This document is designed to provide parents/guardians/community an overview of the curriculum taught in the FBISD classroom. Included, is an overview of the Mathematics Instructional Model and Pacing, TEKS, Unit Overview, Big Ideas, Essential Questions, and Concepts for each unit.

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 in mathematical understanding

- Advice for Parents: Helping Children with Math
- How Math Should be Taught
- The Most Important Mathematical Habit of Mind
- Math: Why Doesn’t Yours Look Like Mine?
**Instructional Model:**

The instructional model for mathematics is 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.

**Math Workshop:**

During math instruction in grades K-8 in FBISD, we follow the Math Workshop structures. Instruction during a math class follows one of the three structures: Task and Share, Mini Lesson, Guided Math and Learning Stations, and Guided Math and Learning Stations. The structure that is used each day is determined by the content covered as well as student need.

<table>
<thead>
<tr>
<th>Task and Share</th>
<th>Mini Lesson, Guided Math and Learning Stations</th>
<th>Guided Math and Learning Stations</th>
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<tbody>
<tr>
<td>Number Sense Routine</td>
<td>Number Sense Routine</td>
<td>Number Sense Routine</td>
</tr>
<tr>
<td>Math Task</td>
<td>Mini Lesson</td>
<td>Guided Math</td>
</tr>
<tr>
<td>Task Share with Student Reflective Closure</td>
<td>Student Reflective Closure</td>
<td>Student Reflective Closure</td>
</tr>
</tbody>
</table>

**Number Sense Routine** – An engaging accessible, purposeful routine to begin math class that promotes a community of positive mathematics discussion and thinking.

**Math Task** – A problem-solving task that students work on in small groups. The teacher monitors and probes student thinking through questions. The task should have multiple entry points, allowing for all students to have access to the problem.

**Task Share with Student Reflective Closure** – Students come together as a whole class and discuss the various strategies they used to solve a rich mathematical task. Students ask questions, clarify their thinking, modify their work, and add to their collection of strategies.

**Mini Lesson** – A well-planned whole group lesson focused on the day’s learning intention and accessible to all levels of learners.

**Guided Math** – Small group instruction that allows the teacher to support and learn more about students’ understandings and misconceptions. Can include intervention, more on-level support, or enrichment.

**Learning Stations** – Activity in which students engage in meaningful mathematics and are provided with purposeful choices. Could include individual, partner or group tasks.

**Student Reflective Closure** – A deliberate and meaningful time for students to reflect on what they’ve learned and experienced during a math task, at activities in learning stations, or in a guided math group.
Adopted Resources:
Middle School: https://www.fortbendisd.com/Page/93918

Supplemental Resource and Tool Designation
- The TI Nspire CX calculator is a standardized technology integration tool used for Mathematics and Science in FBISD.

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

- 6.1A Apply mathematics to problems arising in everyday life, society, and the workplace
- 6.1B 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
- 6.1C 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
- 6.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
- 6.1E Create and use representations to organize, record, and communicate mathematical ideas
- 6.1F Analyze mathematical relationships to connect and communicate mathematical ideas
- 6.1G Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

Grading Period 1
Week of Inspirational Maths
Estimated Date Range: Aug. 14 – Aug. 20

Unit Overview: This unit is a set of 5 lessons to begin the school year. Lessons focus on growth mindset and how we learn mathematics.

<table>
<thead>
<tr>
<th>Themes for the Week</th>
<th>TEKS (Link to Math TEKS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The themes for the week promote important mathematical ideas such as:</td>
<td>6.1A, 6.1B, 6.1C, 6.1D, 6.1E, 6.1F, 6.1G</td>
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<tr>
<td>- learning from mistakes</td>
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<td>- doing mathematics visually</td>
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<td>- productive struggle</td>
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<tr>
<td>- working together</td>
<td></td>
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<tr>
<td>- communicating about mathematics</td>
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</table>
Unit 1: Integer Operations
Estimated Date Range: Aug. 21 – Sept. 18

Unit Overview: In this unit, students develop a deeper understanding of numbers. Students will continue to use models and the number line to develop an understanding of integers, that numbers have opposites, and absolute value. Students will also use models and the number line to compare and order integers. Students will extend their knowledge of solving operation problems with whole numbers to problems with integers. Students will spend significant time modeling the operations in order to develop a conceptual understanding of the operations prior to developing an abstract procedure for operation of integers. Instruction will include contextual and real-world problems that allow students to reason through their work and justify the reasonableness of their solutions.

Big Ideas:
- Every whole number has an opposite, both those numbers are an equal distance from zero, and this distance is known as the absolute value.
- A variety of methods can be used to develop rules that allow for developing fluency with operations.

Essential Questions:
- What is an integer and how does it relate to absolute value?
- How do you identify an integer and its opposite?
- How might we use pattern(s) to generate a rule that will help us to solve problems with integers?

Concepts within Unit #1

<table>
<thead>
<tr>
<th>Concept #1: Integers and Absolute Value</th>
<th>TEKS (Link to Math TEKS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept #2: Add and Subtract Integers</td>
<td>6.3C, 6.3D, 6.7A, 6.7D</td>
</tr>
<tr>
<td>Concept #3: Multiply and Divide Integers</td>
<td>6.2C, 6.2E, 6.3C, 6.3D, 6.7A</td>
</tr>
</tbody>
</table>

Unit 2: Rational Number Operations
Estimated Date Range: Sept. 20 – Oct. 18

Unit Overview: In this unit, students will continue to explore sets of numbers. Students will classify whole numbers, integers, and rational numbers by using visual representations such as a Venn Diagram to understand that there is a relationship between different sets of numbers. Students will build on their knowledge of ordering and performing operations on integers to include positive rational numbers (fractions and decimals). Students will build on their knowledge of comparing and ordering fractions with different numerators/denominators and decimals to the thousandths by using symbols and visual models to compare and order rational numbers. The students will continue to build on their skills of multiplying and dividing fractions and decimals by discovering algorithms, through exploration and modeling, for multiplying and dividing positive rational numbers. Students will come to understand that multiplying any number by a positive fraction less than one will result in a smaller product than the original factor and that dividing any number by a positive fraction less than one will result in a quotient larger than the dividend.

Big Ideas:
- Rational numbers can be classified into categories.
- The values of rational numbers can be compared with other rational numbers
- Rational numbers can be multiplied using area models and we can develop an algorithm for multiplying.
- Division is the inverse of multiplication.

Essential Questions:
- How can different types of numbers be categorized?
- How many numbers are there between 0 and (-1)?
- How does the visual model connect with the process for multiplying fractions and decimals?
- How are multiplication and division of fractions similar and different?
### Concepts within Unit #2

<table>
<thead>
<tr>
<th>Concept #1: Understanding Rational Numbers</th>
<th>TEKS (Link to Math TEKS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.2A, 6.2B, 6.2C, 6.2D, 6.2E, 6.4F</td>
<td></td>
</tr>
<tr>
<td>Concept #2: Multiplying Positive Rational Numbers</td>
<td>6.2E, 6.3B, 6.3E, 6.4G, 6.7A, 6.7D</td>
</tr>
<tr>
<td>Concept #3: Dividing Positive Rational Numbers</td>
<td>6.2E, 6.3A, 6.3E, 6.7A, 6.7D</td>
</tr>
</tbody>
</table>

### Grading Period 2

**Unit 3: Ratios and Rates**

**Estimated Date Range:** Oct. 22 – Nov. 15

**Unit Overview:** In this unit, students will develop proportional reasoning skills as they represent ratios with concrete models and begin to understand that ratios are multiplicative comparisons of two quantities describing the same attributes. Students will then work with rates as a comparison by division of 2 quantities having different attributes, such as miles and hours, dollars and pounds, etc. Students will use the foundation of applying mathematical process standards to select strategies and appropriate units to solve problems involving measurement. Students will use this foundation to master the concept of converting units within the different measurement systems and use proportions and unit rates to solve the problems. Once a sense of proportional relationships is developed, students will use quantitative and qualitative data to make predictions and comparisons of real world problems. Students will use skills of unit fraction, writing a ratio as a fraction and writing equivalent ratios as a foundation to understand and master the concept of understanding ratios and proportional relationships.

**Big Ideas:**
- A ratio can be used to compare two quantities that describe the same attribute.
- A rate can be used to compare (including by division) two quantities with different attributes.
- Ratios and rates can be used to compare and make predictions.

**Essential Questions:**
- What can you do with a ratio?
- How is a rate different from a ratio?
- How can rates and ratios help me in the real world?

<table>
<thead>
<tr>
<th>Concepts within Unit #3</th>
<th>TEKS (Link to Math TEKS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concept #1: Representing Ratios</td>
<td>6.4C, 6.4E</td>
</tr>
<tr>
<td>Concept #2: Understanding Rates</td>
<td>6.4D, 6.4H</td>
</tr>
<tr>
<td>Concept #3: Applying Rates and Ratios to Solve Problems</td>
<td>6.4B, 6.5A</td>
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</table>

### Unit 4: Percentages

**Estimated Date Range:** Nov. 18 – Dec.19

**Note:** Includes 7 days for Semester Exams and review

**Unit Overview:** In this unit, students will extend their knowledge of relating decimals and fractions to percentages as well as deepen their proportional reasoning skills. Students will represent percentages with concrete and pictorial models, such as 10x10 grids, strip diagrams and number lines, and use these representations and their understanding of proportions to develop an understanding of equivalent fractions, decimals, and percentages. Students will also use proportional reasoning to find either the part, the whole, or the percent, given the other two values and apply this skill to solve real world problems involving percentage such as problems with markups and markdowns, sales tax, total cost and simple interest.

**Big Ideas:**
- Fractions, decimal, and the percent of a number are different ways of expressing parts of the same whole and can be represented using various models.
- Understanding the relationship between the percent out of 100 and the part to the whole in quantities allows for solving problems related to percents.

**Essential Questions:**
How are fractions, decimals, and percents similar and different?
How can models help us in visualizing the equivalence of fractions, decimals, and percents?
How and why are percents used to solve problems?

Concepts within Unit #4 | TEKS (Link to Math TEKS)
---|---
Concept #1: Equivalent Forms of Fractions, Decimals, and Percent | 6.2E, 6.4E, 6.4F, 6.4G, 6.5C
Concept #2: Percent Application | 6.5B

Grading Period 3

Unit 5: Multiple Representations
Estimated Date Range: Jan. 7 – Jan. 31

Unit Overview: In this unit, students need to understand that there are multiple ways to represent a problem. Students will extend their knowledge of graphing ordered pairs \((x, y)\) on the coordinate plane in quadrant 1, where \(x\) and \(y\) are positive whole numbers, to graphing ordered pairs in all four quadrants where \(x\) and \(y\) are rational numbers. Students will identify the independent and dependent variables from tables, graphs, and equations and explain their meanings in context of real-world situations. Students will explore the similarities and differences between additive \((y = a + x)\) and multiplicative \((y = ax)\) relationships and apply this knowledge to represent linear relationships using tables, graphs, equations, and verbal descriptions.

Big Ideas:
- The set of real numbers is infinite, and each real number can be associated with a unique point on the number line.
- Mathematical rules (relations) can be used to assign members of one set to members of another set. A special rule (function) assigns each member of one set to a unique member of another set.
- Flexibility in representation empowers problem solving.

Essential Questions:
- How can points be graphed (and located) on a coordinate plane?
- What is the relationship between one set of numbers and another set of numbers?
- How can situations that represent a linear relationship be represented?

Concepts within Unit #5 | TEKS (Link to Math TEKS)
---|---
Concept #1: Graphing on the Coordinate Plane | 6.6A, 6.6C, 6.11A
Concept #2: Additive vs. Multiplicative | 6.4A, 6.4B, 6.5A, 6.6A
Concept #3: Writing Equations and Translating Between Views | 6.4B, 6.6B, 6.6C

Unit 6: Equations and Inequalities
Estimated Date Range: Feb. 3 – Mar. 6

Unit Overview: In this unit, students will extend their knowledge of using order of operations involving addition, subtraction, multiplication and division to include negative integers, parentheses and exponents. Students will use concrete models, pictorial models, order of operations, and properties of operations to generate equivalent expressions. Students will distinguish between an expression and equation in different forms. Students will develop a conceptual understanding of solving one-step equations and inequalities by using concrete models, manipulatives, and pictorial representations and use these models and representations to make connections to solving equations and inequalities using inverse operations. Students will determine if a given value makes an equation or inequality true and represent solutions on a number line. Students will write corresponding real-world problems given one-variable, one-step equations or inequalities and vice versa.

Big Ideas:
- Any number, measure, numerical expression, or algebraic expression can be represented in an infinite number of ways that have the same value.
Rules of arithmetic and algebra can be used together with notions of equivalence to transform equations and inequalities so solutions can be found.

Essential Questions:
- How can we use the properties of addition and multiplication to create equivalent numerical and algebraic expressions?
- How can we use arithmetic and algebra to change equations and inequalities in order to find solutions?

<table>
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<tr>
<th>Concepts within Unit #6</th>
<th>TEKS (Link to Math TEKS)</th>
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<tr>
<td>Concept #1: Generating Equivalent Expressions</td>
<td>6.7B, 6.7C, 6.7A, 6.7D</td>
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<tr>
<td>Concept #2: Writing Equations and Inequalities</td>
<td>6.9A, 6.9C</td>
</tr>
<tr>
<td>Concept #3: Solving Equations and Inequalities</td>
<td>6.9B, 6.10A, 6.10B</td>
</tr>
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Grading Period 4

Unit 7: Geometric Application of Equations
Estimated Date Range: Mar. 16 – April 3

Unit Overview: In this unit, students will extend their knowledge of properties of triangles by exploring relationships that exist in triangles: sum of angles in a triangle, when three side lengths form a triangle, and the relationship between sides and angles in a triangle. Students will use prior knowledge of area, perimeter, and volume and knowledge of equations to model, develop formulas, and solve problems involving the area of rectangles, parallelograms, trapezoids, and triangles and volume of right rectangular prisms.

Big Ideas:
- Two-dimensional objects can be described, classified and analyzed by their attributes.
- Some attributes of objects are measurable and can be quantified using unit amounts.

Essential Questions:
- What relationships exist between sides, angles, and sides and angles in triangles?
- How is the area of 2D figures determined?
- How is the volume of rectangular prisms determined?

<table>
<thead>
<tr>
<th>Concepts within Unit #7</th>
<th>TEKS (Link to Math TEKS)</th>
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<tr>
<td>Concept #1: Properties of Triangles</td>
<td>6.8A, 6.10A</td>
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<tr>
<td>Concept #2: 2D Measurement</td>
<td>6.8B, 6.8C, 6.8D, 6.10A</td>
</tr>
<tr>
<td>Concept #3: 3D Measurement</td>
<td>6.8C, 6.8D, 6.10A</td>
</tr>
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</table>

Unit 8: Data and Statistics
Estimated Date Range: April 6 – April 28

Unit Overview: In this unit, students will use numerical and graphical summaries (mode, the percent of values in each category, and the percent bar graph) to summarize categorical data and use these summaries to describe the data distribution. Students will also use numerical summaries (mean, median, range, interquartile range) and graphical representations (dot plots, stem-and-leaf plots, histograms, and box plots) to summarize numeric data and use these summaries to describe the center, spread, and shape of the data distribution. Students will distinguish between situations that yield data with and without variability.

Big Ideas:
- Data can be represented visually using tables, charts and graphs and the type of data determines the representation.
- There are numerical summaries that help us interpret data.

Essential Questions:
- What can a graph tell us about the data represented in the graph?
- What can numerical summaries tell us about the data?
### Concepts within Unit #8

<table>
<thead>
<tr>
<th>Concept #1: Analyzing and Interpreting Categorical Data</th>
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<tbody>
<tr>
<td></td>
<td>6.12D, 6.13B</td>
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</table>

### Unit 9: Financial Literacy

**Estimated Date Range:** April 29 – May 28

**Includes 7 days for semester exams and review**

### Unit Overview:

In this unit, students will expand their understanding of personal finance. Students will develop an understanding of the cost associated with a checking account and the use of the debit card, which is a factor in choosing a bank. Students will learn the similarities and differences between debit cards and credit cards and experience balancing a checkbook register using their understanding of integer operations. Students will develop an understanding of the importance of establishing a positive credit history. Students will compare the annual salaries of different occupations and will explain the different way to pay for college. Students will take the skills learned and apply them to develop personal financial literacy.

### Big Ideas:

- Consumers must make informed decisions.

### Essential Questions:

- How do I choose a bank?
- How do I balance a checkbook register?
- How will I pay for college?
- How will I choose a job?

### Concepts within Unit #9

<table>
<thead>
<tr>
<th>Concept #1: Credit Cards vs Debit Cards</th>
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<tbody>
<tr>
<td></td>
<td>6.14B</td>
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<tr>
<td>Concept #2: Checking Accounts</td>
<td>6.14A, 6.14C</td>
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<tr>
<td>Concept #3: Credit Reports</td>
<td>6.14D, 6.14E, 6.14F</td>
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<tr>
<td>Concept #4: Paying for College</td>
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</tr>
<tr>
<td>Concept #5: Jobs and Income</td>
<td>6.14H</td>
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