

Third Grade Math Overview 2018-2019

This document is designed provide parents/guardians/community an overview of the curriculum taught in the FBISD classroom. It includes pacing, TEKS, Unit Overview, Big Ideas and Essential Questions, Concepts and Instructional Model.

Definitions:

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.

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.

Unit Overview – The unit overview provides a brief description of the concepts covered in each unit.

Big Ideas and Essential Questions - Big ideas create connections in learning. They anchor all the smaller isolated, facts together in a unit. Essential questions (questions that allow students to go deep in thinking) should answer the big ideas. Students should not be able to answer Essential Questions in one sentence or less. Big ideas should be the underlying concepts, themes, or issues that bring meaning to content.

Concept – A subtopic of the main topic of the unit

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

Parent Supports:

The following resources provide parents with ideas to support students' understanding

- [Advice for Parents: Helping Children with Math](#)
- [How Math Should be Taught](#)
- [The Most Important Mathematical Habit of Mind](#)

Instructional Model:

The instructional model for mathematics in FBISD consists of two parts.

The first part is how students learn math and how math is instructed. Instruction in mathematics should follow the Concrete-Representational-Abstract Model (CRA). The CRA model allows students to access mathematics content first through a concrete approach (“doing” stage) then representational (“seeing” stage) and then finally abstract (“symbolic” stage). The CRA model allows students to conceptually develop concepts so they have a deeper understanding of the mathematics and are able to apply and transfer their understanding across concepts and contents. The CRA model is implemented in grades K-12 in FBISD.

The second part of the instructional model is the lesson cycle. In Grades K – 7, the lesson cycle follows a Math Workshop/Guided Math Lesson Cycle. Components of this lesson include: Number Sense Routine, Task and Share, Focus Lesson, Guided Math, Workstations, and Student Reflection.

Adopted Resources:

Elementary: <https://www.fortbendisd.com/Page/93917>

Process Standards:

Mathematical Process Standards: The student uses mathematical process to acquire and demonstrate mathematical understanding. The student is expected to:

- 3.1A Apply mathematics to problems arising in everyday life, society, and the workplace
- 3.1B Use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution
- 3.1C Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems
- 3.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
- 3.1E Create and use representations to organize, record, and communicate mathematical ideas
- 3.1F Analyze mathematical relationships to connect and communicate mathematical ideas
- 3.1G Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

Grading Period 1

Unit 1: Graphing and Setting Up Guided Math

Estimated Date Range: August 15 - 21

Unit Overview: In this unit, students will get an introduction to graphing. This unit is set up with graphing ideas to help teachers and students learn about each other. Though the focus of graphing in third grade is to analyze and summarize data, students will be creating a frequency table, pictograph, and bar graph during this first week to analyze information. Setting up the routines for Guided Math and several workstations is the primary focus for this unit. The workstations will provide teachers with information about concepts students should have mastered in second grade.

Big Ideas:

- Problems can be solved and questions can be answered by collecting and analyzing data.
- Data can be represented visually using tables, charts, and graphs. The type of data determines the best choice of visual representation.

- The question to be answered or the problem to be solved determines the most effective way the collection of data should be visually represented.
- Graphs summarize information so that it is easier to understand.

Essential Questions:

- How can collecting and analyzing data help answer questions or solve problems?
- How can we visually represent a collection of data in a variety of ways?
- Why is it important to visually represent data in a variety of ways?
- Why are graphs important?

Concepts within Unit #1	TEKS Link to TEKS
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Concept #1: Graphing and Setting Up Guided Math	3.8A, 3.8B
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Unit 2: Numeration Estimated Date Range: August 22 - 31

Unit Overview: Previously, students used concrete and pictorial models to represent numbers up to 1200 in different ways. In this unit, students will represent larger numbers in different ways. Students will compare and order numbers. Students will use this knowledge in their everyday life when encountering numbers. Students will apply this learning when using place value strategies to solve problems with the four operations. Students will utilize these skills in the next grade level when they represent whole numbers through 1,000,000,000, decimals to the hundredths using expanded notation and numerals, and interpret the value of each place value position as ten times the position to the right or as one-tenth of the value of the place to its left.

Big Ideas:

- Concrete and pictorial representations help students build place value understanding.
- The base 10 number system uses digits 0-9, groups of 10 and place value to understand number structure.
- Any number can be represented in many ways and have the same value.
- Place Value knowledge impacts the understanding of operations.
- Numbers, expressions, and measures can be compared by their relative values.

Essential Questions:

- How does building numbers help you understand place value?
- How does the position of a digit in a number affect its value?
- How many different ways can you compose and decompose a number?
- Why do you need to know how to decompose and compose numbers?
- How do you compare two numbers? How do you order numbers? Why is this important?

Concepts within Unit #2	TEKS Link to TEKS
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Concept #1: Compose and Decompose Numbers	3.2A, 3.2B
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Concept #2: Writing Numbers	3.2A
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Concept #3: Different Ways of Representing Numbers	3.2A, 3.2B
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Concept #4: compare and Order	3.2C, 3.2D
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Unit 3: Addition and Subtraction Estimated Date Range: September 4 - 21

Unit Overview: In this unit, students will solve one and two step problems with addition and subtraction. Students will apply the skill of rounding and using compatible numbers to estimate addition and subtraction problems.

Big Ideas:

- A problem solver understands what has been done, knows why the process was appropriate, and can support it with reasons and evidence.
- The base 10 system helps students solve addition and subtraction with understanding.
- Numerical expressions can be represented in different but equivalent ways to make calculations simpler.
- The same number sentence can be associated with different concrete or real-world situations, and different numbers sentences can be associated with the same concrete or real-world situation.
- Rules of arithmetic and algebra can be used together with notions of equivalence to transform equations so solutions can be found.
- Numerical calculations can be approximated by replacing numbers with other numbers that are close and easy to compute with mentally.

Essential Questions:

- How do I know where to begin when solving a problem?
- Why is place value important when solving addition and subtraction problems?
- Why is it important to solve multi-step math problems?
- What do you do to solve a problem?
- What is the relationship between the numbers presented?
- What generalization can be made from the numbers presented?

Concepts within Unit #3	TEKS Link to TEKS
Concept #1: Rounding	3.2C, 3.4B
Concept #2: Addition and Subtraction Meaning	3.2A, 3.2B, 3.2C, 3.5A
Concept #3: Addition progression and Estimation 2 and 3 Digit Numbers	3.2A, 3.2B, 3.2C, 3.4A, 3.4B, 3.5A
Concept #4: Subtraction Progression and Estimation 2 and 3 Digit Numbers	3.2A, 3.2B, 3.2C, 3.4A, 3.4B, 3.5A
Concept #5: Addition and Subtraction problem Solving and Tables	3.2B, 3.2C, 3.4A, 3.5A, 3.5E

Unit 4: Graphing

Estimated Date Range: September 24 - 27

Unit Overview: In this unit, students will graph data on different types of graphs. Students will also encounter dot plots for the first time and will learn how to create and interpret data on these graphs.

Big Ideas:

- Data summarized in graphs help us make sense of information in our world.
- Data can be represented visually using tables, charts, and graphs. The type of data determines the best choice of visual representation.

Essential Questions:

- Why are graphs important?
- How can we represent a collection of data in a variety of ways?

Concepts within Unit #4	TEKS
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	Link to TEKS
Concept #1: Graphing	3.4A, 3.8A, 3.8B
Unit 5: Multiplication and Division Estimated Date Range: Oct. 1 – Nov. 9	
<p>Unit Overview: In this unit, students will build on their basic fact knowledge. Students will create multiple representations of both multiplication and division problems to better understand the meaning of both operations as well as working towards solving problems using strategies as well as the standard algorithm. This will be used as students multiply with larger whole numbers and in future grade levels working with multiplying decimals and fractions.</p> <p>Big Ideas:</p> <ul style="list-style-type: none"> • A problem solver understands what has been done, knows why the process was appropriate, and can support it with reasons and evidence. • The base 10 system helps students solve multiplication and division with understanding. • Numerical expressions can be represented in different but equivalent ways to make calculations simpler • The same number sentence can be associated with different concrete or real-world situations, and different numbers sentences can be associated with the same concrete or real-world situation. • Rules of arithmetic and algebra can be used together with notions of equivalence to transform equations so solutions can be found. <p>Essential Questions:</p> <ul style="list-style-type: none"> • A problem solver understands what has been done, knows why the process was appropriate, and can support it with reasons and evidence. • The base 10 system helps students solve multiplication and division with understanding. • Numerical expressions can be represented in different but equivalent ways to make calculations simpler • The same number sentence can be associated with different concrete or real-world situations, and different numbers sentences can be associated with the same concrete or real-world situation. • Rules of arithmetic and algebra can be used together with notions of equivalence to transform equations so solutions can be found. 	
Concepts within Unit #5	TEKS Link to TEKS
Concept #1: Meaning of Multiplication	3.4D, 3.4E, 3.4F, 3.4K, 3.5B, 3.5C, 3.5D, 3.5E
Concept #2: Multiplication Facts and Strategies	3.4D, 3.4E, 3.4F, 3.4K, 3.5B, 3.5C, 3.5D, 3.5E
Concept #3: Division Meaning and Facts	3.4F, 3.4H, 3.4I, 3.4J, 3.4K, 3.5B, 3.5D, 3.5E
Grading Period 2	
Unit 5: Multiplication and Division (Continued) Estimated Date Range: Oct. 1 – Nov. 9	
<p>Unit Overview: In this unit, students will build on their basic fact knowledge. Students will create multiple representations of both multiplication and division problems to better understand the meaning of both operations as well as working towards solving problems using strategies as well as the standard algorithm. This will be used as students multiply with larger whole numbers and in future grade levels working with multiplying decimals and fractions.</p> <p>Big Ideas:</p> <ul style="list-style-type: none"> • A problem solver understands what has been done, knows why the process was appropriate, and can support it with reasons and evidence. 	

- The base 10 system helps students solve multiplication and division with understanding.
- Numerical expressions can be represented in different but equivalent ways to make calculations simpler
- The same number sentence can be associated with different concrete or real-world situations, and different numbers sentences can be associated with the same concrete or real-world situation.
- Rules of arithmetic and algebra can be used together with notions of equivalence to transform equations so solutions can be found.

Essential Questions:

- A problem solver understands what has been done, knows why the process was appropriate, and can support it with reasons and evidence.
- The base 10 system helps students solve multiplication and division with understanding.
- Numerical expressions can be represented in different but equivalent ways to make calculations simpler
- The same number sentence can be associated with different concrete or real-world situations, and different numbers sentences can be associated with the same concrete or real-world situation.
- Rules of arithmetic and algebra can be used together with notions of equivalence to transform equations so solutions can be found.

Concepts within Unit #5	TEKS Link to TEKS
Concept #3: Division Meaning and Facts	3.4F, 3.4H, 3.4I, 3.4J, 3.4K, 3.5B, 3.5D, 3.5E
Concept #4: Relationship between Multiplication and Division	3.4D, 3.4E, 3.4F, 3.4G, 3.4H, 3.4I, 3.4J, 3.4K, 3.5B, 3.5C, 3.5D, 3.5E

Unit 6: Money and Personal Financial Literacy
Estimated Date Range: November 12 - 30

Unit Overview: In this unit, students will add bills and coins. Students will also understand how planned and unplanned spending, credit, and the relationship between resources and costs help make decisions about saving and spending

Big Ideas:

- All pieces of money have a specific value.
- An amount of money can be represented using different combinations of pieces of money.
- Money is used to satisfy needs and wants.
- Important personal finance knowledge and skills help people become financially capable and responsible to make decisions when it comes to satisfying needs and wants.

Essential Questions:

- Why is it important to understand the value of coins?
- In what ways can units of money be grouped?
- Why do we have money?
- How can counting help us make sense of the world around us?

Concepts within Unit #6	TEKS Link to TEKS
Concept #1: Money – Coins and Bills	3.4A, 3.4C, 3.4K
Concept #2: Personal Financial Literacy	3.9A, 3.9B, 3.9C, 3.9D, 3.9E, 3.9F

Unit 7: Multiplication & Division and Numeration
Estimated Date Range: December 3 - 14

Unit Overview: In this unit, students will represent real-world relationships using number pairs in a table and verbal descriptions. Students will decompose numbers in order to multiply by its place value. Students will summarize and solve one-step and two step problems using data from a graph.

Big Ideas:

- For a given set of numbers there are relationships that are always true, and these are the rules that govern arithmetic and algebra.
- Relationships can be described and generalizations made for mathematical situations that have numbers or objects that repeat in predictable ways.
- Place Value knowledge impacts in the understanding of operations.
- Data summarized in graphs help us make sense of information in our world.

Essential Questions:

- What is the relationship between the numbers presented?
- What generalization can be made from the numbers presented?
- How can an understanding of expanded notation help with multiplying numbers?
- How can collecting and analyzing data help answer questions or solve problems?

Concepts within Unit #7	TEKS Link to TEKS
Concept #1: Tables	3.4A, 3.5C, 3.5E
Concept #2: Expanded Notation	3.2B
Concept #3: Graphing	3.8A, 3.8B

Unit 8: Geometry

Estimated Date Range: Dec. 17 – Jan. 11

Unit Overview: In this unit, students will sort and group two and three-dimensional figures based on attributes and properties.

Big Ideas:

- Two-and three-dimensional objects with or without curved surfaces can be described, classified, and analyzed by their attributes.

Essential Questions:

- How many ways can you sort and classify two or three-dimensional shapes?

Concepts within Unit #8	TEKS Link to TEKS
Concept #1: Classify and Sort Two-Dimensional Shapes/Quadrilaterals	3.6A, 3.6B, 3.6E
Concept #2: Classify and Sort 3D Shapes	3.6A, 3.6B

Grading Period 3	
Unit 8: Geometry (Continued)	
Estimated Date Range: December 17- January 11	
<p>Unit Overview: In this unit, students will sort and group two and three-dimensional figures based on attributes and properties.</p> <p>Big Ideas:</p> <ul style="list-style-type: none"> Two-and three-dimensional objects with or without curved surfaces can be described, classified, and analyzed by their attributes. <p>Essential Questions:</p> <ul style="list-style-type: none"> How many ways can you sort and classify two or three-dimensional shapes? 	
Concepts within Unit #8	TEKS Link to TEKS
Concept #2: Classify and Sort 3D Shapes	3.6A, 3.6B
Concept #3: Problem Solving	3.6A, 3.8A, 3.8B
Unit 9: Fractions	
Estimated Date Range: Jan. 14 – March 1	
<p>Unit Overview: In this unit, students will identify fractions as part of a whole and represent fractions on a number line. Students will divide objects among two or more recipients. Students will represent equivalent fractions and compare two fractions. Students will use their knowledge of fractions and apply it to problem solving.</p> <p>Big Ideas:</p> <ul style="list-style-type: none"> The relationship between amount of fractional parts and size of the parts is foundational for comparing fractions. Any number can be represented in an infinite number of ways that have the same value. Numbers can be compared by their values. Define a fraction as partitioning one whole into equal parts. Develop an understanding of unit fractions. Divide an object or set of objects among 2 or more recipients. <p>Essential Questions:</p> <ul style="list-style-type: none"> What is a fraction? Why is it important to understand the relationship between amount of fractional parts and size of the parts? Why is it important to compare fractions? What does partition mean? Why is the unit fraction an essential concept in understanding fractions in general? 	
Concepts within Unit #9	TEKS Link to TEKS
Concept #1: Fractions as part of a Whole	3.3A, 3.3B, 3.3C, 3.6E, 3.7A,
Concept #2: Fractions on a Number Line and Measuring Length	3.3A, 3.3B, 3.3D, 3.7A
Concept #3: Sharing	3.3A, 3.3D, 3.3E
Concept #4: Compare and Order Fractions	3.3D, 3.3F, 3.3G, 3.3H
Concept #5: Problem Solving	3.3A, 3.5E, 3.8A, 3.8B

Unit 10: Measurement

Estimated Date Range: March 4 – April 5

Unit Overview: In this unit, students will determine the area of rectangle or composite figure and determine the perimeter of a polygon. Students will determine the solutions time intervals and determine liquid volume(capacity and weight using appropriate units and tools. This is the building block for students to use models to determine the formulas for area and perimeter and solve problems involving length, area, intervals of time, liquid, volume and mass.

Big Ideas:

- Some attributes of objects are measurable and can be quantified using unit amounts.
- Measurement involves a selected attribute of an object and a comparison of the object being measured against a unit of the same attribute.
- Operations can be used to solve measurement problems.
- Perimeter is useful in everyday life
- The duration of an event is called elapsed time and it can be measured.

Essential Questions:

- What types of things can be measured? How can some things be measured?
- Why do measurements need both numbers and units? Why do we need standard units in measurement? How do we choose the best unit of measurement to use?
- How can patterns be used to determine standard formulas for area and perimeter?
- What operations help us to solve problems involving the perimeter of a polygon?
- Why is important to understand the perimeter of a shape?

Concepts within Unit #10

TEKS

[Link to TEKS](#)

Concept #1: Area and Perimeter

3.4A, 3.4K, 3.6C, 3.6D, 3.6E, 3.7A, 3.7B

Grading Period 4

Unit 10: Measurement (Continued)

Estimated Date Range: March 4 – April 5

Unit Overview: In this unit, students will determine the area of rectangle or composite figure and determine the perimeter of a polygon. Students will determine the solutions time intervals and determine liquid volume(capacity and weight using appropriate units and tools. This is the building block for students to use models to determine the formulas for area and perimeter and solve problems involving length, area, intervals of time, liquid, volume and mass.

Big Ideas:

- Some attributes of objects are measurable and can be quantified using unit amounts.
- Measurement involves a selected attribute of an object and a comparison of the object being measured against a unit of the same attribute.
- Operations can be used to solve measurement problems.
- Perimeter is useful in everyday life
- The duration of an event is called elapsed time and it can be measured.

Essential Questions:

- What types of things can be measured? How can some things be measured?

- Why do measurements need both numbers and units? Why do we need standard units in measurement? How do we choose the best unit of measurement to use?
- How can patterns be used to determine standard formulas for area and perimeter?
- What operations help us to solve problems involving the perimeter of a polygon?
- Why is important to understand the perimeter of a shape?

Concepts within Unit #10	TEKS Link to TEKS
Concept #1: Area and Perimeter	3.4A, 3.4K, 3.6C, 3.6D, 3.6E, 3.7A, 3.7B
Concept #2: Liquid Volume, Capacity, Weight, Mass	3.7D, 3.7E
Concept #3: Time	3.7C

Unit 11: Addition and Subtraction

Estimated Date Range: April 8 - 18

Unit Overview: In this unit, students will solve one and two step problems with addition and subtraction. Students will apply the skill of rounding and using compatible numbers to estimate addition and subtraction problems.

Big Ideas:

- A problem solver understands what has been done, knows why the process was appropriate, and can support it with reasons and evidence.
- The base 10 system helps students solve addition and subtraction with understanding.
- Numerical expressions can be represented in different but equivalent ways to make calculations simpler.
- The same number sentence can be associated with different concrete or real-world situations, and different numbers sentences can be associated with the same concrete or real-world situation.
- Rules of arithmetic and algebra can be used together with notions of equivalence to transform equations so solutions can be found.
- Numerical calculations can be approximated by replacing numbers with other numbers that are close and easy to compute with mentally.

Essential Questions:

- How do I know where to begin when solving a problem?
- Why is place value important when solving addition and subtraction problems?
- Why is it important to solve multi-step math problems?
- What do you do to solve a problem?
- What is the relationship between the numbers presented?
- What generalization can be made from the numbers presented?

Concepts within Unit #11	TEKS Link to TEKS
Concept #1: Addition and Subtraction Problem Solving	3.2B, 3.2C, 3.4A, 3.5A, 3.5E

Unit 12: Multiplication & Division to 100

Estimated Date Range: April 23 – May 3

Unit Overview: In this unit, students will represent and solve one-and two-step multiplication and division word problems using different strategies. Students will also use properties of multiplication and different strategies, including the standard algorithm, to multiply a two-digit number by a one-digit number.

Big Ideas:

- Understand the relationship between multiplication and division.
- The base 10 system helps students solve multiplication and division with understanding.
- The operations of multiplication and division can be represented as actions involving objects or quantities within the context of a real-life problem.

Essential Questions:

- How can the relationship of multiplication and division be represented?
- How does understanding the properties of operations help us multiply large numbers?
- How can multiplication and division be used to solve real world problems?

Concepts within Unit #12

TEKS

[Link to TEKS](#)

Concept #1: Multiplication and Division to 100

3.4G, 3.4K, 3.5B

Unit 13: STAAR Review

Estimated Date Range: May 6- May 10

Unit Overview: Any TEKS determined by the classroom teacher. Use the Region 4 STAAR Math Workstations and other materials to review concepts determined by the classroom teacher.

Unit 14: Celebrating Our Third Grade Year

Estimated Date Range: May 13- May 24

Unit Overview: In this unit, students will utilize the mathematics process standards integrating with Science, Engineering, and Technology to prepare for the careers of the future in which these skills will be necessary. An emphasis on collaboration with student peers and communicating effectively is embedded within this unit. Students will investigate global issues, answer complex questions, and solve real-world problems.

Big Ideas:

- Inquiry based learning starts with asking questions and generating curiosity.
- Process through scientific information utilizing technology while gathering quantitative and qualitative data.

Essential Questions:

- What would it take to solve a global issue?
- How would our mindsets need to change to create a change for the better?