

**MOORESTOWN TOWNSHIP PUBLIC SCHOOLS
MOORESTOWN, NEW JERSEY**

*Moorestown Township Elementary Schools
Science Department*

*Science Curriculum
Grade 1*

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Prepared by: Sharon Burns, *Mary Jean Klatte, and Hannah Vaksman*

Supervisor: Gavin Quinn

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[Course Description and Fundamental Concepts](#)

Science in first grade helps students formulate answers to questions such as: “What happens when materials vibrate? What happens when there is no light? What are some ways plants and animals meet their needs so that they can survive and grow? How are parents and their children similar and different? What objects are in the sky and how do they seem to move?”

- Students are expected to develop understanding of the relationship between sound and vibrating materials as well as between the availability of light and ability to see objects. The idea that light travels from place to place can be understood by students at this level through determining the effect of placing objects made with different materials in the path of a beam of light.
- Students are also expected to develop understanding of how plants and animals use their external parts to help them survive, grow, and meet their needs as well as how behaviors of parents and offspring help the offspring survive.
- The understanding is developed that young plants and animals are like, but not exactly the same as, their parents.
- Students are able to observe, describe, and predict some patterns of the movement of objects in the sky.

The crosscutting concepts of patterns; cause and effect; structure and function; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas.

In the first grade science performance expectations, students are expected to demonstrate grade-appropriate proficiency in planning and carrying out investigations, analyzing and interpreting data, constructing explanations and designing solutions, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

[New Jersey Student Learning Standards \(NJSLs\)](#)

Subject/Content Standards

Include grade appropriate subject/content standards that will be addressed

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-PS4-2 Make observations to construct an evidence-based account that objects 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 an investigation 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). 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.] [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.]

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.]

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.]

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.]

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

K-2-ETS-1-2 Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.

K-2-ETS-1-3 Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

[English Companion Standards](#)

List grade-level appropriate companion standards for [History](#), [Social Studies](#), [Science and Technical Subjects \(CTE/Arts\)](#) 6-12. English Companion Standards are [required](#) in these subject/content areas.

Unit Addressed	Standard #	Standard Description
Unit 1	W.1.2	<i>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. (1-PS4-2)</i>
Unit 1, 2, 3	W.1.7	<ul style="list-style-type: none"> <i>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). (1-PS4-1), (1-PS4-2), (1-PS4-3), (1-PS4-4)</i>
Unit 1, 3	W.1.8	<ul style="list-style-type: none"> <i>W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-PS4-1), (1-PS4-2), (1-PS4-3)</i>
Unit 1	SL.1.1	<ul style="list-style-type: none"> <i>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. (1-PS4-1), (1-PS4-2), (1-PS4-3)</i>

Unit 1, 2	RL.1.1	• <i>RL.1.1 Ask and answer questions about key details in a text. (1-LS1-2)</i>
Unit 2	RL.1.2	• <i>RL.1.2 Identify the main topic and retell key details of a text. (1-LS1-2)</i>
Unit 2	RL.1.10	• <i>RL.1.10 With prompting and support, read and comprehend stories and poetry at grade level text complexity or above. (1-LS1-2)</i>

21st-Century Skills and Technology Integration [\(Standard 8\)](#)

List appropriate units below for which strands (A through F) will be addressed

Standard 8.1 (K-12)		Educational Technology: <i>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.</i>
Unit Addressed	Strand Letter	Standard Description
	Strand A	Technology Operations and Concepts: <i>Students demonstrate a sound understanding of technology concepts, systems, and operations.</i>
Unit 1, 2, 3	Strand B	Creativity and Innovation: <i>Students demonstrate creative thinking, construct knowledge and develop innovative products and process using technology.</i>
Unit 1, 2, 3	Strand C	Communication and Collaboration: <i>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.</i>
	Strand D	Digital Citizenship: <i>Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.</i>
Unit 1, 2, 3	Strand E	Research and Information Fluency: <i>Students apply digital tools to gather, evaluate, and use information.</i>
Unit 1, 2, 3	Strand F	Critical thinking, problem-solving, and decision making: <i>Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.</i>

Standard 8.2 (K-5)		Technology Education, Engineering, Design, and Computational Thinking - Programming: <i>All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment.</i>
	Strand A	The Nature of Technology: Creativity and Innovation: <i>Technology systems impact every aspect of the world in which we live.</i>
	Strand B	Technology and Society: <i>Knowledge and understanding of human, cultural and societal values are fundamental when designing technological systems and products in the global society.</i>
Unit 1, 2, 3	Strand C	Design: <i>The design process is a systematic approach to solving problems.</i>
Unit 1, 2, 3	Strand D	Abilities for a Technological World: <i>The designed world is the product of a design process that provides the means to convert resources into products and systems.</i>
	Strand E	Computational Thinking: Programming: <i>Computational thinking builds and enhances problem-solving, allowing students to move beyond using knowledge to creating knowledge.</i>

Career Ready Practices ([Standard 9](#))

List appropriate units below for which CRPs will be addressed

Unit Addressed	Standard #	Standard Description
Unit 1, 2, 3	CRP1	<i>Act as a responsible and contributing citizen and employee.</i>
Unit 1, 2, 3	CRP2	<i>Apply appropriate academic and technical skills.</i>
	CRP3	<i>Attend to personal health and financial well-being.</i>
Unit 1, 2, 3	CRP4	<i>Communicate clearly and effectively and with reason.</i>
Unit 1, 2, 3	CRP5	<i>Consider the environmental, social and economic impacts of decisions.</i>
Unit 1, 2, 3	CRP6	<i>Demonstrate creativity and innovation.</i>
Unit 1, 2, 3	CRP7	<i>Employ valid and reliable research strategies.</i>

Unit 1, 2, 3	CRP8	<i>Utilize critical thinking to make sense of problems and persevere in solving them.</i>
Unit 1, 2, 3	CRP9	<i>Model integrity, ethical leadership, and effective management.</i>
	CRP10	<i>Plan education and career paths aligned to personal goals.</i>
	CRP11	<i>Use technology to enhance productivity.</i>
	CRP12	<i>Work productively in teams while using cultural global competence</i>

Interdisciplinary Connections

List any other content standards addressed as well as appropriate units

Visual & Performing Arts Integration ([Standard 1](#))

List appropriate units below for which standards (1.1 through 1.4) may be addressed

Unit Addressed	Standard #	Standard Description
Unit 1, 2, 3	Standard 1.1	The Creative Process: <i>All students will demonstrate an understanding of the elements and principles that govern the creation of works of art in dance, music, theatre, and/or visual art.</i>
	Standard 1.2	History of the Arts and Culture: <i>All students will understand the role, development, and influence of the arts throughout history and across cultures.</i>
Unit 1, 2, 3	Standard 1.3	Performing/Presenting/Producing: <i>All students will synthesize those skills, media, methods, and technologies appropriate to creating, performing, and/or presenting works of art in dance, music, theatre, and/or visual art.</i>
	Standard 1.4	Aesthetic Responses & Critique Methodologies: <i>All students will demonstrate and apply an understanding of arts philosophies, judgment, and analysis to works of art in dance, music, theatre, and/or visual art.</i>

Other Interdisciplinary Content Standards

List appropriate units below for any other content/standards that may be addressed

Unit Addressed	Content / Standard #	Standard Description
Unit 1, 3	MP. 5	• <i>MP.5 Use appropriate tools strategically. (1-PS4-4)</i>
Unit 1, 3	1.MD. A.1	

<p>Unit 1, 3</p>	<p>1.MD.A.2</p>	<ul style="list-style-type: none"> • <i>1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object. (IPS4-4)</i> • <i>1.MD.A.2 Express the length of an object as a whole number of length units, by layering multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. (1-PS4-4)</i>
<p>Unit 2</p>	<p>1.NBT.B.3</p>	<ul style="list-style-type: none"> • <i>1.NBT.B.3 Compare two two-digit numbers based on the meanings of the tens and one digits, recording the results of comparisons with the symbols $>$, $=$, and $<$. (1-LS1-2)</i>
<p>Unit 2</p>	<p>1.NBT.C.4</p>	<ul style="list-style-type: none"> • <i>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 uses. 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-LS1-2)</i>
<p>Unit 2</p>	<p>1.NBT.C.5</p>	<ul style="list-style-type: none"> • <i>1.NBT.C.5 Given a two-digit number, mentally find 10 more or 10 less than the number, without having to count; explain the reasoning used. (1-LS1-2)</i>
<p>Unit 2</p>	<p>1.NBT.C.6</p>	<ul style="list-style-type: none"> • <i>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. (1-LS1-2)</i>
<p>Unit 1</p>	<p>MP.2</p>	<ul style="list-style-type: none"> • <i>MP.2 Reason abstractly and quantitatively. (1-LS3-1)</i>

Pacing Guide (All Dates are approximate based on the school calendar)

Unit/ Topic	Month (w/Approx number of Teaching Days)
Unit 1: Plants and Animals	September (~19 days)
	October (~19 days)
	November (~16 days)
	December (~15 days)
Unit 2: Light and Sound	January (~18 days)
	February (~18 days)
	March (~15-20 days)
Unit 3: Sky Patterns	April (~15-20 days)
	May (~18 days)
	June (~15 days)

Units

Contact the Content Supervisor for unit details.