

Science Standards with Performance Indicators Grade K

NGSS: Grade K
Physical Science
K-PS2 Forces and interactions: Pushes and Pulls
K-PS2-1. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
Life Science
K-LS1 Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment
K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive.
K-ESS2-2. Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.
K-ESS3-3. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.*
Earth Science
K-ESS2 Weather and Climate
K-ESS2-1. Use and share observations of local weather conditions to describe patterns over time.
K-ESS3-2. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.*



Science Standards with Performance Indicators Grade 1

MLR. NGSS: Grade 1

Physical Science

Waves: Light and Sound

1-PS4-1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.

1-PS4-2. Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated.

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.

Life Science

Structure, Function, and Information Processing

1-LS1-1. Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.*

1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

1-LS3-1. Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

Earth Science

Space Systems: Patterns and Cycles

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

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

Science Standards with Performance Indicators Grade 2

MLR. NGSS: Grade 2

Physical Science

PS-1 Structure and Properties of Matter

2-PS1-1. Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

2-PS1-2. Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.*

Life Science

LS-2 Interdependent Relationships in Ecosystems

2-LS2-1. Plan and conduct an investigation to determine if plants need sunlight and water to grow.

2-LS2-2. Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.*

2-LS4-1. Make observations of plants and animals to compare the diversity of life in different habitats.

Earth Science

Earth's Systems: Processes that Shape the Earth

2-ESS1-1. Use information from several sources to provide evidence that Earth events can occur quickly or slowly.



2-ESS2-1. Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.*

K-2.Engineering Design

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 Standards with Performance Indicators Grade 3

MLR. NGSS: Grade 3

Physical Science

PS2 Motion and Stability: Forces and Interactions

3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

3-PS2-2. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.

Life Science

LS2 Ecosystems: **Interdependent Relationships in Ecosystems**

3-LS2-1. Construct an argument that some animals form groups that help members survive.

3-LS4-4. Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.*

LS 3.Inheritance and Variation of Traits: Life Cycles and Traits

3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth,

growth, reproduction, and death.
3-LS3-1. Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.
Earth's Systems Science
Weather and Climate
3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.
ETS: Engineering Design
ETS1.A: Defining and Delimiting an Engineering Problem
3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

Science Standards with Performance Indicators Grade 4

MLR. NGSS: Grade 4
Physical Science
PS3 Energy
4-PS3-1. Use evidence to construct an explanation relating the speed of an object to the energy of that object.
4-PS3-2. Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.
4-PS3-3. Ask questions and predict outcomes about the changes in energy that occur when objects collide.

4-PS3-4. Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.*

PS4 Waves

4-PS4-1. Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.

Life Science

LS1 Structure, Function, and Information Processing

4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.

4-LS1-2. Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

Earth's Systems Science

Earth's Systems: Processes that Shape the Earth

4-ESS1-1. Identify evidence from patterns in rock formations and fossils in rock layers for changes in a landscape over time to support an explanation for changes in a landscape over time.

4-ESS2-2. Analyze and interpret data from maps to describe patterns of Earth's features.

ETS: Engineering Design

ETS1.A: Defining and Delimiting an Engineering Problem

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.



Science Standards with Performance Indicators Grade 5

Structure and Property of Matter

5-PS1-1 Develop a model to describe that matter is made of particles too small to be seen.

5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.

Matter and Energy in Organisms and Ecosystems

5-LS1-1. Support an argument that plants get the materials they need for growth chiefly from air and water.

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

Earth's Systems

5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

Space Systems: Stars and the Solar System

5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down.

ETS1: Engineering Design

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.



Science Standards with Performance Indicators Grade 6

MLR..6-8.4 Reading: Science & Technical Subjects: Craft and Structure

RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

MLR..6-8.1. Writing: Text Types and Purposes

WHST.6-8.1b Support claim(s) with logical reasoning and relevant, accurate data and evidence that demonstrate an understanding of the topic or text.

Science & Technology

E1 Biodiversity

E1.a Compare physical characteristics that differentiate organisms into groups.

E1.b Explain how biologists use internal and external anatomical features to determine relatedness among organisms and to form the basis for classification systems.

E3 Cells

E3.a. Describe the basic functions of organisms carried out within cells including the extracting of energy from food and the elimination of wastes.

E3.b. Explain the relationship among cells, tissues, organs, and organ systems, including how tissues and organs serve the needs of cells and organisms.

E4 Heredity and Reproduction

E4.a. Explain that sexual reproduction includes fertilization that results in the inclusion of genetic information from each

parent and determines the inherited traits that are a part of every cell.

E4.c. Describe asexual reproduction as a process by which all genetic information comes from one parent and determines the inherited traits that are a part of every cell.

Science Standards with Performance Indicators Grade 7

MS. Space Systems

MS-ESS1-1: Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.

MS. History of Earth

MS-ESS1-4: Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history.

MS-ESS2-2: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.

MS-ESS2-3: Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.

MS. Earth's Systems

MS-ESS2-1 Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.

MS-ESS2-4 Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.

MS Weather and Climate

MS-ESS2-5 Collect data to provide evidence for how the motions and complex interactions of air masses results in changes

in weather conditions.

MS-ESS2-6 Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.

MS. Human Impacts

MS-ESS3-2 Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

Science Standards with Performance Indicators Grade 8

MS. Structure and Properties of Matter

MS-PS1-1 Develop models to describe the atomic composition of simple molecules and extended structures.

MS-PS1-3 Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.

MS-PS1-4 Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.

MS. Chemical Reactions

MS-PS1-2 Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.

MS-PS1-5 Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.

MS. Forces and Interactions

MS-PS2-2 Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces

on the object and the mass of the object.

MS. Energy

MS-PS3-1 Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.

MS-PS3-2 Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.

MS-PS3-4 Plan an investigation to determine the relationships among the energy transferred, the type of matter, and the mass of particles as measured of a sample.

MS. Engineering Design

MS-ETS1-1 Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.

MS-ETS1-4 Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

