



Grade 2

Science Curriculum Framework

Introduction

Science, Technology & Engineering, and Environmental Literacy & Sustainability (STEELS) Standards guide the study of the natural and human-made world through inquiry, problem-solving, critical thinking, and authentic exploration. This document displays a curriculum framework for **Grade 2 Science**. It is designed to focus curriculum and teaching, provide guidance for multiple approaches to curriculum development, encourage less reliance on textbooks as curriculum, and avoid activity-oriented teaching without focus/purpose.

Science Long Term Transfer Goals

In support of the Curriculum Framework, Long Term Transfer Goals (LTTG) provide the overarching practices that ground the foundation for a robust curriculum; thus, all curricula should relate to one or more of the LTTGs detailed below – as they highlight the effective uses of understanding, knowledge, and skill that we seek in the long run; i.e., what we want students to be able to do when they confront new challenges – both in and outside of school.

Students will be able to engage as scientifically literate members of a global society, using their learning to:

1. Approach science as a reliable and tentative way of knowing and explaining the natural world and designed world.
2. Weigh evidence and use scientific approaches to ask questions, investigate, and make informed decisions.
3. Make and use observations to analyze relationships and patterns in order to explain phenomena, develop models, and make predictions.
4. Evaluate systems, in order to connect how form determines function and how any change to one component affects the entire system.
5. Explain how the natural and designed worlds are interrelated and the application of scientific knowledge and technology can have beneficial, detrimental, or unintended consequences.

LIFE SCIENCE

Interdependent Relationships in Ecosystems						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Plants need light and water to grow.	How do we determine what plants need to grow?	3.1.2.A Plan and conduct an investigation to determine if plants need sunlight and water to grow.	Planning and Carrying Out Investigations Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.	Plants depend on water and light to grow.	Cause and Effect Events have causes that generate observable patterns.	grow
Some plants rely on animals for pollination and seed dispersing.	How do plants depend on animals?	3.1.2.B Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	Developing and Using Models Develop a simple model based on evidence to represent a proposed object or tool.	Plants depend on animals for pollination or to move their seeds around.	Structure and Function The shape and stability of structures of natural and designed objects are related to their function(s).	disperse pollinate seed
Biodiversity and Humans						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Different plants and animals live in a variety of habitats.	How are the living things in different habitats similar or different?	3.1.2.C Make observations of plants and animals to compare the diversity of life in different habitats.	Planning and Carrying Out Investigations Make observations (firsthand or from media) to collect data which can be used to make comparisons.	There are many different kinds of living things in any area, and they exist in different places on land and in water.	Patterns Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.	diversity habitat

PHYSICAL SCIENCE

Structure and Properties of Matter						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Materials can be described and classified by their properties.	How do we identify the properties of different materials?	3.2.2.A Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.	Planning and Carrying Out Investigations Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.	Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties.	Patterns Patterns in the natural and human designed world can be observed.	color flexibility hardness properties texture
Different materials have different properties that make them useful for different purposes.	How can we decide which material is best for a specific job?	3.2.2.B Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	Analyzing and Interpreting Data Analyze data from tests of an object or tool to determine if it works as intended.	Different properties are suited to different purposes.	Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes.	
Objects made of smaller pieces can be broken down and rebuilt into new objects	How can you change the shape of an object by keeping all of its smaller parts?	3.2.2.C Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.	Constructing Explanations and Designing Solutions Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.	A great variety of objects can be built up from a small set of pieces.	Energy and Matter Objects may break into smaller pieces and be put together into larger pieces or change shapes.	

Chemical Reactions						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Heating and cooling can change materials in different ways. Some changes can be reversed, and some cannot.	How does heating or cooling change materials, and how can we tell if the change can be reversed?	3.2.2.D Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	Engaging in Argument from Evidence Construct an argument with evidence to support a claim.	Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not	Cause and Effect Events have causes that generate observable patterns.	reversible

EARTH & SPACE SCIENCE

The History of Planet Earth						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Geological events that change the Earth can occur quickly or slowly.	How can we observe landforms changing quickly or slowly?	3.3.2.A Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	Constructing Explanations and Designing Solutions. Make observations from several sources to construct an evidence-based account for natural phenomena.	Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.	Stability and Change Things may change slowly or rapidly.	Earth erosion landform
Earth Materials and Systems						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
There are multiple ways to slow down the effects that wind and water can have on the shape of the land.	How can we design solutions to prevent wind and water from changing the shape of the land?	3.3.2.B Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.	Constructing Explanations and Designing Solutions Compare multiple solutions to a problem.	Wind and water can change the shape of the land.	Stability and Change Things may change slowly or rapidly.	

Plate Tectonics and Large-Scale System Interactions						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
We can use models (maps) to represent the shapes and kinds of land and water bodies in an area.	How do maps help us visualize the shape and kinds of landforms and water bodies in an area?	3.3.2.C Develop a model to represent the shapes and kinds of land and bodies of water in an area.	Developing and Using Models Develop a model to represent patterns in the natural world.	Maps show where things are located. One can map the shapes and kinds of land and water in any area.	Patterns Patterns in the natural world can be observed.	map
The Roles of Water in Earth’s Surface Processes						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Water can be found as a solid or a liquid in many places on Earth.	Where can we find water in our world?	3.3.2.D Obtain information to identify where water is found on Earth and that it can be solid or liquid.	Obtaining, Evaluating, and Communicating Information Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question.	Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.	Patterns Patterns in the natural world can be observed.	liquid solid