



Grade 1 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 1 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

Structure and Function						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Living things have different external parts which help survive, grow and meet their needs.	What can humans learn from plants and animals about how they use their external parts to solve real world problems?	3.1.1.A 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.	Constructing Explanations and Designing Solutions Use materials to design a device that solves a specific problem or a solution to a specific problem.	<p>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.</p> <p>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.</p>	<p>Structure and Function The shape and stability of structures of natural and designed objects are related to their function(s).</p> <p>Influence of Science, Engineering and Technology on Society and the Natural World Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.</p>	<p>external flower fruit leaf mimic root stem</p>

Growth and Development of Organisms						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Parents and offspring have specific and different behaviors which help them survive.	How are the behaviors of parents and offspring different and how do they help them survive?	3.1.1.B Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.	Obtaining, Evaluating, and Communicating Information Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. Connections to Nature of Science Scientists look for patterns and order when making observations about the world.	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.	Patterns Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.	behavior offspring parent survive
Inheritance of Traits						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Young plants and animals are similar to, but not exactly like their parents.	How are young plants and animals similar and different to their parents?	3.1.1.C Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.	Constructing Explanations and Designing Solutions Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.	Young animals are very much, but not exactly like, their parents. Plants also are very much, but not exactly, like their parents. Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.	Patterns Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence.	

PHYSICAL SCIENCE

Wave Properties						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Vibrating materials can make sound and sound can make materials vibrate.	What is happening when something is making a sound?	3.2.1.A Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.	Planning and Carrying Out Investigations Plan and conduct investigations collaboratively to produce evidence to answer a question.	Sound can make matter vibrate, and vibrating matter can make sound.	Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes.	sound vibration
Electromagnetic Radiation						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Light allows us to see objects.	Why can't we see things when there is no light?	3.2.1.B Make observations to construct an evidence-based account that objects can be seen only when illuminated.	Constructing Explanations and Designing Solutions Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.	Objects can be seen if light is available to illuminate them or if they give off their own light.	Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes.	illuminate
Different materials will allow different amounts of light to pass through or reflect off it.	What happens when we put different materials in front of a light source?	3.2.1.C Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.	Planning and Carrying Out Investigations Plan and conduct investigations collaboratively to produce evidence to answer a question.	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.	Cause and Effect Simple tests can be designed to gather evidence to support or refute student ideas about causes.	opaque reflective translucent transparent

Information Technologies and Instrumentation						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Light and sound help us communicate.	How can we use light and sound to communicate over distances?	3.2.1.D Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.	Constructing Explanations and Designing Solutions Use tools and materials provided to design a device that solves a specific problem.	People also use a variety of devices to communicate (send and receive information) over long distances.	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.	communicate distance

EARTH & SPACE SCIENCE

The Universe and Its Stars						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Sun, moon and stars appear in patterns in the sky.	How can patterns help us predict what we will see in the sky?	3.3.1.A Use observations of the sun, moon, and stars to describe patterns that can be predicted.	Analyzing and Interpreting Data Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.	Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.	Patterns Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. Scientific Knowledge Assumes an Order and Consistency in Natural Systems Science assumes natural events happen today as they happened in the past. Many events are repeated.	moon star sun
Earth and the Solar System						
Key Understanding	Driving Question	Standard	Science and Engineering Practices	Disciplinary Core Idea	Crosscutting Concepts	Vocabulary
Observations of patterns in the day sky and the night sky change during different seasons.	How does the amount of daylight change during the seasons?	3.3.1.B Make observations at different times of year to relate the amount of daylight to the time of year.	Planning and Carrying Out Investigations Make observations (firsthand or from media) to collect data that can be used to make comparisons.	Seasonal patterns of sunrise and sunset can be observed, described, and predicted.	Patterns Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.	season sunrise sunset