

# Science Grades 3-5

## PBGR

The scientifically literate individual knows how to ask questions investigate everyday phenomena, and construct explanations. They describe, explain, and make predictions related to phenomena. Scientifically literate individuals engage in social and civic discourse using valid scientific evidence to express positions to inform global, national, and local decisions. They evaluate the quality of scientific information based on its source and the methods used to generate it, and revise thinking based on new information.

### Critical Proficiency

#### Structure and Function

Demonstrate that the way an object or organism is shaped or structured determines many of its properties and functions.

### Critical Proficiency

#### Cause and Effect

Use evidence to identify or predict cause and effect relationships for complex natural and human designed systems.

### Critical Proficiency

#### Energy and Matter

Analyze energy and matter flows within, between, and among systems to understand the systems' behaviors.

### Critical Proficiency

#### Systems and Systems Models

Define the boundaries and initial conditions of a system, analyze inputs and outputs, and describe and predict behavior using models.

### Priority Performance Indicators

#### Structure and Function

##### Matter and Its Interactions: Structure of Matter

Develop a model to describe that despite matter being made of particles too small to be seen, it is always conserved when it undergoes changes.

5-PS1-1

##### Waves and Their Applications: Structure of Waves and Their Applications in Technology

Develop a model of waves to describe how the structure of the waves can cause objects to move or enable them to be observed through the senses.

4-PS4-1; 4-PS2-2

##### From Molecules to Organisms: Structure and Function of Organisms

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

4-LS1-1

### Priority Performance Indicators

#### Cause and Effect

##### Earth's Systems: Connections Between Physical Earth and Evolution

Analyze and interpret data from fossils to provide evidence of the organisms and environments in which they lived long ago and identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.

4-ESS1-1; 3-LS4-1

##### Earth's Systems: Interconnectedness of Earth's Spheres

Develop a model using an example to describe ways in which the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

5-ESS2-1

##### Biological Evolution—Unity and Diversity: Response to Changes in Environment

Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all and make a claim supported by evidence that when the environment changes the types of plants and animals that live there may change.

3-LS4-3; 3-LS4-4

##### Biological Evolution: Unity and Diversity

Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.

3-LS4-2

### Priority Performance Indicators

#### Energy and Matter

##### Matter and Its Interactions: Law of Conservation of Matter

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.

5-PS1-2

##### Energy:

Use evidence to construct an explanation of the relationship between the speed of an object to the energy of that object and that energy can be transferred from place to place by sound, light, heat, and electrical currents.

4-PS3-1; 4-PS3-2

##### Ecosystems: Interactions, Energy, and Dynamics: Cycling of Matter and Energy in Environment

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

5-LS2-1

##### Earth's Systems

Organize and represent data to describe typical weather conditions expected during a particular season; obtain and combine information to describe climates in different regions of the world.

3-ESS2-1; 3-ESS2-2

### Priority Performance Indicators

#### Systems and Systems Models

##### Earth and Human Activity: Impact on Earth's Systems

Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

5-ESS3-1

##### Engineering Design

Define a simple problem that reflects a need or a want and includes specified criteria for success and constraints on materials, time, or cost. 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-ETS1-1; 3-5-ETS1-2

##### Earth Systems

Obtain and combine information to describe that energy and fuels are derived from natural resources and that their uses affect the environment.

4-ESS3-1

Type of Science	Breakdown of PBGR by Discipline
Physical Science	6
Life Sciences	6
Earth Science	6
Engineering, Technology, and Application of Science (ETS)	2