This document is being produced for the purpose of giving parents and students in Calcasieu Parish a better understanding of the math concepts being taught.

**Louisiana Standards:**
- Explain why a fraction a/b is equivalent to a fraction (n × a)/(n × b) by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
- Compare two fractions with different numerators and different denominators. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions.
- Understand a fraction a/b with a > 1 as a sum of fractions 1/b.
  a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
  b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions.
  c. Add and subtract mixed numbers with like denominators.
  d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators.
- Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.
  a. Understand a fraction a/b as a multiple of 1/b. For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4).
  b. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number.
  c. Solve word problems involving multiplication of a fraction by a whole number.
- Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots.

**Words to Know:**
- Benchmark
- Common Denominator
- Denominator
- Line Plot
- Mixed Number
- Numerator
- Compose
- Decompose
- Equivalent Fractions
- Fractional Unit
- Multiple
- Whole

**Fraction Equivalence, Ordering, and Operations**
Students build on their work with unit fractions as they explore fraction equivalence and mixed numbers. This leads to the comparison of fractions and mixed numbers and the representation of both in a variety of models. Benchmark fractions play an important part in students’ ability to generalize and reason about relative fraction and mixed number sizes. Students then have the opportunity to apply what they know to be true for whole number operations to the new concepts of fraction and mixed number operations.

**Number Bonds and Tape Diagrams with Fractions**
Students decompose fractions as unit fractions, drawing tape diagrams to represent them as sums of fractions with the same denominator in different ways.
Fractions and the Area Model

This area model shows \( \frac{1}{4} \).

The dotted line decomposes the whole into 2 equal rows. There were 4 pieces, but now there are 8. Each fourth was cut into 2 pieces. Even though the parts changed, the area covered by the shaded region did not change.

\[
\frac{1}{4} = \frac{2}{8} \\
\frac{1}{4} = \frac{1}{8} + \frac{1}{8} = \frac{2}{8} \\
\frac{1}{4} = 2 \times \frac{1}{8} = \frac{2}{8} \\
\frac{1 \times 2}{4 \times 2} = \frac{2}{8}
\]

Using Benchmarks on a Number Line to Compare Fractions

Is \( \frac{2}{6} \) greater than or less than \( \frac{1}{2} \)?

First, draw a number line and label it with the benchmarks zero, half, and one whole.

How many sixths are in 1 whole? \( \rightarrow 6 \) sixths

Is \( \frac{2}{6} \) greater than or less than \( \frac{3}{6} \)?

Therefore, \( \frac{2}{6} < \frac{1}{2} \)

Comparing Fractions Using Related Numerators

Comparing Fractions Using Related Denominators

Here's something to think about.

7 ones - 4 ones = 3 ones
7 apples - 4 apples = 3 apples
7 cats - 4 cats = 3 cats
7 fifths - 4 fifths = 3 fifths
\( \frac{7}{5} - \frac{4}{5} = \frac{3}{5} \)
Addition of Fractions

Mary mixed $\frac{3}{4}$ cup of wheat flour, $\frac{2}{4}$ cup of rice flour, and $\frac{1}{4}$ cup of oat flour for her bread dough. How many cups of flour did she put in her bread in all?

$$\frac{3}{4} + \frac{2}{4} + \frac{1}{4} = \frac{6}{4}$$

$$\frac{6}{4} = \frac{4}{4} + \frac{2}{4} = \frac{2}{4}$$

Mary used $\frac{6}{4}$ or $1 \frac{3}{4}$ cups flour.

Comparing Fractions With Unrelated Denominators Using the Area Model

First, we draw 2 almost square rectangles that are the same size. These squares are our models. Each model represents 1 whole.

We will partition one rectangle with vertical lines into 4 parts and shade to show $\frac{3}{4}$. The other rectangle will be partitioned into 5 parts using horizontal lines and shaded to show $\frac{4}{5}$.

Subtraction of Fractions

Since our fractions do not have like denominators, we will find equivalent fractions that do have like denominators.

Now, both models have the same number of units, 20. That means we can compare. Our $\frac{3}{4}$ model is now showing $\frac{15}{20}$ and our $\frac{4}{5}$ model is now showing $\frac{16}{20}$.

$\frac{15}{20}$ is less than $\frac{16}{20}$, therefore $\frac{3}{4} < \frac{4}{5}$.
How you can help at home...

- Continue to practice and review multiplication and division math facts – this greatly supports work with fractions!
- Look for opportunities in daily life to discuss fractional parts and divide objects into equal parts.