 - Measurement & Data
 - 1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.

Technology Standards:

- 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.

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| Grade: 1 | Content Area: Science |
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- C. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
- F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

Life and Career Standards:

- 9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.

21st Century Themes/Career Readiness:

- CRP3. Attend to personal health and financial well-being.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- 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.
- 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Evidence of Student Learning

Formative Tasks:

- Cooperative group learning
- Exit slips
- Analysis of student work
- Teacher observations
- Self-reflection
- Science evidence notebooks
- Lesson quizzes, lesson reviews

Alternative Assessments:

- Performance Tasks
- Engineering Projects
- Student created models
- Written/verbal explanations
- Peer assessment

Summative Assessments:

- Associated unit tests
- Labs and engineering based projects
- Student created models
- Written student explanations of phenomenon

Benchmark Assessments:

- Pre-Unit Assessments
- Beginning of the year, mid-year and end of the year SGO

Knowledge & Skills

Enduring Understandings:

Essential Questions:

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| Grade: 1 | Content Area: Science |
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| <ul style="list-style-type: none"> ● To survive, animals and plants need to get water, air, and food. ● Animals and plants have structures that help them do what they need to do to survive. ● To survive, animals and plants need to get water, air, and food, and to not be eaten. ● Many animals use their sharp structures to make animals and plants easier to eat. ● Animals and plants have defenses, structures that keep other animals from eating them. ● Scientists can make things that copy animal or plant structures to solve human problems. ● When plant and animal offspring grow up, they defend themselves in the same way as their parents. (3.3) ● Some kinds of young offspring get help from their parents and other kinds of young offspring survive on their own. | <ul style="list-style-type: none"> ● What do animals and plants need to do to survive? ● How do animals and plants do what they need to do to survive? ● How do animals eat other living things? ● How do animals and plants defend themselves? ● How can we use ideas about animal and plant defenses to solve a problem? ● How do animal and plant offspring defend themselves when they grow up? ● How do animal and plant offspring defend themselves when they are young? ● How do scientists make and use models to explain their ideas? |
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| Core Instructional & Supplemental Materials |
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| <p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> ● Houghton Mifflin Harcourt “Science Dimensions” <ul style="list-style-type: none"> ○ Lesson explorations ○ Hands-on activities ○ Virtual labs ○ Career explorations ○ Extensions ● BrainPOP ● https://www.brainpop.com/science/ ● New Jersey Center for Teaching & Learning ● Khan Academy ● National Science Teachers Association ● Better Lessons- Science ● Next Generation Science Instructional Resources ● National Geographic Learning | <p>Varied Levels of Text:</p> <ul style="list-style-type: none"> ● <i>Tortoise Parts</i> ● <i>Whose Lunch is This?</i> ● <i>Parents and Offspring</i> ● <i>Frog Models</i> ● <i>Spikes, Spines, and Shells: A Handbook of Defenses</i> |
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Grade: 1

Content Area: Science

Modifications and Accommodations

English Language Learners:

- Labeled pictures of academic skill
- Using tactile objects to relate to key ideas.
- Chunk/limit information
- Speak slowly
- Limit number of questions
- Partner with a strong English speaking partner
- Extended time
- Modified assignments

Special Education/504 Plans/Students with Disabilities:

- Follow specific IEP/504 accommodations and modifications
- Extended time
- Modified assignments
- Labeled pictures of weather phenomenon
- Pre-teach concepts
- Differentiate assignments
- Allow alternate assignments and assessment

Students at Risk of Failure:

- Small group instruction
- Frequent breaks
- Model how assignments should look
- Incorporate social/emotional discussions
- Encourage and monitor positive peer collaboration
- Provide academic resources for both home and school use
- Provide incentives to increase motivation and collaboration

Economically Disadvantaged:

- Provide clear, achievable expectation, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Perspective and experiences of the children need to be considered
- Create ways for students to share their emotions
- Give every student the same opportunity for success.
- Offer tutoring. Thirty or forty minutes a few times a week can dramatically increase a disadvantaged child's achievement level
- Assemble a packet with information and expectations for each class.
- Be flexible with assignments
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.

Grade: 1

Content Area: Science

- Talk with parents about class expectations and the challenges of changing schools mid-year.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input (e.g., "Would you rather do your rough draft now or gather some more ideas first?").
- Model the process of adult thinking.
- Discipline through positive relationships, not by exerting power or authority.
- Use a variety of classroom strategies that strengthen social and emotional skills
- Create a familial atmosphere by using inclusive and affiliative language
- Build supportive relationships, provide positive guidance, foster hope and optimism, and take time for affirmation and celebration.
- Provide access to computers, magazines, newspapers, and books so low-income students can see and work with printed materials
- Daily affirmations
- Asking to hear students' hopes and offering reinforcements of those hopes
- Telling students why they can succeed
- Providing needed academic resources (paper, pencils, computer time)
- Helping students to set goals and build goal-setting skills

Culturally Diverse:

- Involve families in student learning
- Consult with tribes and tribal education departments
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Help students feel more comfortable by learning about their cultural background
- Provide immediate praise and feedback
- Provide high interest topics/options
- Provide road maps or outlines for difficult concepts
- Provide sufficient wait time before calling on any student to help keep students who may need more time engaged
- Create a nurturing environment with structured routines
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Allow students to demonstrate knowledge through alternative assessments
- Greater accommodation of English language learner students on assessment tests and in the classroom,
- Allocation of more resources to involve parents who are non-native English speakers

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| Grade: 1 | Content Area: Science |
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- Become familiar with the values, traditions, and customs of various cultures; and learn the migratory conditions specific to each of their students' families.
- Learn at least a few words of students' native languages.
- Collaborate with language professionals and ESL teachers
- Encourage parents to help children maintain their native language at home, while the school helps the child attain proficiency in English.
- Teachers have a clear sense of their own ethnic and cultural identities.
- Teachers communicate high expectations for the success of all students and a belief that all students can succeed.
- Teachers provide a "scaffolding" that links the academically challenging curriculum to the cultural resources that students bring to school.
- Teachers explicitly teach students the culture of the school and seek to maintain students' sense of ethnocultural pride and identity
- Maintain high standards and demonstrate high expectations for all ethnically, culturally, and linguistically diverse students.

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| Unit 5: Living Things and Their Young | Duration: 25 days |
| Standards/Learning Targets | |
| <p>New Jersey Student Learning Standards:</p> <ul style="list-style-type: none"> ● 1-LS1-2- Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.[Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).] ● 1-LS3-1- Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like,their parents. [Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same.] [Assessment Boundary: Assessment does not include inheritance or animals that undergo metamorphosis or hybrids.] | |
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| Grade: 1 | Content Area: Science |
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| Performance Expectation | |
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| <p>1-LS1-2- Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. [Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) and the responses of the parents (such as feeding, comforting, and protecting the offspring).]</p> | |
| Science and Engineering Practices | Disciplinary Core Ideas |
| <p>Obtaining, Evaluating, and Communicating Information-</p> <ul style="list-style-type: none"> Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. <p>Scientific Knowledge is Based on Empirical Evidence</p> <ul style="list-style-type: none"> Scientists look for patterns and order when making observations about the world. | <p>LS1.B-</p> <ul style="list-style-type: none"> 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. |
| Crosscutting Concepts | Learning Objectives |
| <p>Patterns-</p> <ul style="list-style-type: none"> Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence. | <ul style="list-style-type: none"> Students use grade-appropriate books and other reliable media to obtain scientific information. Students evaluate the information to determine and describe the patterns of what animal parents and offspring do to help offspring survive (e.g., when a baby cries, the mother feeds it; when danger is present, parents protect offspring; some young animals become silent to avoid predators). |
| Performance Expectation | |
| <p>1-LS3-1- Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents. [Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like</p> | |

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| Grade: 1 | Content Area: Science |
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| its parents but is not exactly the same.] [Assessment Boundary: Assessment does not include inheritance or animals that undergo metamorphosis or hybrids.] | |
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| Science and Engineering Practices | Disciplinary Core Ideas |
| <p>Constructing Explanations and Designing Solutions</p> <ul style="list-style-type: none"> • Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. | <p>LS3.A: Inheritance of Traits</p> <ul style="list-style-type: none"> • Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents. <p>LS3.B: Variation of Traits</p> <ul style="list-style-type: none"> • Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. |
| Crosscutting Concepts | Learning Objectives |
| <p>Patterns-</p> <ul style="list-style-type: none"> • Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence. | <ul style="list-style-type: none"> • Students articulate a statement that relates a given phenomenon to a scientific idea, including the idea that young plants and animals are like, but not exactly like, their parents (not to include animals that undergo complete metamorphosis, such as insects or frogs). • Students use evidence and reasoning to construct an evidence-based account of the phenomenon. • Students describe* evidence from observations (firsthand or from media) about patterns of features in plants and animals • Students logically connect the evidence of observed patterns in features to support the evidence-based account by describing* chains of reasoning. |

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| <p>Primary Interdisciplinary Connections:</p> <ul style="list-style-type: none"> • ELA/Literacy- <ul style="list-style-type: none"> ○ Reading <ul style="list-style-type: none"> ■ RI.1.1 Ask and answer questions about key details in a text. ■ RI.1.2 Identify the main topic and retell key details of a text. ■ RI.1.10 With prompting and support, read informational texts appropriately complex for grade. |
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Grade: 1

Content Area: Science

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

- **Mathematics**

- Math Practices
 - MP.2 Reason abstractly and quantitatively.
 - MP.5 Use appropriate tools strategically.
- Number & Operations in Base Ten
 - 1.NBT.B.3 Compare two two-digit numbers based on the meanings of the tens and ones digits, recording the results of comparisons with the symbols $>$, $=$, and $<$.
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 - 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.
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- Measurement & Data
 - 1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object.

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- F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions

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| Grade: 1 | Content Area: Science |
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using appropriate digital tools and resources.

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Evidence of Student Learning

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- Teacher observations
- Self-reflection
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- Lesson quizzes, lesson reviews

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- Performance Tasks
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Summative Assessments:

- Associated unit tests
- Labs and engineering based projects
- Student created models
- Written student explanations of phenomenon

Benchmark Assessments:

- Pre-Unit Assessments
- Beginning of the year, mid-year and end of the year SGO

Knowledge & Skills

Enduring Understandings:

- To survive, animals and plants need to get water, air, and food.
- Animals and plants have structures that help them do what they need to do to survive.

Essential Questions:

- What do animals and plants need to do to survive?
- How do animals and plants do what they need to do to survive?
- How do animals eat other living things?

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| Grade: 1 | Content Area: Science |
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| <ul style="list-style-type: none"> ● To survive, animals and plants need to get water, air, and food, and to not be eaten. ● Many animals use their sharp structures to make animals and plants easier to eat. ● Animals and plants have defenses, structures that keep other animals from eating them. ● Scientists can make things that copy animal or plant structures to solve human problems. ● When plant and animal offspring grow up, they defend themselves in the same way as their parents. (3.3) ● Some kinds of young offspring get help from their parents and other kinds of young offspring survive on their own. | <ul style="list-style-type: none"> ● How do animals and plants defend themselves? ● How can we use ideas about animal and plant defenses to solve a problem? ● How do animal and plant offspring defend themselves when they grow up? ● How do animal and plant offspring defend themselves when they are young? ● How do scientists make and use models to explain their ideas? |
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| Core Instructional & Supplemental Materials |
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| <p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> ● Houghton Mifflin Harcourt “Science Dimensions” <ul style="list-style-type: none"> ○ Lesson explorations ○ Hands-on activities ○ Virtual labs ○ Career explorations ○ Extensions ● http://betterlesson.com/common_core/browse/2075/ngss-1-ls1-2-read-texts-and-use-media-to-determine-patterns-in-behavior-of-parents-and-offspring-that-help-offspring-survive ● http://wyobio.org/index.php/education/lesson-plan-heredity/ ● http://betterlesson.com/common_core/browse/2077/ngss-1-ls3-1-make-observations-to-construct-an-evidence-based-account-that-young-plants-and-animals-are-like-but-not-exactly-like ● http://www.earthsciweek.org/classroom-activities/ngss | <p>Varied Levels of Text:</p> <ul style="list-style-type: none"> ● Houghton Mifflin Harcourt “Science Dimensions” leveled readers ● <i>Parents and Offspring</i> |
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| Grade: 1 | Content Area: Science |
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- <http://www.enchantedlearning.com/subjects/animals/Animalbabies.shtml>
- <http://news.nationalgeographic.com/2015/04/150428-mothers-day-carrying-babies-animals-science-spiders/>
- [BrainPOP](#)
- <https://www.brainpop.com/science/>
- [New Jersey Center for Teaching & Learning](#)
- [Khan Academy](#)
- [National Science Teachers Association](#)
- [Better Lessons- Science](#)
- [Next Generation Science Instructional Resources](#)
- [National Geographic Learning](#)

Modifications and Accommodations

English Language Learners:

- Labeled pictures of academic skill
- Using tactile objects to relate to key ideas.
- Chunk/limit information
- Speak slowly
- Limit number of questions
- Partner with a strong English speaking partner
- Extended time
- Modified assignments

Special Education/504 Plans/Students with Disabilities:

- Follow specific IEP/504 accommodations and modifications
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- Modified assignments
- Labeled pictures of weather phenomenon
- Pre-teach concepts
- Differentiate assignments
- Allow alternate assignments and assessment

Students at Risk of Failure:

- Small group instruction
- Frequent breaks
- Model how assignments should look
- Incorporate social/emotional discussions

Grade: 1

Content Area: Science

- Encourage and monitor positive peer collaboration
- Provide academic resources for both home and school use
- Provide incentives to increase motivation and collaboration

Economically Disadvantaged:

- Provide clear, achievable expectation, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Perspective and experiences of the children need to be considered
- Create ways for students to share their emotions
- Give every student the same opportunity for success.
- Offer tutoring. Thirty or forty minutes a few times a week can dramatically increase a disadvantaged child's achievement level
- Assemble a packet with information and expectations for each class.
- Be flexible with assignments
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
- Talk with parents about class expectations and the challenges of changing schools mid-year.
- Use real-world examples and create mental models for abstract idea
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- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input (e.g., "Would you rather do your rough draft now or gather some more ideas first?").
- Model the process of adult thinking.
- Discipline through positive relationships, not by exerting power or authority.
- Use a variety of classroom strategies that strengthen social and emotional skills
- Create a familial atmosphere by using inclusive and affiliative language
- Build supportive relationships, provide positive guidance, foster hope and optimism, and take time for affirmation and celebration.
- Provide access to computers, magazines, newspapers, and books so low-income students can see and work with printed materials
- Daily affirmations
- Asking to hear students' hopes and offering reinforcements of those hopes
- Telling students why they can succeed
- Providing needed academic resources (paper, pencils, computer time)
- Helping students to set goals and build goal-setting skills

Culturally Diverse:

- Involve families in student learning
- Consult with tribes and tribal education departments
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary

Grade: 1

Content Area: Science

- Help students feel more comfortable by learning about their cultural background
- Provide immediate praise and feedback
- Provide high interest topics/options
- Provide road maps or outlines for difficult concepts
- Provide sufficient wait time before calling on any student to help keep students who may need more time engaged
- Create a nurturing environment with structured routines
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Allow students to demonstrate knowledge through alternative assessments
- Greater accommodation of English language learner students on assessment tests and in the classroom,
- Allocation of more resources to involve parents who are non-native English speakers
- Become familiar with the values, traditions, and customs of various cultures; and learn the migratory conditions specific to each of their students' families.
- Learn at least a few words of students' native languages.
- Collaborate with language professionals and ESL teachers
- Encourage parents to help children maintain their native language at home, while the school helps the child attain proficiency in English.
- Teachers have a clear sense of their own ethnic and cultural identities.
- Teachers communicate high expectations for the success of all students and a belief that all students can succeed.
- Teachers provide a "scaffolding" that links the academically challenging curriculum to the cultural resources that students bring to school.
- Teachers explicitly teach students the culture of the school and seek to maintain students' sense of ethnocultural pride and identity
- Maintain high standards and demonstrate high expectations for all ethnically, culturally, and linguistically diverse students.

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| Grade: 1 | Content Area: Science |
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| Unit 6: Objects and Patterns in the Sky | Duration: 20 days |
| Standards/Learning Targets | |
| <p>New Jersey Student Learning Standards:</p> <ul style="list-style-type: none"> ● 1-ESS1-1- Use observations of the sun, moon, and stars to describe patterns that can be predicted. [Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.] [Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.] ● 1-ESS1-2- Make observations at different times of year to relate the amount of daylight to the time of year. [Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.] [Assessment Boundary: Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight.] | |
| Performance Expectation | |
| <p>1-ESS1-1- Use observations of the sun, moon, and stars to describe patterns that can be predicted. [Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.] [Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.]</p> | |
| Science and Engineering Practices | Disciplinary Core Ideas |
| <p>Analyzing and Interpreting Data</p> <ul style="list-style-type: none"> ● Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. | <p>ESS1.A: The Universe and its Stars</p> <ul style="list-style-type: none"> ● Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. |
| Crosscutting Concepts | Learning Objectives |
| <p>Patterns</p> <ul style="list-style-type: none"> ● Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. <p>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</p> <ul style="list-style-type: none"> ● Science assumes natural events happen today as they happened in the past. Many events are repeated. | <ul style="list-style-type: none"> ● With guidance, students use graphical displays (e.g., picture, chart) to organize data from given observations ● Students identify and describe* patterns in the organized data ● Students use the identified patterns of the motions of objects in the sky to provide evidence that future appearances of those objects can be |

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| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

| | predicted |
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| Performance Expectation | |
| <p>1-ESS1-2- Make observations at different times of year to relate the amount of daylight to the time of year. [Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.] [Assessment Boundary: Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight.]</p> | |
| Science and Engineering Practices | Disciplinary Core Ideas |
| <p>Planning and Carrying Out Investigations</p> <ul style="list-style-type: none"> Make observations (firsthand or from media) to collect data that can be used to make comparisons. | <p>ESS1.B: Earth and the Solar System</p> <ul style="list-style-type: none"> Seasonal patterns of sunrise and sunset can be observed, described, and predicted. |
| Crosscutting Concepts | Learning Objectives |
| <p>Patterns</p> <ul style="list-style-type: none"> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. | <ul style="list-style-type: none"> Students identify and describe* the phenomenon and purpose of the investigation, which include the following idea: the relationship between the amount of daylight and the time of year. Based on the given plan for the investigation, students (with support) describe* the data and evidence that will result from the investigation, including observations (firsthand or from media) of relative length of the day (sunrise to sunset) throughout the year According to the given investigation plan, students collaboratively make and record observations about the relative length of the day in different seasons to make relative comparisons between the amount of daylight at different times of the year (e.g., summer, winter, fall, spring). |

Grade: 1

Content Area: Science

Primary Interdisciplinary Connections:

- **ELA**

- Reading

- RI.1.1. Ask and answer questions about key details in a text.
- RI.1.3 Describe the connection between two individuals, events, ideas, or pieces of information in a text.
- RI.1.5 Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text.
- RI.1.7 Use the illustrations and details in a text to describe its key ideas.
- RI.1.10 With prompting and support, read and comprehend stories and poetry at grade level text complexity or above.

- Writing

- W.1.2. Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure.
- W.1.5 With guidance and support from adults, focus on a topic, respond to questions and suggestions from peers and self-reflection, and add details to strengthen writing and ideas as needed.
- 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.

- Speaking and Listening

- 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.
- SL.1.2 Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- SL.1.4 Describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
- SL.1.5 Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.

- Language

- L.1.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 1 reading and content, choosing flexibly from an array of strategies.
- L.1.6 Use words and phrases acquired through conversations, reading and being read to, and responding to texts, including using frequently occurring conjunctions to signal simple relationships (e.g., because).

- **Mathematics**

- Math Practices

Grade: 1

Content Area: Science

- MP1 Make sense of problems and persevere in solving them.
- MP2 Reason abstractly and quantitatively.
- MP4 Model with mathematics.
- MP5 Use appropriate tools strategically.
- MP6 Attend to precision.
- Operations & Algebraic Thinking
 - 1.OA.11. 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 with a symbol for the unknown number to represent the problem.
 - 1.OA.2 Solve word problems that call for addition of three whole numbers whose sum is less than or equal to 20, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.
- Measurement & Data
 - 1.MD.3 Tell and write time in hours and half-hours using analog and digital clocks.
 - 1.MD.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.
- Geometry
 - 1.G.2 Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.
 - 1.G.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.

Technology Standards:

- 8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge.
- B. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.
- C. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
- F: Critical thinking, problem solving, and decision making: Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

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| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

Life and Career Standards:

- 9.2.4.A.1 Identify reasons why people work, different types of work, and how work can help a person achieve personal and professional goals.
- 9.2.4.A.2 Identify various life roles and civic and work-related activities in the school, home, and community.

21st Century Themes/Career Readiness:

- CRP1. Act as a responsible and contributing citizen and employee.
- CRP4. Communicate clearly and effectively and with reason.
- CRP5. Consider the environmental, social and economic impacts of decisions.
- CRP6. Demonstrate creativity and innovation.
- CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.
- CRP11. Use technology to enhance productivity.
- 9.2 Career Awareness, Exploration, and Preparation- This standard outlines the importance of being knowledgeable about one's interests and talents, and being well informed about postsecondary and career options, career planning, and career requirements.

Evidence of Student Learning

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| <p>Formative Tasks:</p> <ul style="list-style-type: none"> ● Cooperative group learning ● Exit slips ● Analysis of student work ● Teacher observations ● Self-reflection ● Science evidence notebook ● Lesson quizzes, lesson reviews ● Short performance tasks ● Instructionally embedded assessments | <p>Alternative Assessments:</p> <ul style="list-style-type: none"> ● Performance Tasks ● Engineering Projects ● Student created models ● Written/verbal explanations ● Peer assessment |
| <p>Summative Assessments:</p> <ul style="list-style-type: none"> ● Associated unit tests ● Performance Assessment ● Labs and engineering based projects ● Student created models ● Written student explanations of phenomenon | <p>Benchmark Assessments:</p> <ul style="list-style-type: none"> ● Pre-Unit Assessments ● Beginning of the year, mid year and end of the year SGO |

Knowledge & Skills

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| <p>Enduring Understandings:</p> <ul style="list-style-type: none"> ● We can see the sun in the sky during the daytime and the stars in the sky during the nighttime. ● Right now, the sky looks different to people in different places on Earth. | <p>Essential Questions:</p> <ul style="list-style-type: none"> ● What can we see in the sky at different times? ● What does the sky look like to people in different places on Earth right now? |
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| Grade: 1 | Content Area: Science |
|-----------------|------------------------------|

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| <ul style="list-style-type: none"> ● Earth is round like a ball. ● It is daytime for people in places on Earth that are facing the sun. ● It is nighttime for people in places on Earth that are not facing the sun. ● The sun looks like it is in different places in the sky at different times. ● As Earth spins, we face different directions, so the sky looks different to us. ● Daytime is shorter and nighttime is longer in winter than in other seasons. | <ul style="list-style-type: none"> ● Why is it daytime in some places on Earth when it is nighttime in other places? ● Where is the sun in the sky at different times? ● Why do we see the sun in different places in the sky during the daytime, and then not at all during the nighttime? ● What will we see in the sky at the same times on a different day? ● Why does the sun follow the same pattern in the sky every day? ● How do the days change over a year? |
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| Core Instructional & Supplemental Materials |
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| <p>Suggested Activities/Resources:</p> <ul style="list-style-type: none"> ● Houghton Mifflin Harcourt “Science Dimensions” <ul style="list-style-type: none"> ○ Lesson exploration ○ Hands-on activities ○ Virtual labs ○ Extensions ○ Career Explorations ● https://mysteryscience.com/sky/mystery-1/sun-shadows-daily-patterns/82?r=6359979 ● https://betterlesson.com/lesson/613470/observing-the-sun ● Make a solar eclipse model. (www.education.com) ● Draw pictures of the sun, moon and stars. ● Make predictions about how the earth and moon move in the sky. ● Observe and measure the sun's position in the sky and how shadows change throughout the day. ● Make drawings of the four seasons and where the moon and sun will be positioned in the sky. ● Teach students about the phases of the moon, and make models using Oreo cookies. | <p>Varied Levels of Text:</p> <ul style="list-style-type: none"> ● Houghton Mifflin Harcourt “Science Dimensions” leveled readers ● <i>After Sunset</i> ● <i>Nighttime Investigations</i> ● <i>What Spins?</i> ● <i>A Walk Through the Seasons</i> ● <i>Patterns of Earth and Space</i> |
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Grade: 1

Content Area: Science

- <http://www.alvordschools.org/cms/lib8/CA01900929/Centricity/Domain/2616/1st%20Grade%20Teachers%20Guide%20Complete.pdf>

English Language Learners:

- Labeled pictures of academic skill
- Using tactile objects to relate to key ideas.
- Chunk/limit information
- Speak slowly
- Limit number of questions
- Partner with a strong English speaking partner
- Extended time
- Modified assignments

Special Education/504 Plans/Students with Disabilities:

- Follow specific IEP/504 accommodations and modifications
- Listen to audio recordings instead of reading text
- Learn content from audio books, movies, videos and digital media instead of reading print versions
- Work with fewer items per page or line and/or materials in a larger print size
- Have a designated reader
- Hear instructions orally
- Record a lesson, instead of taking notes
- Have another student share class notes
- Provide outline of a lesson
- Use visual presentations of verbal material, such as word webs and visual organizers
- Be given a written list of instructions
- Give responses in a form (oral or written) that's easier
- Dictate answers to a scribe
- Capture responses on an audio recorder
- Work or take a test in a different setting, such as a quiet room with few distractions
- Sit where student learns best (for example, near the teacher)
- Use special lighting or acoustics
- Take a test in small group setting
- Use sensory tools
- Extended time
- Modified assignments
- Labeled pictures of weather phenomenon
- Pre-teach concepts
- Differentiate assignments
- Allow alternate assignments and assessment

Grade: 1

Content Area: Science

Students at Risk of Failure:

- Small group instruction
- Frequent breaks
- Model how assignments should look
- Incorporate social/emotional discussions
- Encourage and monitor positive peer collaboration
- Provide academic resources for both home and school use
- Provide incentives to increase motivation and collaboration

Economically Disadvantaged:

- Provide clear, achievable expectation, do not lower academic requirements for them.
- Build a safe and nurturing atmosphere
- Perspective and experiences of the children need to be considered
- Create ways for students to share their emotions
- Give every student the same opportunity for success.
- Offer tutoring. Thirty or forty minutes a few times a week can dramatically increase a disadvantaged child's achievement level
- Assemble a packet with information and expectations for each class.
- Be flexible with assignments
- Allow students to finish assignments independently, or give them the opportunity to complete tasks at their own pace.
- Talk with parents about class expectations and the challenges of changing schools mid-year.
- Use real-world examples and create mental models for abstract idea
- Provide increased knowledge base and vocabulary use about real world experiences.
- Share the decision making in class.
- Maintain expectations while offering choice and soliciting input (e.g., "Would you rather do your rough draft now or gather some more ideas first?").
- Model the process of adult thinking.
- Discipline through positive relationships, not by exerting power or authority.
- Use a variety of classroom strategies that strengthen social and emotional skills
- Create a familial atmosphere by using inclusive and affiliative language
- Build supportive relationships, provide positive guidance, foster hope and optimism, and take time for affirmation and celebration.
- Provide access to computers, magazines, newspapers, and books so low-income students can see and work with printed materials
- Daily affirmations
- Asking to hear students' hopes and offering reinforcements of those hopes
- Telling students why they can succeed
- Providing needed academic resources (paper, pencils, computer time)

Grade: 1

Content Area: Science

- Helping students to set goals and build goal-setting skills

Culturally Diverse:

- Involve families in student learning
- Consult with tribes and tribal education departments
- Provide social/emotional support
- Respect cultural traditions
- Build in more group work to encourage interaction with peers
- Show photos, videos, and definitions when possible for culturally unique vocabulary
- Help students feel more comfortable by learning about their cultural background
- Provide immediate praise and feedback
- Provide high interest topics/options
- Provide road maps or outlines for difficult concepts
- Provide sufficient wait time before calling on any student to help keep students who may need more time engaged
- Create a nurturing environment with structured routines
- Teach study skills
- Provided students with necessary academic resources and materials
- Allow for alternative assignments
- Provide visuals
- Assign peer tutor
- Allow students to demonstrate knowledge through alternative assessments
- Greater accommodation of English language learner students on assessment tests and in the classroom,
- Allocation of more resources to involve parents who are non-native English speakers
- Become familiar with the values, traditions, and customs of various cultures; and learn the migratory conditions specific to each of their students' families.
- Learn at least a few words of students' native languages.
- Collaborate with language professionals and ESL teachers
- Encourage parents to help children maintain their native language at home, while the school helps the child attain proficiency in English.
- Teachers have a clear sense of their own ethnic and cultural identities.
- Teachers communicate high expectations for the success of all students and a belief that all students can succeed.
- Teachers provide a "scaffolding" that links the academically challenging curriculum to the cultural resources that students bring to school.
- Teachers explicitly teach students the culture of the school and seek to maintain students' sense of ethnocultural pride and identity
- Maintain high standards and demonstrate high expectations for all ethnically, culturally, and linguistically diverse students.

Long Beach Island Consolidated School District Curriculum Guide

Grade: 1

Content Area: Science