

HPISD Grade 4 Mathematics

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UNIT NAME	ESTIMATED DURATION	9 WEEKS		
UNIT 3: FRACTION CONCEPTS	5 WEEKS	1	2	3
Unit Overview				
An examination of fractions and decimals including models, standard notation, comparing and ordering, adding and subtracting, and the relationship between the two forms of numbers.				
Enduring Understandings				
The student will understand that:	<ul style="list-style-type: none"> There is a relationship between fractions and decimals Both common and decimal fractions can represent fractional parts 			
Concepts				
<ul style="list-style-type: none"> Fractions Decimals Base 10 Number System Patterns 				
Guiding/Essential Questions				
<ol style="list-style-type: none"> 1. How are fractions and decimals related? 2. How can fractions and decimals be compared? 3. How are models and common denominators used to show how fractional parts can be combined or decomposed? 4. How are fractions and decimals represented in real world situations? 5. When is it appropriate to use a fraction and decimal? 6. How is the ordering of fractions and decimals the same as ordering whole numbers and how is it different? 				

Learning Targets	Learning Progressions
<p><u>Prerequisites:</u></p> <ul style="list-style-type: none"> The students will represent fractions greater than zero and less than or equal to one with denominators of 2, 3, 4, 6, and 8 using concrete objects, pictorial models, including strip diagrams and number lines <p><u>Learning Target:</u></p> <ul style="list-style-type: none"> The students will use various methods to generate equivalent fractions and write the simplest form of fractions <p><u>5th Grade connections:</u></p> <ul style="list-style-type: none"> Find equivalent fractions and fractions in simplest form. 	<ul style="list-style-type: none"> Label the parts of a fraction (numerator and denominator) Understand fractions of a set Define what it means for two fractions to be equivalent Illustrate equivalent fractions with visual models Relate fractions to decimals Understand greatest common factor Find the greatest common factor between two different denominators Modify fractions to find the simplest form Understand the relationship between unit fractions and other fractions <p>http://mcdbesmath.weebly.com/uploads/9/2/8/9/9289113/equivalent_fractions_circle_model.pdf</p> <p>http://mcdbesmath.weebly.com/uploads/9/2/8/9/9289113/equivalent_fractions_varied_models.pdf</p> <p>http://mcdbesmath.weebly.com/uploads/9/2/8/9/9289113/equivalent_fractions_region_model.pdf</p> <p>To find the simplest form of a fraction, divide both the numerator and denominator by the greatest common factor.</p> <div style="text-align: center;"> <p>Simplify $\frac{6}{10}$</p> </div> <p>3 is in simplest form. 5</p>
<p><u>Prerequisite:</u></p> <ul style="list-style-type: none"> Use various methods to recognize and generate equivalent fractions <p><u>Learning Target:</u></p> <ul style="list-style-type: none"> The student will compare two fractions with different numerators and different denominators and represent the comparison using $<, =, >$ <p><u>5th Grade Connection:</u> n/a</p>	<ul style="list-style-type: none"> Construct a model showing fractions as distances from zero on a number line Locate the benchmark fractions on a number line (0, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$, 1) Compare two fractions using a variety of methods, such as cross multiplication, common denominators, pictorial models Consider the size of a whole when comparing fractions i.e. $\frac{1}{8}$ of a small pizza is different than $\frac{1}{8}$ of a large pizza Calculate common denominators in order to compare fractions

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<p>Formative Assessments</p>	<p>Summative Assessments</p>
<p>TEKS: Readiness Standards</p>	<p>TEKS: Supporting Standards</p>
<ul style="list-style-type: none"> Represent the value of the digit in whole numbers through 1,000,000,000 and decimals to the hundredths using expanded notation and numerals. 4.2B Relate decimals to fractions that name tenths and hundredths. 4.2G Add and subtract whole numbers and decimals to the hundredths place using the standard algorithm 4.4A Compare two fractions with different numerators and different denominators and represent the comparison using the symbols $>$, $=$, or $<$. 4.3D Represent and solve addition and subtraction of fractions with equal denominators using objects and pictorial models that build to the number line and properties of operations. 4.3E 	<ul style="list-style-type: none"> Interpret the value of each place-value position as 10 times the position to the right and as one-tenth of the value of the place to its left. 4.2A Represent decimals, including tenths and hundredths, using concrete and visual models and money. 4.2E Compare and order decimals using concrete and visual models to the hundredths. 4.2F Determine the corresponding decimal to the tenths or hundredths place of a specified point on a number line. 4.2H Represent a fraction a/b as a sum of fractions $1/b$, where a and b are whole numbers and $b > 0$, including when $a > b$. 4.3A Decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations. 4.3B Determine if two given fractions are equivalent using a variety of methods 4.3C Evaluate the reasonableness of sums and differences of fractions using benchmark fractions 0, $1/4$, $1/2$, $3/4$, and 1, referring to the same whole. 4.3F Represent fractions and decimals to the tenths or hundredths as distances from zero on a number line. 4.3G

TEKS Process Standards	
**See listed in Unit 1	
Processes and Skills: What students should be able to DO	Facts: What students should KNOW
<p>Use a variety of methods to:</p> <ul style="list-style-type: none"> • Represent, compare, and order whole numbers and decimals and understand relationships related to place value. • Represent and generate fractions to solve problems. • Develop and use strategies and methods for whole number computations and decimal sums and differences in order to solve problems with efficiency and accuracy. 	<ul style="list-style-type: none"> • Relationships among dollars, dimes, and pennies are a good model for decimal numeration. • Decimal numeration is just an extension of whole number numeration. • A decimal is another way to represent a fraction. • Points on a number line can represent decimal numbers. A decimal number tells the distance a point is from zero on the number line. • Place value can be used to compare and order numbers. If 2 fractions have the same numerator, the fraction with the lesser denominator is the greater fraction. • There is infinite number of fractions between any two fractions on a number line. • Equivalent fractions are found by multiplying or dividing the numerator and denominator by the same nonzero number. • A fraction can be expressed in its simplest form by dividing the numerator and denominator by common factors until there are no common factors other than one. • When fractions have the same denominator and refer to the same whole, the sum/difference of these fractions is the sum/difference of the numerators over the common denominator. • Benchmark fractions can be used to estimate sums and differences of fractions.
Topics	
Relationship of fractions and decimals Decimal place value Decimals on a number line Adding/Subtracting Decimals and Money Comparing and ordering decimals	
Language of Instruction	
benchmark fractions decimal decimal point decompose denominator equivalent	fraction hundredth mixed number numerator simplest form tenth

State Assessment Connections	National Assessment Connections
Resources	
<i>Envisions 2.0</i> <i>Topic 1: Place Value</i> <i>Topic 2: Adding and Subtracting Whole Numbers and Decimals</i> <i>Topic 10: Fraction Meanings and Equivalence</i> <i>Topic 11: Adding and Subtracting Fractions with Like Denominators</i>	