# Kindergarten 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.**



**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.

K.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
K.1(B) demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reusing or recycling paper, plastic, and metal
K.2(A) ask questions about organisms, objects, and events observed in the natural world
K.2(B) plan and conduct simple descriptive investigations
K.4(A) collect information using tools, including computing devices, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices; non-standard measuring items; weather instruments such as demonstration thermometers; and materials to support observations of habitats of organisms such as terrariums and aquariums
K.4(B) use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment
K.2(C) collect data and make observations using simple tools
K.2(D) record and organize data and observations using pictures, numbers, and words
K.2(E) communicate observations about simple descriptive investigations
K.3(A) identify and explain a problem such as the impact of littering and propose a solution
K.3(B) make predictions based on observable patterns in nature
K.3(C) explore that scientists investigate different things in the natural world and use tools to help in their investigations

# 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 engaging in scientific practices by learning about safety and scientific practices, including making scientific observations. In order to make scientific observations, students will use grade-appropriate tools that include their senses. Students will learn how to use their senses to gather information about the world around them. Throughout the unit, students will have the opportunity to refine their observation skills since the unit focuses on two main concepts: Properties of objects and changes caused by heat. When studying the properties of objects, students will be expected to describe objects by their color, shape, and texture. Students will also need to compare objects by describing their size as bigger or smaller than other objects, and their weight as heavier or lighter than other objects. Describing objects by their properties will serve as a foundational knowledge that will the first grade standards that ask students to classify objects based on properties. The unit concludes with making observations about how heating and cooling affects objects' 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.
- Discuss with your child some of the ways objects can be described.
- Have your child explain some of the ways heating and cooling can change objects.

| Concepts within Unit #1<br>Link to TEKS | Competencies that will be graded in this unit | Success Criteria for this concept |
|---|---|---|
| Concept #1: Safety<br>K.1A<br><br>Concept #2: Scientific Observations<br>K.2A, K.2B, K.2C, K.2D, K.2E, K.3A, K.4A, K.4B<br><br>Concept #3: Physical Properties of Objects<br>K.5A<br><br>Concept #4: Heating and Cooling<br>K.5B | Competency 1: Matter<br><br>Competency 7: Scientific Practices | • Identify the safe and healthy practices that help to keep everyone safe<br>• Explain the use of science safe and healthy practices when conducting scientific investigations<br>• Collects data and makes observations using tools<br>• Records and organizes data and observations using pictures, numbers, and words<br>• Uses appropriate science tools and vocabulary to make multiple observations about an investigation<br>• Makes observations and records the color, shape, and texture of objects<br>• Makes observations and records the size of objects as bigger or smaller using nonstandard units of measurement<br>• Makes observations about objects and records which one is heavier or lighter by using a primary balance<br>• Makes observations and records the physical properties of materials before and after heating and cooling |

| | | |
|---|---|---|
| | | • Explains how the physical properties of materials change by heating and cooling |

# 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:**
This is the continuation of Unit 2 in the second grading period. When studying magnets, students will conduct investigations to determine what objects are attracted and not attracted to magnets. Lastly, students will learn to describe the position of an object in relation to another object or the background. Furthermore, students will represent movement by tracing different the patterns of motion (straight line, zigzag, up and down, round and round, back and forth, and fast and slow).

**At home connections:**

- Have your child tell you objects that are magnetic and that are not magnetic.
- Have your child practice identifying the location of an object in relation to another object using the words above, below, in front of, and beside.
- Have your child practice different position words with you in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow.

| Concepts within Unit #2<br>Link to TEKS | Competencies that will be graded in this unit | Success Criteria for this concept |
|---|---|---|
| Concept #1: Forms of Energy<br>K.6A<br><br>Concept #2: Magnets<br>K.6B<br><br>Concept #3: Location and Motion<br>K.6C, K.6D | Competency 2: Force, Motion, and Energy<br><br>Competency 7: Scientific Practices | • Describes thermal, light, and sound energy by using the senses<br>• Explains that only materials that have iron are attracted to magnets<br>• Explains that wood, paper, plastic, and rubber are not attracted to magnets<br>• Describes the location of an object in relation to another such as above, below, in front of, and beside<br>• Describes the ways that objects move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow |

## 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 properties of rocks through observation and describe rock examples. Students will examine different water samples and describe how water is differs between sources. Students will describe the water found in a variety of natural sources. Throughout the unit, students will make connections between their observations and their life experiences. This unit will continue in the third grading period.

**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 the different places where water can be found in nature.

| Concepts within Unit #3<br>Link to TEKS | Competencies that will be graded in this unit | Success Criteria for this concept |
|---|---|---|
| Concept #1: Rocks<br>K.7A<br><br>Concept #2: Natural Sources of Water<br>K.7B | Competency 3: Earth's Surface<br><br>Competency 7: Scientific Practices | • Observes, describes, and sorts rocks by size, shape, color, and texture<br>• Describes the physical properties of color and clarity of water by observing water from different natural sources |

# 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, students will examine how natural resources, including water, soil, and rocks, are useful to our lives.

**At home connections:**

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

| Concepts within Unit #3 Link to TEKS | Competencies that will be graded in this unit | Success Criteria for this concept |
|---|---|---|
| Concept #3: Natural Resources<br>K.7C | Competency 3: Earth's Surface<br><br>Competency 7: Scientific Practices | • Gives examples of ways rocks, soil, and water are useful |

## 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 explore three components of weather, including cloud cover, temperature, and precipitation. Students are expected to observe these weather conditions to describe weather. From the data collected, students need to be able to conclude that weather changes from day to day and over seasons. For kindergarten students, observations of the weather conditions need to be made by going outside and experiencing the weather conditions. In addition to describing weather, students need to be able to recognize repeating patterns in our world, specifically day and night and the seasons. Students will make observations about the objects visible in the sky during the day and at night. Students will use multiple sources of data (outdoor observations, photos, and drawings) to generalize about the objects visible during the day and at night. Students will begin to see how the Sun and Moon change in appearance in a predictable pattern, but they will not need to predict the changes yet.

**At home connections:**

- Have your child tell you about the weather outside.
  - Cloud coverage
  - Precipitation
  - Temperature
- Have your child tell you about the weather in different seasons.
- Have your child draw a picture of the day sky or the night sky.

| Concepts within Unit #4 Link to TEKS | Competencies that will be graded in this unit | Success Criteria for this concept |
|---|---|---|
| Concept #1: Weather<br>K.8A<br><br>Concept #2: Repeating Patterns<br>K.8B<br><br>Concept #3: Objects in the Sky<br>K.8C | Competency 4: Patterns in the Natural World<br><br>Competency 7: Scientific Practices | • Describes how weather components (cloud coverage, precipitation, and temperature) change from day to day<br>• Describes how weather components (precipitation and temperature) change over seasons<br>• Identifies seasons and day/night as events that have repeating patterns<br>• Illustrates and describes the objects in the day sky and night 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 begin by establishing the basic needs of organisms and comparing how the needs of plants differ from the needs of animals. Students will examine evidence of plants and animals meeting their basic needs and create a plan to give a seed its basic needs to help it grow into a plant. Students will use their understanding of the basic needs of plants and animals as a determining factor when distinguishing between living and nonliving things. This unit will continue in the fourth grading period.

**At home connections:**

- Have your child tell you about the basic needs of animals.
- Have your child tell you about the basic needs of plants.
- Have your child tell you about the difference between living and nonliving things.

| Concepts within Unit #5<br>Link to TEKS | Competencies that will be graded in this unit | Success Criteria for this concept |
|---|---|---|
| Concept #1: Basic Needs<br>K.9B<br><br>Concept #2: Living and Non-Living<br>K.9A | Competency 5: Ecosystems<br><br>Competency 7: Scientific Practices | • Identifies evidence that justifies that plants and animals have basic needs<br>• Distinguishes between living and nonliving things by explaining that living things have basic needs and produce offspring and nonliving things have neither |

# Grading Period 4

## Unit 5: Ecosystems (Continued)

Estimated Date Range: 3/20/23 – 3/24/23
Estimated Time Frame: 5 Days

**Unit Overview:**
As Unit 5 continues, students will resume using their understanding of the basic needs of plants and animals as a determining factor when distinguishing between living and nonliving things. Students will use a checklist to determine if a given example is living or nonliving and cite evidence from the checklist when sharing their determination.

**At home connections:**

- Have your child tell you about the difference between living and nonliving things.

| Concepts within Unit #5 Link to TEKS | Competencies that will be graded in this unit | Success Criteria for this concept |
|---|---|---|
| Concept #2: Living and Non-Living (Continued)<br>K.9A | Competency 5: Ecosystems<br><br>Competency 7: Scientific Practices | • Distinguishes between living and nonliving things by explaining that living things have basic needs and produce offspring and nonliving things have neither |

## Unit 6: Organisms

Estimated Date Range: 3/27/23 – 5/16/23
Estimated Time Frame: 36 Days

**Unit Overview:**
In this unit, students will describe and sort plants and animals by their physical characteristics, including size, color, body covering, and leaf shape. Students will investigate the different types of body coverings of animals and the names for the basic parts of plants and animals. Students will create technical drawings of plants and animals in which the basic parts are labeled. Students will also begin to develop a sense of heredity among plants with investigations about how young plants resemble their parent plants. The unit concludes with a closer look at the life cycle of plants, relating to the plants growing in the classroom and generalizing to other flowering/ fruit bearing plants.

**At home connections:**

- Find an animal outside and 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.
- Have your child tell you about the basic needs of plants.
- Have your child tell you about the difference between living and nonliving things.

| Concepts within Unit #6 Link to TEKS | Competencies that will be graded in this unit | Success Criteria for this concept |
|---|---|---|
| Concept #1: Physical Characteristics of Animals and Plants<br>K.10A<br><br>Concept #2: Parts of Animals and Plants<br>K.10B<br><br>Concept #3: Plants Resemble Parents<br>K.10C<br><br>Concept #4: Life Cycles<br>K.10D | Competency 6: Organisms<br><br>Competency 7: Scientific Practices | • Sorts animals by color, size, and body covering<br>• Sorts plants by color, size, and leaf shape<br>• Identifies and label basic parts of animals (head, legs, wings, tails, fins, etc.)<br>• Identifies and label basic parts of plants (flower, stem, leaves, roots)<br>• Identifies characteristics of young plants that resemble the parent plant<br>• Places pictorial examples of a plant's life cycle in order |

## 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 identify a cleaning problem that can be solved at home, 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<br>K.1A, K.1B, K.2A, K.2B, K.2C, K.2D, K.2E, K.3A, K.3B, K.3C, K.4A, K.4B | Competency 7: Scientific Practices | • Collects data and makes observations using tools<br>• Records and organizes data and observations using pictures, numbers, and words<br>• Uses appropriate science tools and vocabulary to make multiple observations about an investigation |

**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.

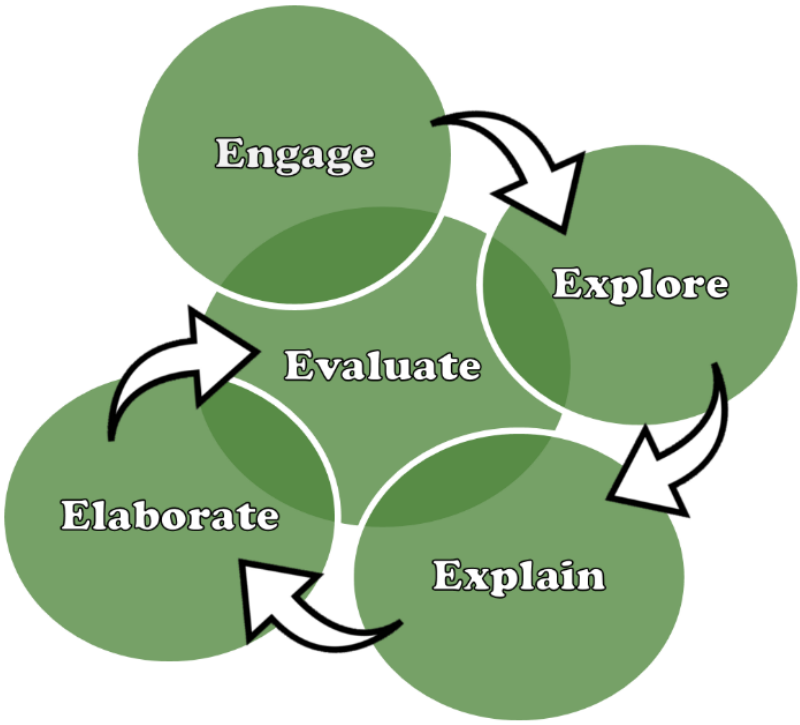
**Parent Resources**

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.