



## Grade 5 Expectations in Mathematics

*Learning Standards from the MA Mathematics Curriculum Framework for the end of Grade 6 are numbered and printed in bold. The Franklin Public School System's grade level expectations for Grade 5 are bulleted below each learning standard. If there are no bulleted items after the MA Learning Standard, that standard is the grade level expectation. All students are expected to meet all grade level expectations.*

### Number Sense and Operations

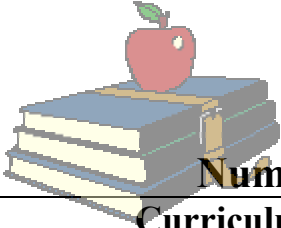
Curriculum Framework Learning Standard	Everyday Math References/Notes
<b>1. Demonstrate an understanding of positive exponents, in particular, when used in powers of ten, e.g., <math>10^3</math>, <math>10^{-2}</math>.</b>	<b>Developing</b> Units 1,7-9
<b>2. Represent and compare very large (billions) and very small (thousandths) positive numbers in various forms such as expanded notation without exponents, e.g., <math>9724 = 9 \times 1000 + 7 \times 100 + 2 \times 10 + 4</math>.</b>	<b>Secure</b> Units 2,4-7,9,11,12
<b>3. Demonstrate an understanding of fractions as a ratio of whole numbers, as part of unit wholes, as part of a collection, and as locations on a number line.</b>	<b>Secure</b> Units 2,4-7,9,11,12
<b>4. Identify and determine common equivalent fractions, mixed numbers, decimals, and percents.</b>	<b>Secure</b> Units 2,4,5,6,8,9
<b>5. Select and use appropriate operations to solve problems involving addition, subtraction, multiplication, division, and positive integer exponents with whole numbers, and with positive fractions, mixed numbers, decimals and percents.</b>	
<ul style="list-style-type: none"> <li>• (a) Solve problems involving addition, subtraction, multiplication, and division with whole numbers.</li> <li>• (b) Solve problems involving addition, subtraction, and multiplication with decimal numbers.</li> <li>• (c) Solve problems involving addition and subtraction of fractions.</li> <li>• (d) Simplify fractions.</li> </ul>	(a) Units 1-4, 6-8, 10,11 (b) Unit 2 (c) Units 6,7,11 (d) Units 5,7,8,12
<b>6. Find and position integers, fractions, mixed numbers, and decimals (both positive and negative) on the number line.</b>	<b>Developing</b> Unit 7
<b>7. Add and subtract integers, with the exception of subtracting negative integers</b>	<b>Secure</b> Unit 7



## Number Sense and Operations Continued

### Curriculum Framework Learning Standard

Curriculum Framework Learning Standard	Everyday Math References/Notes
<b>8. Use the number line to model addition and subtraction of integers, with the exception of subtracting negative integers.</b>	<b>Developing</b> Unit 7
<b>9. Demonstrate an understanding of the inverse relationship of addition and subtraction and use that understanding to simplify computation and solve problems.</b>	<b>Secure</b> Units 2,3,6
<b>10. Estimate results of computations with whole numbers, and with positive fractions, decimals, and percents. Describe reasonableness of estimates.</b>	
<ul style="list-style-type: none"> <li>• (a) Estimate results of addition, subtraction, multiplication and division computations with whole numbers.</li> <li>• (b) Estimate results of addition, subtraction and multiplication computations with decimal numbers.</li> <li>• (c) Estimate results of addition and subtraction computations with fractions.</li> </ul>	(a) Units 1-3  (b) Unit 2  (c) Unit 8-10
<b>11. Compare and order integers (including negative integers), and positive fractions, mixed numbers, decimals, and percents.</b>	<b>Developing</b> Units 4-8,11
<b>12. Apply the Order of Operations for expressions involving addition, subtraction, multiplication, and division with grouping symbols.</b>	<b>Developing</b> Unit 7
<b>13. Apply number theory concepts - including prime and composite numbers, prime factorization, greatest common factor, least common multiple, and divisibility rules for 2,3,4,5,6,9, and 10 - to the solution of problems.</b>	
<ul style="list-style-type: none"> <li>• Apply number theory concepts of prime and composite numbers and divisibility rules to the solutions of problems.</li> </ul>	<b>Beginning/ Developing</b> Unit 1,12
<b>14. Demonstrate an understanding of place value to billions and thousandths.</b>	<b>Secure</b> Units 2,4-7,11,12



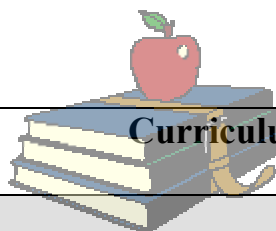
## Number Sense and Operations Continued

Curriculum Framework Learning Standard	Everyday Math References/Notes
<b>15. Accurately and efficiently add, subtract , multiply, and divide (with double-digit divisors) whole numbers and positive decimals.</b>	<b>Secure:</b> Addition & Subtraction <b>Developing:</b> Multiplying & Division Units 1-12



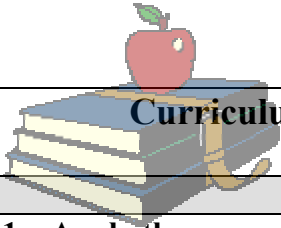
## Patterns, Functions, and Algebra

Curriculum Framework Learning Standard	Everyday Math References/Notes
<b>1. Analyze and determine the rules for extending symbolic, arithmetic and geometric patterns and progressions, e.g., ABBCCC; 1, 5, 9, 13, ...; 3, 9, 27, ....</b>	<b>Developing:</b> Geometric patterns <b>Secure:</b> all others Units 10-12
<b>2. Replace variables with given values and evaluate/ simplify, e.g., <math>2(\Delta) + 3</math> when <math>\Delta = 4</math>.</b>	<b>Developing</b> Unit 10
<b>3. Use properties of equality to solve problems, e.g., if <math>\Delta + 7 = 13</math>, then <math>\Delta = 13 - 7</math>, therefore <math>\Delta = 6</math>; if <math>3x \Delta = 15</math>, then <math>1/3 x 15 = \Delta</math>, therefore <math>\Delta = 5</math>.</b>	<b>Developing</b> Unit 10



## Geometry

Curriculum Framework Learning Standard	Everyday Math References/Notes
<b>1. Identify polygons based on their properties, including types of interior angles, perpendicular or parallel sides, and congruence of sides, e.g., squares, rectangles, rhombuses, parallelograms, trapezoids, and isosceles, equilateral, and right triangles.</b>	<b>Secure</b> Units 3,9
<b>2. Identify relationships among points, lines, and planes (e.g., intersecting, parallel, perpendicular).</b>	<b>Developing</b> Units 3,9
<b>3. Graph points and identify coordinates of points on the Cartesian coordinate plane (all four quadrants )</b>	<b>Developing</b> Unit 9
<b>4. Predict, describe and perform transformations on two-dimensional shapes, e.g., translations, rotations, and reflections.</b>	<b>Developing</b> Unit 9
<b>5. Determine if two shapes are congruent by measuring sides or a combination of sides and angles, as necessary; or by motions or series of motions, e.g., translations, rotations, and reflections.</b>	<b>Developing</b> Unit 3
<b>6. Identify 3-dimensional shapes ( e.g. cubes, prisms, spheres, cones, and pyramids) based on their properties, such as edges and faces.</b>	<b>Secure</b> Unit 11
<b>7. Find the distance between two points on horizontal or vertical number lines.</b>	<b>Secure</b> Unit 6



## Measurement

Curriculum Framework Learning Standard	Everyday Math Reference/Notes
<b>1. Apply the concepts of perimeter and area to the solution of problems. Apply formulas where appropriate.</b>	<b>Developing</b> Units 8-11
<b>2. Identify, measure, describe, classify, and construct various angles, triangles and quadrilaterals.</b>	<b>Developing</b> Units 3, 4
<b>3. Find areas of triangles and parallelograms. Recognize that shapes with the same number of sides but different appearances can have the same area. Develop strategies to find areas of more complex shapes.</b>	<b>Secure</b> Units 9-11
<b>4. Find the sum of the angles in simple polygons (up to eight sides) with and without measuring the angles.</b>	<b>Developing</b> Unit 3
<b>5. Find volumes and surface areas of rectangular prisms.</b>	<b>Developing</b> Units 9-11

## Data Analysis, Statistics, and Probability

Curriculum Framework Learning Standard	Everyday Math Reference/Notes
<b>1. Describe and compare data sets using the concepts of median, mean, mode, maximum and minimum, and range.</b>	<b>Secure</b> Units 3, 6
<b>2. Construct and interpret stem-and-leaf plots, circle graphs and line plots.</b>	<b>Developing</b> Units 2, 5, 6, 10, 12
<b>3. Predict the probability of outcomes of simple experiments (e.g. tossing a coin, rolling a die) and test the predictions. Use appropriate ratios between 0 and 1 to represent the probability of the outcome and associate the probability with the likelihood of the event.</b>	<b>Developing</b> Units 2,6,7,12