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# Why Do I Need Math? [7th grade]

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# Why Do I Need Math?

## (Add, Subtract, Multiply, Divide Rational Numbers)

### 7<sup>th</sup> Grade Math

Stage 1 – Desired Results			
<p><b>Established Goals</b> (e.g., standards)</p> <p>7.1A apply mathematics to problems arising in everyday life, society, and the workplace</p> <p>7.1B 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.</p> <p>7.1E create and use representations to organize, record, and communicate mathematical ideas</p> <p>7.2 extend previous knowledge of sets and subsets using a visual representation to describe relationships between sets of rational numbers</p> <p>7.3A add, subtract, multiply, and divide rational numbers fluently (S)</p> <p>7.3B apply and extend previous understanding of operations to solve problems using addition, subtraction, multiplication, and division of rational numbers (R)</p> <p>7.13A calculate the sales tax for a given purchase</p>	<b>Transfer</b>		
	<p><i>Students will independently use their learning to...</i></p> <p>plan an event while staying under budget.</p>		
	<b>Meaning</b>		
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <p><b>Understandings</b> <i>Students will understand that....</i></p> <ul style="list-style-type: none"> <li>We need math every day to address a variety of situations.</li> <li>When purchasing items, there are other costs beyond the price tag.</li> <li>Staying under budget is a choice.</li> </ul> </td> <td style="width: 50%; padding: 5px;"> <p><b>Essential Questions</b></p> <ul style="list-style-type: none"> <li>Why do I need math?</li> <li>How much is enough?</li> </ul> </td> </tr> </table>	<p><b>Understandings</b> <i>Students will understand that....</i></p> <ul style="list-style-type: none"> <li>We need math every day to address a variety of situations.</li> <li>When purchasing items, there are other costs beyond the price tag.</li> <li>Staying under budget is a choice.</li> </ul>	<p><b>Essential Questions</b></p> <ul style="list-style-type: none"> <li>Why do I need math?</li> <li>How much is enough?</li> </ul>
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and calculate income tax for earned wages(S)		representation to organize, record, and communicate their mathematical ideas
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**Stage 2 – Evidence**

<b>CODE</b> (M or T)	<b>Evaluative Criteria</b> (for rubric)	
T	Correctly calculate the total cost (including sales tax) for the supplies for the different group sizes.	<b>Performance Task(s)</b> <i>Students will demonstrate meaning-making and transfer by...</i> <ul style="list-style-type: none"> <li>• Students will have the option of planning a party or a camping trip for themselves and their friends. For this event, students will need to calculate the total cost of supplies under budget and create a menu that will include drinks and two recipes.</li> <li>• The cost of supplies and the ingredients for the menu will be calculated for 5, 10, 15, and 20 guests.</li> <li>• Students will represent all of their calculations as fractions and the decimal equivalents.</li> <li>• Students will create a representation to organize and record their calculations for the different numbers of guests.</li> </ul> <hr/> <b>Other Evidence (e.g., formative)</b> <ul style="list-style-type: none"> <li>• Think, Pair, Share</li> <li>• Categorizing Real Numbers Activity</li> <li>• Create a Graphic Organizer</li> <li>• Create a Visual Representation</li> <li>• Instruction Manual</li> <li>• Conversion Quiz</li> <li>• EZ Ones Chart</li> <li>• Guided Practice</li> <li>• Independent Practice</li> <li>• Restaurant Order Activity</li> <li>• Do You Have Enough? Activity</li> <li>• How Many Times More? Activity</li> <li>• Dividing Candy Activity</li> <li>• School Supplies Shopping Activity</li> <li>• School Clothes Shopping Activity</li> <li>• Reflection Questions (Journal entries/Exit Ticket)</li> <li>• Recipe Book Activity</li> <li>• Homework/Peer Consultations</li> </ul>
M	Make financial choices to stay under budget.	
M	Calculate the amount of ingredients needed for the different group sizes for two different recipes.	
M	Correctly calculate the amount of drinks (oz.) needed for the different group sizes.	
M	Correctly convert all fractions to decimals.	
M	Create an effective representation	
T		

	for organizing and recording work.	
<b>Stage 3 – Learning Plan</b>		
<b>CODE</b> (A, M, T)	Pre-Assessment <i>How will you check students' prior knowledge, skill levels, and potential misconceptions?</i>	
	<b>Day ONE (Rational Numbers)</b> <b>TEKS: 7.2, 7.1A, 7.1E</b> <b>Essential Question: Why do I need math?</b>	Progress Monitoring (e.g., formative data)
M	<b>Content Objective:</b> The learner is expected to identify reasons we use math in everyday life; create a visual representation to describe the relationships between subsets of rational numbers.	
M	<b>Language Objective:</b> The learner will achieve the content objective by engaging in a class/group discussion, writing examples and creating a visual representation.	
	<b>Key Understanding for Learners:</b> <ul style="list-style-type: none"> <li>• We use math a variety of ways in everyday life.</li> <li>• Rational numbers can be categorized into subsets.</li> </ul>	
	<b>Guiding Questions for Learners:</b> <ul style="list-style-type: none"> <li>• Why do I need math?</li> <li>• How can I show the subsets of rational numbers?</li> </ul>	
	<b>Key Vocabulary:</b> <ul style="list-style-type: none"> <li>• Real numbers</li> <li>• Imaginary numbers</li> <li>• Rational numbers</li> <li>• Irrational numbers</li> <li>• Integers</li> <li>• Whole numbers</li> <li>• Counting numbers</li> <li>• Natural numbers</li> </ul>	
M	<b>Engage:</b> Ask the question “Why do we need math?” Give students a minute to write down reasons we need math. Students then share responses with a partner, then partners with the class. Explain that in this unit, we will use math to help us plan an event, such as a camping trip or	Think, Pair, Share

<p>A</p> <p>A</p> <p>T</p> <p>T</p> <p>M</p>	<p>party.</p> <p><b>Explore:</b> Real numbers are used to help us every day. Give each student a card with a real number on it. Ask students to work with their group to categorize their numbers (or move to a place in the room under the posted category) based on criteria of their choosing. How can the numbers be categorized? Which numbers fall into more than one category?</p> <p><b>Explain:</b> Define the subsets of real numbers, including rational, irrational, integers, whole, and counting numbers. How does this change the categories previously created? How can you re-categorize the real numbers?</p> <p><b>Elaborate:</b> Students use their number cards to create a visual representation (Graphic Organizer) showing the categories of rational numbers. Share with the group.</p> <p><b>Evaluate:</b> Students evaluate each other's work. Does the visual representation make sense? Are the subsets categorized correctly according to the definition? Are the examples in each subset correct?</p> <p><b>Reflection question:</b> How do the subsets of real numbers matter in math? How will this help us plan a camping trip or party?</p> <p><b>Materials/Resources:</b> Real number cards; vocabulary cards</p> <p><b>Accommodations:</b></p>	<p>Categorizing Real Numbers Activity</p> <p>Create a Graphic Organizer</p> <p>Peer Consultation</p> <p>Journal Entry/Exit Ticket</p>
<p>A</p>	<p style="text-align: center;"><b>Day TWO</b> <b>(Converting Fractions, Decimals, Percents)</b> <b>Essential Question: Why do I need math?</b> <b>TEKS: 7.1B, 7.1E, 7.3A</b></p> <p><b>Content Objective:</b> The learner is expected to write rational numbers in fraction, decimal, and percent form; convert between</p>	<p>Progress Monitoring (e.g., formative data)</p>

	<p>different forms of rational numbers.</p> <p><b>Language Objective:</b> The learner will achieve the content objective by engaging in a class/group discussion and writing instructions for others to follow.</p> <p><b>Key Understanding for Learners:</b></p> <ul style="list-style-type: none"> <li>• Rational numbers can be written as equivalent fractions, decimals, and percents.</li> <li>• Rational numbers larger than one can be written as fractions, decimals, and percents.</li> </ul> <p><b>Guiding Questions for Learners:</b></p> <ul style="list-style-type: none"> <li>• What are the different ways we can write rational numbers?</li> <li>• How do we convert between the different forms of rational numbers?</li> </ul> <p><b>Key Vocabulary:</b></p> <ul style="list-style-type: none"> <li>• Fraction</li> <li>• Like fraction</li> <li>• Unlike fraction</li> <li>• Equivalent fraction</li> <li>• Numerator</li> <li>• Denominator</li> <li>• Common denominator</li> <li>• Least common denominator</li> <li>• Dividend</li> <li>• Divisor</li> <li>• Quotient</li> <li>• remainder</li> <li>• Improper fraction</li> <li>• Mixed number</li> <li>• Decimal</li> <li>• Repeating decimal</li> <li>• Terminating decimal</li> <li>• Bar notation</li> <li>• Place value</li> <li>• Percent</li> </ul>	
M	<p><b>Engage:</b> How can rational numbers be represented in other forms? Students give examples for <math>\frac{1}{2}</math>, 0.5, 50% etc Students are to work with their group to complete the “EZ Ones” chart.</p>	Peer Consultation EZ Ones Chart
M	<p><b>Explore:</b> Discuss with class/group:</p>	Think, Pair, Share

<p>A</p>	<p>Which examples did you just “know?” How did you already just “know” them? Why do you think this chart is called the “EZ Ones?”</p> <p><b>Explain:</b> Review steps for converting fractions to decimals, to percents. Discuss: What did you do to find the other equivalent forms? How did you calculate the decimals from the fraction? From the percent? How did you calculate the fractions from the decimal? From the percent? How did you calculate the percents from the fraction? From the decimal? What happens if you have a number greater than one?</p> <p>Give examples (including values greater than one ) of using division to convert fractions to decimals; using equivalent fractions to convert fractions to decimals and to percents; using place value to convert decimals to percents.</p> <p><b>Elaborate:</b> Students create a step-by-step instruction manual for themselves.</p> <p><b>Evaluate:</b> Check each other’s work: do the instructions make sense?</p> <p><b>Reflection Question:</b> Why would writing rational numbers in different forms be useful? How will this help us plan a camping trip or party?</p> <p><i>Homework option: Using multiple strategies (including conversion between FDP) to compare rational numbers</i></p> <p><b>Materials/Resources:</b> EZ Ones chart</p> <p><b>Accommodations:</b></p>	<p>Instruction Manual</p> <p>Peer Consultation</p> <p>Journal Entry/Exit Ticket</p>
<p>T</p>	<p style="text-align: center;"><b>Day THREE</b> <b>(Problem Solving Strategies)</b> <b>TEKS: 7.1B, 7.1E, 7.3A, 7.3B</b> <b>Essential Question: Why do I need math?</b></p> <p><b>Content Objective:</b> The learner is expected to use problem-solving skills to</p>	<p>Progress Monitoring (e.g., formative data)</p>

<p>T</p>	<p>solve multi-step problems that require addition, subtraction, multiplication, and division of rational numbers; create a visual representation to organize and record their work.</p> <p><b>Language Objective:</b> The learner will achieve the content objective by engaging in a class/group discussion and devising an organized method of recording their work.</p> <p><b>Key Understanding for Learners:</b></p> <ul style="list-style-type: none"> <li>• We use math in a variety of ways to address different situations.</li> <li>• Mathematical ideas need to be communicated clearly and effectively.</li> </ul> <p><b>Guiding Questions for Learners:</b></p> <ul style="list-style-type: none"> <li>• What are some strategies to use when solving problems?</li> <li>• How can we express our mathematical ideas and solutions?</li> </ul> <p><b>Key Vocabulary:</b></p> <ul style="list-style-type: none"> <li>• Problem-solving</li> <li>• Solution</li> </ul>	
<p>M</p>	<p><b>Engage:</b> Give a situation involving a multi-step solution that uses division. Allow students to work with partners to find a solution and an explanation of the process.</p>	<p>Peer Consultation</p>
<p>M</p>	<p><b>Explore:</b> Share solutions and explanations. How many different ways could you have solved that problem? How many different ways could you show your process? Solution? Explanation? Class discussion/share.</p>	<p>Think, Pair, Share</p>
<p>A</p>	<p><b>Explain:</b> Discuss: What are some other real-life situations that we might have to problem-solve? What strategies could you use to solve the problem? Generate a list of problem-solving strategies students can use to help them solve a problem. Generate a list of ways to show their justifications.</p>	
<p>T</p>	<p><b>Elaborate:</b> Students are to complete practice word problems independently or with a partner. All work should be clearly organized.</p>	<p>Guided Practice</p>



M	<p><b>Evaluate:</b>  <b>Reflection Question:</b>          Why is it a good idea to have multiple problem-solving strategies?          How will this help us plan a camping trip or party?</p> <p><i><b>Homework option:</b> multi-step word problems that require problem solving skills</i></p> <p><b>Materials/Resources:</b>          Practice word problems</p> <p><b>Accommodations:</b></p>	Journal Entry/Exit ticket
<p>A</p> <p>T</p> <p>M</p>	<p style="text-align: center;"><b>Day FOUR (Sales Tax)</b></p> <p><b>TEKS: 7.1A, 7.3A, 7.3B, 7.13A</b>  <b>Essential Question: How much is enough?</b></p> <p><b>Content Objective:</b>          The learner is expected to calculate the sales tax for a given purchase; calculate the total purchase price; determine if they have enough money to make the purchase.</p> <p><b>Language Objective:</b>          The learner will achieve the content objective by engaging in class/group discussion, writing examples, and solving problems.</p> <p><b>Key Understanding for Learners:</b></p> <ul style="list-style-type: none"> <li>• Sales tax is a percentage of the purchase price that is added to the total cost of the purchase.</li> <li>• Multiplication can be used when adding multiple equivalent values.</li> </ul> <p><b>Guiding Questions for Learners:</b></p> <ul style="list-style-type: none"> <li>• How does sales tax affect the total price of a purchase?</li> <li>• What are some different ways to find the total cost of a purchase?</li> </ul> <p><b>Key Vocabulary:</b></p> <ul style="list-style-type: none"> <li>• Sales tax</li> <li>• Total cost/price/purchase price</li> <li>• Subtotal</li> </ul> <p><b>Engage:</b>          Post questions for students to answer and record with their</p>	<p>Progress Monitoring (e.g., formative data)</p> <p>Think, Pair, Share</p>

<p>M</p> <p>A</p> <p>T/A</p> <p>T</p> <p>M</p>	<p>group: How much is enough? What does “enough” mean? How can you use math to figure out if you have “enough” of something? Discuss student responses.</p> <p><b>Explore:</b> Students are given a school supply list and a sales ad. How much will the supplies cost if you purchase everything on the list? If you are given a set amount of money, how do you determine if you have enough? Work with a partner to determine if you think you will have enough money.</p> <p><b>Explain:</b> Students explain their reasoning for determining whether or not they have enough money to make the purchase. Have all the items on the list been included? What about sales tax? Define sales tax and provide examples. How will sales tax affect your total cost?</p> <p><b>Elaborate:</b> Students calculate the subtotal, the sales tax, and the total and label their work. What are some ways we can calculate the total cost without calculating the sales tax? Show alternate ways to find the total cost (<math>1 + \text{tax rate} \times \text{cost}</math>).</p> <p><b>Evaluate</b> Students are given a restaurant menu and order. Students must find the subtotal, tax, and total cost of the meal.</p> <p><b>Reflection Question:</b> Why is it important to know how to calculate sales tax? How will this help us plan a camping trip or party?</p> <p><i>Homework option: Skills practice calculating sales tax</i></p> <p><b>Materials/Resources:</b> School supply list, sales ads, restaurant menu and order</p> <p><b>Accommodations:</b></p>	<p>School Supplies Shopping Activity</p> <p>Think, Pair, Share</p> <p>Peer Consultation</p> <p>Restaurant Order Activity</p> <p>Journal Entry/Exit Ticket</p>
	<p><b>Day FIVE</b> <b>(Sales Tax and Budget)</b></p>	<p>Progress Monitoring (e.g., formative data)</p>

	<p><b>TEKS: 7.1A, 7.1B, 7.1E, 7.3A, 7.3B, 7.13A</b>  <b>Essential Question: How much is enough?</b></p> <p><b>Content Objective:</b>  The learner is expected to estimate the sale tax to determine if a solution is reasonable; calculate the total purchase price; determine if they have enough money to make the purchase.</p> <p><b>Language Objective:</b>  The learner will achieve the content objective by engaging in class/group discussion, write solutions and justifications for their work.</p> <p><b>Key Understanding for Learners:</b></p> <ul style="list-style-type: none"> <li>• Sales tax is a percentage of the purchase price that is added to the total cost of the purchase.</li> <li>• Multiplication can be used when adding multiple equivalent values.</li> </ul> <p><b>Guiding Questions for Learners:</b></p> <ul style="list-style-type: none"> <li>• How does sales tax affect the total price of a purchase?</li> <li>• What are some different ways to find the total cost of a purchase?</li> </ul> <p><b>Key Vocabulary:</b></p> <ul style="list-style-type: none"> <li>• Sales tax</li> <li>• Total cost/price/purchase price</li> <li>• Subtotal</li> <li>• Budget</li> </ul>	
T		
M		
M	<p><b>Engage:</b>  Post the question:  How much is enough?</p>	<p>Independent Practice  Do you have  Enough?</p>
M/A	<p>Students are to independently solve a problem: do you have enough money to buy the bike you have been saving for?  Check student solutions.</p>	
M	<p><b>Explore:</b>  Discuss: how can you determine quickly/easily if you have enough money?  Use various methods of estimating (including sales tax) to determine quickly if you have enough money.</p>	

<p>T/M</p> <p>T</p> <p>M</p>	<p><b>Explain:</b> Define budget. How does a budget affect your choices? How can you quickly tell if you are under your budget?</p> <p><b>Elaborate:</b> Provide students with a price list for school clothes from various stores with various price points. Their budget is \$200. What can be bought while staying under budget? How do your choices affect how many items you can buy?</p> <p><b>Evaluate:</b> Students create a visual representation of their solution to the school clothing problem.</p> <p><b>Reflection Question:</b> How do choices affect a budget? How will this help us plan a camping trip or party?</p> <p><i>Homework option: Skills practice calculating sales tax</i></p> <p><b>Materials/Resources:</b> "Do you have enough?" School clothing price list</p> <p><b>Accommodations:</b></p>	<p>School Clothes Shopping Activity</p> <p>Graphic Organizer/ Visual Representation</p> <p>Journal Entry/Exit Ticket</p>
<p>A/M</p> <p>T</p>	<p style="text-align: center;"><b>Day SIX</b></p> <p style="text-align: center;"><b>(Add/sub fractions and mixed numbers)</b></p> <p><b>TEKS: 7.1E, 7.3A, 7.3B</b></p> <p><b>Essential Question: Why do I need math?</b></p> <p><b>Content Objective:</b> The learner is expected to add and subtract like and unlike fractions and mixed numbers to solve problems.</p> <p><b>Language Objective:</b> The learner will achieve the content objective by engaging in class/group discussion and writing solutions and justifications.</p> <p><b>Key Understanding for Learners:</b></p> <ul style="list-style-type: none"> <li>• Fractions must have a common denominator before they can be added or subtracted.</li> <li>• A mixed number is the sum of a whole number and a fraction.</li> </ul> <p><b>Guiding Questions for Learners:</b></p> <ul style="list-style-type: none"> <li>• What different strategies can be used to find a common denominator?</li> <li>• How can you subtract a fraction from a whole number?</li> </ul>	<p>Progress Monitoring (e.g., formative data)</p>

	<p><b>Key Vocabulary:</b></p> <ul style="list-style-type: none"> <li>• Fraction</li> <li>• Like fraction</li> <li>• Unlike fraction</li> <li>• Equivalent fraction</li> <li>• Numerator</li> <li>• Denominator</li> <li>• Common denominator</li> <li>• Least common denominator</li> <li>• Dividend</li> <li>• Divisor</li> <li>• Quotient</li> <li>• remainder</li> <li>• Improper fraction</li> <li>• Mixed number</li> </ul> <p><b>Engage:</b> One-minute brainstorm: why do we need fractions and mixed numbers? Share responses.</p> <p><b>Explore:</b> Use fraction pieces to create a visual representation for adding and subtracting fractions and mixed numbers.</p> <p><b>Explain:</b> Review adding and subtracting fractions with like denominators and unlike denominators. What are some “rules” we must follow when using fractions and mixed numbers? How do we use these “rules” to help us add and subtract fractions and mixed numbers?</p> <p><b>Elaborate:</b> Students complete adding/subtracting fractions/mixed numbers word problems practice.</p> <p><b>Evaluate:</b> Check your work with a partner. Do you use the same problem solving strategies as your partner/group?</p> <p><b>Reflection Question:</b> How do we use fractions in our everyday lives? How will this help us plan a camping trip or party?</p> <p><i><b>Homework option:</b> add/subtract fractions/mixed numbers practice problems</i></p> <p><b>Materials/Resources:</b></p>	<p>Think, Pair, Share</p> <p>Visual Representation</p> <p>Independent Practice</p> <p>Peer Consultation</p> <p>Journal entry/exit ticket</p>
M		
M		
A		
M		
T/M		
M		

	<p>Add/Subtract Fraction and Mixed Numbers practice problems</p> <p><b>Accommodations:</b></p>	
T	<p style="text-align: center;"><b>Day SEVEN</b></p> <p style="text-align: center;"><b>(Add/sub fractions and mixed numbers)</b></p> <p><b>TEKS: 7.1A, 7.1B, 7.3A, 7.3B</b></p> <p><b>Essential Question: Why do I need math?</b></p> <p><b>Content Objective:</b> The learner is expected to add and subtract like and unlike fractions and mixed numbers to solve problems; use estimation and decimal equivalents to determine if a solution is reasonable.</p>	Progress Monitoring (e.g., formative data)
T	<p><b>Language Objective:</b> The learner will achieve the content objective by engaging in class/group discussion and writing solutions and justifications.</p> <p><b>Key Understanding for Learners:</b></p> <ul style="list-style-type: none"> <li>• Fractions must have a common denominator before they can be added or subtracted.</li> <li>• A mixed number is the sum of a whole number and a fraction.</li> </ul> <p><b>Guiding Questions for Learners:</b></p> <ul style="list-style-type: none"> <li>• What different strategies can be used to find a common denominator?</li> <li>• How can you subtract a fraction from a whole number?</li> </ul> <p><b>Key Vocabulary:</b></p> <ul style="list-style-type: none"> <li>• Fraction</li> <li>• Like fraction</li> <li>• Unlike fraction</li> <li>• Equivalent fraction</li> <li>• Numerator</li> <li>• Denominator</li> <li>• Common denominator</li> <li>• Least common denominator</li> <li>• Dividend</li> <li>• Divisor</li> <li>• Quotient</li> <li>• remainder</li> <li>• Improper fraction</li> <li>• Mixed number</li> </ul>	
M		Think, Pair, Share

<p>M</p> <p>A</p> <p>M/T</p> <p>M/T</p>	<p><b>Engage:</b> Post question for students: How much is enough? Show two recipes and list of ingredients on hand. Use estimation to determine if you have enough ingredients for both recipes.</p> <p><b>Explore:</b> Discuss solutions with partner/group. What are some strategies to be able to quickly determine if you have enough ingredients? What are some good benchmarks to use when estimating with fractions?</p> <p><b>Explain:</b> Estimation helps determine if our exact solution is reasonable. How could converting fractions to decimals be helpful?</p> <p><b>Elaborate:</b> Students re-work the problem by converting the fractions to decimals and finding a solution. Is the solution reasonable? How can we use decimals to help find a reasonable solution?</p> <p><b>Evaluate:</b> Students complete add/subtract fractions/mixed numbers practice problems by showing estimation and converting fractions to decimals.</p> <p><i><b>Homework option:</b> add/subtract fractions/mixed numbers practice problems</i></p> <p><b>Reflection Question:</b> What are some situations where estimating fractions is acceptable? How will this help us plan a camping trip or party?</p> <p><b>Materials/Resources:</b> Recipes, List of ingredients</p> <p><b>Accommodations:</b></p>	<p>Peer Consultation</p> <p>Guided Practice</p> <p>Independent Practice</p> <p>Journal entry/exit ticket</p>
	<p style="text-align: center;"><b>Day EIGHT</b></p> <p><b>(Multiplying fractions and mixed numbers)</b></p> <p><b>TEKS: 7.1A, 7.1B, 7.3A, 7.3B</b></p> <p><b>Essential Question: Why do I need math?</b></p> <p><b>Content Objective:</b></p>	<p>Progress Monitoring (e.g., formative data)</p>

T	<p>The learner is expected to multiply fractions and mixed numbers to solve problems; use estimation and decimal equivalents to determine if a solution is reasonable.</p>	
T	<p><b>Language Objective:</b> The learner will achieve the content objective by engaging in class/group discussion and writing solutions and justifications.</p> <p><b>Key Understanding for Learners:</b></p> <ul style="list-style-type: none"> <li>• Quantities can be increased and decreased by using a variety of methods.</li> <li>• When multiplying or dividing fractions, a common denominator is not necessary.</li> <li>• Mixed numbers must be written as improper fractions before multiplying or dividing.</li> <li>• Dividing by a number will give the same result as multiplying by the reciprocal</li> </ul> <p><b>Guiding Questions for Learners:</b></p> <ul style="list-style-type: none"> <li>• What are some ways to multiply fractions?</li> <li>• How does that relate to multiplying mixed numbers?</li> <li>• How is dividing fractions different from multiplying fractions?</li> <li>• How is it the same?</li> <li>• How does that relate to dividing mixed numbers?</li> </ul> <p><b>Key Vocabulary:</b></p> <ul style="list-style-type: none"> <li>• Fraction</li> <li>• Like fraction</li> <li>• Unlike fraction</li> <li>• Equivalent fraction</li> <li>• Numerator</li> <li>• Denominator</li> <li>• Common denominator</li> <li>• Least common denominator</li> <li>• Dividend</li> <li>• Divisor</li> <li>• Quotient</li> <li>• remainder</li> <li>• Improper fraction</li> <li>• Mixed number</li> <li>• Reciprocal</li> <li>• Cross-cancel</li> </ul>	
M	<p><b>Engage:</b> Post question for students: “How many times more?” Students solve the problem.</p>	<p>Guided Practice How many times more?</p>



<p>M</p> <p>A</p> <p>T</p> <p>M</p>	<p><b>Explore:</b> Share solutions and method of solving. Discuss how addition or multiplication could be used. Could decimals be used?</p> <p><b>Explain:</b> Review and give examples of multiplying fractions and mixed numbers. How can we know if multiplication is necessary when solving a problem? What methods could we use to check if our answer is reasonable?</p> <p><b>Elaborate:</b> Students complete multiplying fractions/mixed numbers word problems.</p> <p><b>Evaluate:</b> Students check with partner/group. Are answers consistent? What mistakes are being made?</p> <p><i>Homework option: multiplying fractions/mixed numbers practice problems</i></p> <p><b>Reflection Question:</b> How does finding an estimate first help us solve problems? How will this help us plan a camping trip or party?</p> <p><b>Materials/Resources:</b> “How many times more?”</p> <p><b>Accommodations:</b></p>	<p>Think, Pair, Share</p> <p>Independent Practice</p> <p>Peer Consultations</p> <p>Journal entry/exit ticket</p>
<p>T</p> <p>T</p>	<p style="text-align: center;"><b>Day NINE</b> <b>(Dividing fractions and mixed numbers)</b> <b>TEKS: 7.1A, 7.1B, 7.1E, 7.3A, 7.3B</b> <b>Essential Question: Why do I need math?</b></p> <p><b>Content Objective:</b> The learner is expected to divide fractions and mixed numbers to solve problems; use estimation and decimal equivalents to determine if a solution is reasonable.</p> <p><b>Language Objective:</b> The learner will achieve the content objective by engaging in class/group discussions and writing solutions and justifications.</p>	<p>Progress Monitoring (e.g., formative data)</p>

	<p><b>Key Understanding for Learners:</b></p> <ul style="list-style-type: none"> <li>Quantities can be increased and decreased by using a variety of methods.</li> <li>When multiplying or dividing fractions, a common denominator is not necessary.</li> <li>Mixed numbers must be written as improper fractions before multiplying or dividing.</li> <li>Dividing by a number will give the same result as multiplying by the reciprocal</li> </ul> <p><b>Guiding Questions for Learners:</b></p> <ul style="list-style-type: none"> <li>What are some ways to divide fractions?</li> <li>How does that relate to dividing mixed numbers?</li> <li>How is dividing fractions different from multiplying fractions?</li> <li>How is it the same?</li> </ul> <p><b>Key Vocabulary:</b></p> <ul style="list-style-type: none"> <li>Fraction</li> <li>Like fraction</li> <li>Unlike fraction</li> <li>Equivalent fraction</li> <li>Numerator</li> <li>Denominator</li> <li>Common denominator</li> <li>Least common denominator</li> <li>Dividend</li> <li>Divisor</li> <li>Quotient</li> <li>remainder</li> <li>Improper fraction</li> <li>Mixed number</li> </ul>	
M	<p><b>Engage:</b>  Post question for students:  “Dividing Candy”  Students solve the problem.</p>	<p>Guided Practice  Dividing Candy</p>
M/T	<p><b>Explore:</b>  Share solutions and method of solving. Discuss what other methods could be used.  Create a visual representation to show a solution to the problem.</p> <p>Could decimals be used?</p>	<p>Create a visual representation</p>
A	<p><b>Explain:</b>  Review steps for dividing fractions and mixed numbers.  What different methods can be used?</p>	

<p>T</p> <p>M</p> <p>M</p>	<p>How can we know if division is necessary when solving a problem? What methods could we use to check if our answer is reasonable?</p> <p><b>Elaborate:</b> Students are to complete dividing fractions/mixed numbers practice problems.</p> <p><b>Evaluate:</b> Students check with partner/group. Are answers consistent? What mistakes are being made?</p> <p><i><b>Homework option:</b> dividing fractions/mixed numbers practice problems</i></p> <p><b>Reflection Question:</b> What do you think are the most common mistakes people make when dividing fractions or mixed numbers? How can you prevent those mistakes? How will this help us plan a camping trip or party?</p> <p><b>Materials/Resources:</b> "Dividing Candy"</p> <p><b>Accommodations:</b></p>	<p>Guided Practice</p> <p>Peer Consultation</p> <p>Journal entry/exit ticket</p>
<p>T</p> <p>T</p>	<p style="text-align: center;"><b>Day TEN</b> <b>(Multiplying/Dividing fractions and mixed numbers)</b></p> <p><b>TEKS: 7.1A, 7.1B, 7.1E, 7.3A, 7.3B</b> <b>Essential Question: How much is enough?</b></p> <p><b>RECIPE BOOKS</b> <b>Content Objective:</b> The learner is expected to solve problems by multiplying and dividing fractions and mixed numbers.</p> <p><b>Language Objective:</b> The learner will achieve the content objective by engaging in class/group discussions, writing solutions and justifications, and creating a recipe book.</p> <p><b>Key Understanding for Learners:</b></p> <ul style="list-style-type: none"> <li>• Quantities can be increased and decreased by using a variety of methods.</li> <li>• Dividing by a number will give the same result as multiplying by the reciprocal</li> </ul>	<p>Progress Monitoring (e.g., formative data)</p>

	<p><b>Guiding Questions for Learners:</b></p> <ul style="list-style-type: none"> <li>• What are some reasons that a recipe would need to be increased or decreased?</li> <li>• How can a recipe be increased or decreased and keep the same flavor?</li> </ul> <p><b>Key Vocabulary:</b></p> <ul style="list-style-type: none"> <li>• Fraction</li> <li>• Like fraction</li> <li>• Unlike fraction</li> <li>• Equivalent fraction</li> <li>• Numerator</li> <li>• Denominator</li> <li>• Common denominator</li> <li>• Least common denominator</li> <li>• Dividend</li> <li>• Divisor</li> <li>• Quotient</li> <li>• remainder</li> <li>• Improper fraction</li> <li>• Mixed number</li> <li>• Reciprocal</li> </ul> <p><b>Engage:</b> Class Discussion: What is a recipe? How do you determine if there will be enough? What can you do to make sure you have enough?</p> <p><b>Explore:</b> Introduce Recipe Book Assignment What skills will you need to complete the assignment?</p> <p><b>Explain:</b> Review multiplying/dividing fractions</p> <p><b>Elaborate:</b> Students are to complete recipe book.</p> <p><b>Evaluate:</b> Students review each other's work.</p> <p><i>Homework Option: complete Recipe Book</i></p> <p><b>Reflection Question:</b> What was the most difficult thing about completing the Recipe Book? What was the easiest thing? How will this help us plan a camping trip or party?</p>	<p>Independent Practice Recipe Book</p> <p>Peer consultation</p> <p>Journal entry/exit ticket</p>
M		
M		
A		
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	<p><b>Materials/Resources:</b> Recipe Book packet</p> <p><b>Accommodations:</b></p>	
<p>T</p> <p>T</p> <p>M</p> <p>M</p> <p>T</p>	<p style="text-align: center;"><b>Day ELEVEN</b> <b>(Review/Preview Performance Assessment)</b></p> <p><b>TEKS: 7.1A, 7.1B, 7.1E, 7.3A, 7.3B, 7.13A</b> <b>Essential Questions: Why do I need math?</b> <b>How much is enough?</b></p> <p><b>Content Objective:</b> The learner is expected to demonstrate mastery of all TEKS in this unit.</p> <p><b>Language Objective:</b> The learner will achieve the content objective by engaging in group/class discussion and writing a problem solving plan.</p> <p><b>Key Understanding for Learners:</b></p> <ul style="list-style-type: none"> <li>• Specific skills are necessary for solving a problem.</li> <li>• To solve a large problem, it helps to develop a plan</li> </ul> <p><b>Guiding Questions for Learners:</b></p> <ul style="list-style-type: none"> <li>• What skills are necessary to plan an event?</li> <li>• What steps should be taken to plan an event?</li> </ul> <p><b>Key Vocabulary:</b></p> <p><b>Engage:</b> Post the question: What will you need to plan an event such as a camping trip or party? Make a list of the information/supplies you think you will need. Share lists and make a master list.</p> <p><b>Explore:</b> Class discussion: What skills will you need to plan your event? Review Journal Entries for this unit. Make a list of all of the skills necessary for the planning.</p> <p><b>Explain:</b> Students choose which event to plan and create a visual representation of their plan.</p>	<p>Progress Monitoring (e.g., formative data)</p> <p>Guided Practice</p> <p>Guided Practice</p> <p>Graphic Organizer/ Visual Representation</p>

	<p><b>Elaborate:</b></p> <p><b>Evaluate:</b></p> <p><b>Reflection Question:</b>          What additional information will I need to plan my event?          How can I demonstrate using rational numbers when planning my event?</p> <p><i><b>Homework Option:</b> complete performance assessment plan, skills review sheet</i></p> <p><b>Materials/Resources:</b></p> <p><b>Accommodations:</b></p>	
<p>T</p> <p>T</p>	<p style="text-align: center;"><b>Day TWELVE          (Begin Performance Assessment)</b></p> <p><b>TEKS: 7.1A, 7.1B, 7.1E, 7.2, 7.3A, 7.3B, 7.13A</b>  <b>Essential Questions: Why do I need math?          How much is enough?</b></p> <p><b>Content Objective:</b>          The learner is expected to demonstrate mastery of all TEKS in this unit by planning an event under budget.</p> <p><b>Language Objective:</b>          The learner will achieve the content objective by writing solutions and justifications.</p> <p><b>Key Understanding for Learners:</b></p> <ul style="list-style-type: none"> <li>• We need math every day to address a variety of situations.</li> <li>• When purchasing items, there are other costs beyond the price tag.</li> <li>• Staying under budget is a choice.</li> </ul> <p><b>Guiding Questions for Learners:</b></p> <ul style="list-style-type: none"> <li>• Why do I need math?</li> <li>• How much is enough?</li> </ul>	<p>Progress Monitoring          (e.g., formative data)</p>

	<p><b>Key Vocabulary:</b></p> <p><b>Engage:</b></p> <p><b>Explore:</b></p> <p><b>Explain:</b></p> <p><b>Elaborate:</b></p> <p><b>Evaluate:</b>  Students use their plan and math skills to plan an event while staying under budget.  Students will create visual representations to organize and record their solutions.</p> <p><b>Reflection Question:</b></p> <p><b>Materials/Resources:</b>  Performance Assessment Instructions (Planning an Event), Rubric  Price Lists for supplies (this will determine your budget)</p> <p><b>Accommodations:</b></p>	
	<p style="text-align: center;"><b>Day THIRTEEN</b>  <b>(Complete Performance Assessment)</b></p> <p><b>TEKS: 7.1A, 7.1B, 7.1E, 7.2,7.3A, 7.3B, 7.13A</b>  <b>Essential Questions: Why do I need math?</b>  <b>How much is enough?</b></p>	<p>Progress Monitoring  (e.g., formative data)</p>