Grade: 5   Topic: 5.NF.1 Fraction addition and subtraction

Key Vocabulary:

Mixed Number:
A number made of a whole number and fraction, e.g., $3\frac{1}{4}$

Benchmark fractions:
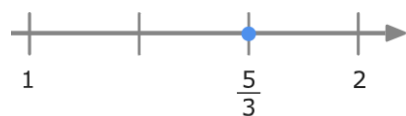Common fractions such as $\frac{1}{2}$

Related fractions:
Fractions in which one denominator is a multiple of the other, e.g., halves, fourths, and eighths

Area model for fractions:
A model that represents the whole as a shape split into equal parts. Example:

Length model for fractions
A linear model (e.g., number line) split into equal parts.

Key Ideas:

5th graders learn to add and subtract fractions, including mixed numbers, with unlike denominators using **related fractions**: halves, fourths and eighths; thirds, sixths, and twelfths; fifths, tenths, and hundredths. Students create area and length models to reinforce fraction equivalence. For example, they can split number lines into fourths and eighths to prove that $\frac{3}{4} = \frac{6}{8}$, and then add or subtract fractions or mixed numbers with halves, fourths, or eighths, e.g., $\frac{3}{4} + \frac{2}{8}$; $4\frac{1}{4} - 1\frac{3}{8}$
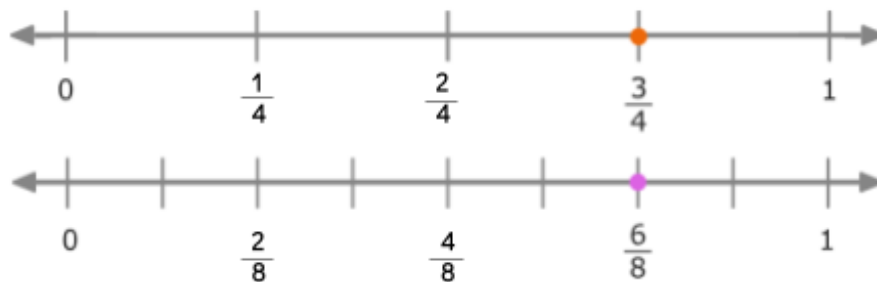
Students extend their knowledge of the identity property of multiplication to learn that multiplying a fraction by 1 in any form produces an equivalent fraction, e.g., $\frac{3}{4} \times \frac{2}{2} = \frac{6}{8}$, and that dividing a fraction by 1 in any form also produces an equivalent fraction, e.g., $\frac{2}{6} \div \frac{2}{2} = \frac{1}{3}$. They also use benchmark fractions to estimate sums and differences to the nearest half or whole number.

As students become fluent with making equivalent fractions with models and by multiplying or dividing by a whole, they can efficiently solve one-and two-step word problems in context and represent the word problem in an equation.

Sample Problems:

There is some ham in the refrigerator. Tyrisha uses $\frac{3}{4}$ of a pound of ham and Jacquel uses $\frac{7}{8}$ of a pound of ham. If there are $2\frac{1}{2}$ pounds of ham left over, how much ham was there before Tyrisha and Jacquel used some.

Plant	Height
1	$3\frac{1}{3}$ inches
2	$8\frac{2}{4}$ inches
3	$5\frac{3}{8}$ inches
4	$9\frac{4}{6}$ inches

What is the difference between the tallest and the shortest plant?

What is the value of n?