## Vocabulary

vibrate
investigate
plan
observation
construct
illuminated,
beam of light
materials
design
communicating

## Crosscutting Concepts

**1-PS4-1 1-PS4-2 1-PS4-3**

**Cause and Effect:**

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

**1-PS4-4**

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

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

## Resources *

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*Deputy Superintendent*

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First Grade • First Quarter

# Pacing Guide

# Science

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# Grade 1 Science First Quarter

| Waves and Their Applications in Technologies for Information 1-PS4-1 | Waves and Their Applications in Technologies for Information 1-PS4-2 | Waves and Their Applications in Technologies for Information 1-PS4-3 | Waves and Their Applications in Technologies for Information 1-PS4-4 |
|---|---|---|---|
| **I CAN STATEMENT** | | | |
| ☐ **I CAN** plan an investigation.<br>☐ **I CAN** do my investigation.<br>☐ I **CAN** show that vibrating materials can make a sound. | ☐ **I CAN** show that sound can make something move.<br>☐ **I CAN** make observations to prove that objects can only be seen in the dark when there is light. | ☐ **I CAN** plan and do an investigation to find out what happens when I put an objects made of different materials in a beam of light. | ☐ **I CAN** plan and build a machine that uses light or sound to send a message far away. |
| **Core Idea** | | | |
| **Wave Properties**<br><br>Sound can make matter vibrate, and vibrating matter can make sound. | **Electromagnetic Radiation**<br><br>Objects can be seen if light is available to illuminate them or if they give off their own light. | **Electromagnetic Radiation**<br>Some materials allow light to pass through them, others allow only some light through and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach. Mirrors can be used to redirect a light beam. | **Information Technologies and Instrumentation**<br><br>People also use a variety of devices to communicate (send and receive information) over long distances. |
| **Standard** | | | |
| **Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.**<br><br>*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.* | **Make observations to construct an evidence-based account that objects can be seen only when illuminated.**<br><br>*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.* | **Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.**<br><br>*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).* | **Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.**<br><br>*Clarification Statement: Examples of devices could include a light source to send signals, paper cup and string"telephones," and a pattern of drum beats.* |
| **Science and Engineering Practices** | | | |
| **Planning and Carrying Out Investigations**<br><br>Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.<br>► Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. | **Constructing Explanations and Designing Solutions**<br><br>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.<br>► Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. | **Planning and Carrying Out Investigations**<br><br>Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.<br>► Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. | **Constructing Explanations and Designing Solutions**<br><br>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.<br>► Use tools and materials provided to design a device that solves a specific problem. |

## Vocabulary

predict
relate
seasonal patterns
data

## Crosscutting Concepts

**1-ESS1-1  1-ESS1-2**

**Patterns**

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

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First Grade • Second Quarter

Pacing Guide

# Science

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# Grade 1 Science Second Quarter

| Earth's Place in the Universe 1-ESS1-1 | Earth's Place in the Universe 1-ESS1-2 | Notes |
|---|---|---|
| **I CAN STATEMENT** | | |
| ☐ **I CAN** can use graphs and pictures to show information about objects in the sky during the day and night.<br>☐ **I CAN** use pictures and graphs to show where the sun and moon are at in the sky during different times of the day and night.<br>☐ **I CAN** explain a pattern about the positions of the sun and moon. | ☐ **I CAN** use an investigation plan to learn about how long the daytime and the nightime is at the different times of the year. | |
| **Core Idea** | | |
| **The Universe and its Stars**<br><br>Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. | **Earth and the Solar System**<br><br>Seasonal patterns of sunrise and sunset can be observed, described, and predicted. | |
| **Standard** | | |
| **Use observations of the sun, moon, and stars to describe patterns that can be predicted.**<br><br>*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.* | **Make observations at different times of year to relate the amount of daylight to the time of year.**<br><br>*Clarification Statement: Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall.* | |
| **Science and Engineering Practices** | | |
| **Analyzing and Interpreting Data**<br><br>Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.<br>► Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. | **Planning and Carrying Out Investigations**<br><br>Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.<br>► Make observations (firsthand or from media) to collect data that can be used to make comparisons. | |

## Vocabulary

## Crosscutting Concepts

**1-LS3-1**

**Patterns**

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

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First Grade • Third Quarter

Pacing Guide

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# Grade 1 Science Third Quarter

| Heredity: Inheritance and Variation of Traits<br>1-LS3-1 | Notes |
|---|---|

## I CAN STATEMENT

☐ **I CAN** explain how plants and animals will grow up to look in some ways like their parent.

☐ **I CAN** investigate and tell about likenesses and differences among the same kind of a plant or animal.

## Core Idea

**A: Inheritance of Traits**
Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents.

**B: Variation of Traits**
Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.

## Standard

**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

**Constructing Explanations and Designing Solutions**

Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.

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

## Vocabulary

mimicking
external parts
survive
off-spring
predators
environment

## Crosscutting Concepts

**1-LS1-1**

**Structure and Function**

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

**1-LS1-2**

**Patterns**

Patterns in the natural and human designed world can be observed and used as evidence.

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First Grade • Fourth Quarter

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# Grade 1 Science Fourth Quarter

| From Molecules to Organisms: Structures and Processes 1-LS1-1 | From Molecules to Organisms: Structures and Processes 1-LS1-2 | Notes |
|---|---|---|
| **I CAN STATEMENT** | | |
| ☐ **I CAN** describe a human problem that will be solved.<br>☐ **I CAN** design a solution by telling what helps the plant/animal grow and survive and how they use information they get from the world around them.<br>☐ **I CAN** use materials to solve the problem and will copy the way an animal or a plant survives. | ☐ **I CAN** explain that plants and animals have young.<br>☐ **I CAN** tell how animal parents help their young to survive.<br>☐ **I CAN** explain if my plan worked. | |
| **Core Idea** | | |
| **Structure and Function**<br>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.<br>**Information Processing**<br>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. | **Growth and Development of Organisms**<br>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. | |
| **Standard** | | |
| **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.**<br>*Clarification Statement: Examples of human problems that can be solved by mimicking plant or animan solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle 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.* | **Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.**<br>*Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other valizations) and the responses of the parents (such as feeding, comfoting, and protecting the offspring.* | |
| **Science and Engineering Practices** | | |
| **Constructing Explanations and Designing Solutions**<br>Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions.<br>► Use materials to design a device that solves a specific problem or a solution to a specific problem. | **Obtaining, Evaluating, and Communicating Information**<br>Obtaining, evaluating, and communicating information in K– 2 builds on prior experiences and uses observations and texts to communicate new information.<br>► Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. | |