

2nd 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.

- 2.1(A) identify, describe, and demonstrate safe 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
- 2.1(B) identify and demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reuse or recycling of paper, plastic, and metal
- 2.2(A) ask questions about organisms, objects, and events during observations and investigations
- 2.2(B) plan and conduct descriptive investigations
- 2.2(C) collect data from observations using scientific tools
- 2.2(D) record and organize data using pictures, numbers, and words
- 2.2(E) communicate observations and justify explanations using student-generated data from simple descriptive investigations
- 2.2(F) compare results of investigations with what students and scientists know about the world
- 2.3(A) identify and explain a problem and propose a task and solution for the problem
- 2.3(B) make predictions based on observable patterns
- 2.3(C) identify what a scientist is and explore what different scientists do
- 2.4(A) collect, record, and compare information using tools, including computers, hand lenses, rulers, plastic beakers, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums
- 2.4(B) measure and compare organisms and objects

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 classify a variety of objects according to their attributes and define if that object is considered to be a solid or liquid. Students will also determine what will happen to an object's physical properties when cut, folded, sanded, or melted. They will be able to describe the physical properties of the object after it changed. Moreover, students will comprehend that objects are composed of materials that have specific characteristics. These specific characteristics are connected to the object's purpose.

At home connections:

- Have your child find objects around the house and classify them by different physical properties.
- As you cook breakfast, lunch, or dinner, have your child compare different things as you heat or cool them.
- Your child can demonstrate how they can change different objects by cutting, folding, sanding, and melting (e.g. cutting fabric, folding clothes, etc.).

Concepts within Unit #1 Link to TEKS	Success Criteria for this concept
Concept #1: Safety 2.1A	• Demonstrates that goggles protect eyes during an investigation
Concept #2: Scientific Practices 2.2A, 2.2B, 2.2C, 2.2D, 2.4A, 2.4B	• Plans and implements an investigation • Records and organizes data and observations using pictures, numbers, and words • Creates a table to collect data during an investigation • Self- and peer-assesses an investigation for correct scientific practices
Concept #3: Scientific Explanations 2.2E, 2.2F	• Constructs a claim that answers a question • Uses specific data (exact words and/or numbers) as evidence to support the claim
Concept #4: Physical Properties of Matter 2.5A	• Classifies matter by physical properties including relative temperature, texture, flexibility, and physical state (solid or liquid) of an object
Concept #5: Changing Matter 2.5B, 2.5C	• Compares changes in physical properties of matter caused by heating or cooling • Demonstrates changes to materials by cutting, folding, sanding, and melting objects
Concept #6: Combining Materials 2.5D	• Identify the properties of materials to determine their usefulness • Justify the combination of materials to do something they cannot do by themselves

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 understand that some objects changed or appear different when light, thermal, and sound energy are increased or decreased. Students will finish their studies about how objects change or appear to change when light, thermal, or sound energy are increased or decreased. In addition, students will expand their understanding about magnets by exploring different ways that magnets are useful for everyday life. Lastly, students in this unit will study the patterns of movement described by objects. Students will need to trace the patterns of movements and compare them.

At home connections:

- Find objects around the house that produce energy and have your child discuss how they look, sound, or feel before and after increasing and decreasing the energy (e.g. turning the volume of a television up and down, cooking, etc.)
- Have your child find ways magnets are useful around the house

Concepts within Unit #2 Link to TEKS	Success Criteria for this concept
Concept #1: Increasing and Decreasing Energy 2.6A	Describe how objects look, sound, and feel before and after increasing or decreasing energy on them
Concept #2: Magnets in Everyday Life 2.6B	Identify how magnets are used at school and at home
Concept #3: Patterns of Movement 2.6C	Trace and compare patterns over time

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 how rocks are similar and different by describing them using their physical properties or attributes. In addition, students will differentiate between sources of water that have saltwater and freshwater. This unit will be continued in the third grading period.

At home connections:

- Go outside and have your child find different rocks. They can describe and compare the different size, texture, and color of the rocks.
- Have your child discuss the different places to find freshwater and saltwater.

Concepts within Unit #3 Link to TEKS	Success Criteria for this concept
Concept #1: Rocks 2.7A	Observe, describe, and compare rocks by physical properties
Concept #2: Fresh and Saltwater 2.7B	Describe and compare the properties of natural sources of water

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 the continuation of unit 3 from the second grading period, students will differentiate between natural resources and manmade products.

At home connections:

- Have your child look inside the house and outside the house for examples of natural resources and manmade resources.

Concepts within Unit #3

[Link to TEKS](#)

Success Criteria for this concept

Concept #3: Natural and Manmade Resources

2.7C

- Observe and describe natural and manmade resources

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 collect, record, and graph weather data. Students will practice with describing weather using both observable and measurable data and recording both types of data in a table and a graph. Students will practice with analyzing their weather data to find patterns. Students will also make decisions about how to plan for clothing, transportation, and activities based on current weather conditions and the season of the year. Students will practice drawing reasonable conclusions about weather and seasons and justifying their conclusions based on available data. Students will recognize the apparent changes in the Moon and Sun in the sky and use data to identify patterns. Students will observe and record data that describes how the moon appears to change over time and to describe the apparent movement of the sun in the day sky.

At home connections:

- Go outside and have your child make observations about the weather including temperature, wind conditions, precipitation, and cloud cover.
- Have your child go outside and discuss what clothing they would wear, activities they could do, and transportation that would be appropriate during the current season (e.g. it is summer, so I can ride my bike outside while wearing shorts and a tank top with sneakers).
- Go outside at different times of the day and have them make observations about the position of the Sun in the sky. As they observe the Sun, your child will determine if the Sun is to their left, right, or above them. They should never look directly at the Sun.
- Go outside and observe the Moon at night and observe how the shape seems to change throughout the month.

Concepts within Unit #4

[Link to TEKS](#)

Success Criteria for this concept

Concept #1: Weather
2.8A

- Measure and record weather information (temperature, wind conditions, precipitation, cloud cover)
- Create a graph to represent weather data
- Identify patterns in weather data

Concept #2: Seasons
2.8B

- Identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation

Concept #3: Objects in the Sky
2.8C

- Record and describe patterns in the appearance of objects in the sky

Unit 5: Ecosystems

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

Estimated Time Frame: 10 Days

Unit Overview:

In this unit, students will study that living organisms have basic needs that must be met for them to survive within their environment. Students are expected to differentiate between the basic needs of animals and plants. In addition, students will recognize the concept of interdependency among organisms in the specific environment where they live with an emphasis on the study of the transfer of energy in different food chains. This unit will continue in the fourth grading period.

At home connections:

- Have your child discuss the basic needs to their favorite animal or plant.
- Go outside and observe different animals and plants and how they depend on each other to survive (e.g. the beetle eats plants, the birds eat beetles, etc.).

Concepts within Unit #5 Link to TEKS	Success Criteria for this concept
Concept #1: Basic Needs 2.9A	• Generalizes the basic needs of all animals by comparing the needs of specific animals • Generalizes the basic needs of all plants by comparing the needs of specific plants
Concept #2: Food Chains 2.9C	• Compare the way living organisms depend on each other and their environment to survive

Grading Period 4

Unit 5: Ecosystems (Continued)

Estimated Date Range: 3/20/23– 4/4/23

Estimated Time Frame: 12 days

Unit Overview:

As unit 5 continues, students will recognize specific environmental factors such as precipitation and temperature as causes for changes in the growth and behaviors of animals and plants. Students are expected to understand the cause and effect relationship those changes in weather components bring to animals and plants (migration and hibernation in animals, and dormancy in plants).

At home connections:

- Have your child go outside and observe animals and plants and answer the question, “What would happen if it stopped raining for a long time? What would happen to the different animals and plants you observe?”

Concepts within Unit #5

[Link to TEKS](#)

Success Criteria for this concept

Concept #3: Environmental Factors
2.9B

- Recognize how changes in an environment (precipitation and temperature) causes changes in the growth and behavior of animals and plants

Unit 6: Organisms

Estimated Date Range: 4/5/23 – 5/16/23

Estimated Time Frame: 29 Days

Unit Overview:

In this unit, students will observe, record, and compare how the physical characteristics and behaviors of animals and the physical characteristics of plants help them meet their basic needs. Student will also investigate and record some of the unique stages that insects undergo during their life cycle by observing the life cycle of the Painted Lady Butterfly in their classrooms. In 2nd grade students focus on how the physical characteristics of animals help them meet their basic needs for survival. Students will learn about insect life cycles for the first time and establish that insects undergo unique stages during their life cycles.

At home connections:

- Go outside and have your child find an animal and discuss how its physical characteristics and behaviors help it survive (e.g. a frog has a long tongue that helps it catch food)
- Go outside and have your child find a plant and discuss how its physical characteristics help it survive (e.g. a tree has roots that allow it to collect rainwater that soaks into the soil)

Concepts within Unit #6

[Link to TEKS](#)

Success Criteria for this concept

Concept #1: Physical Characteristics and Behaviors of Animals
2.10A

- Identify and compare how the physical characteristics and behaviors of animals help them meet their basic needs

Concept #2: Physical Characteristics of Plants
2.10B

- Identify and compare how the physical characteristics of plants help them meet their basic needs

Concept #3: Life Cycles of Insects
2.10C

- Record the physical changes and stages that insects undergo during their life cycle

Unit 7: STEM

Estimated Date Range: 5/17/23– 5/25/23

Estimated Time Frame: 7 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 find an object around the house and brainstorm ideas on how they think it could be improved

Concepts within Unit #7 Link to TEKS	Success Criteria for this concept
Concept #1: STEM 2.1A, 2.1B, 2.2A, 2.2B, 2.2C, 2.2D, 2.2E, 2.2F, 2.3A, 2.3B, 2.3C, 2.4A, 2.4B	• Use prior knowledge and scientific thinking to develop solutions to real world problems • Select appropriate materials and constructs a product or solution

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.

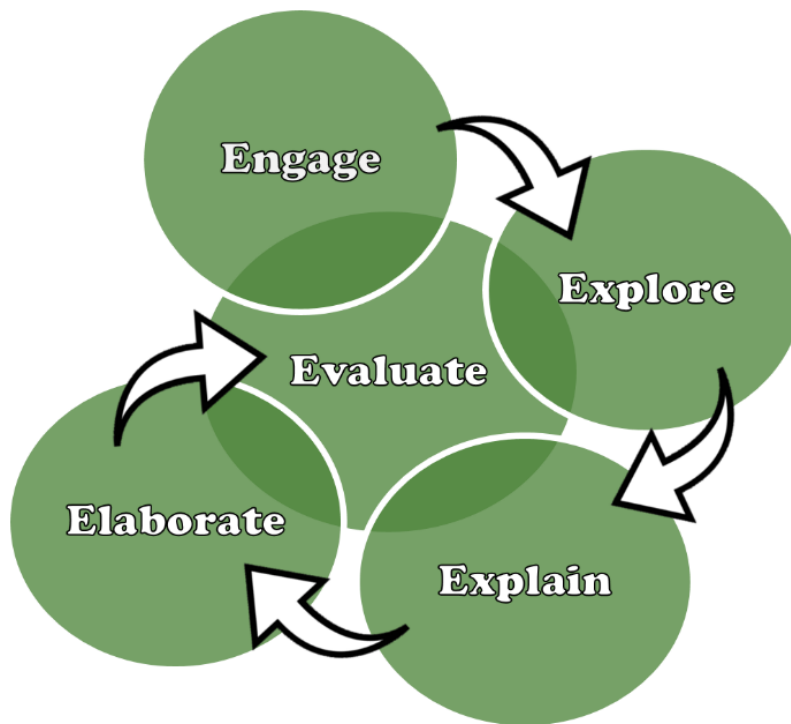
Parent Resources

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.