

## FRACTIONS

Concept	Primary	Grade 1	Grade 2
<p><b>Meaning</b></p>	<ul style="list-style-type: none"> <li>• understanding of one-half when used in context</li> <li>• part of a whole ( area model)</li> <li>• part of a set</li> <li>• fair sharing</li> <li>• provide opportunities for estimating one-half</li> </ul>	<ul style="list-style-type: none"> <li>• understanding of simple fractions with denominators equal to or less than 10</li> <li>• fractions used in context</li> <li>• part of a whole</li> <li>• part of a set</li> <li>• fair sharing</li> <li>• fraction families are introduced</li> <li>• delay use of symbols until concept is fully explored</li> </ul>	<ul style="list-style-type: none"> <li>• understanding of simple fraction families with denominators equal to or less than 10</li> <li>• one whole</li> <li>• fair sharing</li> <li>• equal share</li> <li>• part of a whole (area model)</li> <li>• part of a set (set model)</li> <li>• introduce symbols for fractions</li> <li>• continue to explore fractions orally</li> <li>• connect language to symbols</li> <li>• connect the idea of reflective symmetry to one-half</li> </ul>

Concept	Grade 3	Grade 4	Grade 5
<b>Meaning</b>	<ul style="list-style-type: none"> <li>continue to use fractions in context</li> <li>area models</li> <li>set models</li> <li>many ways to model the same fraction</li> <li>symbols for writing fractions should use horizontal lines</li> <li>half and quarter turns of 2-D figures</li> </ul>	<ul style="list-style-type: none"> <li>model fractions to develop visual images</li> <li>identify and model mixed numbers</li> <li>change the size of the whole</li> <li>fractions that make one whole or more than one whole</li> <li>continue to emphasize that decimals are fractional parts</li> <li>meaning of probabilities close to 0, <math>\frac{1}{2}</math>, and 1</li> <li>use fractions to describe experimental probability</li> </ul>	<ul style="list-style-type: none"> <li>relationship between the 2 numbers in a fraction is very important</li> <li>area models, set models and linear models</li> <li>develop understanding of the relationship between fractions and division</li> <li>division is sharing equally</li> <li>changing improper fractions to mixed numbers should be developed through materials rather than rule based</li> <li>use fractions to describe theoretical probability</li> </ul>
<b>Comparing and Ordering</b>		<ul style="list-style-type: none"> <li>compare and order fractions using area, length and set models</li> <li>compare fractions with same denominators</li> <li>compare fractions with same numerator</li> <li>use bench-marks such as <math>\frac{1}{2}</math>, 0, and 1</li> <li>Compare and order decimals in situations such as time, distances, scores and capacities</li> </ul>	<ul style="list-style-type: none"> <li>compare and order fractions using area models, length models and set models</li> <li>compare fractions with same denominators</li> <li>compare fractions with same numerator</li> <li>compare using bench-marks such as <math>\frac{1}{2}</math>, 0 and 1 compare and order fractions</li> </ul>
<b>Equivalent Fractions</b>		<ul style="list-style-type: none"> <li>rename fractions with and without models</li> <li>develop understanding that renamed fractions have equal value</li> </ul>	<ul style="list-style-type: none"> <li>rename fractions</li> <li>visualize equivalent fractions</li> <li>develop an understanding of the multiplicative relationship between numerator and denominator to form equivalent fractions</li> </ul>
<b>Operations</b>		<ul style="list-style-type: none"> <li>use intuition and modeling to add fractions with common denominators</li> </ul>	<ul style="list-style-type: none"> <li></li> </ul>
<b>Fractions/Decimals and/or Percents</b>		<ul style="list-style-type: none"> <li>relationship/comparison between fractions and decimal tenths and hundredths</li> </ul>	<ul style="list-style-type: none"> <li>relationship/comparison between fractions and decimal tenths, hundredths and thousandths</li> <li>connect decimals and fractions in probability</li> </ul>
<b>Ratio and Proportion</b>			<ul style="list-style-type: none"> <li>relate common fractions and ratios</li> </ul>

Concept	Grade 6	Grade 7
Meaning	<ul style="list-style-type: none"> <li>develop understanding of mixed numbers and improper fractions</li> </ul>	<ul style="list-style-type: none"> <li>develop understanding of relationship between fractions and repeating and terminating decimals</li> </ul>
Comparing and Ordering		<ul style="list-style-type: none"> <li>compare and order fractions, mixed numbers and decimals through benchmarks, common denominators and/or numerators, or conversion models</li> <li>develop strategies to order numbers of size and various forms in the same problem</li> </ul>
Equivalent Fractions	<ul style="list-style-type: none"> <li>move between mixed numbers and improper fractions</li> <li>name equivalent fractions</li> </ul>	<ul style="list-style-type: none"> <li>equivalence of mixed numbers and improper fractions</li> <li>convert fractions to decimals using a calculator</li> </ul>
Operations	<ul style="list-style-type: none"> <li>add and subtract simple fractions with like and unlike denominators using models</li> </ul>	<ul style="list-style-type: none"> <li>estimate sums and differences of fractions</li> <li>mentally multiply fractions by whole numbers and whole numbers by fractions</li> </ul>
Fractions/Decimals and/or Percents	<ul style="list-style-type: none"> <li>know decimal equivalents of some simple fractions and any fraction with a denominator of 10, 100 and 1000</li> <li>represent any fraction in decimal form using a calculator</li> <li>relationship between percent, ratio and fractions</li> <li>Use percentage, decimals and common fractions to describe probabilities</li> </ul>	<ul style="list-style-type: none"> <li>use patterns in single and double-digit repeating decimals to name fractions</li> <li>continue work on changing fractions and mixed numbers to decimals and vice-versa</li> <li>introduce terminating and repeating decimals, their symbols and explore patterns</li> <li>work on mentally being able to change from fractions to percents</li> <li>use models to help equate an improper fraction with its corresponding mix number</li> <li>continue to work on the alternate ways to express fractions, decimals, percents and ratios using illustrations, models and symbols</li> <li>work on intuitive understand and context for percent</li> <li>use fractions, decimals and percents to numerically describe probabilities</li> </ul>
Ratio and Proportion	<ul style="list-style-type: none"> <li>develop understanding that all fractions are ratios</li> <li>recognize concept of equivalent ratios</li> </ul>	<ul style="list-style-type: none"> <li>express ratios and fractions in alternative forms</li> </ul>

Concept	Grade 8	Grade 9
Meaning	<ul style="list-style-type: none"> <li>• develop understanding of negative fractions</li> <li>• understand the meaning of percent increase, percent decrease and percent greater than 100</li> </ul>	
Comparing and Ordering	<ul style="list-style-type: none"> <li>• compare and order positive and negative fractions and decimals</li> </ul>	
Equivalent Fractions		
Operations	<ul style="list-style-type: none"> <li>• add, subtract, multiply and divide fractions concretely, pictorially and symbolically</li> <li>• estimate sums and differences</li> <li>• add and subtract fractions mentally</li> <li>• estimate products and quotients</li> <li>• work on order of operations with fractions using both pen and paper and calculator</li> <li>• assess competence with fraction operations through problem situations</li> </ul>	<ul style="list-style-type: none"> <li>• develop comfort in working with real numbers and order of operations to solve problem situations</li> <li>• apply order of operations</li> </ul>
Fractions/ Decimals and/or Percents	<ul style="list-style-type: none"> <li>• represent and apply fractional percents in fraction or decimal form</li> <li>• be able to create and solve <math>a\%</math> of <math>b = c</math> problems for each variable</li> </ul>	<ul style="list-style-type: none"> <li>• use fractions to determine theoretical probabilities in dependent and independent events</li> </ul>
Ratio And Proportion	<ul style="list-style-type: none"> <li>• solve proportion problems using equivalent ratios and rates</li> <li>• provide a number of strategies for solving problems involving proportionality</li> </ul>	<ul style="list-style-type: none"> <li>• use proportions with similar triangles</li> </ul>