

1st Grade Science Overview 2022 - 2023

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](#)

Process Standards

The process standards describe ways in which students are expected to engage in the content. The process standards weave the other knowledge and skills together so that students may be successful problem solvers and use knowledge learned efficiently and effectively in daily life.

- 1.1(A) identify, discuss, and demonstrate safe and healthy practices as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately
- 1.1(B) identify and learn how to use natural resources and materials, including conservation and reuse or recycling of paper, plastic, and metals
- 1.2(A) ask questions about organisms, objects, and events observed in the natural world
- 1.2(B) plan and conduct simple descriptive investigations
- 1.4(A) collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; non-standard measuring items; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums
- 1.4(B) measure and compare organisms and objects using non-standard units
- 1.2(C) collect data and make observations using simple tools
- 1.2(D) record and organize data using pictures, numbers, and words
- 1.2(E) communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations
- 1.3(A) identify and explain a problem and propose a solution
- 1.3(B) make predictions based on observable patterns
- 1.3(C) describe what scientists do

Grading Period 1

Unit 1: Matter

Estimated Date Range: 8/10/22 – 10/7/22

Estimated Time Frame: 41 Days

Unit Overview:

In this unit, students will begin their learning by engaging in discussions about safety in science and the scientific practices that scientists follow when conducting investigations. They will continue by learning how to construct scientific explanations that contains a claim that answers a question, and evidence that supports the claim. Safety, scientific practices, and scientific explanations are process skills that are introduced in this unit and will be practiced throughout the entire year. The units focuses on the study of physical properties of objects. Students will classify objects by their physical properties and by the materials from which they are made from. By using their senses and scientific tools when making observations, students will be able to sort objects by the properties that make them unique. In Kindergarten, students had observed and recorded properties of objects, including bigger or smaller, heavier or lighter, shape, color, and texture. First graders are expected to classify objects by the physical properties of color, shape, hardness, texture, size (length and height), heavier or lighter, and the material objects are made from. Additionally, in this unit, students will predict and identify changes in materials caused by heating and cooling. In kindergarten, students observed, recorded, and discussed how materials could be changed by using heating and cooling. First graders are expected to predict these changes (melting and freezing) in materials based on their properties.

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.
- 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	Competencies that will be graded in this unit	Success Criteria for this concept
Concept #1: Safety 1.1A Concept #2: Scientific Practices & Concept #3: Scientific Explanations 1.2A, 1.2B, 1.2C, 1.2D, 1.2E, 1.3C, 1.4A, 1.4B Concept #3: Physical Properties of Objects 1.5A Concept #4: Heating and Cooling 1.5B	Competency 1: Matter Competency 7: Scientific Practices	<ul style="list-style-type: none"> • Predict changes in physical properties of objects caused by heating and cooling • Identify changes in physical properties of objects caused by heating and cooling • Collect data and makes observations using tools • Record and organizes data and observations • Answer a question by making a claim • Use data presented in a chart as evidence to support a claim

Grading Period 2

Unit 2: Force, Motion, and Energy

Estimated Date Range: 10/11/22 – 11/18/22

Estimated Time Frame: 28 Days

Unit Overview:

In this unit, students will learn about force, motion and energy. They will use their senses to explore these concepts and make observations. The forms of energy that students are expected to explore are light, thermal and sound. They will also interact with magnets to observe how they behave with different materials. Finally, students will observe the location of objects in relation to others and how they move. Students will practice recording their observations like real scientists.

At home connections:

- Have your child explain how they use thermal, light, and sound energy in their everyday life.
- Have your child find an object around the house that is magnetic and describe how a magnet can be used to push or pull the object.
- Have your child find an object and show you the different ways the object can move:
 - straight line
 - zig zag
 - up and down
 - back and forth
 - round and round
 - fast and slow

Concepts within Unit #2 Link to TEKS	Competencies that will be graded in this unit	Success Criteria for this concept
Concept #1: Forms of Energy 1.6A Concept #2: Magnets 1.6B Concept #3: Patterns of Movement 1.6C	Competency 2: Force, Motion, and Energy Competency 7: Scientific Practices	<ul style="list-style-type: none"> • Explain how thermal, light, and sound energy are important to everyday life • Predict and describe how magnets can be used to push or pull an object • Demonstrate and record the ways that objects move

Unit 3: Earth's Surface

Estimated Date Range: 11/28/22 – 12/16/22

Estimated Time Frame: 15 Days

Unit Overview:

In this unit, students will explore the different components that make up soil. They will learn different types of soil differ in their observable properties and soil can be sorted based on particle size, texture, and color. Students will learn water comes from different sources, including streams, lakes, and oceans. In addition, students will differentiate among natural sources of water by describing their physical attributes. This unit will continue in the third grading period.

At home connections:

- Look at the soil around your house and have your child describe it by particle size, texture, and color.
- Have your child tell you the different places where natural sources of water can be found.

Concepts within Unit #3 Link to TEKS	Competencies that will be graded in this unit	Success Criteria for this concept
Concept #1: Soil 1.7A Concept #2: Natural Sources of Water 1.7B	Competency 3: Earth’s Surface Competency 7: Scientific Practices	<ul style="list-style-type: none"> • Compare and sort different types of soil by size, texture, and color of their components • Describe a variety of natural sources of water, including streams, lakes, and oceans

Grading Period 3

Unit 3: Earth's Surface (Continued)

Estimated Date Range: 1/5/23 – 1/13/23

Estimated Time Frame: 7 Days

Unit Overview:

In this continuation of unit 3 from the second grading period, first graders will explore different useful products made from natural resources such as rocks, soil, and water.

At home connections:

- Have your child find objects around the house that are made from rocks, soil, or water.

Concepts within Unit #3 Link to TEKS	Competencies that will be graded in this unit	Success Criteria for this concept
Concept #3: Useful Products 1.7C	Competency 3: Earth's Surface Competency 7: Scientific Practices	<ul style="list-style-type: none"> • Identify how rocks, soil, and water are used to make products

Unit 4: Patterns in the Natural World

Estimated Date Range: 1/17/23 – 2/24/23

Estimated Time Frame: 27 Days

Unit Overview:

In this unit, students will be able to collect daily weather data using tools such as thermometers to determine if the weather is hot or cold as well as a weather trend overtime. Students will recognize that precipitation can refer to the following forms: rain, sleet, snow, freezing rain, or hail. Students will use rain gauges in order to measure precipitation in the form of rain and will graph the data collected. Students will also be able to distinguish between weather components and describe how each is created. Students will be able to describe weather as clear, cloudy, rainy, icy, hot, cold, or calm. Students will recognize that wind is moving air, and the different types of clouds. Students will also explore the activities performed by meteorologists. Students will observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.

At home connections:

- Have your child tell you about the weather outside.
 - Cloud coverage
 - Precipitation
 - Temperature
 - Wind
- Have your child tell you about different characteristics of the day sky.
- Have your child tell you about different characteristics of the night sky.
- Have your child tell you about different characteristics about the four seasons.
- Have your child observe the day and night sky for about a week and describe how the Sun, Moon or stars appear to change.

Concepts within Unit #4 Link to TEKS	Competencies that will be graded in this unit	Success Criteria for this concept
Concept #1: Weather 1.8A	Competency 4: Patterns in the Natural World	<ul style="list-style-type: none"> • Record weather components, including cloud cover, precipitation, temperature, and wind • Describe characteristics of day and night • Describe characteristics of each season • Make observations about the changes in the appearance if the Sun, Moon, and stars • Record changes in the appearance of the Sun, Moon, and stars
Concept #2: Day/Night and Seasons 1.8C	Competency 7: Scientific Practices	
Concept #3: Objects in the Sky 1.8B		

Unit 5: Ecosystems

Estimated Date Range: 2/27/23 – 3/10/23

Estimated Time Frame: 10 Days

Unit Overview:

In this unit, students will sort and classify living organisms and non-living things based on whether they have basic needs and produce offspring. Students will sort and classify living and non-living things and provide an explanation for their classification that should include the facts that living things 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 the transfer of energy described by a food chain. This unit will continue in the fourth grading period.

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 #5 Link to TEKS	Competencies that will be graded in this unit	Success Criteria for this concept
Concept #1: Living and Non-Living 1.9A Concept #2: Interdependence 1.9B, 1.9C	Competency 5: Ecosystems Competency 7: Scientific Practices	<ul style="list-style-type: none"> • Sort and classify living and nonliving things by whether they have basic needs and produce offspring • Gather evidence on how animals and plants depend on each other for food, shelter, and reproduction to meet their basic needs • Determine and record examples of interdependence based on food, shelter, and reproduction among living organisms

Grading Period 4

Unit 5: Ecosystems (Continued)

Estimated Date Range: 3/20/23 – 3/28/23

Estimated Time Frame: 7 Days

Unit Overview:

As unit 5 continues, students will resume exploring 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 the transfer of energy described by a food chain.

At home connections:

- 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 #5 Link to TEKS	Competencies that will be graded in this unit	Success Criteria for this concept
Concept #2: Interdependence (Continued) 1.9B, 1.9C	Competency 5: Ecosystems Competency 7: Scientific Practices	<ul style="list-style-type: none"> • Gather evidence on how animals and plants depend on each other for food, shelter, and reproduction to meet their basic needs • Determine and record examples of interdependence based on food, shelter, and reproduction among living organisms

Unit 6: Organisms

Estimated Date Range: 3/29/23 – 5/16/23

Estimated Time Frame: 34 Days

Unit Overview:

In this unit, students will have the opportunity to explore living organisms, their physical characteristics, and their life cycles. When studying external characteristics of animals, students in first grade are expected to learn about some key body parts that will serve as evidence to determine where the animal live, how it moves, and what they eat. Students will use physical characteristics as evidence to support their claims about where animals live, how they move, and what they eat. When studying the parts of the plants, students are expected to know the parts of the plants and compare them based on their physical characteristics. When studying how animals resemble their parents, students are expected to compare how the young animal or offspring are related based on coloring, body parts, and behaviors.

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 tell you about the parts of a plant.
- 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 #6 Link to TEKS	Competencies that will be graded in this unit	Success Criteria for this concept
Concept #1: External Characteristics of Animals 1.10A Concept #2: Parts of Plants 1.10B Concept #3: Animals Resemble Parents 1.10C Concept #4: Life Cycles 1.10D	Competency 6: Organisms Competency 7: Scientific Practices	<ul style="list-style-type: none"> Use external characteristics of animals as evidence to determine where animals live, how they move, and what they eat Identify the parts of plants and write statement comparing roots, stems, leaves, and flowers of different plants Compare animal offspring and their parents based on coloring and body parts Observe and record the sequence of different animal life cycles including the life cycle of a chicken, frog, and fish
Unit 7: STEM Estimated Date Range: 5/17/23 – 5/25/23 Estimated Time Frame: 7 Days		
<p>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.</p> <p>At home connections:</p> <ul style="list-style-type: none"> 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 #7 Link to TEKS	Competencies that will be graded in this unit	Success Criteria for this concept
Concept #1: STEM 1.1A, 1.1B, 1.2A, 1.2B, 1.2C, 1.2D, 1.2E, 1.3A, 1.3B, 1.3C, 1.4A, 1.4B	Competency 7: Scientific Practices	<ul style="list-style-type: none"> Collect data and make observations using tools Record and organize data and observations Answer a question by making a claim Use data presented in a chart as evidence to support a claim

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.

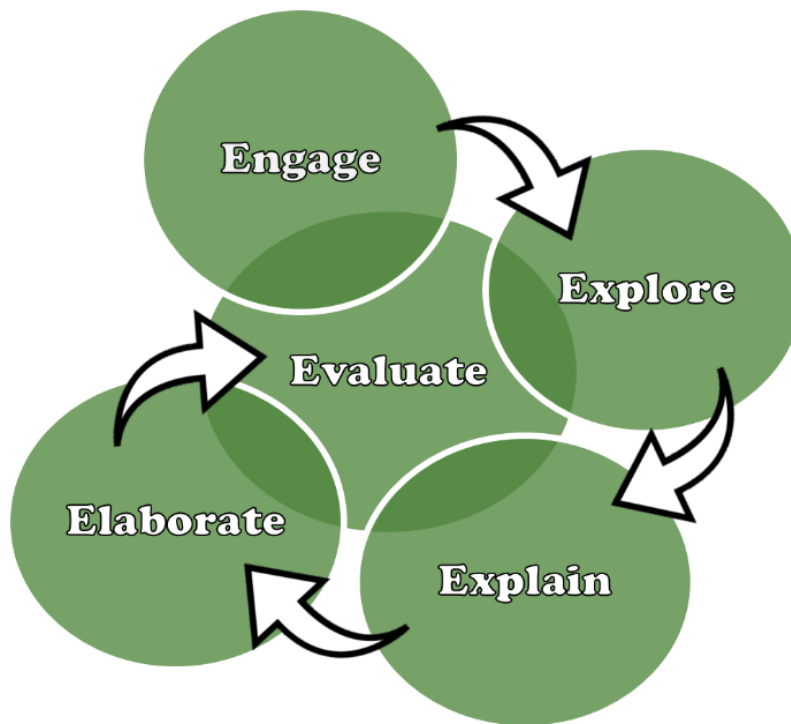
Parent Resources

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
Pebble Go	This resource provides access to books for reading and learning more about concepts in the science content.
Brainpop	This resource provides access to videos and games.
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

The structures, guidelines or model in which students engage in a particular content that ensures understanding of that content.



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**: The engage phase sparks student curiosity and assesses prerequisite knowledge or misconceptions.
- **Explore**: Students begin to interact with the content through hands-on explorations and investigations.
- **Explain**: The explain phase connects the hands-on experience to the instruction of the concept using grade level appropriate definitions and labels.
- **Elaborate**: Elaboration applies the concept in a new context through problem solving or an additional hands-on experience.
- **Evaluate**: Evaluation of student understanding and progress occurs throughout the learning cycle.