

KPBSD MATH CURRICULUM

3RD GRADE

Year at a Glance

This document provides a birds-eye view of the Third Grade math “curriculum map.” Please note, some standards are partially taught in early units and re-visited throughout the year. For complete understanding of content to be taught, please visit the Third Grade “curriculum map.”

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9
Title	Building Mathematical Community through Understanding Equal Groups	Problem Solving with Data	Addition and Subtraction Stories	Making Sense of Multiplication and Division	Reason with Shapes and Their Attributes	Applying Operations to Area and Perimeter	Understanding Fractions as Parts of a Whole	Using Tools to Estimate and Measure	Understanding Time
Duration	3-4 weeks	1-2 weeks	4-5 weeks	5-6 weeks	1-2 weeks	2-3 weeks	4-5 weeks	2-3 weeks	1-2 weeks
Content Standards	3.OA.1 3.OA.2 3.OA.3 3.OS.9	3.MD.4 3.MD.6 3.OA.8 3.NBT.2	3.NBT.2 3.OA.8 3.NBT.1	3.OA.1 3.OA.2 3.OA.3 3.OA.4 3.OA.5 3.OA.6 3.OA.7 3.OA.8 3.OA.9 3.NBT.3	G.1 G.2 NF.1	MD.7 MD.8 MD.9 MD.10	3.NF.1 3.NF.2 3.NF.3	3.MD.2 3.MD.3 3.MD.5	3.MD.1
Practice Standards	1,3,4,8	1,3,4	1,2,3,4,6	1,2,3,4,7,8	2,4,5,6	5,6	2,3,4,5	3,5,6,7,8	1,2,4,6

KPBSD MATH CURRICULUM

3rd GRADE

UNIT 1 – BUILDING A MATHEMATICAL COMMUNITY THROUGH THE UNDERSTANDING OF EQUAL GROUPS

Desired Results

Priority Standards	Transfer	
<p>3.OA.1. Interpret products of whole numbers (e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each). For example, show objects in rectangular arrays or describe a context in which a total number of objects can be expressed as 5×7.</p> <p>3.OA.2. Interpret whole number quotients of whole numbers (e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each). For example, deconstruct rectangular arrays or describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.</p> <p>3.OA.3. Use multiplication and division numbers up to 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).</p> <p>3.OA.9. Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations. For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.</p>	<p>Students will be able to independently use their learning to... Build a community of mathematical problem solvers and develop conceptual understanding of multiplication and division.</p>	
	Meaning	
	<p>ENDURING UNDERSTANDINGS</p> <p>Students will understand that...</p> <ul style="list-style-type: none"> • Objects of equal groups can be arranged to find the product. • An expression can be put into context (3×5 is the same as three groups of five). • There is a relationship between real-world problems (that deal with equal groups, arrays, and measurement quantities) and multiplication and division. • Mathematical situations can be represented with a model. • Patterns are created and extended. • There is a relationship between properties of operations (example: multiplication is repeated addition). 	<p>ESSENTIAL QUESTIONS</p> <p>Students will keep considering...</p> <ul style="list-style-type: none"> • How do multiplication and division solve real-world problems? (eg: word problems and performance tasks) • What are ways recognizing patterns help me solve problems? • How do I build a community of mathematical problem solvers? • In what ways is an array related to equal groups? • How do the properties of multiplication help me understand patterns? • How is multiplication related to division? • What are ways I illustrate and explain multiplication and division problems?

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UNIT 1 – BUILDING A MATHEMATICAL COMMUNITY THROUGH THE UNDERSTANDING OF EQUAL GROUPS

Acquisition	
	<p>Students will know...</p> <ul style="list-style-type: none"> • Strategies to model story problems using arrays and repeated addition. • The concept of division that involve unknown number groups or size of the group. • The relationship between multiplication and division. • Multiplication facts with 2, 5, and 10 as a factor. • Ways to communicate and share their reasoning and solutions.
	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> • I can arrange objects (blocks, arrays, pictures, number lines, chips, cubes, and so on) into equal groups and understand the product. • I can write an equation about the equal groups I made. • I can make a model showing the equation I made. • I can describe a context for a number expression. • I can start with a set of objects and divide into equal shares. • I can write an equation about the equal groups I made. • I can make a model showing the equation I made. • I can solve multiplication and division word problems using different strategies like models, arrays, drawings, or equations. • I can use a symbol for an unknown amount when I write an equation. • I can see patterns in a group of numbers. • I can explain patterns using properties of operations (addition, subtraction, multiplication, division).

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UNIT 1 – BUILDING A MATHEMATICAL COMMUNITY THROUGH THE UNDERSTANDING OF EQUAL GROUPS

Evidence

Vocabulary

- Equal groups
- Factors
- Product
- Quotient
- Expression
- Equations
- Symbols
- Measurement quantities
- Arrays
- Multiplication
- Division
- Arithmetic pattern
- Properties of operations
- Addition
- Subtraction
- Even and odd
- Compose and decompose numbers

Mathematical Practices (Bolded practices are priority for this unit)

- **Make sense of problems and persevere in solving them.**
- Reason abstractly and quantitatively.
- **Construct viable arguments and critique the reasoning of others.**
- **Model with mathematics.**
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- **Look for and express regularity in repeated reasoning.**

Learning Plan

[Cluster 1](#)

KPBSD MATH CURRICULUM
3rd GRADE
UNIT 2 – PROBLEM SOLVING WITH DATA

Desired Results

<p>Priority Standards</p> <p>3.MD.4. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. <i>For example draw a bar graph in which each square in the bar graph might represent 5 pets.</i></p> <p>Supporting Standards</p> <p>3.MD.6. Explain the classification of data from real-world problems shown in graphical representations. Use the terms minimum and maximum. (Local Standard)</p> <p>3.OA.8. Solve and create two-step word problems using any of the four operations. Represent these problems using equations with a symbol (box, circle, question mark) standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p>3.NBT.2. Use strategies and/or algorithms to fluently add and subtract with numbers up to 1000, demonstrating understanding of place value, properties of operations, and/or the relationship between addition and subtraction.</p>	Transfer	
	<p>Students will be able to independently use their learning to... Collect, represent, and analyze data to answer interpretive questions.</p>	
	Meaning	
	<p style="text-align: center;">ENDURING UNDERSTANDINGS</p> <p>Students will understand that...</p> <ul style="list-style-type: none"> • Data can be represented in bar, picture, and line graphs & plots. • Data can be used to solve problems. 	<p style="text-align: center;">ESSENTIAL QUESTIONS</p> <p>Students will keep considering...</p> <ul style="list-style-type: none"> • How do I ask questions that involve categories and collect data about those questions? • What are ways I can represent the data in picture or bar graphs? • How do I interpret data displayed in a picture or bar graphs? • How do I use addition, subtraction, and multiplication to solve one and two-step “how many more” and “how many less” problems?
	Acquisition	
<p>Students will know...</p> <ul style="list-style-type: none"> • Strategies to represent and interpret scaled picture and bar graphs. • Ways to collect data by asking a question that yields data. • Data can be represented in graphs. • Graphs help us interpret and analyze data. • Strategies to solve one and two-step “how many more” and “how many less” problems using information from these graphs. 	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> • I can draw a scaled picture graph to represent data. • I can draw a scaled bar graph to represent data. • I can draw a line graph and plot. • I can solve problems using the graph data. 	

KPBSD MATH CURRICULUM
3rd GRADE
UNIT 2 – PROBLEM SOLVING WITH DATA

Evidence

Vocabulary

- Data
- Bar Graph
- Picture Graph
- Scale

Mathematical Practices (Bolded practices are priorities for this unit)

- **Make sense of problems and persevere in solving them.**
- Reason abstractly and quantitatively.
- **Construct viable arguments and critique the reasoning of others.**
- **Model with mathematics.**
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

Learning Plan

Cluster 2

KPBSD MATH CURRICULUM

3rd GRADE

UNIT 3 – ADDITION AND SUBTRACTION STORIES

Desired Results

<p>Priority Standards</p> <p>3.OA.8. Solve and create two-step word problems using any of the <i>four operations</i>*. Represent these problems using equations with a symbol (box, circle, question mark) standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p>3.NBT.2. Use strategies and/or algorithms to fluently add and subtract with numbers up to 1000, demonstrating understanding of place value, properties of operations, and/or the relationship between addition and subtraction.</p> <p><i>*This unit focuses on addition and subtraction only.</i></p> <p>Supporting Standards</p> <p>3.NBT.1. Use place value understanding to round whole numbers to the nearest 10 or 100.</p>	Transfer	
	Students will be able to independently use their learning to... Identify real-world problems and use addition and subtraction to solve them.	
	Meaning	
	<p style="text-align: center;">ENDURING UNDERSTANDINGS</p> <p>Students will understand that...</p> <ul style="list-style-type: none"> • There are many strategies for solving addition and subtraction problems. • Numbers can be added or subtracted according to place value. • There is a relationship between addition and subtraction and it can be used to solve problems. • Estimating and rounding are efficient strategies to check answers. 	<p style="text-align: center;">ESSENTIAL QUESTIONS</p> <p>Students will keep considering...</p> <ul style="list-style-type: none"> • What strategies enable me to solve problems? • How do I use place value and the properties of operations to perform multi digit arithmetic?
	Acquisition	
<p>Students will know...</p> <ul style="list-style-type: none"> • Strategies to formulate the equation(s) that matches the word problem. • Variables are inserted to represent an unknown number. • Strategies to solve the equation(s). • Mental math can be used to check the reasonableness of answers. 	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> • I can add numbers to 1000 in many ways using a strategy that makes sense to me. • I can subtract numbers from 1000 in many ways using a strategy that make sense to me. • I can solve word problems with two-steps using addition, subtraction. • I can use a letter to stand for a number I don't know. • I can check if my answer is reasonable by using mental math. • I can check if my answer is reasonable by estimating or rounding. 	

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UNIT 3 – ADDITION AND SUBTRACTION STORIES

Evidence

Vocabulary

- Equations
- Mental computation
- Estimation
- Strategy
- Reasonable/reasonableness
- Rounding
- Place value
- Digits

Mathematical Practices (Bolded practices are priorities for this unit)

- **Make sense of problems and persevere in solving them.**
- **Reason abstractly and quantitatively.**
- **Construct viable arguments and critique the reasoning of others.**
- **Model with mathematics.**
- Use appropriate tools strategically.
- **Attend to precision.**
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

Learning Plan

Cluster 3

KPBSD MATH CURRICULUM

3rd GRADE

UNIT 4 – MAKING SENSE OF MULTIPLICATION AND DIVISION

Desired Results

Desired Results		
<p>Priority Standards</p> <p>3.OA.1. Interpret products of whole numbers (e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each). <i>For example, show objects in rectangular arrays or describe a context in which a total number of objects can be expressed as 5×7.</i></p> <p>3.OA.2. Interpret whole-number quotients of whole numbers (e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each). <i>For example, deconstruct rectangular arrays or describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.</i></p> <p>3.OA.3. Use multiplication and division numbers up to 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).</p> <p>3.OA.4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. <i>For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = ? \div 3$, $6 \times 6 = ?$</i></p> <p>3.OA.7. Fluently multiply and divide numbers up to 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.</p> <p>3.OA.8. Solve and create two-step word problems using any of the four operations*. Represent these problems</p>	Transfer	
	<p>Students will be able to independently use their learning to... Develop a conceptual understanding of multiplication and division to achieve automaticity and solve real-world problems.</p>	
	Meaning	
	<p style="text-align: center;">ENDURING UNDERSTANDINGS</p> <p>Students will understand that...</p> <ul style="list-style-type: none"> • Objects of equal groups can be arranged to find the product. • Multiplication and division are related. • Division is grouping into equal sets. • Division is an unknown factor problem. • Word problems can be represented by a mathematical equation. • Pictures and symbols can represent unknown numbers. • Mathematical situations can be represented with a model. • Patterns are created and extended. • There is a relationship between properties of operations. (example: multiplication is repeated addition) 	<p style="text-align: center;">ESSENTIAL QUESTIONS</p> <p>Students will keep considering...</p> <ul style="list-style-type: none"> • What are ways multiplication and division are related? • How do I use multiplication and division to solve problems? • How can I use the properties of multiplication? • What strategies can I use to memorize facts?
Acquisition		
<p>Students will know...</p> <ul style="list-style-type: none"> • Multiplication and division (equal groups) can be modeled in a variety of ways. • Division can be used to find the number of objects in each group (partitive division, size of the groups unknown) or to find the 	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> • I can arrange objects into equal groups to represent multiplication and division. • I can make a model to go with the multiplication and/or division equations I have written. And vice versa. 	

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UNIT 4 – MAKING SENSE OF MULTIPLICATION AND DIVISION

<p>using equations with a symbol (box, circle, question mark) standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.</p> <p><i>*This unit focuses on multiplication and division only</i></p> <p>3.OA.9. Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain them using properties of operations. <i>For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.</i></p> <p>3.NBT.3. Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9×80, 10×60) using strategies based on place value and properties of operations.</p> <p style="text-align: center;">Supporting Standards</p> <p>3.OA.5. Make, test, support, draw conclusions and justify conjectures about properties of operations as strategies to multiply and divide. (Students need not use formal terms for these properties.)</p> <ul style="list-style-type: none"> • Commutative property of multiplication: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. • Associative property of multiplication: $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. • Distributive property: Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. • Inverse property (relationship) of multiplication and division. <p>3.OA.6. Understand division as an unknown factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8.</p>	<p>number of groups (measurement division, number of groups unknown).</p> <ul style="list-style-type: none"> • Patterns of multiplication on a hundreds board or a multiplication table. • Share their thinking by communicating their reasoning and sharing their solutions. • An equation is a balance of numbers on both sides of the equal sign. • Letters and symbols can represent an unknown quantity in an equation. • Estimating and rounding are efficient strategies to check answers. 	<ul style="list-style-type: none"> • I can solve multiplication and division word problems using different strategies like models, arrays, drawings, or equations. • I can use a symbol for an unknown amount when I write an equation. • I can find the unknown factor of division using different strategies. • I can solve multiplication and division problems using fact families (<i>For example: I can solve $45 \div 5 = 9$ because I know that $9 \times 5 = 45$</i>). • I can mentally solve multiplication and division facts from 0-10. • I can solve word problems with two-steps using multiplication and division. • I can check my answers with inverse operations. • I can identify and explain patterns in a group of numbers. • I can apply properties of multiplication (commutative, associative, distributive) to solve multiplication and division problems involving single-digit factors.
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KPBSD MATH CURRICULUM

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UNIT 4 – MAKING SENSE OF MULTIPLICATION AND DIVISION

Evidence

Vocabulary

- Equation
- Fact families
- Unknown quantity (variable)
- Rounding
- Estimating
- Patterns
- Equal groups
- Arrays
- Factors
- Products
- Symbols
- Measurement quantities
- Properties of multiplication
- Multiplication table
- Equal shares
- Quotient
- Division
- Dividends
- Divisor

Mathematical Practices (Bolded practices are priorities for this unit)

- **Make sense of problems and persevere in solving them.**
- **Reason abstractly and quantitatively.**
- **Construct viable arguments and critique the reasoning of others.**
- **Model with mathematics.**
- Use appropriate tools strategically.
- Attend to precision.
- **Look for and make use of structure.**
- **Look for and express regularity in repeated reasoning.**

Learning Plan

Cluster 2

KPBSD MATH CURRICULUM

3rd GRADE

UNIT 5 – REASON WITH SHAPES AND THEIR ATTRIBUTES

Desired Results

<p>Priority Standards</p> <p>3.G.1. Categorize shapes by different attribute classifications and recognize that shared attributes can define a larger category. Generalize to create examples or non-examples.</p> <p>3.G.2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as $\frac{1}{4}$ of the area of shape.</p> <p style="text-align: center;">Supporting Standards</p> <p>3.NF.1. Understand a fraction of $\frac{1}{b}$ (e.g., $\frac{1}{4}$) as a quantity formed by 1 part when a whole is partitioned into b (e.g., 4) equal parts; understand a fraction $\frac{a}{b}$ (e.g., $\frac{2}{4}$) as the quantity formed by a (e.g., 2) parts of size $\frac{1}{b}$. (e.g., $\frac{1}{4}$).</p>	Transfer	
	<p>Students will be able to independently use their learning to...</p> <p>Classify and categorize shapes based on attributes.</p> <p>Recognize that fractions are parts of a whole.</p>	
	Meaning	
	<p style="text-align: center;">ENDURING UNDERSTANDINGS</p> <p>Students will understand that...</p> <ul style="list-style-type: none"> Shapes get their names based on their common attributes. Shapes share some attributes. A shape’s attributes determine which category it belongs to. Even though shapes have different names, they may have attributes that are the same. All closed figures can be identified based on the number of their sides. Shapes can be partitioned into parts with equal areas. 	<p style="text-align: center;">ESSENTIAL QUESTIONS</p> <p>Students will keep considering...</p> <ul style="list-style-type: none"> What are ways I classify and categorize shapes? What are attributes and how do they help me recognize and classify shapes? How do I partition shapes into parts with equal areas?
	Acquisition	
<p>Students will know...</p> <ul style="list-style-type: none"> Characteristics of triangles and quadrilaterals. Strategies to decompose quadrilaterals. Examples and non-examples of a variety of quadrilaterals including rhombuses, rectangles, squares, parallelograms, and trapezoids. Ways to communicate and share reasoning and solutions. 	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> I can recognize and categorize shapes based on their attributes. I can draw examples and non-examples of geometric shapes. I can partition shapes into equal parts. I can express the area of each equal part of a shape as a fraction. 	

KPBSD MATH CURRICULUM

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UNIT 5 – REASON WITH SHAPES AND THEIR ATTRIBUTES

Evidence

Vocabulary

- Rhombus
- Rectangle
- Quadrilateral
- Square
- Circle
- Triangle
- Hexagon
- Pentagon
- Octagon
- Attributes
- Category
- Subcategory

Mathematical Practices (Bolded practices are priorities for this unit)

- Make sense of problems and persevere in solving them.
- **Reason abstractly and quantitatively.**
- Construct viable arguments and critique the reasoning of others.
- **Model with mathematics.**
- **Use appropriate tools strategically.**
- **Attend to precision.**
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

Learning Plan

Cluster 2

KPBSD MATH CURRICULUM

3rd GRADE

UNIT 6 – APPLYING OPERATIONS TO AREA AND PERIMETER

Desired Results

<p style="text-align: center;">Priority Standards</p> <p>Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</p> <p>3.MD.9. Relate area to the operations of multiplication and addition.</p> <p>a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. For example, after tiling rectangles, develop a rule for finding the area of any rectangle.</p> <p>b. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real-world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.</p> <p>c. Use area models (rectangular arrays) to represent the distributive property in mathematical reasoning. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$.</p> <p>d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real-world problems. For example, the area of a 7 by 8 rectangle can be determined by decomposing it into a 7 by 3 rectangle and a 7 by 5 rectangle.</p>	Transfer	
	Students will be able to independently use their learning to... Conceptually describe area and perimeter and apply the concepts to real-world scenarios.	
	Meaning	
	<p style="text-align: center;">ENDURING UNDERSTANDINGS</p> <p>Students will understand that...</p> <ul style="list-style-type: none"> • Multiplication and addition are related operations. • The area model is a representation of multiplication and multiplication problems. • Tiles and the area model of a rectangle can be used to represent the distributive property of multiplication. • A rectangle can be decomposed into smaller rectangles. The areas of the smaller rectangles can be added together to find the area of the larger rectangle. 	<p style="text-align: center;">ESSENTIAL QUESTIONS</p> <p>Students will keep considering...</p> <ul style="list-style-type: none"> • What does area mean? • What does perimeter mean? • How do I measure area of geometric shapes? • How do I measure perimeter of geometric shapes?
	Acquisition	
	<p>Students will know...</p> <ul style="list-style-type: none"> • Area is the amount of space inside a two-dimensional figure. • Length times the width results in the total number of squares needed to tile a given rectangle. • Perimeter can be found by adding the side lengths together. • Area can be found by adding the square units or by multiplying. • Area can be found by covering and counting with tiles or by multiplying side lengths. 	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> • I can find the area of a rectangle by covering and counting with tiles. • I can find the area of a rectangle by multiplying the side lengths. • I can use the area model to represent multiplication problems. • I can use the area model to show the distributive property. • I can break apart a rectangle into smaller rectangles and add their areas to find the area of the entire rectangle.

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UNIT 6 – APPLYING OPERATIONS TO AREA AND PERIMETER

<p>Supporting Standards</p> <p>Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</p> <p>3.MD.7. Recognize area as an attribute of plane figures and understand concepts of area measurement.</p> <p>a. A square with side length 1 unit is said to have “one square unit” and can be used to measure area.</p> <p>b. Demonstrate that a plane figure which can be covered without gaps or overlaps by n (e.g., 6) unit squares is said to have an area of n (e.g., 6) square units.</p> <p>3.MD.8. Measure areas by tiling with unit squares (square centimeters, square meters, square inches, square feet, and improvised units).</p> <p>Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.</p> <p>3.MD.10. Solve real-world and mathematical problems involving perimeters of polygons, including:</p> <ul style="list-style-type: none">• finding the perimeter given the side lengths,• finding an unknown side length,• exhibiting rectangles with the same perimeter and different areas,• exhibiting rectangles with the same area and different perimeters.		<ul style="list-style-type: none">• I can measure the area of a plane figure in square units.• I can use square units to cover the space inside a plane figure without leaving gaps or overlapping.• I can solve real-world problems using perimeters of polygons.• I can find unknown side lengths and the perimeter of polygons.• I can show rectangles that have the same area but different perimeters.• I can show rectangles that have the same perimeter but different areas.• I can solve real-world problems concerning area.
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KPBSD MATH CURRICULUM

3rd GRADE

UNIT 6 – APPLYING OPERATIONS TO AREA AND PERIMETER

Evidence

Vocabulary

- Multiplication
- Product
- Area
- Perimeter
- Rectangle
- Side
- Length
- Area
- Model
- Tiling
- Distributive property of multiplication
- Decompose
- Overlapping
- Non-overlapping
- Polygon

Mathematical Practices (Bolded practices are priorities for this unit)

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- **Use appropriate tools strategically.**
- **Attend to precision.**
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

KPBSD MATH CURRICULUM

3rd GRADE

UNIT 7 – UNDERSTANDING FRACTIONS AS PARTS OF A WHOLE

Desired Results

<p>3.NF.2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.</p> <p>a. Represent a fraction $1/b$ (e.g., $1/4$) on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b (e.g., 4) equal parts. Recognize that each part has size $1/b$ (e.g., $1/4$) and that the endpoint of the part based at 0 locates the number $1/b$ (e.g., $1/4$) on the number line.</p> <p>b. Represent a fraction a/b (e.g., $2/8$) on a number line diagram or ruler by marking off a lengths $1/b$ (e.g., $1/8$) from 0. Recognize that the resulting interval has size a/b (e.g., $2/8$) and that its endpoint locates the number a/b (e.g., $2/8$) on the number line.</p> <p>3.NF.3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.</p> <p>a. Understand two fractions as equivalent if they are the same size (modeled) or the same point on a number line.</p> <p>b. Recognize and generate simple equivalent fractions (e.g., $1/2 = 2/4$, $4/6 = 2/3$). Explain why the fractions are equivalent (e.g., by using a visual fraction model).</p> <p>c. Express and model whole numbers as fractions, and recognize and construct fractions that are equivalent to whole numbers. For example: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.</p> <p>d. Compare two fractions with the same numerator or the same denominator by reasoning about their</p>	Transfer	
	<p>Students will be able to independently use their learning to...</p> <p>Develop a conceptual understanding of creating and representing fractions by partitioning a whole into equal parts.</p>	
	Meaning	
	ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
	<p>Students will understand that...</p> <ul style="list-style-type: none"> • Explain that a unit fraction is one part of a whole. • Represent and identify unit fractions using area and length models. 	<p>Students will keep considering...</p> <ul style="list-style-type: none"> • What is a fraction? • How are fractions of the same whole compared? • How are fractions used in my daily life?
Acquisition		
<p>Students will know...</p> <ul style="list-style-type: none"> • The meaning of fractions and the ways fractions are represented, with the following denominators: halves, fourths, and eighths; thirds and sixths. • Area models are used to represent fractions as parts of a whole. • The size of a fractional part is relative to the size of the whole. • Strategies to communicate and share their reasoning and solutions. 	<p>Students will be skilled at...</p> <ul style="list-style-type: none"> • I can show equal parts of a whole with a fraction in many different ways. • I can create and choose pictures that represent a given fraction. • I can create and choose a fraction from a given picture. • I can explain the difference between a numerator and a denominator. • I can construct a visual representation of a fraction. 	

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<p>size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions (e.g., by using a visual fraction model).</p>		
Evidence		
<p><u>Vocabulary</u></p> <ul style="list-style-type: none"> • Numerator • Denominator • Whole • Part • Fraction • Fraction bar • Equal • Equivalent 	<p><u>Mathematical Practices (Bolded practices are priorities for this unit)</u></p> <ul style="list-style-type: none"> • Make sense of problems and persevere in solving them. • Reason abstractly and quantitatively. • Construct viable arguments and critique the reasoning of others. • Model with mathematics. • Use appropriate tools strategically. • Attend to precision. • Look for and make use of structure. • Look for and express regularity in repeated reasoning. 	
Learning Plan		
Cluster 2		

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UNIT 8 – USING TOOLS TO ESTIMATE AND MEASURE

Desired Results

3.MD.3. Select an appropriate unit of English, metric, or non-standard measurement to estimate the length, *time**, weight, or temperature (Local Standard)
**Time is addressed in unit 9.*

3.MD.2. Estimate and measure liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). (Excludes compound units such as cm³ and finding the geometric volume of a container.)
 Add, subtract, multiply, or divide to solve and create one-step word problems involving masses or volumes that are given in the same units (e.g., by using drawings, such as a beaker with a measurement scale, to represent the problem). (Excludes multiplicative comparison problems [problems involving notions of “times as much.”])

3.MD.5. Measure and record lengths using rulers marked with halves and fourths of an inch. Make a line plot with the data, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.

Transfer	
Students will be able to independently use their learning to... Solve problems involving measurement and estimation of liquid volumes, masses, length, and temperature units.	
Meaning	
ENDURING UNDERSTANDINGS	ESSENTIAL QUESTIONS
Students will understand that... <ul style="list-style-type: none"> • Mass and volume can be estimated. • Mass and volume can be measured. • Addition, subtraction, multiplication, and division can be used to solve problems involving mass and volume. • ½ and ¼ inch lengths can be measured with a ruler and recorded on a line plot. 	Students will keep considering... <ul style="list-style-type: none"> • How do I choose the appropriate unit of measure for length, weight, mass, volume, or temperature? • How do I use the appropriate tool to measure length, weight, mass, volume, or temperature? • How do I use addition, subtraction, multiplication, and division to solve and create one-step story problems? • How do I estimate a measurement? • How do I record measurements?
Acquisition	
Students will know... <ul style="list-style-type: none"> • Ways to estimate. • Which appropriate unit to select to measure length, weight, or temperature. • The four operations can be used to solve and create one-step mass or volume word problems. • Line plots help represent measurement. 	Students will be skilled at... <ul style="list-style-type: none"> • I can measure and estimate liquid volumes using standard units. • I can measure and estimate masses of objects using standard units. • I can use addition, subtraction, multiplication, and division strategies to solve word problems involving measurement. • I can choose an appropriate unit of measure to estimate length, mass, volume, weight, and temperature.

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UNIT 8 – USING TOOLS TO ESTIMATE AND MEASURE

		<ul style="list-style-type: none"> • I can measure lengths with a ruler to the nearest $\frac{1}{2}$ and $\frac{1}{4}$ inch and make a line plot with those measurements.
Evidence		
<p><u>Vocabulary</u></p> <ul style="list-style-type: none"> • Mass • Volume • Weight • Inches • Estimate • Measure • Line plot • Gram • Kilogram • Liter • Standard units • Degrees • Celcius • Farenheit 	<p><u>Mathematical Practices (Bolded practices are priorities for this unit)</u></p> <ul style="list-style-type: none"> • Make sense of problems and persevere in solving them. • Reason abstractly and quantitatively. • Construct viable arguments and critique the reasoning of others. • Model with mathematics. • Use appropriate tools strategically. • Attend to precision. • Look for and make use of structure. • Look for and express regularity in repeated reasoning. 	
Learning Plan		
Cluster 2		

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UNIT 9 – UNDERSTANDING TIME

Desired Results

3.MD.1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes or hours (e.g., by representing the problem on a number line diagram or clock).

Transfer

Students will be able to independently use their learning to...
 Use elapsed time in a relevant, real-world context.

Meaning

ENDURING UNDERSTANDINGS

Students will understand that...

- Time can be measured in minutes.
- Addition and subtraction strategies may be used to solve problems involving time.

ESSENTIAL QUESTIONS

Students will keep considering...

- How do I tell and write time to the nearest minute?
- How can I find elapsed time to the nearest minute?
- How can I change from one unit to another unit when measuring time?
- How can I use addition & subtraction to calculate elapsed time?

Acquisition

Students will know...

- Strategies to tell and write time to the nearest minute.
- Strategies to solve word problems involving addition and subtraction of time intervals.

Students will be skilled at...

- I can tell and write time to the nearest minute.
- I can solve word problems involving addition and subtraction of time in minutes.
- I can represent time problems using addition and subtraction strategies.
- I can measure time intervals in minutes and/or hours.

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UNIT 9 – UNDERSTANDING TIME

Evidence

Vocabulary

- Nearest minute
- Time intervals
- Analog
- Digital
- Hour hand
- Minute hand
- Hours
- Minutes
- Half hour
- Quarter hour
- Half past
- Quarter past
- Quarter til
- Elapsed time

Mathematical Practices (Bolded practices are priorities for this unit)

- **Make sense of problems and persevere in solving them.**
- **Reason abstractly and quantitatively.**
- Construct viable arguments and critique the reasoning of others.
- **Model with mathematics.**
- Use appropriate tools strategically.
- **Attend to precision.**
- Look for and make use of structure.
- Look for and express regularity in repeated reasoning.

Learning Plan

Cluster 2