3rd Grade Science
Overview
2023-2024

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.

3.1A: Demonstrate safe practices as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment as appropriate, including safety goggles or chemical splash goggles, as appropriate, and gloves; and
3.1B: Make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics.
3.2A: Plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world;
3.2B: Collect and record data by observing and measuring using the metric system and recognize differences between observed and measured data;
3.2C: Construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data;
3.2D: Analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations;
3.2E: Demonstrate that repeated investigations may increase the reliability of results; and
3.2F: Communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.
3.3A: Analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing;
3.3B: Represent the natural world using models such as volcanoes or the Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials; and
3.3C: Connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.
3.4: Collect, record, and analyze information using tools, including cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, magnets, collecting nets, notebooks, and Sun, Earth, and Moon system models; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums.

Grading Period 1

Unit 1: Matter

Estimated Date Range: 8/9/23 – 9/28/23
Estimated Time Frame: 36 Days

Unit Overview:
This unit begins with setting expectations for safe science practices and how we will engage in scientific inquiry this school year. Students will be introduced to the scientific practices and the Claims, Evidence, Reasoning framework we use to write scientific explanations.
In this unit, students will be able to describe the properties of a solid, liquid, and gas and predict how these states will change with addition or removal of heat. Throughout this unit, students will have experiences measuring, testing, and recording physical properties including temperature (using a Celsius thermometer), mass (using a pan balance), and magnetism. These experiences will help them use data to make reasonable predictions and to form conclusions on matter. Students will predict and observe sinking and floating of objects and how they relate to their properties. By the conclusion of this unit, students will know that a mixture is created by combining two or more materials.

At home connections:

- Allow your child to test the properties of objects around the home. 3rd graders can test objects to see if they are magnetic and whether they sink or float in water.
- When talking about temperature in daily life, such as the weather forecast or body temperature at the doctor's office, talk about what those same measurements would be in degrees Celsius. Note that students do not need to make conversions between Fahrenheit and Celsius in 3rd grade.
- Students are describing matter by physical state. With adult help in the kitchen, observe what happens to water's state when it boils on the stove, and how water's state changes in the freezer.
- Students are learning about what it means to make mixtures. Mix things up in the kitchen! Discuss examples of mixtures we make when we cook, such as milk and cereal or mixed vegetables in a salad.

Concepts within Unit #1 Link to TEKS	Success Criteria for this concept
Concept #1: Safety 3.1A	• Demonstrates the use of science safety practices during classroom and outdoor investigations. • Identifies safe/unsafe practices during classroom and outdoor investigations.
Concept #2: Scientific Practices 3.2A, 3.2B, 3.2C, 3.2D, 3.2E, 3.2F	• Collects data by observing and accurately measuring using the metric system. • Organizes data in graphic organizers, tables, charts, graphs, and maps in written and digital formats.
Concept #3: Scientific Explanations 3.2D, 3.2F, 3.3A	• Makes an accurate and complete claim that correctly answers the question. • Uses specific data (exact words and/or numbers) as evidence to support the claim. • May attempt to connect the claim and evidence using a scientific concept, but the concept is not relevant.
Concept #4: Physical Properties of Matter 3.5A, 3.5B	• Measures and records temperature and mass accurately using the metric system. • Tests and records magnetism and the ability to sink or float. • Uses physical properties to classify samples of matter as solids, liquids, and gases.
Concept #5: Heating and Cooling 3.5C	• Predicts the state of matter of an object after heating or cooling. • Records changes made to matter caused by heating and cooling in a data table.
Concept #6: Mixtures 3.5D	• Justifies classification as mixture or non-mixture based on the ingredients.

Unit 2: Force, Motion, and Energy Estimated Date Range: 10/2/23 – 10/6/23 Estimated Time Frame: 5 days	
Unit Overview: In this unit, students will have the opportunity to explore different forms of energy, including mechanical, light, sound, and thermal. When studying energy, 3rd graders will explore examples of the different forms of energy in everyday life. This unit will continue in the second grading period. **At home connections:** • Energy is all around us at home! Encourage conversations with your child about how energy is useful in our daily lives, such as how thermal energy cooks our food and light energy helps us to see.	
Concepts within Unit #2 **Link to TEKS**	**Success Criteria for this concept**
Concept #1: Forms of Energy 3.6A	• Explains how different forms of energy, including mechanical, light, sound, and thermal, are useful in everyday life.

Grading Period 2

Unit 2: Force, Motion, and Energy (Continued)

Estimated Date Range: 10/11/23 – 11/9/23
Estimated Time Frame: 22 days

Unit Overview:
In this continuation of unit 2 from the first grading period, students will demonstrate how position and motion can be changed by pushing and pulling objects. In 3rd grade, students will observe the forces of magnetism and gravity and determine their effects on objects. Since Kindergarten, students have had experiences with most of these concepts; however, 3rd graders are expected to think more deeply and critically about them. Even though students have identified pulling and pushing as forces in previous grade levels, 3rd graders are expected to discover how the position and motion of objects change when pushing and pulling forces are applied to them. Students have interacted with magnets in previous grade levels, but it is the first time the identify magnetism as a force. The concept of gravity will be introduced for the first time in this unit.

At home connections:

- Kids see pushes and pulls at play with their toys and playing outside. Allow your child to investigate kicking a ball with more or less force, in different directions, or what happens to a ball when it strikes a wall or the ground.
- With a few fridge magnets and scraps of paper, your child can test the strength of the magnetic field of the different magnets. How many pieces of paper will each magnet hold up on the fridge? Do larger magnets hold more?

Concepts within Unit #2 Link to TEKS	Success Criteria for this concept
Concept #2: Position and Motion 3.6B	• Observes, measures, and records motion caused by pushing and pulling in diagrams that include force, initial positions, and final positions. • Interprets force diagrams and accurately demonstrates motion.
Concept #3: Forces 3.6C	• Describes magnetism and gravity as forces. • Records data and observations in investigations of magnetism and gravity acting on objects.

Unit 3: Earth's Surface

Estimated Date Range: 11/13/23 – 12/15/23
Estimated Time Frame: 20 days

Unit Overview:
In this unit, students will learn how soil is formed and the components that made up soil. Students will explore different samples of soil to identify their components. In addition, students will build models to identify some large forces that made rapid changes to the Earth's crust. Students will predict how landforms would change by the catastrophic events such as a volcanic eruption, earthquake and landslide. Students are expected to describe events that have rapidly changed the Earth's surface and explain how they are related. This unit will be continued in the third grading period.

At home connections:

- This would be a great time to start a compost pile together. As your child is learning about how soil forms, they see two processes at play: weathering of rock and decomposition of organic matter. While weathering takes a very long time, composting takes much less time, and can benefit your soil!

Concepts within Unit #3 Link to TEKS	Success Criteria for this concept
Concept #1: Soil Formation 3.7A	• Explores and records how soils are formed by weathering of rock and the decomposition of plant and animal remains.
Concept #2: Rapid Changes to the Earth's Surface 3.7B	• Investigates rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides.

Grading Period 3

Unit 3: Earth's Surface (Continued)

Estimated Date Range: 1/4/24 – 1/12/24
Estimated Time Frame: 7 days

Unit Overview:
In this continuation of unit 3 from the second grading period, when studying natural resources, students will identify the characteristics of natural resources that make them useful to create products.

At home connections:

- As you use different products at home, talk with your child about the natural resources that made them. For example, the glass they are drinking from starts as liquefied sand.
- As you discard items at home, talk with your child about which items could be recycled or repurposed instead of traveling to the landfill.

Concepts within Unit #3 Link to TEKS	Success Criteria for this concept
Concept #3: Natural Resources 3.7C	• Explains the characteristics of natural resources that make them useful and how resources may be conserved.

Unit 4: Patterns in the Natural World

Estimated Date Range: 1/16/24 – 2/23/24
Estimated Time Frame: 27 days

Unit Overview:
In this unit, students will observe, measure, record, and compare four important components of weather: cloud coverage, precipitation, wind, and temperature. In 3rd grade, the focus shifts from making observations in previous grade levels and identifying patterns in the data to comparing weather components in different cities at the same time. In this unit students are expected to understand that the components of weather change every day and are different depending on the location of the place studied. In this unit, students will describe the Sun as a star made of hot gas that gives the Earth thermal and light energy. Students will use the measurable and observable evidence to justify the claim that the Sun provides the Earth with energy. Students will also recall the planets in the Solar System in order and create diagrams to represent the planets of the Solar System. Students will focus on the relationship between the Earth, Sun, and Moon and describe how evidence of these interactions can be observed from Earth.

At home connections:

- Talk with your child about the weather each day, and about the patterns you notice. Has it been cold all week? Or has it rained lately? If you have friends or family members in other cities or countries, encourage your child to search weather data for those cities and compare. Is it hotter, cloudier, or drier at grandma's house?
- As your child is learning about the Sun, this is a great time to discuss how the Sun influences our lives on Earth. We see this as we get thermal and light energy from the Sun and plants use sunlight to grow. This is also a great time to discuss how we take safety precautions by wearing sunblock, staying in the shade, and/or wearing sunglasses to reduce damage caused by too much Sun exposure.
- The relationship between the Earth, Sun and Moon can seem abstract to 3rd graders. This is a great opportunity to build models. Ask your child to build a model out of household objects and use it to explain the relationship to you. Ask them what parts of their model has limitations – such as its limited size or scale, its materials, or its movements.

Concepts within Unit #4 Link to TEKS	Success Criteria for this concept
Concept #1: Weather 3.8A	• Compares how weather components change in different cities over time.
Concept #2: Sun 3.8B	• Describes and illustrates the classification and composition of the Sun, as well as the forms of energy it provides.
Concept #3: Relationship of Earth, Sun, and Moon 3.8C	• Represents and explains the relationship of the Earth, Sun, and Moon using models and diagrams.

Concept #4: Solar System 3.8D	• Lists the planets in the Solar System in order of their distances from the Sun.
Unit 5: Ecosystems Estimated Date Range: 2/26/24 – 3/8/24 Estimated Time Frame: 9 days	
Unit Overview: In this unit, students will research and present different environments. Students will examine how different environments are able to provide for the basic needs of the plants and animals that live within them. This unit will be continued in the fourth grading period. **At home connections:** • Talk about the conditions of your environment (your home). Ask your child, how are you able to meet your basic needs at home? Discuss the different environments that you have visited or see on television. What makes these environments unique? How are animals and plants able to meet their basic needs in their environments?	
Concepts within Unit #5 **Link to TEKS**	**Success Criteria for this concept**
Concept #1: Environments (Introduction) 3.9A	• Describes how the physical characteristics of environments support the needs of plants and animals.

Grading Period 4

Unit 5: Ecosystems (Continued)

Estimated Date Range: 3/18/24 – 4/12/24
Estimated Time Frame: 18 days

Unit Overview:
In this continuation of unit 5 from the third grading period, students will complete their studies about environments. In addition, students will predict how changes to food chains affect the ecosystem. In addition, students will examine the effects of changes made to ecosystems such as droughts, fires, and floods. Lastly, students will describe the effects as organisms, animals and plants, thriving, moving, or perishing in response to natural changes.

At home connections:

- While we are learning about food chains, investigate where your meals come from. Challenge your child to trace each item on their plate back to the energy from the Sun.
- Discuss what would happen to your plants or lawn if there was no rain (drought) or too much rain (a flood).
- While this unit discusses environmental changes, there are also mentions of natural disasters. This is a good time to talk about your family's preparedness in the case of a natural disaster, such as storing dry food, water, and flashlights with batteries in the case of a hurricane.

Concepts within Unit #5 Link to TEKS	Success Criteria for this concept
Concept #1: Environments (Continued) 3.9A	• Describes how the physical characteristics of environments support the needs of plants and animals.
Concept #2: Food Chains 3.9B	• Describes the flow of energy through food chains. • Explains how changes to populations in a food chain affect the environment.
Concept #3: Environmental Changes 3.9C	• Explains how environmental changes affect the populations of living organisms in positive and negative ways.

Unit 6: Organisms

Estimated Date Range: 4/15/24 – 5/14/24
Estimated Time Frame: 22 days

Unit Overview:
In this unit, students will investigate how an organism's physical structures and functions help it meet its basic needs and survive in its particular environment. Students will also investigate the life cycles of plants and animals. Students will investigate and compare how animals and plants undergo a series of sequential changes in their unique life cycles such as tomato plants, frogs, and lady bugs.

At home connections:

- In this unit, we explore the ways that animals and plants have physical structures like body parts or coverings that make them well suited to survive in their environment. This is a great time to encourage animal research! Find an animal of interest and encourage your child to read about how its body helps it survive in its environment. For example, giraffes are well-suited to live in the African savannah because they eat leaves on high tree branches that they can reach with their elongated necks.
- While learning about life cycles, plant seeds! There are a variety of fast-sprouting seeds, such as bean plants, that are easy to grow with minimal supplies. Encourage your child to document the life cycle of their plant with pictures or drawings of what it looks like every few days.

Concepts within Unit #6 Link to TEKS	Success Criteria for this concept
Concept #1: Structures and Functions 3.10A	• Explains how structures and functions of organisms help them to survive in their environment.
Concept #2: Life Cycles 3.10B	• Compares how plants and animals undergo change throughout their life cycles.

Unit 7: STEM Estimated Date Range: 5/15/24 – 5/23/24 Estimated Time Frame: 7 days	
Unit Overview: In this unit, students will use an engineering design process to solve real-world problems. Students will have opportunities to analyze a problem, brainstorm solutions, design, test, and re-design a product to find the best solution. **At home connections:** • This unit is all about identifying a problem and designing a solution. Encourage your child to tinker with building materials such as interlocking blocks or discarded, dry household materials such as paper towel tubes. Discuss the properties of the chosen materials that make them ideal for building. • Engage in a STEM challenge as a family. Develop a tall tower of cards or a strong bathtub-floating boat together. Throughout the challenge, develop a plan together and test your designs.	
Concepts within Unit #7 **Link to TEKS**	**Success Criteria for this concept**
Concept #1: STEM 3.1A, 3.1B, 3.2A, 3.2B, 3.2C, 3.2D, 3.2E, 3.2F, 3.3A, 3.3B, 3.3C, 3.4	• Uses critical thinking and scientific problem solving to make informed decisions.

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.

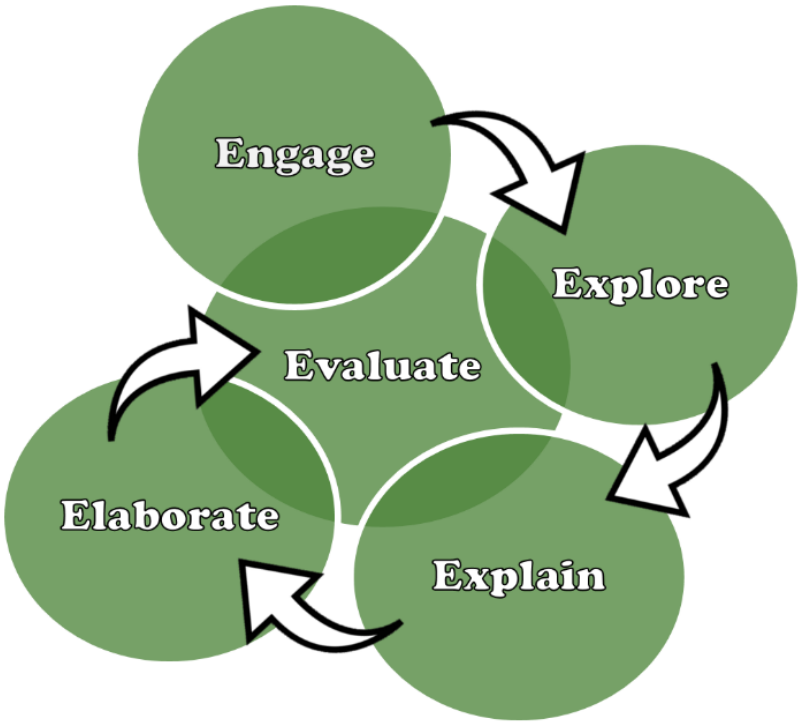
Parent Resources

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.
Brain Pop	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.