Kindergarten 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:

K.1A Ask questions and define problems based on observations or information from text, phenomena, models, or investigations.
K.1B Use scientific practices to plan and conduct simple descriptive investigations and use engineering practices to design solutions to problems.
K.1C Identify, describe, and demonstrate safe practices during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.
K.1D Use tools, including hand lenses, goggles, trays, cups, bowls, sieves or sifters, notebooks, terrariums, aquariums, samples (rocks, sand, soil, loam, gravel, clay, seeds, and plants), windsock, demonstration thermometer, rain gauge, straws, ribbons, non-standard measuring items, blocks or cubes, tuning fork, various flashlights, small paper cups, items that roll, noise makers, hot plate, opaque objects, transparent objects, foil pie pans, foil muffin cups, wax paper, Sun-Moon-Earth model, and plant life cycle model to observe, measure, test, and compare.
K.1E Collect observations and measurements as evidence.
K.1F Record and organize data using pictures, numbers, words, symbols, and simple graphs.
K.1G Develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem.
K.2A Identify basic advantages and limitations of models such as their size, properties, and materials.
K.2B Analyze data by identifying significant features and patterns.
K.2C Use mathematical concepts to compare two objects with common attributes.
K.2D Evaluate a design or object using criteria to determine if it works as intended.
K.3A Develop explanations and propose solutions supported by data and models.
K.3B Communicate explanations and solutions individually and collaboratively in a variety of settings and formats.
K.3C Listen actively to others' explanations to identify important evidence and engage respectfully in scientific discussion.
K.4A Explain how science or an innovation can help others.
K.4B Identify scientists and engineers such as Isaac Newton, Mae Jemison, and Ynes Mexia and explore what different scientists and engineers do.

Recurring Themes and Concepts (RTCs) TEKS:

K.5A Identify and use patterns to describe phenomena or design solutions.

K.5B Investigate and predict cause-and-effect relationships in science.
K.5C Describe the properties of objects in terms of relative size (scale) and relative quantity.
K.5D Examine the parts of a whole to define or model a system.
K.5E Identify forms of energy and properties of matter.
K.5F Describe the relationship between the structure and function of objects, organisms, and systems.
K.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 cultivating scientific literacy by engaging in investigations that explore the properties of objects in the natural world. Students will use their five senses to identify and record the observable properties of objects, including shape, color, texture, and material. Next, students should be able to classify objects based upon their observable properties by using the observations that they have recorded. As students engage in exploring the observable properties of objects, students should be able to use the senses. Students moving to first grade will continue to build upon their conceptual understanding of physical properties by classifying objects by their shape, color, and texture, and attributes such as larger and smaller and heavier and lighter.

At home connections:

- Have your child 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.
- Discuss with your child some of the ways objects can be described.

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 K.1B, K.1C, K.4B	• Identify safe practices that must be followed when conducting classroom and field investigations. • Describe the use of safety equipment to keep everyone safe. • Describe the Scientific and Engineering Practices that they will use to conduct investigations and design solutions to problems. • 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 K.6	• Use tools to make observations about the physical properties of objects based on observable Physical Properties using their 5 senses: Color, Shape, Texture, Material object is made of. • Recognize patterns that occur between objects.	
Concept #3: Classifying Objects K	• Ask questions to conduct a simple descriptive investigation to show patterns between the observable physical properties of objects. • Use scientific practices to conduct a simple descriptive investigation to show patterns of the observable physical properties of objects. • Demonstrate safe practices during classroom observation to classify objects by the patterns and their observable physical properties. • Use tools to conduct a simple descriptive investigation to show	

	patterns between the observable physical properties of objects. • Collect observations during a descriptive investigation to show patterns between the objects and their observable physical properties.	Competency 1: Matter and its Properties

Unit 2: Force and Motion

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

Unit Overview:
In this unit, students will be investigating how changes in motion and position occur with magnets. Students will also examine how magnets interact with various objects and materials which could result in no change in motion and position or cause a push or pull. This unit continues in grading period 2.

At home connections:
- Provide your child with different objects and a magnet. Have your child tell you objects that are magnetic and that are not magnetic.

Concepts within Unit #2 Link to TEKS	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #1: Magnets and Materials K.7	• Describe and predict how a magnet interacts with various materials and how magnets can be used to ~~push or~~ pull.	Competency 2: Force and 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 with magnets. Students will examine how magnets interact with other magnets. Kindergarteners should understand that magnets will either push apart or pull together when they interact with another magnet. As students move throughout this learning, they should be able to describe and predict how a magnet will interact with various materials and objects.

At home connections:

- Provide your child with two magnets. Have your child tell you how magnets interact with each other.

Concepts within Unit #2 Link to TEKS	Success Criteria for this Concept *Students can…*	Competencies that will be graded in this unit
Concept #2: Magnets and Other Magnets K.7	• Describe and predict how a magnet interacts with various materials and how magnets can be used to push or pull.	Competency 2: Force and Motion

Unit 3: Energy

Estimated Date Range: 10/28/24 – 11/22/24
Estimated Time Frame: 18 Days

Unit Overview:
In this unit, students will begin learning about energy by exploring light energy. As students explore light, they will make connections between how an object's appearance can change based on the amount of light that is present. Students will also understand that light can travel through some objects and can be blocked by other objects. Students will recognize that when an object blocks light from passing through, a shadow is created.

At home connections:

- Provide your child with a source of light (for example, a flashlight). Have your child point the light beam to different objects and help them describe how the object looks.
- Provide your child with a source of light (for example, a flashlight). Have your child point the light beam to different objects and describe if the light is able to travel through the object or creates a shadow.

Concepts within Unit #3 Link to TEKS	Success Criteria for this Concept *Students can…*	Competencies that will be graded in this unit
Concept #1: Light K.8A	• Describe that objects can only be seen when a light source is present. • Compare the effects of different amounts of light on the appearance of objects.	Competency 3: Energy
Concept #2: Light and Materials K.8B	• Explain that light travels through some objects and is blocked by other objects, creating shadows.	

Unit 4: Patterns in the Natural World

Estimated Date Range: 12/2/24 – 12/20/24
Estimated Time Frame: 15 Days

Unit Overview:
In this unit, students will begin learning about day and night patterns along with their observable characteristics. As students explore day and night, students should make observations and be able to identify and describe the day and night patterns that they observe. Students will also investigate objects in the sky; students will make observations about the Sun, Moon, stars, and other objects in the sky. As students engage in observations, they should be able to describe and illustrate the Sun, Moon, stars and objects in the sky such as clouds.

At home connections:

- Have your child draw a picture of the day sky and the night sky.

Concepts within Unit #4 **Link to TEKS**	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #1: Objects in the Sky K.9B	• Describe and illustrate the Sun, Moon, stars, and objects in the sky such as clouds.	Competency 4: Patterns in the Natural World
Concept #2: Day and Night K.9A	• Identify, describe, and predict the patterns of day and night and their observable characteristics.	

Grading Period 3

Unit 5: Earth Materials and Systems

Estimated Date Range: 1/09/25 – 2/04/25
Estimated Time Frame: 18 Days

Unit Overview:
In this unit, students will begin exploring and learning about the natural world and systems that are observed. Students will begin by using their understanding of the observable properties and the five senses to describe rocks. As students build their conceptual understanding, students should be able to classify rocks by their size, shape, color, and texture. Students will continue to use their senses to make observations about weather changes that occur from day to day. Students will also examine the changes that occur over seasons. Students should be able to describe these changes based upon the observations that they made. In addition, students should be able to identify evidence that air is moving all around us. For example, maybe students observe the flag in front of the school blowing in the wind or maybe they observe the leaves on the tree moving. Students should be able to recognize various evidence to support the concept that air is all around us.

At home connections:

- Find 5-10 rocks outside your house and sort them by different physical properties such as by size, color, shape, and texture.
- Have your child tell you about the weather outside, including cloud coverage, precipitation, and temperature.
- Have your child tell you about the weather in different seasons.

Concepts within Unit #5 Link to TEKS	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #1: Rocks K.10A	• Describe rocks by the observable properties of size, shape, color, and texture. • Classify rocks by the observable properties of size, shape, color, and texture.	Competency 5: Earth Materials and Systems
Concept #2: Weather K.10B, K.10C	• Observe and describe weather changes from day to day and over seasons. • Use tools to demonstrate that wind is moving air. • Identify evidence that supports the idea that air is all around us.	

Unit 6: Uses of Earth Materials

Estimated Date Range: 2/5/25 – 2/25/25
Estimated Time Frame: 13 Days

Unit Overview:
In this unit, students will investigate the Earth's natural resources, including rocks, soil, and water. As students engage in the exploration of rocks, soil, and water, they should be asking questions and making observations. Students should be able to discuss practical uses of rocks, soil, and water. In addition, students should be able to generate possible uses of rocks, soil, and water. Students should be able to articulate their understanding through scientific discussion and through pictures and drawings.

At home connections:

- Have your child tell you ways rocks, soil, and water are useful.

Concepts within Unit #6 Link to TEKS	**Success Criteria for this Concept** *Students can…*	**Competencies that will be graded in this unit**
Concept #1: Earth Materials in Everyday Life K.11	• Generate examples of practical uses for rocks, soil, and water.	Competency 6: Uses of Earth Materials

Unit 7: Interactions within Environment

Estimated Date Range: 2/26/25 – 3/07/25
Estimated Time Frame: 7 Days

Unit Overview:
In this unit, students will study that plants and animals depend on the environment to meet their basic needs for survival. First, students are expected to identify the dependence of animals on the environment that help them survive. This unit continues in grading period 4.

At home connections:

- Have your child tell you about the basic needs of animals.
- Read a book about an animal. Talk to your child about how the animal depends on air, water, food, space, and shelter in order 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: Basic Needs of Animals K.12B	• Identify the dependence of animals on air, water, food, space, and shelter.	Competency 7: Interactions within Environments

Grading Period 4

Unit 7: Interactions within Environments (Continued)

Estimated Date Range: 3/17/25 – 3/28/25
Estimated Time Frame: 10 Days

Unit Overview:
In this portion of Unit 7, students will continue their study of the concept of dependence by identifying the dependence of plants on the environment that help meet their basic needs for survival.

At home connections:

- Have your child tell you about the basic needs of plants.
- Read a book about a plant. Talk to your child about how the plant depends on air, sunlight, water, nutrients in the soil, and space to grow in order 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 #2: Basic Needs of Plants K.12A	• Identify the dependence of plants on air, sunlight, water, nutrients in the soil, and space to grow.	Competency 7: Interactions within Environments

Unit 8: Structures and Growth of Organisms

Estimated Date Range: 4/1/25 – 5/16/25
Estimated Time Frame: 32 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. Students will begin to the unit by studying basic structures of animals that help the see, hear, move, and grasp. Next, students will study basic structures of plants and identify the main stages of a simple plant life cycle. Lastly, students will observe different plants to be able to identify ways that young plants resemble their parents.

At home connections:

- Look at pictures of an animal online. Have your child tell you about its color, size, body coverings, and different body parts.
- Find a plant outside and have your child tell you about its color, size, leaf shape, and different plant parts. Discuss how young plants resemble the parent plant.
- Have your child draw the main stages in a plant life cycle.

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 K.13B	• Identify the different structures that animals have that allow them to interact with their environment such as seeing, hearing, moving, and grasping objects.	Competency 8: Structures and Growth of Organisms
Concept #2: Structure of Plants K.13A	• Identify the structures of plants, including roots, stems, leaves, flowers, and fruits.	
Concept #3: Plant Life Cycles K.13C	• Identify and record the changes from seed, seedling, plant, flower, and fruit in a simple plant life cycle.	
Concept #4: Plants and their Parents K.13D	• Identify ways that young plants resemble the parent plant.	

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 K.1A, K.1B, K.1C, K.1D, K.1E, K.1F, K.1G, K.2A, K.2B, K.2C, K.2D, K.3A, K.3B, K.3C, K.4A, K.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.