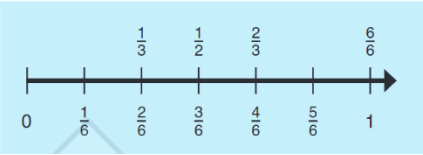
Dimensions Math Grade 4 Letter Home Chapter 6 Fractions

Home Connection

In third grade students compared and ordered fractions using common numerators, common denominators, and benchmark fractions. They also learned how to find equivalent fractions, and to express whole numbers equal to 1 and 2 as improper fractions. (Ex: $\frac{3}{3}$ =1 and $\frac{6}{3}$ =2). This chapter builds on that knowledge to formally introduce improper fractions and mixed numbers.

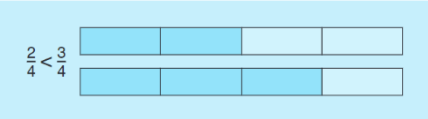
Equivalent Fractions

Equivalent fractions are located at the same point on a number line. They can be found by multiplying the numerator and denominator by the same whole number. They can also be found by dividing the numerator and denominator by the same whole number.



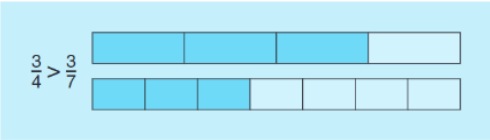
Ways to Compare Fractions

Compare using common denominators:



Because the numerator counts the number of equal parts, it is easy to compare fractions with the same denominator since you only have to compare the numerators.

Compare using common numerators:



Students must understand that the unit fraction $\frac{1}{7}$ is less than the unit fraction $\frac{1}{4}$. If 1 is divided into 7 equal parts, each part is smaller than 1 divided into 4 equal parts. Since $\frac{1}{7}$ is less than $\frac{1}{4}$, then $\frac{3}{7}$ is less than $\frac{3}{4}$.

Comparing fractions with unlike denominators:

Students will apply their knowledge of multiples and factors to find an equivalent fraction when comparing fractions. When neither numerators or denominators are the same, students can calculate equivalent fractions to compare fractions with like denominators.

If asked to find which is greater, $\frac{3}{4}$ or $\frac{7}{10}$, students will find multiples of 4 and 10.

Multiples of 10: 10, 20

Multiples of 4: 4, 8, 12, 16, 20

When they find that 20 is a common multiple of 4 and 10, they will then calculate equivalent fractions with a denominator of 20:

$\frac{3}{4} = \frac{15}{20}$ and $\frac{7}{10} = \frac{14}{20}$

Since 15 is greater than 14 we know that $\frac{3}{4}$ is greater than $\frac{7}{10}$.

Improper Fractions and Mixed Numbers

Fractions less than 1 are called proper fractions. Fractions equal to or greater than 1 are called improper fractions. You will know it's an improper fraction when the numerator is greater than the denominator. (Ex: $\frac{6}{5}$)

A mixed number is the sum of a whole number and a proper fraction.

In this chapter, students will do quite a bit of work changing improper fractions to mixed numbers and vice versa. Converting a mixed number to an improper fraction involves finding out how many unit fractions are in the mixed number. Converting an improper fraction to a mixed number involves finding how many whole numbers can be created from the improper fraction. However, students will be asked to give all final answers in simplest form and mixed numbers are considered simplest form.

For example, $2\frac{1}{2}$ cups of flour is equivalent to $\frac{5}{2}$ cups of flour, but the mixed number is easier to visualize and it's considered simplest form.

Adding and Subtracting Mixed Numbers

Adding a whole number and fraction is straightforward.

$$3+\frac{5}{8} = 3\frac{5}{8}$$

Subtracting a fraction from a whole number requires that students mentally split that number into 1 and the remaining amount, and then subtract the fraction.

$$3-\frac{5}{8} = 2+\frac{3}{8}$$

$$2 \quad \frac{8}{8}$$

What can we do at home?

Fractions can be a very abstract concept for students. The more they can work with concrete objects, the quicker they can connect their learning. Here is a great game for students to play at home.

How Many?

Make index cards or cut notebook paper into rectangles. Number the cards 1-9.

Using any of the nine digits once, have students find fractions less than $\frac{1}{2}$.