

Grade 3 Expectations in Mathematics

Learning Standards from the MA Mathematics Curriculum Framework for the end of Grade 4 are numbered and printed in bold. The Franklin Public School System's grade level expectations for Grade 3 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 Reference/Notes
<p>1. Exhibit an understanding of the base ten number system by reading, modeling, writing, and interpreting whole numbers to at least 100,000; demonstrating an understanding of the values of the digits; and comparing and ordering the numbers.</p>	<p>D</p>
<p>2. Know multiplication and division facts through 12 X 12 and use them to solve problems.</p>	
<ul style="list-style-type: none"> • Know multiplication and division basic facts through 12 x 12 and use them to solve problems and compute related problems, e.g., 3 x 5 is related to 30 x 50, 300 x 5, and 30 x 500. 	<p>D: Lesson 4.5-4.7. Fact Triangles used to practice facts; Multiplication Baseball Game: advanced version up to 12x12; daily practice of x/ facts and keep individual record; Lessons 5.1-5.9; 7.1-7.3, 7.6 & 7.8. The unit continues skill development and extends it to factors with multiples of 10, 100 & 1000.</p>



Number Sense and Operations Continued

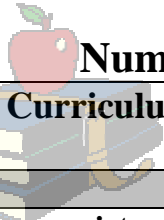
Curriculum Framework Learning Standard

Curriculum Framework Learning Standard	Everyday Math Reference/Notes
<p>3. Round whole numbers through the 100,000s to the nearest 10, 100, 1000, 10,000, and 100,000.</p> <ul style="list-style-type: none"> Round whole numbers through 1000s to the nearest 10, 100, and 1000. 	<p>D: Mental arithmetic skills include many strategies and techniques. Some are introduced in EM. Rounding is an algorithm for approximating known numbers. Traditional rounding is taught in Gr.4. EM uses Ballpark Estimation throughout the third grade text. . An algorithm for rounding numbers to the nearest value of a given number is taught in Grades 4-6.</p>
<p>4. Represent, order, and compare large numbers (to at least 100,000) using various forms, including expanded notation, e.g., $853=8 \times 100 + 5 \times 10 + 3$.</p> <ul style="list-style-type: none"> Represent numbers up to 1000 using various forms, including expanded notation, e.g., $853=8 \times 100 + 5 \times 10 + 3$. 	<p>D: Unit 5</p>



Number Sense and Operations Continued

Curriculum Framework Learning Standard	Everyday Math Reference/Notes
<p>5. Add, and subtract (up to five-digit numbers) and multiply (up to three digits by two digits) accurately and efficiently.</p>	
<ul style="list-style-type: none"> Add and subtract up to five-digit numbers with trading and regrouping accurately and efficiently. 	<p>S: to 3 digits D: 4-5 digits Units 2, 3, & 11(math boxes); Unit 5 practice with place value simple addition (16 + 90,000). Throughout the third grade children will practice addition and subtraction skills and facts with games and in problem solving. The major emphasis in EM is on 3-digit numbers.</p>
<p>6. Demonstrate in the classroom an understanding of and the ability to use the conventional algorithm for addition, subtraction, and multiplication (up to three digits by two digits).</p>	
<ul style="list-style-type: none"> Demonstrate an understanding of and the ability to use the conventional algorithm for addition and subtraction. <i>Conventional algorithms not required on MCAS Test; Conventional algorithm is used as one strategy.</i> 	<p>S: up to 3 digits</p>



Number Sense and Operations Continued

Curriculum Framework Learning Standard	Everyday Math Reference/Notes
<p>7. Apply a variety of mental mathematics and estimation methods to problems involving up to three-digit whole numbers and amounts of money to \$1000.</p>	
<ul style="list-style-type: none"> Apply a variety of mental mathematics and estimation methods to problems involving up to three-digit whole numbers. 	D
<p>8. Use models to relate fractions ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{6}$, $\frac{1}{8}$, $\frac{1}{10}$, $\frac{1}{12}$) to decimals, find equivalent fractions, and order fractions.</p>	
<ul style="list-style-type: none"> Use models to relate fractions ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$) to equivalent fractions. (D) Order fractions ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, $\frac{1}{8}$). (D) Identify the fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$ on a 0 to 1 number line. (B) Understand fractions as part of whole and part of a collection. (S) 	<p>Units 8 & 9: Lesson 8.4-8.5, 9.3. Finding equivalent fractions with pattern blocks, fraction strips; Equivalent Fraction Game. Lessons 8.3-8.4 identify fractions on a number line. Game Fraction Top-It: Compares and orders fractions: Lesson 8.5,9.3.</p>



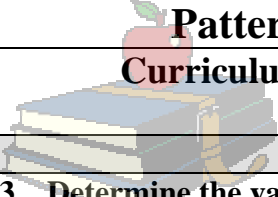
Number Sense and Operations Continued

Curriculum Framework Learning Standard	Everyday Math Reference/Notes
<p>9. Use concrete objects and visual models to add and subtract common fractions and decimals.</p>	
<ul style="list-style-type: none"> • Use concrete objects to model addition and subtraction with fractions with like denominators. 	<p>B: Much of the content of K-Gr.3 EM Program includes fractions, which are used to convey mainly information without becoming involved in operations such as +, - & x. Students will learn about operations with fractions in Grades 4-6, but know about - of something with sharing problems. Unit 8: Lesson 8.7 covers using addition/subtraction of fractions in number stories.</p>
<p>10. Select and use appropriate operations (additions, subtraction, multiplication, division) to solve problems, including those involving money.</p>	
<ul style="list-style-type: none"> • Choose the appropriate operations (additions, subtraction) to solve problems, including those involving money. 	<p>S</p>



Patterns, Functions, and Algebra

Curriculum Framework Learning Standard	Everyday Math Reference/Notes
1. Create, describe and extend symbolic and numeric patterns, including multiples of whole number sequences like 3, 6, 9, 12...	
<ul style="list-style-type: none"> • Create, describe, extend and explain numeric patterns involving whole numbers using addition and subtraction. 	S
2. Use symbol and letter variables (e.g., \square, x) to represent unknowns in quantities that vary in expressions and in equations or inequalities (mathematical sentences that use =, <, >).	
<ul style="list-style-type: none"> • Use symbol and letter variables to represent an unknown in expressions and in equations (mathematical sentences) involving addition, subtraction and multiplication of basic facts. 	<p>S: Addition/ Subtraction D: Multiplication Grades K-3: Variables are used as unknown numbers in open sentences and use a blank response line as a variable. EM does not use the word variable as the unknown is a single number and does not really represent a variable quantity. Units 1-3. Writes and solves number sentences with missing addends. Unit 4-10: Write and solve number sentences with multiplication and with missing factors. In Grade 4 students move from using the informal open sentence using blanks, spaces or question marks for unknowns to more consistent use of sentences using letter variables.</p>



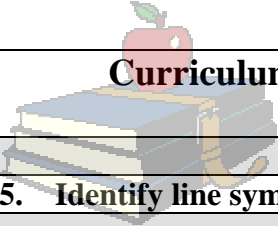
Patterns, Functions, and Algebra Continued

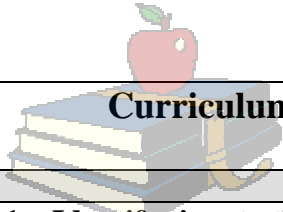
Curriculum Framework Learning Standard	Everyday Math Reference/Notes
3. Determine the values of variables in simple equations, e.g., $\triangle + 3 = 7$, $\square - \triangle = 3$.	
<ul style="list-style-type: none"> Determine the value of a single variable in a simple addition, subtraction, or basic fact multiplication equation. 	S: Addition and Subtraction D: Multiplication
4. Solve problems involving proportional relationships, including unit pricing (e.g., four apples cost 80 cents, so one apple costs 20 cents) and map interpretation (e.g., one inch represents five miles, so two inches represent ten miles).	B: Exemplars
5. Determine how change in one variable relates to a change in a second variable, e.g., input-output tables.	D: Units 2, 7

Geometry

Curriculum Framework Learning Standard	Everyday Math Reference/Notes
1. Compare and analyze attributes and other features (e.g., number of sides, faces, corners, right angles, diagonals and symmetry) of two- and three-dimensional geometric shapes.	D: 2D B/D: 3D Unit 6
2. Identify angles as acute, right, or obtuse.	
<ul style="list-style-type: none"> Identify right angles, angles less than right angles, and angles greater than right angles. 	B: Units: 6, 9, 11 (measure)
3. Define and differentiate among various quadrilaterals, including squares, rectangles, rhombuses, parallelograms, and trapezoids.	
<ul style="list-style-type: none"> Define and differentiate among various quadrilaterals, including squares and rectangles. 	D: Unit 1
4. Predict and validate the results of partitioning, folding and combining two- and three-dimensional shapes.	
<ul style="list-style-type: none"> Predict and validate the results of partitioning and combining two-dimensional shapes. 	D: Unit 6: Lessons 6.6, 6.10 Unit 8: Lesson 8.2, 8.4 Unit 9: Lesson 9.10

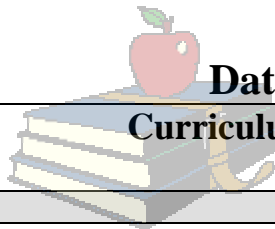
Geometry Continued

 Curriculum Framework Learning Standard	Everyday Math Reference/Notes
5. Identify line symmetry in two-dimensional shapes.	S: Unit 6
6. Using ordered pairs of numbers and or letters, graph, locate, identify points, and describe paths in the first quadrant of the coordinate plane.	B: Unit 10
7. Describe and draw intersecting, parallel, and perpendicular lines.	B: Intersecting D: Parallel Parallel & Intersecting Lines only Lessons: 6.1, 6.2. Perpendicular can be discussed, but taught in 4 th Grade. Unit 7
8. Recognize similar figures.	B
9. Describe and apply techniques such as reflections (flips), rotations (turns), and translations (slides) for determining if two shapes are congruent.	B: Unit 6



Measurement

Curriculum Framework Learning Standard	Everyday Math Reference/Notes
1. Identify time to the minute on analog and digital clocks using a.m. and p.m. Compute elapsed time using a clock (e.g., hours and minutes since...) and using a calendar (e.g., days since...)	D: Time to nearest minute: Unit 1 S: Time to nearest quarter & half hour: Units 1, 6 S: Time to nearest 5-minutes: Units 1, 4 D: Elapsed time: Units 1, 10, 11
2. Estimate and find area and perimeter of a rectangle, triangle, or irregular shape using diagrams, models, and grids or by measuring.	
<ul style="list-style-type: none"> • Area and perimeter of regular shapes-rectangles 	D: Units 2, 3, 6, 9, 10
3. Identify and use appropriate customary and metric units and tools (e.g., ruler, protractor, graduated cylinder, thermometer) to estimate, measure, and solve length, area, volume, weight, time, angle size, and temperature problems.	
<ul style="list-style-type: none"> • Identify and use appropriate customary and metric units and tools (e.g., ruler) to estimate, measure, and solve length, weight, time, temperature problems. 	D: Unit 10
4. Demonstrate an understanding of such attributes as length, area, weight, and volume, and select the appropriate type of unit for measuring each attribute.	D: Length: Unit 10: D: Weight: Units 8, 10 D: Area: Units 2, 9 B/ D: Volume, Unit 10
5. Carry out simple unit conversions within a system of measurement, e.g., hours to minutes, cents to dollars, yards to feet or inches, etc.	D: Customary Units: Units 1,3,8,10 D: Metric Units: Units 3,4,5,10



Data Analysis, Statistics, and Probability

Curriculum Framework Learning Standard	Everyday Math Reference/Notes
<p>1. Construct, draw conclusions, and make predictions from various representations of data sets, including tables, bar graphs, pictographs, line graphs, and line plots and tallies.</p>	
<ul style="list-style-type: none"> Construct, draw conclusions, and make predictions from various representations of data sets, including tables, bar graphs, and pictographs. 	<p>B: Collect/organize: Units 1, 2, 3, 5, 7, 11 S: Interpret: Units 1, 5, 10, 11 D: Make predictions: Units 1, 11</p>
<p>2. Represent the possible outcomes for a simple probability situation using a table, grid, or tree diagram.</p>	<p>B: Unit 11</p>
<p>3. Classify outcomes as likely, unlikely, certain, and impossible by designing and conducting experiments using concrete objects such as counters, number cubes, spinners, or coins.</p>	<p>B: Unit 11</p>
<p>4. Collect and organize data using observations, measurements, surveys, or experiments, and identify appropriate ways to display the data.</p>	<p>D: Making predictions: Unit 1, 11 S: Interpret Data, Units 1, 5, 10, 11 D: Collect & organize: Units 1, 2, 3, 5, 7, 11</p>
<p>5. List and count the number of possible combinations of objects from three sets, e.g., how many different outfits can one make from a set of three shirts, a set of two skirts, and a set of two hats?</p>	<p>B: Unit 8, Lesson 8.2 Explorations C Dressing for the Party</p>