

Dear Parents,

We will begin our next unit of study in math soon. The information below will serve as an overview of the unit as you work to support your child at home. If you have any questions, please feel free to contact me. I appreciate your ongoing support. For additional information or electronic access to this letter, please visit www.wcpss.net/mathhelp.

Sincerely,

Your Child's Teacher

Unit Name: Understanding Fractions as Parts of a Whole

North Carolina Content State Standards:

NC.3.NF.1- Interpret unit fractions with denominators of 2, 3, 4, 6, and 8 as quantities formed when a whole is partitioned into equal parts;

- Explain that a unit fraction is one of those parts.
- Represent and identify unit fractions using area and length models.

NC.3.NF.2- Interpret fractions with denominators of 2, 3, 4, 6, and 8 using area and length models.

- Using an area model, explain that the numerator of a fraction represents the number of equal parts of the unit fraction.
- Using a number line, explain that the numerator of a fraction represents the number of lengths of the unit fraction from 0.

NC.3.NF.3- Represent equivalent fractions with area and length models by:

- Composing and decomposing fractions into equivalent fractions using related fractions: halves, fourths and eighths; thirds and sixths.
- Explaining that a fraction with the same numerator and denominator equals one whole.
- Expressing whole numbers as fractions, and recognize fractions that are equivalent to whole numbers.

NC.3.NF.4- Compare two fractions with the same numerator or the same denominator by reasoning about their size, using area and length models, and using the $>$, $<$, and $=$ symbols. Recognize that comparisons are valid only when the two fractions refer to the same whole with denominators: halves, fourths and eighths; thirds and sixths.

Math Language:

- | | | | |
|----------------|---------------------|------------------------|-----------------|
| ● Fraction | ● Unit Fraction | ● Part of a Whole | ● Numerator |
| ● Denominator | ● Partition | ● Number Line | ● Fraction Bars |
| ● Mixed Number | ● Improper Fraction | ● Length Model | ● Area Model |
| ● Equivalent | ● Comparison | ● Inequality Statement | |

Unit Overview:

In this unit, students will begin to develop their conceptual understanding of fractions, equivalence, and comparisons. They will develop an understanding of unit fractions and the meaning of the numerator and denominator, while working with denominators of 2, 3, 4, 6, and 8. They will begin breaking wholes into fractions, such as one whole can be represented as $\frac{3}{3}$. Then students will discuss how $\frac{3}{3}$ can be decomposed (broken apart) into unit fractions $\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$. Students will learn the following foundational understandings about fractions:

- explore the meaning of fractions and develop an understanding that fractions are numbers

- fractional parts must be equal sized
- as the number of pieces increase the size of the piece decreases
- the size of a fractional part is relative to the whole
- the denominator represents the number of equal parts
- the numerator counts the number of equal parts

Students will also label and draw fractions using visual models and number lines. Within this unit, students focus on understanding equivalence and how to represent equivalence with fractions. This unit also focuses on building students' ability to compare fractions with the same numerator or the same denominator by reasoning about the size of the fraction. This work focuses around comparing fractions from the same sized whole by reasoning about their size using models.

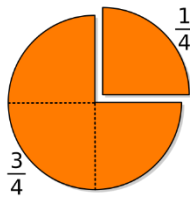
Students will use the symbols $>$, $<$, and $=$ to explain the comparison they are making between two fractions.

Skills/Strategies:

- Represent and identify unit fractions using area and length models
- Explain that a unit fraction is one part of the whole
- Use number lines to represent fractions as parts of a whole
- Use area and length models to represent fractions as parts of a whole
- Compare two fractions with the same numerator or same denominator by reasoning about their size using area and length models, and using the $>$, $<$, and $=$ symbols

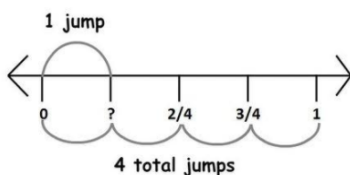
Strategies that Students will Learn:

- Partition a whole or number line into equal parts to represent a **fraction** with denominators of 2, 3, 4, 6 and 8 using area models and number lines.
- Explain that the **denominator (bottom number)** is the number of equal parts that would make a whole.
- Explain that the **numerator (top number)** is the number of parts we have.
- **Area Model:**



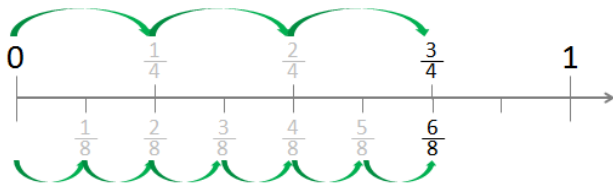
"I partitioned the circle into fourths, so each part is $\frac{1}{4}$. If I take one-fourth ($\frac{1}{4}$) away, I'm left with three one-fourths, which is three-fourths ($\frac{3}{4}$)."

- **Number line:**



"I partitioned the number line into fourths, so each part is $\frac{1}{4}$. If I take 1 hop of the 4 total hops, I will be at $\frac{1}{4}$."

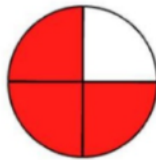
- Represent **equivalent fractions** with area models and number lines:



We've shown that $\frac{3}{4}$ and $\frac{6}{8}$ are equivalent using a number line.

- Explaining that a fraction with the same numerator and denominator equals one whole. ($\frac{4}{4} = 1$)
- Compare two fractions by reasoning about their size and use $>$, $<$ and $=$ symbols.

Which is bigger?



$\frac{3}{4} > \frac{2}{4}$

Important Vocabulary:



$\frac{3}{4}$

Numerator- The top number in a fraction that represents how many parts of a whole are being considered.

Denominator- The bottom number in a fraction that tells the total number of parts in the whole.

Equivalent- Fractions that have the same value.

Video Support:

Video support can be found on The WCPSS Academics YouTube Channel.

<http://tinyurl.com/WCPSSAcademicsYouTube>

- [ES 3 Math Fractions of the Number Line](#)
- ES 3 Math Write fractions with numerator and denominator
- ES 3 Math Plot a unit fraction as a point on a number line
- ES 3 Math Identify a fraction as a point on a number line by dividing the number line into equal parts.

Additional Resources:

- [NCDPI Additional Resources](#)

Questions to Ask When Helping Your Child with Math Homework

Keep in mind that homework in elementary schools is designed as practice. If your child is having problems, please let the classroom teacher know. When helping your child with his/her math

homework, you don't have to know all the answers! Instead, we encourage you to ask probing questions so your child can work through the challenges independently. Some examples may include the following:

- What is the problem you're working on?
- What do the directions say?
- What do you already know that can help you solve the problem?
- What have you done so far and where are you stuck?
- Where can we find help in your notes?
- Are there manipulatives, pictures, or models that would help?
- Can you explain what you did in class today?
- Did your teacher work examples that you could use?
- Can you go onto another problem & come back to this one later?
- Can you mark this problem so you can ask the teacher for an explanation tomorrow?