# Math Kindergarten Overview
## 2019 - 2020

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 and Student Reflective Closure</td>
<td>Student Reflective Closure</td>
<td>Student Reflective Closure</td>
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**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:
Elementary: https://www.fortbendisd.com/Page/93917

Mathematical Process Standards:

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

K.1A Apply mathematics to problems arising in everyday life, society, and the workplace
K.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
K.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
K.1D Communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate
K.1E Create and use representations to organize, record, and communicate mathematical ideas
K.1F Analyze mathematical relationships to connect and communicate mathematical ideas
K.1G Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication

Grading Period 1

Unit 1: Creating a Mathematical Community through Graphing
Estimated Date Range: Aug. 14 – Aug. 20

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. Teachers will help students with collecting and sorting data. They will create real object and picture graphs and answer teacher directed questions. Students can also ask questions that can be determined from the information in the created graphs.

In addition to graphing, the intent of this unit is to establish a foundation for upcoming units by reinforcing and supporting student ownership of learning. The emphasis will be on the creation of a positive and respectful learning environment through highlighting attributes of Profile of a Graduate, Growth Mindset, and the implementation and support of structured Math Workshop routines and procedures. The goal is to build a community of learners with a mathematical mindset in which students value their mistakes and struggles, and feel safe to engage in mathematical discourse.

Big Ideas:
• Data helps us makes sense of information in our world.
• Organization of information shows relationships.
• Data can be collected, organized, sorted, and analyzed in a variety of ways by creating real-object and picture graphs.

Essential Questions:
• Why and how do we sort information?
• How do graphs help you to interpret data?
• What are some ways we can organize data?
### Unit Overview: Unit 1

Concepts within Unit #1

<table>
<thead>
<tr>
<th>Concept #1: Create and Interpret Graphs</th>
<th>TEKS [Link to Math TEKS]</th>
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<tbody>
<tr>
<td>K.8B, K.8C, K.8A</td>
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Unit Overview: In this unit, students will build knowledge of two-dimensional shapes including circles, triangles, rectangles, and squares as special rectangles. They will identify and create regular and irregular 2D shapes by their attributes using informal and formal geometric language. Students will also sort and classify both regular and irregular two-dimensional shapes. By the end of the unit students will be able to understand that geometric shapes are a representation of the world around us and that they can be compared and described based on their attributes.

**Big Ideas:**
- Geometric shapes are a representation of the world around us.
- Geometric shapes can be analyzed, sorted, and compared by attributes.
- The attributes of a geometric shape determines its use.

**Essential Questions:**
- Why is it important to be able to describe and name geometric shapes?
- How do geometric shapes help us solve problems and make sense of the world?
- What are the ways to describe geometric shapes?
- How can geometric shapes be compared using attributes?

### Unit Overview: Unit 2

Unit 2: 2D Shapes

Estimated Date Range: Aug. 21 – Aug. 28

**Concept #1:** Identify 2D Shapes and Their Attributes

**Concept #2:** Compare 2D Shapes

<table>
<thead>
<tr>
<th>Concept #1: Identify 2D Shapes and Their Attributes</th>
<th>TEKS [Link to Math TEKS]</th>
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<tbody>
<tr>
<td>K.6E, K.6A, K.6D, K.6F</td>
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<table>
<thead>
<tr>
<th>Concept #2: Compare 2D Shapes</th>
<th>TEKS [Link to Math TEKS]</th>
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<tr>
<td>K.6E, K.6A, K.6D, K.6F</td>
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### Unit Overview: Unit 3

Unit 3: Numeration and Compose & Decompose 0-5

Estimated Date Range: Aug. 29 – Oct. 1

**Concepts within Unit #2**

<table>
<thead>
<tr>
<th>Concept #1: Identify 2D Shapes and Their Attributes</th>
<th>TEKS [Link to Math TEKS]</th>
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<tr>
<td>K.6E, K.6A, K.6D, K.6F</td>
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**Unit Overview:** Students will begin Kindergarten with prior experiences of counting within their environment, such as counting how many fingers and toes they have. In this unit, students will continue to build on this knowledge by learning how to read, write, and represent the numbers 0-5 concretely. They will be introduced to the concepts of composing and decomposing numbers in order to build an understanding that numbers can be represented in multiple ways. Students will also begin exploring the concept of addition as the act of joining groups of objects and subtraction as the act of separating a group of objects. Increasingly larger numbers will be used with students in the following grade levels to represent, compare and use with computations.

**Big Ideas:**
- Fluency with numbers is a vital life skill.
- A number can be represented in different ways.
- Number sense develops through experiences of counting objects and pictures, writing numbers and reading numbers.

**Essential Questions:**
- Why are numbers important?
- Why is it important to read numbers?
- Why is it important to know how to write numbers?
- How can numbers help us make sense of the world around us?
- What kinds of experiences help develop number sense?

<table>
<thead>
<tr>
<th>Concepts within Unit #3</th>
<th>TEKS (Link to Math TEKS)</th>
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<tbody>
<tr>
<td>Concept #1: Read, Write and Represent Numbers 0-3</td>
<td>K.2B, K.2A, K.2C, K.2D, K.5A</td>
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<tr>
<td>Concept #2: Read, Write and Represent Numbers 4 and 5</td>
<td>K.2B, K.2A, K.2C, K.2D, K.5A</td>
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Unit 4: 3D Shapes
Estimated Date Range: Oct. 2 – Oct. 10

Unit Overview: In this unit, students will be able to identify three-dimensional figures in real-life objects. These include, but are not limited to, cylinders, cones, spheres and cubes. Students will learn academic vocabulary for the attributes of three-dimensional figures, such as, faces, vertices and edges, and be able to relate these attributes back to two-dimensional figures. Lastly, students will classify and sort three-dimensional figures. One way they will classify and sort is if a figure can roll or slide or stack. Prekindergarten students should be able to recognize and create common shapes. Students will continue to identify, compare and sort other three-dimensional figures.

Big Ideas:
- Three-dimensional shapes are a representation of the world around us.
- Three-dimensional shapes can be analyzed, sorted, and compared by attributes.

Essential Questions:
- Why is it important to be able to describe and name three-dimensional shapes?
- How do geometric shapes help us solve problems and make sense of the world?
- What are the ways to describe three-dimensional shapes?
- How can three-dimensional shapes be compared using attributes?

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<thead>
<tr>
<th>Concepts within Unit #4</th>
<th>TEKS (Link to Math TEKS)</th>
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<tbody>
<tr>
<td>Concept #1: Identify and Sort 3D Figures</td>
<td>K.6E, K.6B, K.6C</td>
</tr>
<tr>
<td>Concept #2: Classify 3D Figures</td>
<td>K.6E, K.6B, K.6C</td>
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</table>
Unit Overview: In this unit, students will learn about the numbers 6-10. They will learn how to read, write and represent them concretely and continue to spiral back to numbers 0-5 as needed. They will continue to compose and decompose these numbers in order to build an understanding of value and that numbers can be represented in multiple ways. Students will continue joining and separating groups of objects to lay a foundational understanding of addition and subtraction. Increasingly larger numbers will be used with students in the following grade levels to represent, compare and use with computations.

Big Ideas:
- Fluency with numbers is a vital life skill.
- A number can be represented in different ways.
- Number sense develops through experiences of counting objects and pictures, writing numbers and reading numbers.

Essential Questions:
- Why are numbers important?
- Why is it important to read numbers?
- Why is it important to know how to write numbers?
- How can numbers help us make sense of the world around us?
- What kinds of experiences help develop number sense?

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<tr>
<th>Concepts within Unit #5</th>
<th>TEKS (Link to Math TEKS)</th>
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Unit Overview: In this unit, students will collect and sort data and create both real object and picture graphs. Understanding the concept of more, fewer and same as, is key for students to be able to analyze the data in graphs. Teachers will help students with collecting and sorting data to be able to create graphs and answer and ask questions related to the data. Graphing will progress to bar graphs and then to other types such as dot plots, scatter plots and stem-and-leaf.

Big Ideas:
- Data helps us make sense of information in our world.
- Organization of information shows relationships.
- Data can be collected, organized, sorted, and analyzed in a variety of ways by creating real-object and picture graphs.

Essential Questions:
• Why and how do we sort information?
• How do graphs help you to interpret data?
• What are some ways we can organize data?

### Concepts within Unit #6

<table>
<thead>
<tr>
<th>Concept #1: As Many, More and Fewer</th>
<th>TEKS (Link to Math TEKS)</th>
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<tr>
<td>K.8C, K.8A</td>
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<table>
<thead>
<tr>
<th>Concept #2: Collecting &amp; Organizing Data</th>
<th>TEKS (Link to Math TEKS)</th>
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<td>K.8B, K.8C, K.8A</td>
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<tr>
<th>Concept #3: Real and Picture Graphs</th>
<th>TEKS (Link to Math TEKS)</th>
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<tr>
<td>K.8B, K.8C, K.8A</td>
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### Unit 7: Money

Estimated Date Range: Nov. 15 – Nov. 21

**Unit Overview:** In this unit, students will identify a penny, nickel, dime and quarter and be able to explain the difference between money received as a gift and money earned from performing a task or job. In future grades, students will learn to count and determine a value of a collection of coins and bills and write that value using a decimal point and symbol.

**Big Ideas:**
- Knowing how to identify and earn money is key to financial security.

**Essential Questions:**
- What attributes can you use to identify coins?
- What are the differences between money that is earned and money that is a gift?

### Concepts within Unit #6

<table>
<thead>
<tr>
<th>Concept #1: Identifying Coins and Money as Income</th>
<th>TEKS (Link to Math TEKS)</th>
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<tbody>
<tr>
<td>K.4A, K.9A, K.9B</td>
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### Unit 8: Numeration and Compose & Decompose 0-10

Estimated Date Range: Nov. 22 – Dec. 19

**Unit Overview:** In this unit, students will strengthen their understanding about the numbers 0-10. They will continue to read, write and represent them concretely, and compose and decompose these numbers in order to build an understanding that numbers can be represented in multiple ways. Student’s ability to compose and decompose to make 10 is a foundational skill for future mathematics understanding. Students will also continue to build their understanding of addition as the act of joining groups of objects and subtraction as the act of separating a group of objects. Students will work with larger and larger numbers as they progress to future grade levels and build from adding and subtracting whole numbers to adding, subtracting, multiplying and dividing whole numbers, decimals and fractions.

**Big Ideas:**
- Fluency with numbers is a vital life skill.
- A number can be represented in different ways.
- Number sense develops through experiences of counting objects and pictures, writing numbers and reading numbers.

**Essential Questions:**
- Why are numbers important?
- Why is it important to read numbers?
- Why is it important to know how to write numbers?
- How can numbers help us make sense of the world around us?
- What kinds of experiences help develop number sense?

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<th>Concepts within Unit #6</th>
<th>TEKS (Link to Math TEKS)</th>
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Grading Period 3
Unit 9: Numeration 0-15
Estimated Date Range: Jan. 7 – Feb. 27

Unit Overview: In this unit, students will strengthen their understanding about the numbers 0-15. They will continue to read, write and represent them concretely, and compose and decompose these numbers in order to build an understanding that numbers can be represented in multiple ways. Student’s ability to compose and decompose to make 15 is a foundational skill for future mathematics understanding. Students will also continue to build their understanding of addition as the act of joining groups of objects and subtraction as the act of separating a group of objects. Students will work with larger and larger numbers as they progress to future grade levels and build from adding and subtracting whole numbers to adding, subtracting, multiplying and dividing whole numbers, decimals and fractions.

Big Ideas:
- Fluency with numbers is a vital life skill.
- A number can be represented in different ways.
- Number sense develops through experiences of counting objects and pictures, writing and reading numbers.

Essential Questions:
- Fluency with numbers is a vital life skill.
- A number can be represented in different ways.
- Number sense develops through experiences of counting objects and pictures, writing and reading numbers.

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<thead>
<tr>
<th>Concepts within Unit #5</th>
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<tbody>
<tr>
<td>Concept #1: Read, Write and Represent 0-15</td>
<td>K.2B, K.2A, K.2C, K.2D, K.5A</td>
</tr>
<tr>
<td>Concept #2: Compare and Order 0-15</td>
<td>K.2E, K.2H, K.2A, K.2F, K.2G</td>
</tr>
<tr>
<td>Concept #3: Joining and Separating 0-15</td>
<td>K.2I, K.3B, K.3A, K.3C</td>
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Unit Overview: In this unit, students will collect and sort data and create both real object and picture graphs with numbers up to 15. Students will answer and ask questions to compare categories of data which include which has more, fewer or the same as. Future grade levels will create a variety of graphs such as bar, dot plots, stem-and-leaf which include scaled intervals, but the focus will shift from creating to analyzing the data and solving multi-step problems.

Big Ideas:
- Data helps us make sense of information in our world.
- Organization of information shows relationships.
- Data can be collected, organized, sorted, and analyzed in a variety of ways by creating real-objects and picture graphs.
Essential Questions:
- Why and how do we sort information?
- How do graphs help you to interpret data?
- What are some ways we can organize data?

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<tr>
<th>Concepts within Unit #6</th>
<th>TEKS (Link to Math TEKS)</th>
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<tbody>
<tr>
<td>Concept #1: Graphing with Larger Numbers</td>
<td>K.8B, K.8C, K.8A, K.3B</td>
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</table>
**Unit 11: Numeration 0-20**

**Estimated Date Range:** Mar. 16 – Apr. 16

**Unit Overview:** In this unit, students will strengthen their understanding about the numbers 0-20. They will continue to read, write and represent them concretely, and compose and decompose these numbers in order to build an understanding that numbers can be represented in multiple ways. Student’s ability to compose and decompose to make 20 is a foundational skill for future mathematics understanding. Students will also continue to build their understanding of addition as the act of joining groups of objects and subtraction as the act of separating a group of objects. Students will work with larger and larger numbers as they progress to future grade levels and build from adding and subtracting whole numbers to adding, subtracting, multiplying and dividing whole numbers, decimals and fractions.

**Big Ideas:**
- Fluency with numbers is a vital life skill.
- A number can be represented in different ways.
- Number sense develops through experiences of counting objects and pictures, writing numbers, reading numbers and comparing numbers.

**Essential Questions:**
- Why are numbers important?
- Why is it important to read numbers?
- Why is it important to know how to write numbers?
- How can numbers help us make sense of the world around us?
- What kinds of experiences help develop number sense?

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<tbody>
<tr>
<td>Concept #3: Comparing Numbers</td>
<td>K.2E, K.2H, K.2F, K.2G</td>
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</table>

**Unit 12: Addition & Subtraction with Number Sentences & Word Problems**

**Estimated Date Range:** Apr. 17 – May 11

**Unit Overview:** In this unit, students will build on their understanding of composing and decomposing numbers to use numbers and symbols to represent addition and subtraction. They will continue to represent the action of adding and subtracting using concrete objects and pictures. Students will determine which action is taking place in word problems within 10. Strategies for making 10 is a paramount skill to begin adding and subtracting beyond 10 in future grades. Students will add and subtract larger numbers in future grade levels and apply their understanding of repeated addition and subtraction to multiplication and division.

**Big Ideas:**
- Addition and subtraction are inverse operations.
A problem solver understands what has been done, knows why the process was appropriate, and can support it with reasons and evidence.

**Essential Questions:**
- How are mathematical operations (addition and subtraction) related to each other?
- How do I know which mathematical operation to use when solving problems?
- How do I know which evidence to use to support my reasoning?

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<tr>
<th>Concepts within Unit #6</th>
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<tbody>
<tr>
<td>Concept #1: Addition with Number Sentences 0-5</td>
<td>K.3B, K.3A, K.3C</td>
</tr>
<tr>
<td>Concept #2: Subtraction with Number Sentences 0-5</td>
<td>K.3B, K.3A, K.3C</td>
</tr>
<tr>
<td>Concept #3: Addition with Number Sentences 0-10</td>
<td>K.3B, K.3A, K.3C</td>
</tr>
<tr>
<td>Concept #4: Subtraction with Number Sentences 0-10</td>
<td>K.3B, K.3A, K.3C</td>
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**Unit 13: Measurement**
Estimated Date Range: May 12 – May 13

**Unit Overview:** In this unit, students will discuss what measurable attributes can be used for a specific object, such as I can measure the length or determine the weight or capacity of an object. Students will compare objects to determine if they are longer or shorter, hold more or less and weigh more or less. They will use physical objects to make these comparisons and describe how the objects compare. This will help with measuring length with nonstandard units next year and bridge to standard units for length, weight, and capacity/volume.

**Big Ideas:**
- Measurement helps us understand and describe our world.
- Objects can be compared using the same measurable attribute: length, capacity or weight.
- Measurements can be made with appropriate tools and techniques.

**Essential Questions:**
- Why is measurement important?
- What types of things can be measured?
- How do measurements help us compare objects?
- How can something be measured?

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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: Identifying and Comparing Measurable Attributes</td>
<td>K.7B, K.7A</td>
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**Unit 14: Personal Financial Literacy**
Estimated Date Range: May 14 – May 28

**Unit Overview:** In this unit, students will learn about financial matters including earning money versus acquiring money as a gift and determining wants and needs. Financial literacy also includes knowing that certain jobs require certain skills. These skills will be taught again in first grade but will also include making decisions about spending, saving and charitable giving. Learning to be fiscally responsible will help students make financial decisions for the rest of their lives.
Big Ideas:
- 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:
- How can money be used?
- What financial choices do people make about their money?

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<tr>
<th>Concepts within Unit #6</th>
<th>TEKS (Link to Math TEKS)</th>
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