1st Grade Science
Overview
2024 - 2025

This document is designed to provide parents/guardians/community an overview of the curriculum taught in the FBISD classroom. This document supports families in understanding the learning goals for the course, and how students will demonstrate what they know and are able to do. The overview offers suggestions or possibilities to reinforce learning at home.

Included at the end of this document, you will find:

- A glossary of curriculum components
- The content area instructional model
- Parent resources for this content area

To advance to a particular grading period, click on a link below.

- Grading Period 1
- Grading Period 2
- Grading Period 3
- Grading Period 4

The standards below describe ways in which students are expected to engage with the content. The Scientific and Engineering Practices (SEPs) describe practices that students need to do in the classroom in order to learn the content. The Recurring Themes and Concepts (RTCs) describe how students need to think about the content in order to learn it.

Scientific and Engineering Practices (SEPs) TEKS:

1.1A Ask questions and define problems based on observations or information from text, phenomena, models, or investigations.
1.1B Use scientific practices to plan and conduct simple descriptive investigations and use engineering practices to design solutions to problems.
1.1C Identify, describe, and demonstrate safe practices during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.
1.1D Use tools, including hand lenses, goggles, heat-resistant gloves, trays, cups, bowls, beakers, sieves/sifters, tweezers, primary balance, notebooks, terrariums, aquariums, stream tables, soil samples (loam, sand, gravel, rocks, and clay), seeds, plants, windsock, pinwheel, student thermometer, demonstration thermometer, rain gauge, straws, ribbons, non-standard measuring items, flashlights, sandpaper, wax paper, items that are magnetic, non-magnetic items, a variety of magnets, hot plate, aluminum foil, Sun-Moon-Earth model, and plant and animal life cycle models to observe, measure, test, and compare.
1.1E Collect observations and measurements as evidence.
1.1F Record and organize data using pictures, numbers, words, symbols, and simple graphs.
1.1G Develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem.
1.2A Identify basic advantages and limitations of models such as their size, properties, and materials.
1.2B Analyze data by identifying significant features and patterns.
1.2C Use mathematical concepts to compare two objects with common attributes.
1.2D Evaluate a design or object using criteria to determine if it works as intended.
1.3A Develop explanations and propose solutions supported by data and models.
1.3B Communicate explanations and solutions individually and collaboratively in a variety of settings and formats.
1.3C Listen actively to others' explanations to identify important evidence and engage respectfully in scientific discussion.
1.4A Explain how science or an innovation can help others.
1.4B Identify scientists and engineers such as Katherine Johnson, Sally Ride, and Ernest Just and explore what different scientists and engineers do.

Recurring Themes and Concepts (RTCs) TEKS:

1.5A Identify and use patterns to describe phenomena or design solutions.

1.5B Investigate and predict cause-and-effect relationships in science.
1.5C Describe the properties of objects in terms of relative size (scale) and relative quantity.
1.5D Examine the parts of a whole to define or model a system.
1.5E Identify forms of energy and properties of matter.
1.5F Describe the relationship between the structure and function of objects, organisms, and systems.
1.5G Describe how factors or conditions can cause objects, organisms, and systems to either change or stay the same.

Grading Period 1

Unit 1: Matter and its Properties

Estimated Date Range: 8/8/24 – 9/20/24
Estimated Time Frame: 31 Days

Unit Overview:
In this unit, students will begin their science learning by engaging in discussions about safety in science and the scientific and engineering practices that scientists and engineers use when conducting investigations or designing solutions to problems. The unit focuses on the study of observable and measurable physical properties of objects, and they are used to classify objects based on those physical properties. Students will investigate properties of objects by expanding their understanding of the observable physical properties learned in kindergarten (shape, color, texture, and material) to include measurable attributes such as larger and smaller to describe the size of objects, and heavier and lighter to describe the weight of objects. Furthermore, students will explain and predict changes in materials caused by heating and cooling, demonstrate and explain that an object is a system that is made of organized parts. These concepts lead to the understanding that physical properties of objects can be changed through various processes in addition to heating and cooling and can form new objects, which will be studied in 2nd grade.

At home connections:

- Review with your child how scientists use scientific practices to learn about the world: Ask questions, use models, plan and carry out investigations, collect data using scientific tools, record and organize data, construct explanations, communicate observations and justify explanations.
- Have your child discuss how scientists explain their discoveries.
- Have your child describe the physical properties of different objects around the house.
- Have your child discuss how heating or cooling can change an object.

Concepts within Unit #1 **Link to TEKS**	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #1: Launching Scientific Mindsets 1.1B, 1.1C, 1.4B	• Identify safe practices that must be followed when conducting classroom and field investigations. • Describe the Scientific and Engineering Practices that they will use to conduct investigations and design solutions to problems. • Identify Sally Ride as a scientist and describe how scientists' work and engineers' work are different from each other. • Describe common mindsets that they will use to conduct investigations and design solutions to problems. • Set up their interactive notebook.	Competency 1: Matter and its Properties
Concept #2: Physical Properties 1.6A	• Maks or use observations to classify matter based on observable physical properties: Color, shape, texture, and material matter is made of. • Measure or use measurements to classify objects based on measurable physical properties: Size (Length) by using rulers/meter sticks and weight by using a pan balance.	

Concept #3: Heating and Cooling 1.6B	• Use evidence to explain the changes in the physical properties of objects caused by heating and cooling. • Uses evidence to predict changes in the materials of objects caused by heating and cooling.	Competency 1: Matter and its Properties
Concept #4: Systems and their Parts 1.6C	• Develop model to explain that a whole object is a system made of organized parts. • Use models to take apart a whole object and put it back together.	

Unit 2: Force and Motion

Estimated Date Range: 9/23/24 – 10/9/24
Estimated Time Frame: 11 Days

Unit Overview:
In this unit, first grade students will learn what causes changes in motion by exploring pushes and pulls that occur in the natural world. Students will be able to make connections to pushes and pulls that they experience in their daily lives. Students will be able to articulate their understanding of how a push or pull can start, stop, or change the speed or direction of an object's motion. As students build their conceptual understanding of pushes and pulls, students will be able to plan and conduct a descriptive investigation that explores pushes and pulls. Students should be able to collect and record their observations during the investigation. This would include collecting data from their investigation. As a result of engaging in this investigation, students should be able to explain the effect pushes and pulls have on an object. In addition, students must be able to explain the change in motion of the object(s). This unit continuous in grading period 2.

At home connections:

- Have your child apply a force to an object. Help your child explain what happens to the motion and position of an object when a force is applied.

Concepts within Unit #2 Link to TEKS	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #1: Pushes and Pulls 1.7A	• Explain how pushes and pulls can start, stop, or change the speed or direction of an object's motion.	Competency 2: Force and Motion
Concept #2: Effects of Pushes and Pulls 1.7B	• Plan and conduct a descriptive investigation that predicts how pushes and pulls can start, stop, or change the speed or direction of an object's motion.	

Grading Period 2

Unit 2: Force and Motion (Continued)

Estimated Date Range: 10/16/24 – 10/25/24
Estimated Time Frame: 8 Days

Unit Overview:
In this portion of Unit 2, students will continue their exploration about forces by conducting investigations that will help them predict how pushes and pulls can start, stop, or change the speed or direction of an object's motion.

At home connections:

- Have your child apply a force to an object. Help your child explain what happens to the motion and position of an object when a force is applied.

Concepts within Unit #2 Link to TEKS	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #2: Effects of Pushes and Pulls (Continued) 1.7B	• Plan and conduct a descriptive investigation that predicts how pushes and pulls can start, stop, or change the speed or direction of an object's motion.	Competency 2: Force and Motion

Unit 3: Energy

Estimated Date Range: 10/28/24 – 11/15/24
Estimated Time Frame: 13 Days

Unit Overview:
In this unit, students will learn how heat energy is a part of our everyday lives. During this unit, students should investigate heat energy and how it is used during our everyday lives. Whether you are using a hair dryer to dry your hair or maybe you are making popcorn in the microwave. We use heat energy throughout our day and depend upon heat energy to do many of our daily activities. In addition, to developing a basic understanding of the importance heat energy plays in daily lives. Students will recognize that heat causes changes. For example, when you are making cheese dip and you heat the cheese, it becomes a liquid that change can be reserved by simply removing the heat energy. Students must also understand that some changes that are caused by heat cannot be reserved. For example, when I bake cookies. I cannot reserve the change once the heat energy has been applied to the cookie dough.

At home connections:

- Have your child explain how they use thermal, light, and sound energy in their everyday life.

Concepts within Unit #3 Link to TEKS	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #1: Heat 1.8A	• Describe applications of heat in everyday life.	Competency 3: Energy
Concept #2: Reversable and Irreversible Changes by Heat 1.8B	• Describe how some changes caused by heat may be reversed and other changes cannot be reversed.	

Unit 4: Patterns in the Natural World

Estimated Date Range: 11/18/24 – 12/06/24
Estimated Time Frame: 10 Days

Unit Overview:
In this unit, students will learn about the seasons. Students will investigate the patterns of seasons. As students engage in learning, students should be able to describe the different seasons and the changes in nature that occur. As students build their conceptual understanding of this concept, students should be able to predict the patterns of seasons.

At home connections:

- Read books about seasons. Create a list of characteristics of the season, including comparing relative temperatures and type of precipitation (for example, winter is colder than summer).
- Play a game with your child where you mention a season and your child needs to tell you the season that comes before and after the one you mentioned.

Concepts within Unit #4 Link to TEKS	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #1: Seasons 1.9	• Describe and predict the patterns of seasons of the year according to the order of occurrence. • Describe the changes in nature observed during each season.	Competency 4: Patterns in the Natural World

Unit 5: Earth Materials and Systems

Estimated Date Range: 12/9/24 – 12/20/24
Estimated Time Frame: 10 Days

Unit Overview:

In this unit, students will study that the natural world includes earth materials that can be observed in systems and processes. The student is expected to investigate different samples of soils and describe them by their physical properties that include their particle size, shape, texture, and color. This unit continues in grading period 3.

At home connections:

- Help your child collect samples of soil outside. Have your child describe the sample of soil by its particle size, shape, texture, and color.

Concepts within Unit #5 Link to TEKS	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #1: Soil 1.10A	• Record the properties of particle size, shape, texture, and color and the components of different types of soils such as topsoil, clay, and sand.	Competency 5: Earth Materials and Systems

Grading Period 3

Unit 5: Earth Materials and Systems (Continued)

Estimated Date Range: 1/9/25 – 1/31/25
Estimated Time Frame: 16 Days

Unit Overview:
In this portion of Unit 5, students will continue to study that the natural world includes earth materials that can be observed in systems and processes. More specifically in this portion of the unit, students will study the characteristics of different bodies or water and discuss physical characteristics of the water found in each of those bodies of water, including color, clarity, size, shape, and whether it is freshwater or saltwater. Lastly, students will investigate how water is able to move rocks and soil from one place to another, which will served as an introduction to the concept of erosion that will be developed in upper elementary grades.

At home connections:
- Visit different websites of rivers, lakes, and oceans. Discuss their characteristics, including color, clarity, size, shape, and whether it is freshwater or saltwater.
- Help your child observe what happens when you pour water into a pile of soil or rocks. Help your child see that the rocks and soil move from one place to another due to the force of the water.

Concepts within Unit #5 Link to TEKS	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #2: Water 1.10C	• Compare the properties of puddles, ponds, streams, rivers, lakes, and oceans, including color, clarity, size, shape, and whether it is freshwater or saltwater.	Competency 5: Earth Materials and Systems
Concept #3: Movement of Earth Materials 1.10B	• Describe how water can move rock and soil particles from one place to another.	

Unit 6: Uses of Earth Materials

Estimated Date Range: 2/18/25 – 3/07/25
Estimated Time Frame: 13 Days

Unit Overview:
In this unit, students will study that earth materials and products made from these materials are important to everyday life. The student is expected to distinguish between manmade and natural resources. In addition, students will study conservation and human impact on the planet can be limited by using the 3Rs (reuse, reduce, and recycle).

At home connections:
- Read with your child about ways to reduce human impact on the environment by engaging in reducing, reducing, and recycling materials.

Concepts within Unit #6 Link to TEKS	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #1: Uses of Rocks, Soil, and Water 2.11A	• Identify and describe how plants, animals, and humans use rocks, soil, and water.	Competency 6: Uses of Earth Materials
Concept #2: Water Conservation 1.11B	• Explain why water conservation is important.	

Grading Period 4

Unit 7: Interactions within Environments

Estimated Date Range: 3/17/25 – 4/14/25
Estimated Time Frame: 20 Days

Unit Overview:
In this unit, students will study that the environment is composed of relationships between living organisms and nonliving components. First, students will classify living organisms and nonliving things based on whether they have basic needs and produce offspring. In addition, first graders will explore the concept of interdependency by analyzing different examples that describe how animals and plants depend on each other and the environment in order to survive. Students will further explore the concept of interdependency, including interactions based on food described by a food chain.

At home connections:

- Have your child identify objects that are living or non-living.
- Have your child go outside and find a living thing and discuss what it may depend on to help it survive (e.g., a caterpillar may depend on grass to survive, while a bird may depend on the caterpillar to survive, or your family pet may depend on you to get food and water to survive).

Concepts within Unit #7 Link to TEKS	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #1: Living and Nonliving 1.12A	• Classify living and nonliving things based upon whether they have basic needs and produce young.	Competency 7: Interactions within Environments
Concept #2: Interactions and Dependence within Environments 1.12B	• Describe and record examples of interactions and dependence between living and nonliving components in terrariums or aquariums.	
Concept #3: Food Chains 1.12C	• Identify and illustrate how living organisms depend on each other through food chains.	

Unit 8: Structures and Growth of Organisms

Estimated Date Range: 4/15/25 – 5/16/25
Estimated Time Frame: 22 Days

Unit Overview:
In this unit, students will study that organisms resemble their parents and have structures and undergo processes that help them interact and survive within their environments. First, students will investigate external characteristics of animals, which will serve as evidence to determine where the animal live, how it moves, and what they eat. In addition, students will study basic life cycle animals and will be expected to describe the life cycles of birds, mammals, and fish. When studying how animals resemble their parents, students are expected to compare how the young animal or offspring are related based on their external characteristics or structures.

At home connections:

- Have your child tell you about their favorite animal and how its external characteristics determine where it lives, how it moves, or what it eats (e.g., a shark has fins that help it swim and live in the ocean and sharp teeth to eat other animals).
- Have your child give you an example of how an offspring resembles its parent.
- Have your child tell you about what a life cycle tells us about an organism.

Concepts within Unit #8 Link to TEKS	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #1: Structures of Animals 1.13A	• Identify the external structures of different animals. • Compare how external structures help different animals live, move, and meet basic needs for survival.	Competency 8: Structures and Growth of Organisms

Concept #2: Animal Life Cycles 1.13C	• Describe basic life cycles of animals, including a bird, a mammal, and a fish.	Competency 8: Structures and Growth of Organisms
Concept #3: Animals and their Parents 1.13B	• Compare ways that young animals resemble their parents.	

Unit 9: Making Connections

Estimated Date Range: 5/19/25 – 5/29/25
Estimated Time Frame: 8 Days

Unit Overview:
In this unit, students will explore the STEM process, specifically focusing on using the engineering process to solve real-world problems. Students will have opportunities to follow the engineering design cycle to analyze a problem, brainstorm solutions, design a product, test, and re-design a product to find the best solution.

At home connections:
- Have your child identify an area of their room that want to organize and formulate a solution and identify materials readily available to solve it.

Concepts within Unit #9 Link to TEKS	**Success Criteria for this Concept** *Students can…*
Concept #1: Student Projects 1.1A, 1.1B, 1.1C, 1.1D, 1.1E, 1.1F, 1.1G, 1.2A, 1.2B, 1.2C, 1.2D, 1.3A, 1.3B, 1.3C, 1.4A, 1.4B	• Use critical thinking and scientific problem solving to make informed decisions. • Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing.

Glossary of Curriculum Components

Overview– The content in this document provides an overview of the pacing and concepts covered in a subject for the year.
TEKS – Texas Essential Knowledge and Skills (TEKS) are the state standards for what students should know and be able to do.
Unit Overview – The unit overview provides a brief description of the concepts covered in each unit.
Concept – A subtopic of the main topic of the unit.
Success Criteria—a description of what it looks like to be successful in this concept.
Competency—Standards-Based Grading communicates students' understanding of the Texas Essentials Knowledge and Skills (TEKS). Using the TEKS, teachers developed grade-level competencies to communicate student progress in the Standards-Based gradebook. The competencies are the same for each grade-level content area (i.e., 1st grade math) across the district. Teachers report students' progress on the competencies using learning progressions.

Parent Resources

The following resources provide parents with ideas to support students' understanding. For sites that are password protected, your child will receive log-in information through their campus.

Resource	How it supports parents and students
EduSmart	This resource provides hand-on and vocabulary activities that are great to review the concepts learned in the classroom. Students sign in through their school account in Clever.
Pebble Go	This resource provides access to books for reading and learning more about concepts in the science content.
Britannica School	This is an information resource for elementary students. It has encyclopedia articles, multimedia, primary sources, games, and other learning resources that support student learning.
Ebsco Host	This online reference system serves all content areas.
World Book	World Book contains thousands of informational articles with stunning illustrations, videos, interactive maps, and activities.
National Geographic Kids	This resource is a fact-filled, fast-paced magazine created especially for ages 6 and up. It has an award-winning combination of photos, facts, and fun.

Instructional Model

An instructional model is the structure in which students engage in a particular content that ensures understanding of that content. In science, the instructional model is the 5E Instructional Model.

The 5E Model is an inquiry-based approach to teaching and learning science concepts over time. It is research-based and emphasizes that children build conceptual understanding and make meaning through experiences. Each "E" represents a stage in a learning cycle.

- Engage: Students interact with a phenomenon that sparks curiosity and assesses prerequisite knowledge or misconceptions.
- Explore: Students begin to interact with the content through hands-on investigations.
- Explain: Students connect the hands-on experience to the instruction of the concept using grade level appropriate academic vocabulary.
- Elaborate: Students apply the concept learned to a new context through problem solving or an additional hands-on experience.
- Evaluate: Evaluation of student understanding and progress occurs throughout the learning cycle.

As students learn each concept in the curriculum, they will have the opportunity to develop conceptual understanding as the teacher navigate the content as telling a story. The graphic below summarizes each component that occurs within each of the 5E stages.